CDFI Financing of Supermarkets in Underserved Communities: A Case Study

The Reinvestment Fund
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Abstract

The concept of food security has received significant public attention in recent years. Nearly 11% of all U.S. households manifest some level of food insecurity, with low-income minority households shouldering a disproportionately large share. One of the primary causes of food insecurity in low-income areas is inaccessibility to full service supermarkets. This study examines whether (or the extent to which) there are economic reasons for the lack of supermarkets in distressed urban areas, such as location-dependent expense differences between urban and suburban locations. We also explore how various financing strategies help to mitigate those expense differences. Finally, we assess some of the impacts of supermarket development in urban and other underserved places.

Findings suggest that 1) the addition of a supermarket in an underserved area offers residents a better variety of healthy food and enhances consumer choice; 2) urban supermarket employees tend to reside in distressed areas within close proximity to their store; 3) these employees obtain jobs with a positive wage trajectory and at wage levels comparable to their industry peers; 4) supermarket customers reside in close proximity to the stores at which they shop; 5) supermarkets may serve as retail employment anchors, although this finding remains ambiguous; and 6) supermarkets reduce leakage of food retail expenditures, resulting in a net increase in employment for the local communities. We believe these findings substantiate the role that the CDFIs can play in this sector, and that our analysis offers lessons to be learned about various approaches to financing supermarket development.

Section 1. Introduction

Policy Issue and Significance

The concept of food security is one that has received significant public attention over the last Decade. Census estimates demonstrate that approximately 12.6 million (10.9 percent) households in the United States manifest some level of food insecurity and 4.6 million (4.0 percent) manifest a high level of insecurity.[1] Food insecurity is not evenly distributed; households of lower income as well as those headed by members of racial and ethnic minorities and residents of central cities are more likely to have difficulties. Data on Pennsylvania show that 10 percent of all households have high or very high food insecurity – a rate that is modestly better than the national average of 11.3 percent (Nord et al, 2006). There are many reasons for food insecurity: lower income and poverty, lack of availability of food, under-utilization of food assistance programs such as the national school lunch program, regressive tax policies, and others. The many implications of food insecurity include: hunger, poor nutrition, obesity and impaired psychosocial development. This study focuses on issues related to the availability of food.

Existing research documents that access to full-service supermarkets, offering a variety of fresh foods at competitive prices, is relatively limited in economically distressed communities. Some researchers have labeled this phenomenon a "market failure," while others argue that it is not a market failure, but

[1] *Food insecurity* exists when households cut back on or skip meals on a frequent basis because of limited disposable income. http://www.frac.org/html/hunger_in_the_us/hunger_index.html

rather that the market is behaving as expected, given the level of effective demand and the costs of operating in distressed compared to non-distressed areas. This study is agnostic on the attribution of the absence of markets in distressed communities as a market failure. We will, however, explore the extent to which there are location-specific cost differences in distressed areas that need to be addressed, financially, in order to provide nearby households with an equal opportunity to benefit from choice when shopping for food.

Research Objectives

This study examines the extent to which start-up and on-going operating costs differ in lower/moderate income urban locations in comparison to higher income suburban locations. Once any observed cost differences are quantified, we then evaluate the effectiveness of The Reinvestment Fund's (TRF) approach to supermarket financing in addressing these issues. Beyond the assessment of operating cost differentials, we compare a variety of financing strategies designed to alleviate demonstrated cost burdens in distressed areas. This assessment seeks to determine which approach(es) offer comprehensive financial assistance to an extensive geographic area as a way to attract and retain supermarkets in distressed communities. Part of this evaluation includes an analysis of some of the impacts produced by financing supermarket development, especially impacts that support the Community Development Financial Institution (CDFI) Fund's mission to facilitate economic development, commercial real estate development, and job creation in low-income communities. TRF has served the mid-Atlantic region as a CDFI since 1985.

This research is a case study. Not often can a representative sample of data of such a breadth and depth be obtained from one chain of stores. In addition to being able to obtain information about start-up and ongoing costs, we also received information describing the residential location of employees, wage levels, turnover, and shopping patterns of the chain's customers. The tradeoff for this level of detail is a limit on our ability to generalize results to other stores and other locales. To be clear, we do believe that our results can be generalized; but to generalize from them, care must be taken to address those unique aspects of the Philadelphia market and this supermarket chain that make it different than other chains and locations.

Brief Literature Review: Supermarkets in Lower-Income Communities

The disinvestment in central cities that began in the late 1950s was marked, in part, by a flight of supermarkets from cities, followed by a persistent reluctance on the part of chains to establish sites within city borders (Donohue, 1997). Public policy researchers have actively studied the consequences of supermarket flight for at least four decades (e.g., Alexis & Simon, 1967; Ambrose, 1979; Bell, 1993; Goodman, 1968; Hall, 1983; Hayes, 2000; Kaufman, MacDonald, Lutz, & Smallwood, 1997; MacDonald & Nelson, 1991; Marcus, 1969; Sexton, 1973). Each of these studies has addressed a basic question: Do the poor pay more for food? A strong consensus has emerged that residents of the inner-city do indeed pay more for the same "market basket" of goods. This consensus is based on observations that the inner-city has more small stores and fewer supermarkets and that small stores charge 10 percent more, on average, than do supermarkets (Kaufman et al., 1997). Despite decades of research and numerous programs, this problem has remained largely unsolved. Inner-city residents still have limited access to supermarkets (Cotterrill & Franklin, 1995; Donohue, 1997; The Brookings

Institution, 2006; The Food Trust, 2001), and systematic efforts to bring supermarkets to the inner-city remain rare (Pothukuchi, 2005).

In a landmark study, Marion (1977) analyzed the operating expenses for 161 supermarkets operated by 23 firms in eight cities spread across the country. Nearly every expense was significantly higher for city stores than for their suburban counterparts, especially location-dependent expenses such as inventory shrinkage (theft by employees, customers, and vendors), labor, rent, real estate taxes, insurance and security.[2] Although the landscape of the grocery marketplace has changed since the publication of Marion's work – with the advent of supercenters like Wal-Mart, membership warehouse stores like Costco, and online shopping – the continued scarcity of supermarkets in the inner-city (noted above) suggests that at least some of these obstacles persist.

Marion (1977) asserts that inner-city grocery stores charge higher prices not because they actively discriminate against low-income households, but because they pass on their added costs to their customers. Similarly, stores that elect to open in higher-income communities do so because the costs of operating in the inner-city make it much harder to turn a profit and because suburban households typically have more disposable income. The twin problems that low-income households face when grocery shopping – higher prices in smaller stores, and a lack of larger stores that stock lower-priced items – work to reduce their disposable income and overall purchasing power.

Some low-income households gain access to supermarkets by "outshopping." Outshopping involves traveling (typically by car) to supermarkets in the suburbs, where shoppers can economize by purchasing private-label products over their brand-name counterparts, pursuing volume discounts, or choosing a less expensive product (Leibtag & Kaufman, 2003). This is an important finding, because it demonstrates that low-income shoppers who can exercise choice behave exactly as one would expect price-sensitive shoppers to behave. In other words, there is a real demand among low-income consumers for the variety and price schedule of goods that supermarkets provide.

Many low-income households cannot easily economize by shopping in the suburbs because they do not own cars (Cotterrill & Franklin, 1995). These shoppers must borrow cars, drive with others, take taxis, or use mass transit. Each of these options has serious disadvantages (Clifton, 2004). For example, transporting groceries via mass transit is a cumbersome process that limits shoppers' ability to purchase economy-sized products. No matter how mobility-constrained individuals travel to the suburbs, the time and money they must invest in their shopping trips entail opportunity costs. Some mobility-constrained shoppers with numerous demands on their time (e.g., work, childcare, eldercare) may elect to shop in higher-cost nearby stores because they are more convenient. Others, including the elderly and those with poor social networks, may have no other choice.

The research on inner-city supermarkets indicates that many inner-city areas, especially those that manifest socioeconomic distress, are underserved by stores offering quality foods at a competitive price. Shoppers who can easily travel to the suburbs do so, taking their grocery dollars to other municipalities and depriving the cities of much-needed tax revenue. Moreover, the dollars they spend help support the creation and retention of jobs in suburban neighborhoods instead of in their own neighborhoods, where steady employment is often difficult to find. Shoppers who cannot economize by traveling to the suburbs must spend a larger portion of their grocery budget to purchase the same

[2] Location-dependent costs refers to costs that are significantly dependent upon where the store is operating (urban versus suburban). Major costs such as inventory (wholesale purchases), utilities, and equipment are not significantly different between urban and suburban locations and are thus not included in the analysis.

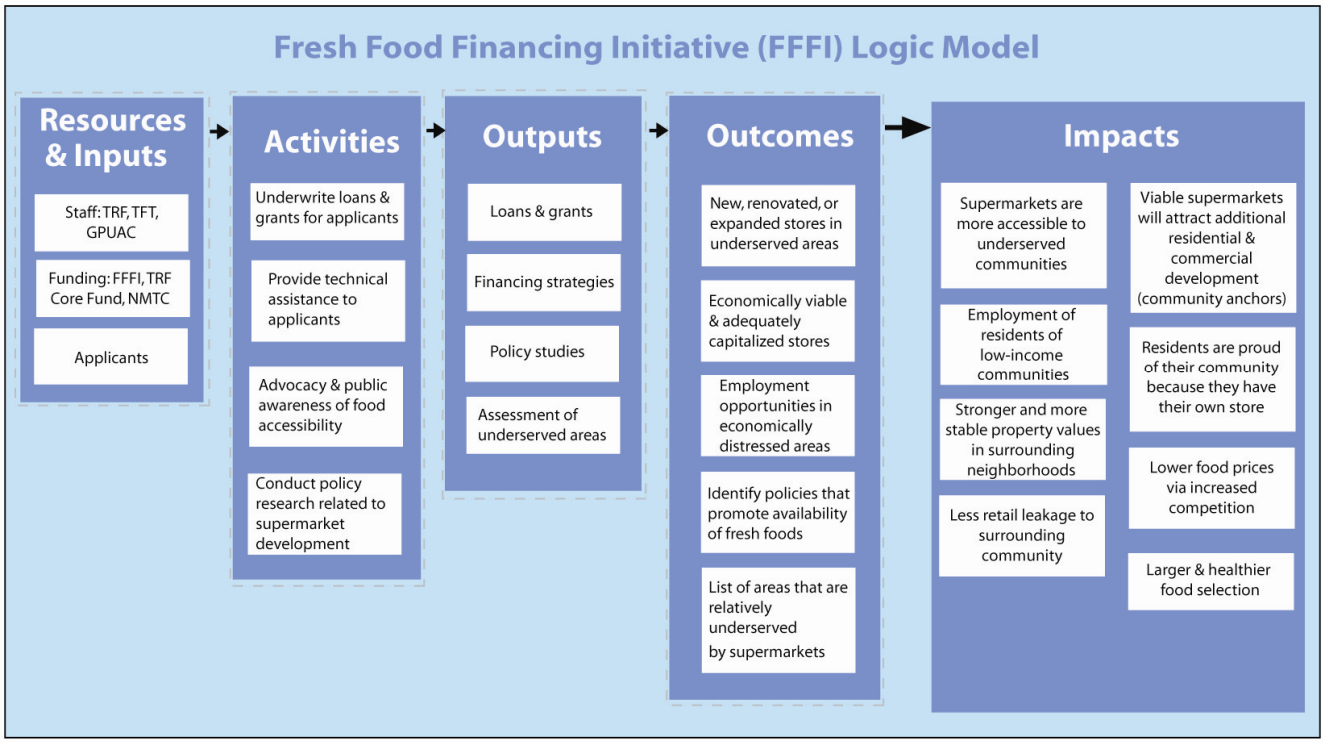
amount of food from smaller stores, where both the selection and quality of goods is likely inferior. As a result, these households have fewer dollars to spend at other establishments in the neighborhood, or to set aside for other goals, such as savings or debt reduction. Shoppers who cannot afford to shop at higher-priced, nearby stores may make the difficult to choice to go without certain foods altogether. The health consequences are serious in either case, as low-income households grapple with a combination of food insecurity and poor food quality.

About TRF and its Supermarket Financing Program

TRF is a CDFI with a wealth building agenda for low and moderate-income people and places. An important aspect of TRF's commercial lending program is its supermarket lending initiative, which finances supermarkets in areas where infrastructure costs and credit needs cannot be filled solely by conventional financial institutions. Funding for TRF's supermarket program comes from three sources: the Pennsylvania Fresh Food Financing Initiative, TRF's Core Loan Fund, and the New Markets Tax Credit program.

The Pennsylvania Fresh Food Financing Initiative (FFFI) was created in partnership with the Commonwealth of Pennsylvania, The Food Trust, and the Greater Philadelphia Urban Affairs Coalition (GPUAC). Several organizations are involved with the administration of FFFI with each organization managing activities that produce a variety of outcomes and impacts, as demonstrated in the logic model below. The Food Trust works with the supermarket industry, developers, and communities to provide outreach and coordination, as well as conducts analysis to identify underserved communities. GPUAC works to include employment and contracting opportunities for women and minorities in FFFI supermarket developments.

The Commonwealth of Pennsylvania appropriated $30 million towards this fund, with the remaining $90 million coming from private investors (including $30 million from TRF). The $120 million dollar fund provides the full spectrum of financing for Pennsylvania supermarkets, including predevelopment loans and grants, land acquisition financing, equipment financing, capital grants for project funding gaps, and construction and permanent financing. TRF also provides technical assistance and workforce services to its borrowers and grantees through this initiative. FFFI eligibility requires the supermarket to locate/be located in a low to moderate-income census tract and that the trade area surrounding the location be "underserved" based on an accessibility assessment made by The Food Trust.



TRF's Core Loan Fund, supported by individual, institutional, and corporate investors, is the second funding source for TRF's supermarket financing program. These funds can be deployed at TRF's discretion – given conformance with TRF's mission and underwriting guidelines - and therefore allows for greater flexibility in terms of a project's location. Underwriting approval is based on the extent to which the project fits within TRF's mission, as well as the long-term viability of the proposed business.

The third funding source for TRF's supermarket program is the federal New Markets Tax Credit (NMTC) program. In 2006, TRF received a $75 million NMTC allocation, a third of which is devoted to financing supermarkets in distressed communities. These funds offer favorable terms and features such as subordinated debt, below-market interest rates, lower-than-standard origination fees, longer-than-standard period of interest-only loan payments, higher-than-standard loan-to-value ratios, longer-than-standard amortization periods, more flexible borrower credit standards, and lower-than-standard debt service coverage ratios. Eligibility requires that the project be located in a census tract with either a poverty rate of at least 20 percent or a median household income that is 80 percent or less of the metropolitan area median. Unlike FFFI, these funds are not limited to supermarkets located in Pennsylvania.

As of July 31, 2008, TRF closed $39.6 million in loans to 39 stores and approved $8.9 million in grants to 60 stores for a total of $48.5 million in grants and loans to 65 individual stores across Pennsylvania. Of these totals, $4.9 million of the loans were funded by the TRF core lending fund (non-FFFI); all grant funds are provided by FFFI. Table 1 illustrates financial figures and outcome metrics for the FFFI program. This table does not include figures and metrics from TRF's Core Loan Fund, as these funds are tracked only when loans are closed rather than all applications being tracked in a pipeline format as is done with FFFI. The core loan fund has loaned $4.9 million to two supermarkets; one in Philadelphia and one in Wilmington, Delaware.

The FFFI figures in Table 1 show that 42 percent of applicants have been approved for funding (37 percent of all requested grant and loan funds). These approval rates may appear low compared to other types of development, such as residential, but commercial development requires careful market research and business planning in order to avoid market saturation and to assess the proprietor's capacity to sustain and grow their business. Residential development typically has less financial risk because demand is more predictable and can better withstand economic cycles compared to commercial development.

Due to the more desirable nature of grants compared to loans, nearly all applicants request the maximum grant amount and many do not request a loan. TRF has responded by encouraging borrowers to balance their financing strategy between grants and loans. From a sustainability perspective, the program needs the grant fund pool to last as long as the loan fund, given the fact that grants serve as an incentive for participating in the loan program.

Table 1: FFFI Program Summary as of July 31, 2008

FFFI Metric	Philadelphia	Non-Phila	PA Totals	% Non-Phila
Loans Requested	$33,683,909	$44,467,758	$78,151,667	56.9%
Grants Requested	$11,728,060	$29,496,873	$41,224,933	71.6%
Loans Approved	$24,789,760	$9,870,498	$34,660,258	28.5%
Grants Approved	$2,944,660	$6,013,930	$8,958,590	67.1%
Loans Disbursed	$17,556,000	$3,082,500	$20,638,500	14.9%
Grants Disbursed	$3,218,550	$2,192,900	$5,411,450	40.5%
Total Project Costs: Approved Applicants	$103,561,815	$63,646,123	$167,207,938	38.1%
Total Jobs: Approved Applicants	1,980	1,730	3,710	46.6%
Total Square Footage: Approved Applicants	588,748	867,544	1,456,292	59.6%
Total # of Applicants	39	117	156	75.0%
Total # of Eligible Applicants	36	107	143	74.8%
Total # of Applicants Approved for Funding	21	44	65	67.7%

Part of this study's original scope included measuring the extent to which the CDFI industry finances supermarket development in economically distressed communities, both nationwide and within Philadelphia. The intent was to see both where (geographically) and how much CDFIs are investing in food retail development. The CDFI Fund's CIIS database provides transaction-level data to facilitate this analysis; however, this analysis could not be completed because the vast majority of CIIS transactions contain null values in the *NAICS Code* and *SIC Code* data fields – the only means of determining whether a transaction is associated with supermarket development. TRF recognizes that other CDFIs provide supermarket financing throughout the nation and in Philadelphia; in the case of Philadelphia, we know from our experience and industry knowledge that other CDFIs have played only a minor role in financing supermarkets.

Existing Research on Supermarket Impacts in Philadelphia

TRF hired Econsult, an economic consulting firm, to assess the impact of new supermarket development on consumers and their communities. Econsult looked at three commonly suggested community benefits that supermarket development can bring to areas currently served by only small grocers and convenience stores: increased real estate values due to supermarket amenity, increased economic activity and employment, and lower food prices (Econsult, 2006).

Real estate values: Subsequent to a supermarket opening, housing values appear to receive an immediate boost in value ranging from 4 percent to 7 percent. Perhaps even more importantly, the event of a supermarket opening appears to largely mitigate any (real) downward trend in local property values that was occurring prior to opening.

Economic activity and employment: Econsult used County Business Patterns data to determine that most Philadelphia neighborhoods (by zip code) exhibit leakage in food retail expenditures meaning residents have to shop outside of their neighborhood, and in most cases outside of city limits, to satisfy their needs. As a result, the introduction of a new supermarket in these neighborhoods is expected to have lesser displacement effects on retail expenditures at other stores within the community.

Price effects: The "price" effects of a new supermarket on its surrounding community are more difficult to measure. The necessary data to directly quantify the extent to which the opening of a new supermarket will lower food prices in a particular market area are simply unavailable. However, in its analysis of the prices paid for food in Philadelphia, The Brookings Institution found that food prices were likely to be substantially higher in urban areas than in suburban areas, because of the prevalence of small food stores in urban areas rather than larger, more efficient supermarkets (Brookings, 2005). There is substantial research that indicates that supermarkets provide both lower prices and broader selections of goods than do smaller grocers, convenience stores or other types of food stores. Moreover, there is evidence that the introduction of highly efficient, low-cost food providers such as Wal-Mart supercenters result in significant reductions in prices of food sold at other supermarkets (Hausman & Leibtag, 2005). By extension, one can reasonably assume that introduction of new supermarkets would also tend to lower prices relative to those available at small-scale food stores.

Section 2. Research Hypotheses and Analytics

Costs of Start-up and Operation in Urban and Suburban Stores

In his study of supermarket operating costs, Marion (1977) demonstrated that inner-city supermarkets face higher operating costs for a number of issues, including training, inventory loss, taxes and maintenance.

Using information provided to TRF by Brown's ShopRite (BSR) in its applications for grant monies, and line-item budgetary data from the ten stores in the BSR chain (five urban and five suburban) we find in this section that several of Marion's original findings still hold.

Start-up Costs

Over the last several years, BSR has applied to TRF for grant monies to help it defray the costs of opening new stores. In these requests, BSR enumerates many of the location-dependent costs that make it difficult to run a profitable operation in the city.

To quote from one of their applications:

> *While Brown's is committed to opening and operating first-rate supermarkets in the underserved inner-city area, many hurdles exist that bar entry and profitability in this marketplace. The confluences of several factors create an unfavorable business climate that few operators are willing to brave, and even fewer institutions have an appetite to lend within. These factors include: increased security costs; higher shrinkage (merchandise loss); lower disposable income for area residents which creates two issues, first, inability to purchase high margin products, and second, lower total shopping expenditures; and finally an untrained pool of employee applicants.*

BSR has indicated that training personnel at their suburban locations typically totals about $75,000 at the time of startup, while training personnel at an urban location costs approximately $555,000 – over *seven times* more. Much of the additional training costs go towards helping employees – especially cashiers and deli staff – to develop customer service skills.

Security costs also run higher: whereas it costs approximately $25,000 a year to staff security-related positions in the suburbs, it costs $125,000 or more to staff such positions in the city because of the need for more security employees. Security equipment within the stores is also expensive. Although all stores in the BSR chain have monitoring equipment, BSR reports that it invests more heavily in equipment for its urban stores. At the time of renovation of urban stores, BSR installs security equipment that ranges in cost from $160,000 to $180,000.

Because shopping carts tend to go missing more often from urban locations than from suburban ones, and because it is expensive to replace them, BSR installs a "corral" system in its urban stores that costs $28,000. Moreover, BSR invests heavily in the safety and upkeep of its parking lots, increasing the number and wattage of its lighting poles, at a cost of $12,000. BSR also purchases a $15,000 vehicle to patrol its parking lots to increase the feeling of safety among patrons.

It would of course be informative to compare line-item start-up costs for all urban locations with equivalent costs for suburban locations. It is very difficult to conduct such a comparison, however, because stores in the BSR chain vary so widely in age. The oldest was opened in 1989, but several others – including, crucially, several stores in Philadelphia – have only been open for a few years. Much of the technology that the stores use has undergone rapid advancement, with an associated decrease in cost; this is especially true with respect to security.

Among the 10 BSR stores, two are sufficiently similar to permit a detailed comparison, because they are similar in size and were opened within 18 months of each other: the suburban Bensalem store opened in 2004 and the urban Island Avenue store opened in 2005. Both stores were acquired from competitors and were closed during renovations and staff training.

Table 2 below presents a line-item breakdown of the start-up costs for each store. Note that costs for the Bensalem store appear in constant 2005 dollars.

Table 2: Line-item start-up costs for one urban store and one suburban store.

Item	Island Avenue (Urban)	Bensalem (Suburban)
Advertising	$28,154	$11,702
Legal & Consulting	$33,033	$21,685
Licenses	$4,748	$1,900
Maintenance & Equipment	$19,139	$16,370
Miscellaneous	$40,574	$26,737
Occupancy Fees	$63,781	$76,287
Payroll/Training	$625,305	$323,462
Supplies	$75,956	$70,356
TOTAL	$890,690	$548,499

As one can see from looking at Table 2, total start-up costs for the urban store were considerably higher than for the suburban store. Moreover, line-item costs were more expensive for the urban store than for the suburban store in every case but one (Occupancy Fees). For overall start-up costs, the Island Avenue location required $16 per square foot compared to $9.97 at the Bensalem store – over 60 percent higher. This difference in start-up costs is nearly three times the difference in annual *operating* (ongoing) costs between urban and suburban stores ($2.08).

These start-up costs are important because they are one-time expenses not reflected in the annual operating figures that we analyze below. TRF has helped BSR overcome some of these start-up costs with grants provided by FFFI. However, these costs cannot be covered completely with grants. Instead, TRF loans with below-market interest rates and other favorable terms allow BSR to amortize the additional start-up costs it faces in the city, much as a homeowner who secures a less costly mortgage can afford to undertake a more expensive renovation. Crucially, then, it is a combination of grants *and* loans that helps BSR overcome location-dependent start-up costs and establish profitable urban locations.

Some of these start-up costs are linked to ongoing operating costs, which we consider in detail below.

Operating Costs

A Few Words about the Line-Item Dataset

Before we turn to our analysis of the line-item data we wish to highlight just how extraordinary this dataset is. To our knowledge, we are the first research group since Marion (1977) to have access to data at this level of granularity. BSR granted us access to these data because TRF has spent several years cultivating a strong relationship with the chain and its owner, who has come to see TRF as an important partner in his urban market growth plan. Despite the substantial work required to compile these data – and the tendency of the supermarket industry to closely guard its proprietary business data – BSR assembled for us a detailed dataset that permits us to make inferences that are richer than those we could make using interview or anecdotal evidence alone.

To be sure, our dataset is considerably smaller than the one that Marion compiled. However, our dataset has a distinct advantage: Because all the stores come from a single chain, we have effectively eliminated unwanted sources of variation that might arise when looking at a wide variety of chains, including differences in cost owing to regional variations in labor, rent and so on, as well as differences in accounting practices, inventory control, and administrative efficiencies.

Moreover, as we will discuss below, the small sample size does not prevent us from drawing conclusions from our data. In some analyses, the effects are large enough to produce statistically significant results despite the small number of cases. Even when our analyses fail to achieve conventional levels of significance, the size of the effect is often large enough to warrant serious consideration.

Line-Item Budgetary Data

BSR provided us with total costs and line-item operating costs for all stores during 2006 and 2007, including the following:

- security guards
- inventory loss
- workforce training
- real estate taxes
- use and occupancy taxes
- rent (in some cases paid to a landlord, in other cases paid to a real estate affiliate of BSR)
- maintenance

The operating budgets of all stores have entries for each of these items, with two exceptions. Only one suburban store staffed security guards, and only for one year (2006); and the use and occupancy taxes apply only to stores in Philadelphia, as suburban locations have no equivalent tax. Therefore, we do not compare these line items in this analysis. Note that these two Philadelphia-specific expenses will figure into a later analysis, when we compare combined line-item expenses by location. Also, we will return to the issue of security guards below, when we consider the problem of inventory loss.

Comparing the Operating Costs of Urban and Suburban Locations by Line Item

A Preliminary: Comparing Costs when the Number of Cases is Small

Because our database contains so few cases, inferential statistical tests would have very low power. Under these conditions, meaningful differences between urban and suburban stores can easily fail to reach conventional levels of statistical significance. We therefore report both significance values *and*

effect sizes for the differences between the two locations. Effect sizes are measured using "Cohen's *d*."[3]

For a variety of reasons, urban stores in the BSR chain tend to be smaller than suburban stores. Whereas suburban stores average 59,259 square feet, urban stores average 55,255 square feet. The size of urban stores also varies more than the size of suburban stores (SD urban = 10,468 square feet; SD suburban = 6,673 square feet). It therefore makes sense to normalize costs against square footage. At the same time, urban stores often do a higher volume of business per square foot, so it makes sense to also *weight* costs by the total sales in different stores (which is also the approach taken by Marion, 1977). Table 3, below, compares urban and suburban costs by line item and location, normalized by the square footage and weighted by total sales.

Table 3: Line-item costs by square foot, weighted by total sales. Standard deviations are in parentheses.

Line Item	**Urban**	**Suburban**	***t***	**Cohen's *d***
Inventory Loss	$8.84	$8.49	0.14	0.09
	($5.06)	($2.13)		
Training	$1.68	$1.17	2.17*	1.37
	($0.33)	($0.41)		
Real Estate Tax	$1.11	$2.11	-2.82*	1.79
	($0.33)	($0.72)		
Rent	$11.51	$11.95	-0.18	0.11
	($4.80)	($2.92)		
Maintenance	$6.96	$4.88	2.66*	1.69
	($1.65)	($0.57)		

* $p < .05$
Note. All $df = 8$

This analysis produces three statistically significant effects: Training and maintenance costs are both higher in urban stores, whereas real estate tax is higher in suburban stores. Marion found that real estate taxes were higher for urban stores than for their suburban counterparts; we have found precisely the opposite. This pattern almost certainly follows from differences in the assessment of property taxes in Philadelphia as compared to its suburban counties, and from differences in how tax revenues are generated. Philadelphia relies heavily on a wage tax levied on people who live or work in the city. Because revenues rise as wages rise, the city has not until recently faced much pressure to rationalize

[3] We report a widely-used effect size metric known as "Cohen's *d*" (Cohen, 1988). It is computed by dividing the difference between two (independent) group means by the pooled standard deviation of the two groups. Because *d* does not depend on *n*, it is possible to identify powerful effects that do not reach conventional levels of significance.

The values of *d* have a lower bound of zero; theoretically, *d* has no upper bound. In practice, however, *d* typically ranges from 0 to about 2. Cohen (1988) offers the following rules of thumb for interpreting effect size as a function of the value of *d*:

Effect Size (ES)	**Range of *d***
Trivial	$0.0 < d < 0.2$
Small	$0.2 < d < 0.5$
Moderate	$0.5 < d < 0.8$
Large	$0.8 < d$

its property tax system.[4] As a result, taxes on properties in Philadelphia are by and large markedly lower than taxes on comparable properties in the suburbs.

Differences in tax policy between Philadelphia and its suburbs suggest that if we were to create a line item for total taxes levied by municipalities, the urban stores would likely have a higher location-dependent cost component for taxes. However, BSR files its taxes under a single corporate entity and it cannot produce its tax liability for each store. Table 4, below, shows that total location dependent costs in urban areas are $30.68 per square foot versus $28.60 in suburban areas: the gross receipts tax in Philadelphia (0.24%) would significantly increase this operating cost differential from $2.08 to $3.61 or by 74 percent. In addition, the business income tax rate in Philadelphia is significantly higher than in neighboring counties. Assuming a 25 percent profit margin on gross sales, an urban supermarket would have to sell an additional $800,000 per year to compensate for the $3.61 per square foot operating cost differential. This amounts to a 2.3 percent increase in sales in an industry that is known to be hypercompetitive.

Another departure from Marion is the seemingly trivial effect size of inventory loss. At first blush, it seems quite surprising that inventory loss is not more pronounced in urban stores than in suburban stores. Marion (1977) reported that supermarket operators found the loss of inventory in inner-city stores to be a serious problem. The operating officers of BSR have repeatedly made similar claims, both informally and formally (in their requests for funding from TRF). Recall, however, that four of the five urban stores employed security guards during both 2006 and 2007, whereas *no* suburban store had guards on staff both years. Security guards are costly: BSR expends between $90,000 and $120,000 a year per store to keep guards on duty. One of the chief responsibilities of a security guard is to help minimize inventory loss. The lack of difference in inventory loss between urban and suburban stores, therefore, may be a result of the efficacy of the loss prevention methods adopted by BSR's urban locations. BSR's urban stores are quite successful at minimizing inventory shrinkage, but their success comes at a price: the addition of other location-dependent costs that hinder the profitable operation of supermarkets in distressed neighborhoods.

Comparing the Total Operating Costs of Urban and Suburban Locations

The finding that real estate taxes are higher in the suburbs than in the city raises an important question: If we examine all location-dependent costs together, is it still the case that urban stores are more expensive to operate than their suburban counterparts? This is what Marion (1977) found, but the line-item differences between our findings and his make it necessary that we construct an equivalent analysis.

Note that an analysis based on totals does not require that the line item have entries both for urban and for suburban locations. For example, both guards and the use and occupancy tax apply only to urban locations. Although we can't compare these costs by location type, we can certainly include those costs in a calculation of total costs.

[4] Over the last several years, the city has faced mounting pressure from several constituencies to restructure its taxation system, but it is unclear how quickly this restructuring will take place or how dramatic it will be.

Table 4: Total location-dependent costs by square foot, weighted by total sales. Standard deviations are in parentheses.

Calculation Type	Urban	Suburban	*t*	*d*
All location-dependent costs	$30.68 ($8.31)	$28.60 ($4.30)	0.50	0.31
Location-dependent costs minus real estate tax	$29.57 ($8.30)	$26.49 ($4.46)	0.73	0.46

Taking all location-dependent costs into account, urban stores are slightly more expensive to operate than suburban stores, with a Cohen's *d* of 0.31. If we remove real estate taxes from the calculation, Cohen's *d* rises to 0.46 – closer to a moderate effect size. Either way, we can affirm Marion's (1977) original finding that urban stores are more expensive to operate than their suburban counterparts.

The grants that TRF and other entities offer to BSR can help the chain to overcome its location-dependent start-up costs, but they cannot ensure long-term profitability in the face of operating expenses that are consistently higher in the city than in the suburbs. Nor would repeated grants constitute "smart subsidies." The goal of a smart subsidy is to help developers cross a profitability threshold that they would otherwise be unable to cross, at which point they can be financially sustainable. If a proprietor is unable to generate an operating profit, the business will fail when the subsidy is removed.

TRF's loans help BSR to deal with higher urban operating costs by improving the chain's liquidity position in the early critical years. By reducing the size of the debt service that BSR would otherwise have to carry, the chain has more cash at its disposal to manage the additional costs that are essentially continuous, including maintenance, security, and training. It takes time for any store to grow its customer base, regardless of location or clientele. TRF's loans give BSR the fiscal latitude it needs to manage its location-dependent operating costs long enough to achieve profitability.

Summary of Findings

To our knowledge, the research we report here marks the first attempt in 30 years to replicate Marion's (1977) basic findings at the level of line-item operating expenses. Even with just five urban stores and five suburban stores, the results are clear: it remains more expensive to operate a supermarket in an urban neighborhood than it is to operate a similar store in a suburban neighborhood.

Indeed, the specific attributes of our database make this conclusion even more compelling. If the urban stores and the suburban stores belong to two separate chains, one could plausibly object that higher expenses in the urban stores follow from unaccounted sources of variation between the two chains. All stores in the BSR chain share centralized corporate functions, uniform accounting and inventory procedures, and a consistent corporate culture. The only thing that distinguishes the two store types is location, meaning that the higher costs of running an urban store must follow from the location-dependent costs that Marion (1977) first identified. On the other hand, as with any case study, to the extent that this chain is not representative of other chains, we are hard-pressed to generalize the results. In other words, while the internal validity of our findings is strong, the external validity is less certain.

The persistent nature of these location-dependent costs, both start-up and on-going, undoubtedly contributes to the lack of supermarkets in inner-city neighborhoods. TRF's approach to financing

supermarkets has helped operators like BSR overcome these costs and run a profitable business that serves the unmet demand among residents of distressed neighborhoods for low-cost, high-quality groceries.

Comparison of Subsidy and Incentive Programs for Commercial Development

Existing Supermarket Subsidy and Incentive Programs – TRF Supermarket Financing Program Structure

TRF uses three funding sources to deploy grants and loans for supermarket development: FFFI, TRF's Core Loan Fund, and the NMTC program.

FFFI – TRF provides loans and grants with funds provided by the Pennsylvania Department of Community and Economic Development (DCED) to supermarkets in underserved areas across the state. Grants are limited to $250,000 and can be used to cover costs associated with site control or land assembly, workforce training, security and energy efficiency measures. In addition to grants, FFFI funds provide market-priced loans to supermarkets that are unable to secure financing from conventional lenders. Because FFFI grant and market-priced loan amounts are relatively small, the program does not attempt to subsidize supermarkets that are otherwise economically unfeasible, but rather provides an incentive that encourages viable supermarket operators and developers to select sites in underserved areas. TRF and DCED view this strategy as a smarter form of subsidy; one that is adequate enough to attract new operators yet not excessive so as to artificially support an unsustainable operation in the long-term.

FFFI grant eligibility is the most stringent, requiring the supermarket to be located in a low- to moderate-income census tract and that the trade area surrounding the location be underserved based on criteria established by The Food Trust (an FFFI partner organization); FFFI loan eligibility only requires that the store's location be in a low to moderate-income tract. These eligibility requirements are designed to provide maximum support for stores in areas with both lower-incomes and underserved residents (eligible for both grant and loan) as well as to provide adequate support for stores in lower-incomes that are not necessarily underserved (loan only). The Food Trust uses current grocery store listings to determine the number of stores within the applying store's trade area, which is roughly 0.5 mile in inner-city areas, 1.0 mile in urban areas, and 2 or more miles in suburban and rural areas.

TRF Core Loan Fund – TRF uses its core loan fund to finance supermarkets that do not meet FFFI and NMTC program criteria. These loans offer favorable terms and conditions but do not offer the additional incentives associated with tax credit allocations, nor do they include the grants that make FFFI so attractive to operators. On the other hand, these funds do not have the geographic restrictions associated with other programs, making them maximally flexible.

NMTC – The United States Treasury awards NMTC allocations to qualified community development entities as a means of facilitating economic development in socioeconomically distressed communities. To qualify for the program, a census tract must have either a poverty rate of at least 20% or a median household income of 80% or less of its respective metropolitan area median income (for non-metro tracts, the higher of the county or state median is used). There is a second tier of eligibility known as "severely distressed" census tracts, whereby at least one of the following conditions is satisfied: poverty rate is at least 30%; median household income is 60% or less of the metropolitan area median;

or the unemployment rate is at least 1.5 times the national average, based on 2000 US Census data. Tax credit applicants receive bonus points when they commit to financing projects located in severely distressed census tracts. TRF has adopted the distressed and severely distressed eligibility criteria to define tracts that are "mission fit" and "strong mission fit," respectively.

TRF received a $38.5 million tax credit allocation in 2004 and $75 million in 2006, of which $27.5 million has been earmarked for supermarket projects with $18 million allocated thus far. In three of the four supermarket projects using tax credits, TRF financing offers a discount on debt repayment ranging from 9% to 24%. This debt repayment discount provides a source of equity for these businesses after the seven year tax credit period, which serves as an additional incentive for supermarket operators to make long-term commitments to operating within their respective communities. These three loans also offer interest-only payments for seven years, which reduces short-term debt service payments and frees cash flow for essential equipment, inventory and operating costs. This allows operators more time to stabilize their operations and absorb cyclical economic fluctuations.

In addition to allocating its own tax credits, TRF uses commercial banks' NMTC allocations to originate CDFI loans. This particular deal structure is an option for any CDFI, even ones that do not have enough resources to staff and manage their own Community Development Entity (CDE). (TRF originates these loans through its CDFI entity rather than its CDE.)

Like FFFI, TRF believes the tax credit component of its supermarket financing program provides a smarter and more efficient form of subsidy, even though it provides notably larger loan amounts and longer financing terms than the FFFI component. One might perceive these large amounts and favorable terms as excessive; however, loans that incorporate tax credits are structured so that supermarket operators and tax credit investors maximize their incentives when they remain viable during the entire seven-year agreement and beyond, as opposed to traditional subsidized loan programs that offer favorable terms for a shorter period with no extra incentives to ensure that the store and/or real estate development remain viable in the long term.

TRF Program in Relation to Other Subsidy Programs

Cost data presented above indicate that supermarket operators in Philadelphia require some form of public subsidy to alleviate the burden of additional start-up costs so as to attract operators. The Philadelphia Department of Commerce and the Philadelphia Industrial Development Corporation (PIDC) have historically offered development and operating subsidies to commercial operators and developers, including supermarkets. Due to their similar market coverage, we are comparing TRF programs and services to those offered through the City. Table 5, below, provides a general summary of each subsidy program, including relevant details of loan and grant terms, rates, and amounts. Detailed descriptions of each program administrated by the department of Commerce and PIDC can be found in the Appendix.

Philadelphia Industrial Development Corporation

PIDC is a private, nonprofit, mission-driven organization offering subsidized, low-cost financing and free technical assistance to businesses and developers that create and/or preserve economic opportunity in areas where traditional, conventional financing mechanisms are less feasible, if at all. It has served as the City of Philadelphia's economic development agency for 50 years. Financing programs provide support for purposes of both operating and real estate. Typically, PIDC financing serves as subordinate debt to a senior loan(s) provided by commercial banks and other financing sources and usually

constitutes about 20% of a project's total costs. PIDC plays a critical role in coordinating and administrating many of these grants and financing programs for its clients. Without PIDC assistance, many clients would be unable to bear the burden of coordinating numerous sources of funding.

Philadelphia Department of Commerce

The Department of Commerce is responsible for all economic development activity in the city, coordinating the efforts of PIDC, the Office of Housing and Community Development, and the Redevelopment Authority. The department's main goal is to develop strategies that create, retain, and expand businesses in Philadelphia by helping businesses obtain licenses and permits, find land and/or buildings for expansion, obtain financing, and access business assistance services (Philadelphia Department of Commerce, 2008).

Table 5: Subsidy Programs Available to Supermarket Operators and Developers in the City of Philadelphia

	Source	*Year Expires*	*Funding Type (loan, grant, tax incentive)*	*Funding Use (operating, facility, both)*	*Tax Incentive*	*Maximum Funding Amount*	*Maximum Loan to Value*	*Maximum Term (months)*	*Interest Rate*
Philadelphia Industrial Dev Corp (PIDC) Programs									
Urban Development Assistance Grant (UDAG)	federal	Expired	loan, grant	both	None	Expired	Expired	Expired	Expired
HUD CDBG Section 108	federal	Indefinite	loan	facility	None	$35k per job	0.8	Undefined	Variable
Welcome Fund	state	Indefinite	loan	both	None	$50m facility; $50k per job	0.8	60	1/2 of prime, minimum 2%
PIDC NMTC	federal, private	Indefinite	loan	both	See NMTC program description in Appendix	TBD	TBD	TBD	TBD
Tax Increment Financing (TIF)	local	Indefinite	tax incentive	facility	Tax liability on net increase in assessed value is applied as loan payment	NA	NA	NA	NA
Regional Capital Assistance Program (RCAP)	state	Indefinite	grant	both	None	No defined limit	NA	NA	NA
PIDC Growth Loan Program	local	Indefinite	loan	both	None	$500,000	0.8	600	Approx 1/2 of prime
Philadelphia Department of Commerce Programs									
Empowerment Zones (EZ)	federal	2010	tax incentive, loan	both	$3k per job tax credit; $35k equipment expense deduction, tax exempt bonds, environmental cleanup deduction	$130m facility	Variable	Longer terms	Variable
Renewal Communities (RC)	federal	2010	tax incentive, loan	both	$1.5k per job tax credit; $35k equipment expense deduction, construction/rehab deduction, environmental cleanup deduction, 0% capital gains	NA	NA	NA	NA
Keystone Opportunity Zones (KOZ)	local	2013	tax incentive	both	Exemption from state and local business taxes	NA	NA	NA	NA
Pennsylvania Enterprise Zone Program (PEZ)	state	Expired	loan, grant	operating	Corporate income tax credit for up to 20% of investment in eligible sites	$500,000	0.8	600	Approx 1/2 of prime
TRF Programs									
Fresh Food Financing Initiative Grant	state	Indefinite	grant	both	None	$250,000	NA	NA	NA
Fresh Food Financing Initiative Loan	state, private	Indefinite	loan	both	None	$2,500,000	0.9	180	7Y Treasury + 300
TRF New Markets Tax Credit (NMTC)	federal, private	Indefinite	loan	both	See NMTC program description in Appendix	$20,000,000	0.9	84	Variable
TRF Core Loan Fund	private	Indefinite	loan	both	None	$2,500,000	0.9	240	5Y Treasury + 300

In terms of project scale, TRF can loan up to $20 million to a single supermarket development when using tax credit allocations and up to $2.5 million from each FFFI and the Core Loan Fund. HUD

Section 108 loans offer up to $35,000 per employee and the Welcome Fund loans offer up to $50 million for a facility or $50,000 per job; the average number of employees at BSR Philadelphia locations is 190, which would qualify for $6.7 million and $9.5 million from HUD Section 108 and the Welcome Fund, respectively. These loan programs, both administered by PIDC, offer larger capacity than TRF's supermarket loan programs. However, the largest supermarket development loan from these programs to date is $1.5 million, compared to $10 million from TRF. The federal Empowerment Zone program, administered by staff at the City's Commerce Department, offers up to $130 million for facility development bonds. However, it has never been used for supermarket development in Philadelphia. The Empowerment Zone did establish three CDFIs to support the attraction, retention, and expansion of businesses in eligible program areas. One of these CDFIs, American Street Financial Services Center (ASFSC), has financed a number of small neighborhood grocery stores.[5] Overall, these figures suggest that TRF's supermarket loan programs are using a larger share of their lending capacity for supermarkets than their peer programs.

TRF grants through FFFI are limited to $250,000 per development, which is less than the former Enterprise Zone limit of $500,000 and significantly less than the RCAP program limit of $5 million. Unlike the PIDC loan programs, the RCAP grant program has made full use of its capacity by providing grants in the amount of $5 million and $2 million to two separate supermarket developments in Philadelphia. Grants of this magnitude have the potential to lure development to even the most distressed areas by offsetting such a significant portion of the requisite start-up and operating costs.

Assessment of Subsidy Programs

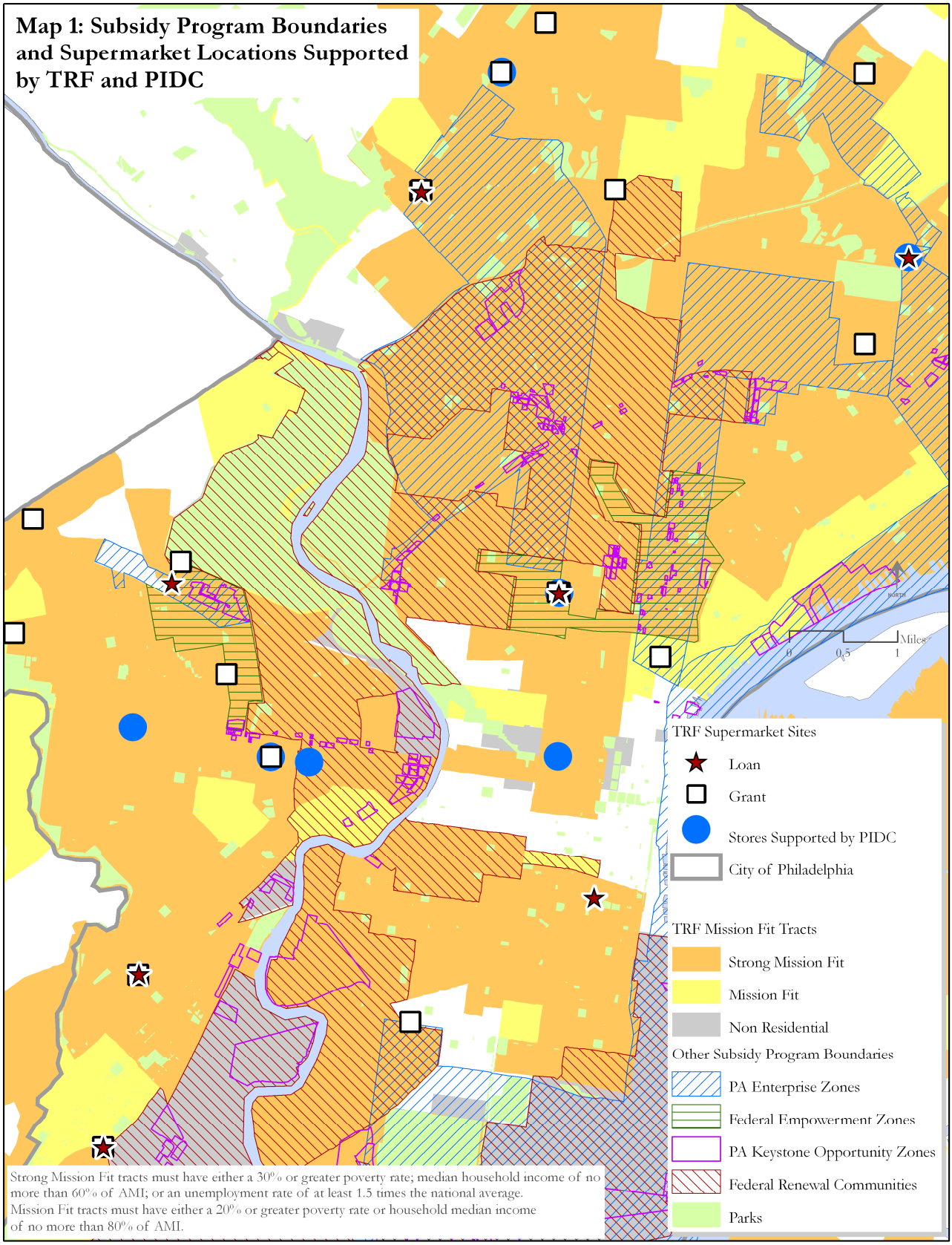
Geographic Coverage

The previous section outlines the primary subsidy programs available to help supermarket operators and developers rehabilitate, construct or expand stores in economically distressed communities. All of these programs help facilitate economic development; however, the geographic requirements among these programs differ dramatically and in many cases do not include properties, and even entire communities, that indicate a strong need for economic development. Map 1 illustrates the geographic boundaries for the federal EZ and RC programs, state KOZ and Enterprise Zone programs, and census tracts that fit within the mission of TRF's supermarket lending initiative. The TIF program can be used anywhere in Philadelphia via a designated TIF district approved by the State (usually one or more parcels). Boundaries for the KOZ are also parcel-specific, the Enterprise Zones are post-industrial areas of the city anchored in historic industrial districts and defined by census tract boundaries.

Among the geographically restrictive programs, TRF's program has the most extensive reach, while the RC has the second largest coverage area, and the Empowerment Zones and KOZ programs are the most limited. Eligible areas for the federal EZ and state KOZ programs are in predominantly active but distressed industrial areas, which are less likely to secure support for retail redevelopment projects and remain industrially zoned. Combined, the Philadelphia Empowerment Zone and Renewal Community programs encompass large areas of South, North and West Philadelphia. These areas also have some of the city's highest vacancy and crime rates, as well as the lowest income levels. In order to develop a suitable site for land assembly, businesses are required to relocate existing residents and businesses, thus further increasing the public subsidy necessary to attract a new supermarket. While these federal

[5] Information regarding the ASFSC was obtained from their website and through discussions with Commerce Department staff. The CIIS database did not provide data to allow TRF access to their transaction level data and therefore cannot perform any quantitative comparisons for an evaluation of these loans.

programs confine development to the most distressed communities where businesses are unlikely to succeed without long-term subsidy, the more flexible geographic reach of TRF's program allows supermarkets to locate in areas that serve residents of distressed communities, yet are close enough to also draw customers from more affluent areas with more purchasing power. This more balanced customer base is likely to reduce the need for long-term operating subsidy, thus helping to ensure that TRF-financed supermarkets remain viable and produce positive outcomes for longer periods of time than stores that are overly dependent on subsidy.


Map 1: Subsidy Program Boundaries and Supermarket Locations Supported by TRF and PIDC
TRF Supermarket Sites
Loan
Grant
Stores Supported by PIDC
City of Philadelphia
TRF Mission Fit Tracts
Strong Mission Fit
Mission Fit
Non Residential
Other Subsidy Program Boundaries
PA Enterprise Zones
Federal Empowerment Zones
PA Keystone Opportunity Zones
Federal Renewal Communities
Parks
Miles
0
0.5
1
Strong Mission Fit tracts must have either a 30% or greater poverty rate; median household income of no more than 60% of AMI; or an unemployment rate of at least 1.5 times the national average.
Mission Fit tracts must have either a 20% or greater poverty rate or household median income of no more than 80% of AMI.

Administrative Costs
In addition to geographic coverage, the programs vary in the extent to which they offer a favorable cost/benefit ratio to the applicant. The administrative burden of applying for a subsidy program and fulfilling the compliance and reporting requirements can only be justified if the program offers enough financial benefit. The EZ and RC programs are good examples, whereby businesses only receive employee tax credits if the employees actually live with the EZ/RC designated area and the business is also located within the area; furthermore the business must certify the employee continues to reside in the zone when replying for the credits each year. The EZ Community Lending Institutions also have zone based employee hiring requirements. Meeting these requirements can impose a major burden on the supermarket human resources department. As an industry, the supermarket industry has higher-than-average turnover rates; in distressed markets this administrative and training burden is compounded by the limited job skills of residents living within the designated zone.

The administrative burden of the TIF program is another good example. TIF is rarely used to finance a single-tenant development, such as a supermarket, due to the high cost of completing the program's application and complying with its reporting requirements. As a result, TIF developments in Philadelphia tend to be large, multi-tenant shopping centers managed by real estate holding corporations. In shopping center developments, it is not uncommon for the additional retail businesses to subsidize the rent of the larger anchor tenant, such as a supermarket. In particularly distressed communities, there may not be enough willing tenants or even enough available land to develop an entire shopping center, rendering individual supermarket development a difficult prospect. While TIF offers an attractive financing tool for developers, it is not a financing mechanism that can produce numerous supermarkets in the city without a significant loss of tax revenue to the local school district and municipality. Organizations such as PIDC offer valuable, yet not quantifiable, services to developers by coordinating the application and compliance requirements for prospective operators and developers. While these services help reduce the cost burdens associated with some subsidy programs, the cost/benefit ratio remains a significant consideration .

Similar to the role of PIDC, TRF uses its underwriting experience to evaluate credit risks and to identify optimal program eligibility for each prospective applicant. The TRF program has a more expansive geographic reach and offers enough flexibility and scale to accommodate stores ranging from smaller rural groceries to large metropolitan-area supermarkets. Therefore, it serves as a single, comprehensive provider of subsidized development finance and grants for supermarket development in underserved and economically distressed communities. FFFI offers a low-cost application process with minor compliance reporting during grant and loan periods. Loans from the NMTC program require tax credit management on behalf of private investors, but for the direct borrower its requirements are similar to a traditional commercial loan application and approval process. Although FFFI relies in part upon state funding, it is primarily funded by private investors and matching funds from TRF's Core Loan Fund.

Additionally, TRF's program is designed and managed to be a self-sufficient form of financing that is shielded from annual fluctuations in the federal budget. PIDC's use of HUD 108 funds, for example, is less stable in terms of secured funding, especially when considering the decreasing trend in Community Development Block Grant (CDBG) funding. Instead of a single source of public funding, TRF's financing program uses funds from commercial banks, tax credit proceeds, Community Reinvestment Act funds, and secured funding from Pennsylvania. In less than four years, the TRF program has provided more loans and grants (both in dollar amount and number of transactions) to supermarkets than all the other subsidy programs discussed combined. Like the CDBG program, the NMTC program is deliberated each year by the legislature and is therefore less secure than TRF's

other sources; however, unlike CDBG funding, the NMTC program does not require the actual redistribution of federal funds to public agencies and instead rewards private investors with reduced tax liability. Tax credit allocations compete in the national market for all tax incentives, such as the Low Income Housing Tax Credit (LIHTC) and other private investment tax incentives. In fact, pending legislation would offer a two-year approval for 2008 and 2009.

Despite the declining trend in several of the federal and state programs, PIDC has two new, relatively stable resources for financing commercial development: the Welcome Fund and $60 million in NMTC allocations. These programs are expected to help fill the gap created by the reduction in other federal and state-subsidized programs, though because the programs are so new they have not yet sourced loans for supermarket financing.[6] In the future, PIDC may offer financing for commercial development that is similar to TRF's program.

Summary of Findings – Program Comparison

The above observations suggest that, from a programmatic perspective, TRF's supermarket lending initiative is filling a market demand by offering more flexible location requirements and lower administrative costs for borrowers. Since supermarket operators in distressed communities are already burdened with higher training and human resource costs than their suburban counterparts, subsidy sources that require additional restrictions on the selection of the workforce create a barrier rather than a benefit to the operator.

Part of the program's success is attributable to its flexibility, efficiency, and the independence TRF has with its loan funds for supermarkets. Unlike the public sector programs, TRF's product was designed with input from borrowers and partners as a way to specifically meet the unique needs of supermarkets operating in distressed communities.

In addition to programmatic considerations (geographic reach and administrative costs), we analyze the extent to which TRF's program subsidizes supermarket development in the next section.

Analysis of Subsidy Program Funding Amounts

This section attempts to quantify the effective subsidy amounts provided by TRF and PIDC programs to supermarkets using actual underwriting data for individual transactions. Table 6 lists supermarket developments that have received loans and/or grants from TRF, PIDC and PDC, including the source program, loan and grant amounts, and several loan interest subsidy calculations. Each column's formula is presented using the following variables:

M = market interest rate (5 year Treasury + 350 basis points for real estate; 7 year Treasury + 350 basis points for equipment and operations)
I = actual interest rate in loan agreement
L = original loan amount
G = original grant amount
T = loan term in number of months
Ma = total interest payments at market rate based on amortization schedule

[6] See the Appendix for a detailed description of The Welcome Fund.

Ia = actual interest payments for loan agreement based on amortization schedule
S = square footage of store being financed
Co = difference between urban and suburban on-going operating costs per square foot ($2.08)
Cs = difference between urban and suburban start-up costs per square foot ($5.65)

1. The *Loan Interest Subsidy (first year only)* is the product of the *Loan* amount and the difference between the loan's interest rate and the prevailing market interest rate (from conventional financing) at time of closing – in other words, the difference in total interest payments made during the first year for subsidized versus non-subsidized (market rate) loans.

   Loan Interest Subsidy (first year only) = $L*(M-I)$

2. The *Loan Interest Subsidy (full loan term)* represents the total loan interest paid, based on an amortization schedule, at market interest rates minus total interest paid at terms offered by TRF or PIDC – in other words the total reduction in interest payments attributable to the subsidized financing.

   Loan Interest Subsidy (full loan term) = Ma – Ia

3. *Total Subsidy (Loan Int + Grant)* simply sums the *Loan Interest Subsidy (full loan term)*and *Grant* in order to calculate the total effective subsidy for each project.

   Total Subsidy (Loan Int + Grant) = (Ma – Ia) + *G*

4. *Subsidy Per Sq Ft (per year)* normalizes total subsidy by each store's number of square feet and then annualizes the figure (based on the loan term), which allows us to compare annual location-dependent operating costs per square feet from Section 2.1 with these subsidy figures.

   $$\textit{Subsidy Per Sq Ft (per year)} = \frac{(\text{Ma} - \text{Ia} + G) / S}{(T / 12)}$$

5. *% of On-going Gap Covered* divides the *Subsidy Per Sq Ft (per year)* by the difference between annual operating costs per square feet in urban versus suburban stores. This calculation estimates the percentage of additional operating costs for urban stores being covered by the subsidy program.

   $$\textit{\% of On-going Gap Covered} = \frac{((\text{Ma} - \text{Ia} + G) / S) / (T / 12)}{\text{Co}}$$

6. *% of Start-up Gap Covered* sums the *Grant* and *Loan Interest Subsidy (first year only)* then divides by *Square Feet Developed* then divides by the difference between urban and suburban start-up costs per square foot ($5.65). This calculation estimates the percentage of additional start-up costs for urban stores being covered by the subsidy program. The first year interest is used instead of the total interest paid because it is unlikely that reduced interest payments in future years will provide assistance for start-up costs.

   $$\textit{\% of Start-up Gap Covered} = \frac{((((M - I)*L) + G) / S) / (T / 12)}{\text{Cs}}$$

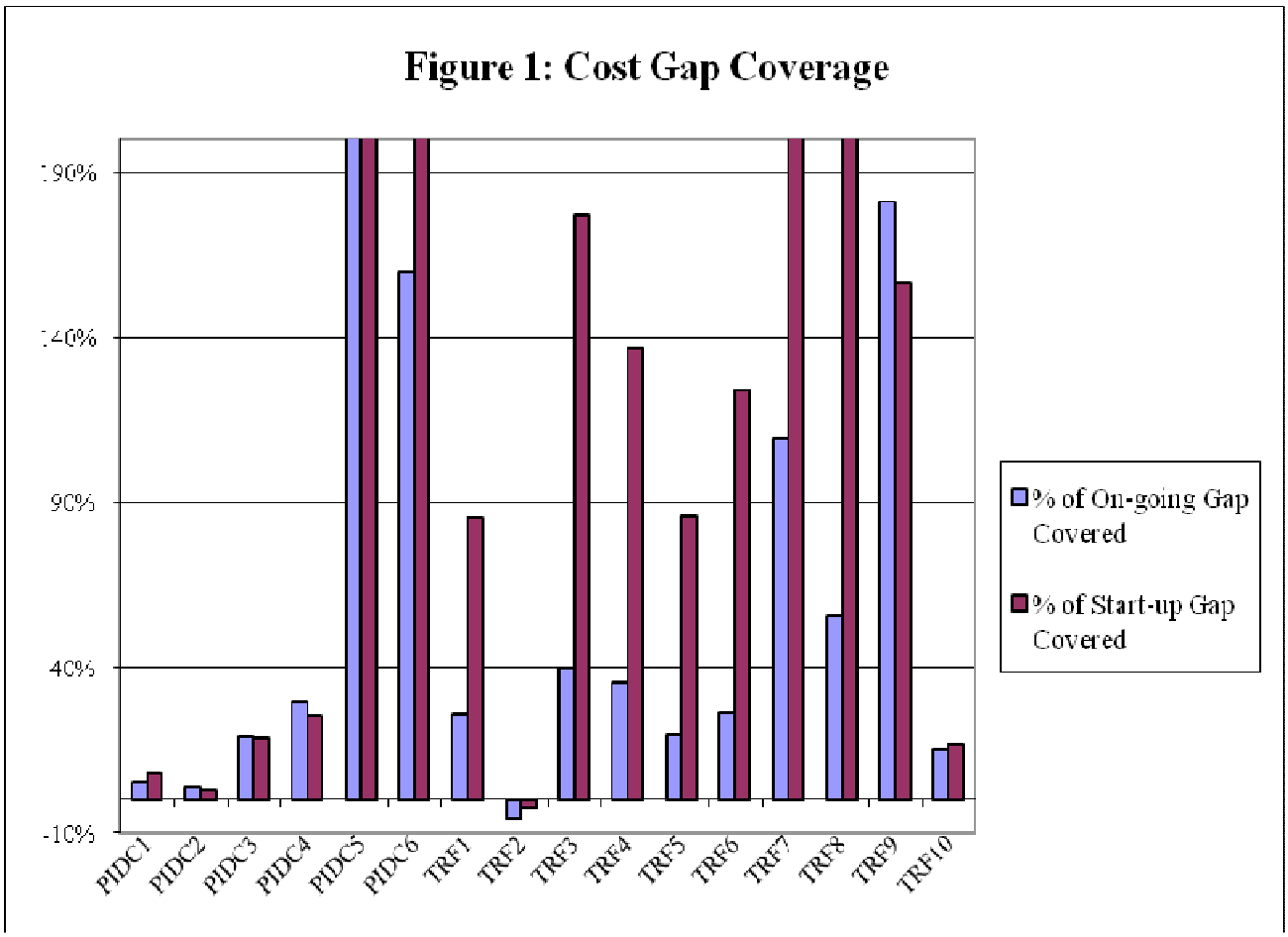
Table 6: Urban Supermarket Developments Funded by Subsidy Programs

Project	Loan/Grant Program	Loan	Grant	Date Financed	% of Total Project Costs	Loan Interest Subsidy (first year only)	Loan Interest Subsidy (full loan term)	Total Subsidy (Loan Int + Grant)	Square Feet	Subsidy Per Sq Ft (per year)	% of On-going Gap Covered	% of Start-up Gap Covered
PIDC1	PIDC Growth	$500,000	$0	9/25/2001	18.5%	$17,250	$48,284	$48,284	37,600	$0.11	5.1%	8.1%
PIDC2	UDAG	$292,046	$0	10/28/2004	80.0%	$11,215	$65,622	$65,622	75,000	$0.07	3.5%	2.6%
PIDC3	HUD 108	$1,200,000	$0	5/11/2005	65.6%	$40,073	$181,815	$181,815	38,000	$0.40	19.2%	18.7%
PIDC4*	HUD 108	$1,500,000	$0	5/11/2005	68.0%	$50,097	$258,870	$258,870	35,000	$0.62	29.6%	25.3%
PIDC5**	RCAP Grant	$0	$5,000,000	5/8/2007	31.0%	$0	$0	$5,000,000	46,000	$9.06	435.5%	1923.8%
PIDC6	RCAP Grant	$0	$2,000,000	TBD	30.4%	$0	$0	$2,000,000	50,000	$3.33	160.3%	708.0%
TRF1	TRF-NMTC	$5,000,000	$250,000	12/30/2004	70.0%	$25,500	$121,522	$371,522	57,000	$0.54	26.1%	85.5%
TRF2	TRF-NMTC	$500,000	$0	9/14/2005	12.3%	-$3,950	-$40,860	-$40,860	28,160	-$0.12	-5.8%	-2.5%
TRF3	TRF-FFFI	$49,000	$200,000	10/27/2005	71.1%	-$207	-$207	$199,793	20,000	$0.83	40.0%	176.8%
TRF4*	TRF-FFFI	$250,000	$250,000	4/12/2006	22.5%	$21,025	$57,098	$307,098	35,000	$0.73	35.2%	137.1%
TRF5	TRF-FFFI	$556,000	$250,000	7/24/2006	10.7%	$1,779	$7,492	$257,492	52,000	$0.41	19.8%	85.7%
TRF6	TRF-FFFI	$1,350,000	$250,000	9/13/2006	118.5%	-$4,590	-$19,349	$230,651	35,000	$0.55	26.4%	124.1%
TRF7	TRF-NMTC	$1,500,000	$250,000	9/13/2006	79.5%	-$5,280	-$17,953	$232,047	8,500	$2.27	109.4%	509.6%
TRF8	TRF-FFFI	$470,500	$100,000	10/16/2006	76.0%	-$941	-$2,716	$97,284	7,000	$1.16	55.7%	250.5%
TRF9**	TRF-NMTC	$10,000,000	$250,000	6/25/2007	63.5%	$156,880	$1,831,931	$2,081,931	46,000	$3.77	181.3%	156.6%
TRF10	TRF-NMTC	$3,000,000	$0	2/1/2008	83.3%	$41,980	$168,050	$168,050	43,750	$0.32	15.4%	17.0%

* PIDC4 and TRF4 funded the same project - their combined financing constitutes 90% of the total project costs

** PIDC5 and TRF9 funded the same project - their combined financing constitutes 95% of the total project costs

Note: PIDC6 and TRF9 apply to a large mixed use development that required significant site assembly and business relocation expenses. Only the TRF portion of this project's financing has dedicated grant funding for the supermarket.



Cost Gap Summary
The "Costs of Start-up and Operation in Urban and Suburban Stores" analysis in Section 2 demonstrates that start-up costs have a larger differential between urban and suburban locations when compared to on-going operating costs ($5.65 versus $2.08 per square foot). Because grants offer immediate funds without repayment, they are more effective. Figures in the *% of Start-up Gap Covered* column indicate that grant amounts are capable of fully compensating for the differences in start-up costs for most projects. The cost differential between urban and suburban stores is derived from data exclusive to the Brown's ShopRite group of stores, which is apt to have significant differences in management and operating strategies compared to other supermarkets and would certainly alter the cost gap; however, given that these data are virtually impossible to obtain for such a large number stores owned by a variety of companies, it is the only available benchmark.

It is important to note that the *% of On-going Gap Covered* and *% of Start-up Gap Covered* columns should not be added together to arrive at a total gap financing percentage. This is because the full grant amount and the first-year interest are used in both calculations. However, some stores may not use all or even a portion of the grant funds for start-up costs; they may save them as a cushion for on-going operating costs. Of course we cannot know how each store allocates its funds. We can only estimate the potential for each program to alleviate the additional costs in urban areas. Our findings suggest that higher start-up and on-going costs are being alleviated by TRF and PIDC programs, but that TRF's program is more effective at alleviating start-up costs than other programs.

Figure 1 and data in Table 6 indicate that most of the subsidies fall significantly short of covering the full *on-going* operating cost differential, while several others exceed it by a large margin. In fact, only one falls within a range of +/- 25 percentage points. Because the sample size is so small and numerous factors affecting operating costs are not controlled for, it is difficult to make definitive conclusions. However, when looking at the *start-up* cost gap, many of the TRF-funded projects received net subsidies that fall consistently within a reasonable +/- range of the full start-up cost gap, as shown in Figure 1. This finding is consistent with TRF's approach to financing supermarket development, whereby the intent is to serve as a catalyst and not a crutch.

It is also worth noting that many of these loans, especially the larger ones, would not be supported in the open market under terms and conditions that would be feasible to the store operators.[7] Several TRF loans actually charge interest rates in excess of estimated market rates due to the underwriting risk – hence the negative subsidy amounts – though none of these loans would be offered by conventional open market lenders, which effectively renders them as subsidized loans nonetheless. In these cases it is not a question of how much subsidy a loan is offering but a statement that in the absence of the loan there would be no opportunity for a store to operate. This benefit is impossible to quantify, yet it applies to all of TRF's tax credit loans and most of the FFFI loans. Additionally, both stores receiving the RACP Grant through PIDC would not have opened if the grant had not been available; both stores using HUD 108 loans also would not have obtained open market financing.[8] Interestingly, the two projects listed with the largest percentage of operating cost gap covered ("PIDC5" and "TRF9") are in fact the same project.

One way to help identify development projects that would likely not be supported in the open market is to look at the *% of Total Project Costs* column in Table 6. This divides the sum of the loan and grant amount by the total project costs, thus measuring the relative importance of the subsidized financing.

[7] Interview with Don Hinkle-Brown, TRF. May 5, 2008.
[8] Interview with Sam Rhoades, PIDC. March, 2008.

Notice that 12 of the 16 projects received more than 60% of their total financing from either PIDC or TRF's programs; these projects are unlikely to have obtained financing from conventional lending institutions. As noted in the table, *PIDC4* and *TRF4* finance the same project, as do *PIDC5* and *TRF9* – these two projects each received over 90% of their total project financing from PIDC and TRF.

Lastly, it is worth noting that PIDC supermarket financing occurred from 2001 to 2005, with the exception of a grant in 2007 for a mixed-use development (not supermarket specific). Coincidentally, TRF began its supermarket financing program in 2005 and has supported a steady flow of deals ever since. It will be interesting to see if PIDC's new financial resources (Welcome Fund and NMTC allocations) are used to help facilitate supermarket development, thus reviving PIDC's role as a co-financer with TRF throughout Philadelphia.

These findings suggest that the unique nature of each supermarket's loan terms, grant amount, loan use (facility or operations), and square footage makes it difficult to compare the impact of one program to another. Overall, it appears that the subsidy programs are not providing excessive amounts of subsidy, with the exception one or two projects, and that the TRF program consistently provides adequate financial assistance to help compensate for the additional *start-up* costs associated with stores in economically distressed communities, which is what the program is designed to achieve.

Overall Summary of Findings

TRF collaborated with several partners and drew upon its lending experience to design a financing program dedicated to the needs of supermarket operators in distressed areas. TRF established its supermarket financing program in 2005 when public sector funding programs began reducing their lending activity to Philadelphia supermarkets. Public sector funding providers reported that the decrease in the number of deals after 2005 is due in part to changes in their funding sources. The most flexible publicly subsidized funding source available during the 1990s, Urban Development Assistance Grant, is no longer active and was not specifically designed for supermarket projects. The remaining active public programs consist of a broad range of federal, state, and local sources available for a wide range of commercial and industrial development, none of which are dedicated to supermarket financing.

Instead of lending funds, public sector programs provided large subsidies in the form of grants to supermarket developments. The cost analysis presented in this study indicates that grants help reduce start-up costs more than ongoing operating cost differentials for urban markets. This upfront subsidy may also indirectly help defer increased operating costs, but it is too soon to draw conclusions since none of the stores receiving public sector grants have been open for more than three months. Yet it is fair to conclude that with limited public resources, projects requiring grants of $2 million to $5 million do not represent a sustainable model for financing programs seeking to expand the presence of supermarkets in distressed communities.

Impacts Related to Supermarket Development

TRF-Financed Supermarkets are Located in Economically Distressed Communities

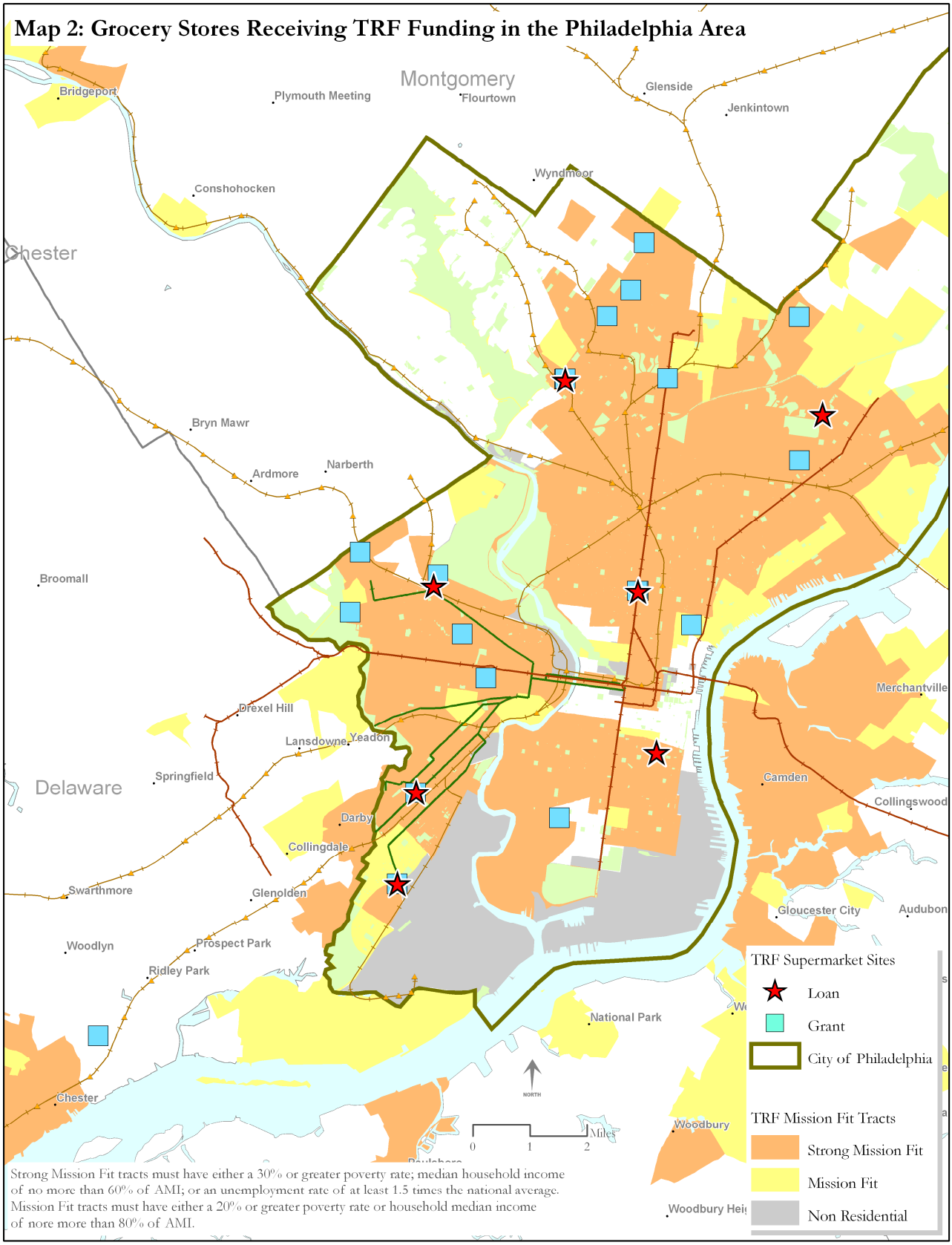
TRF's supermarket financing program is designed to bring economic development to economically distressed census tracts. This analysis uses GIS mapping software to calculate the extent to which TRF-financed supermarkets are located in socioeconomically distressed communities.

Just over 90% of TRF's supermarket lending throughout Pennsylvania, and 100% in the Philadelphia metropolitan area, has been to stores operating in census tracts that meet TRF's criteria for "strong mission fit." These stores are located in tracts that satisfy at least one of the following criteria: poverty rates of at least 30%, median household income at or below 60% of the metro area median (AMI), or unemployment rates of at least 1.5 times the national average (8.59%). See Table 7 and Map 2 for illustrations of these figures. The mission fit distress criteria are based on 2000 US Census figures.

Table 7: Distress Indicators for Tracts Containing TRF Financed Grocery Stores (loans only)

Census Tract Distress Indicator	% Dollars	Dollars	% Transactions	Transactions
Median HH Income <= 60% of AMI	83.9%	$16,500,000	56.3%	9
Median HH Income <= 80% of AMI	90.7%	$17,855,000	81.3%	13
Poverty Rates >= 30%	86.7%	$17,056,000	62.5%	10
Unemployment Rates >= 1.5x Nation	90.5%	$17,806,000	75.0%	12
TRF Strong Mission Fit	90.5%	$17,806,000	75.0%	12
All 3 Mission Fit Distress Indicators	83.9%	$16,500,000	56.3%	9

The above findings confirm that supermarkets financed within TRF's program are predominantly located in areas of significant socioeconomic distress.


Map 2: Grocery Stores Receiving TRF Funding in the Philadelphia Area
Montgomery
Chester
Delaware
Bridgeport
Plymouth Meeting
Flourtown
Glenside
Jenkintown
Wyndmoor
Conshohocken
Bryn Mawr
Ardmore
Narberth
Broomall
Drexel Hill
Lansdowne
Yeadon
Springfield
Darby
Collingdale
Swarthmore
Glenolden
Woodlyn
Prospect Park
Ridley Park
Chester
Merchantville
Camden
Collingswood
Gloucester City
Audubon
National Park
Woodbury
Woodbury Hei
NORTH
0
1
2
Miles
TRF Supermarket Sites
Loan
Grant
City of Philadelphia
TRF Mission Fit Tracts
Strong Mission Fit
Mission Fit
Non Residential
Strong Mission Fit tracts must have either a 30% or greater poverty rate; median household income of no more than 60% of AMI; or an unemployment rate of at least 1.5 times the national average. Mission Fit tracts must have either a 20% or greater poverty rate or household median income of nore more than 80% of AMI.

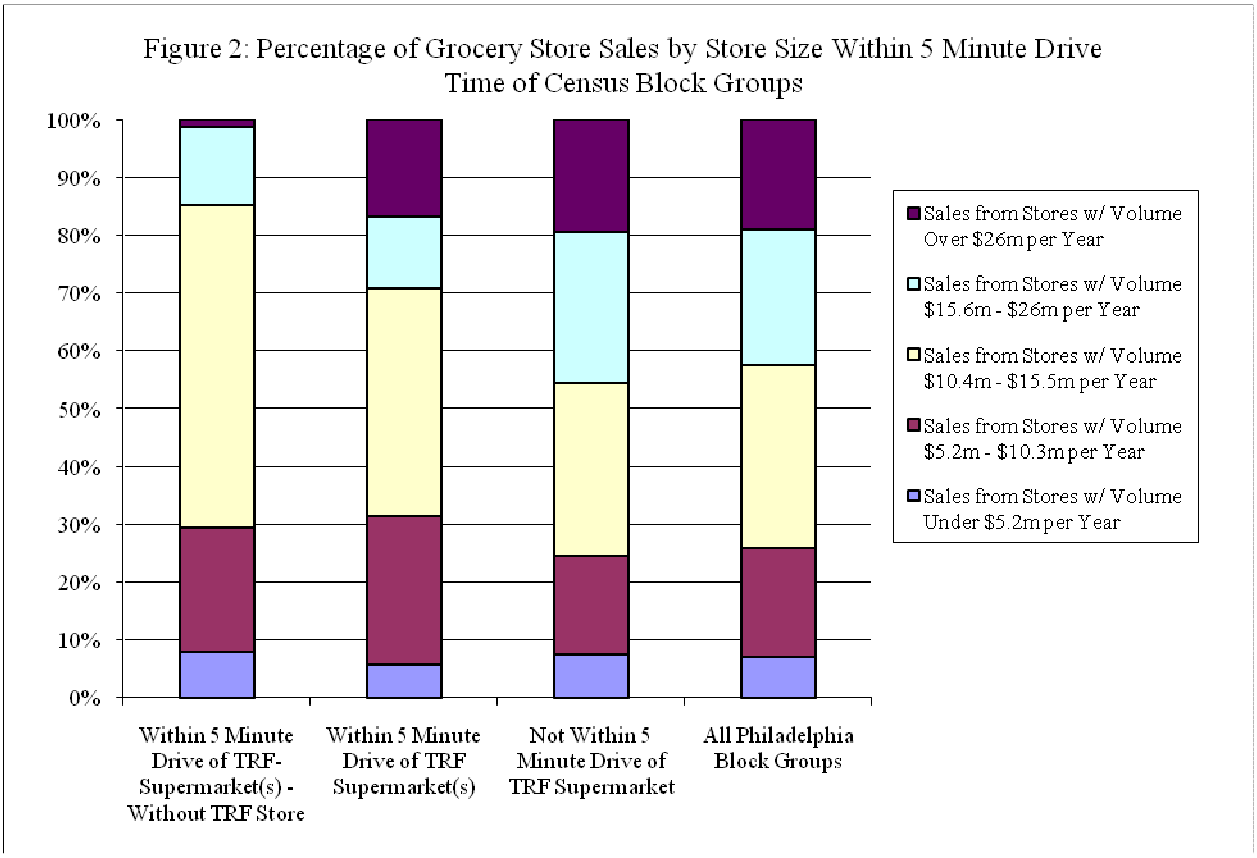
TRF-Financed Supermarkets are Located in Areas with Limited Supermarket Accessibility

This study's literature review cites evidence of an overall lack of supermarket accessibility in economically distressed communities. For this analysis, we want to measure the extent to which TRF-financed supermarkets are located in areas that, in the absence of a TRF-financed store, have less access to supermarkets than the city average. Several steps were required to complete this analysis. First, we geocoded all supermarkets in Philadelphia using the TradeDimensions *Market Scope* dataset. These data provide detailed information on each grocery store, including square footage, sales, and employment. Then we used ArcGIS Network Analyst to create five-minute drive-time boundaries for each census block group centroid. Last, we spatially joined the supermarket point file with the five-minute drive-time boundaries for each block group. This join allows us to calculate the number of supermarkets – and their sales and employment figures – within each block group's five-minute trade area and vice versa. A five minute drive time may seem too short to qualify as a reasonable distance to a supermarket, but GIS models do not account for stop lights, stop signs, and traffic congestion. These factors translate a five minute drive time into a 10 to 15 minute drive time in reality. Also, a five minute drive time represents a much longer trip via public transportation or walking, which are common ways for low-income residents to access food stores.

Figure 2 shows the results of our analysis. Each bar in Figure 2 shows the percentage of all grocery store sales categorized by store size for a different set of block groups. The first bar represents the sales distribution, excluding sales from TRF-financed stores, for all block groups that are located within a five-minute drive time of TRF-financed supermarkets. In other words, it shows what the sales distribution would look like in the absence of the TRF-financed supermarket that is within a five-minute drive time. The second bar shows the same sales distribution but does not remove sales from TRF-financed stores. The third bar shows sales distribution for block groups that are not within a five-minute drive time of a TRF-financed supermarket – this serves as a control group. The fourth bar represents all block groups in Philadelphia and serves as a general benchmark.

Figure 2 indicates that TRF-financed supermarkets have significantly increased their surrounding communities' access to stores that have more than $26 million in annual sales. This category of stores represents very large supermarkets that inherently offer a larger selection of food at more competitive prices than smaller stores. Additionally, TRF-financed stores have increased the communities' access to stores that have between $5.2 million and $10.3 million in annual sales.

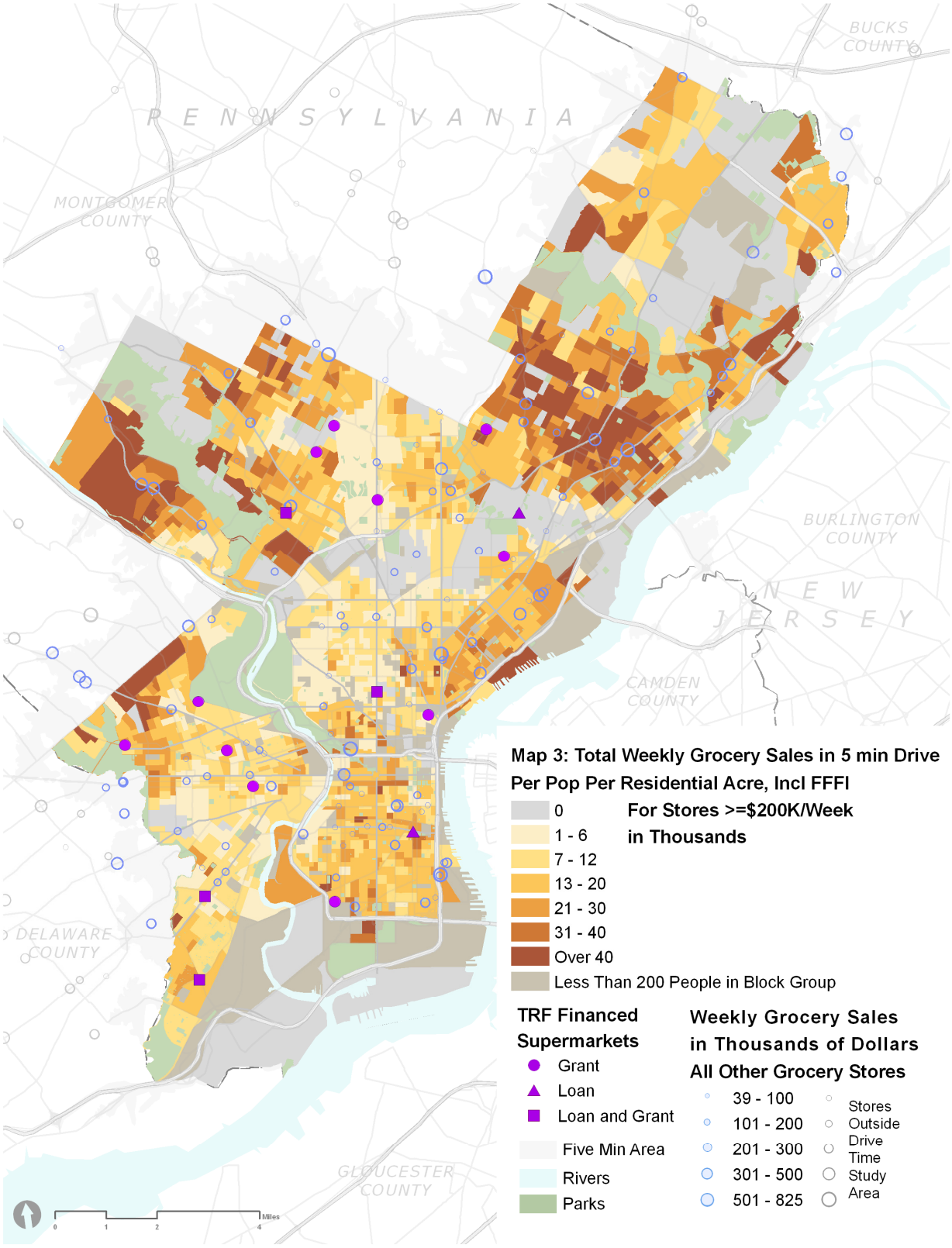
It is also worth noting that the addition of TRF-financed supermarkets alters their surrounding communities' sales distribution so that it is much more in line with their peer communities and the overall city benchmark. This result reflects TRF's mission of providing lesser-served, low-income communities with food shopping options that are similar to their adequately served, higher-income counterparts.



In addition to the tabular data and charts above, we calculated sales per resident per residential acre within a five-minute drive time radius of each census block group, excluding sales figures for TRF-financed stores (i.e. sales figures in the absence of TRF-stores). We define supermarkets as food stores having at least $10 million in annual sales; this is the median annual sales for all grocery stores located within the 10-minute drive times of all Philadelphia census block groups.

Map 3 shows total grocery sales (from stores with at least $10 million annual sales) per person, per residential acre within a five-minute drive time of each block group to account for population density as an indicator of demand or need. The map also shows TRF-financed supermarkets, differentiated by whether they received a loan (triangle), grant (circle), or both (square). We used parcel data from the City of Philadelphia to calculate the number of acres devoted to residential land use within each block group.

Map 3 indicates that TRF-financed stores are located in relatively underserved areas, based on our methodology. Note that our methodology measures the extent to which block groups are underserved by larger supermarkets. These block groups are not necessarily underserved by all food retailers; it may be that some of these areas are served by small- to medium-sized stores. However, TRF's supermarket financing program is designed to bring larger, more price competitive stores to communities that lack such an option. In addition to price effects, these larger supermarkets typically offer more variety than smaller grocers.


PENNSYLVANIA
BUCKS COUNTY
MONTGOMERY COUNTY
BURLINGTON COUNTY
NEW JERSEY
CAMDEN COUNTY
DELAWARE COUNTY
GLOUCESTER COUNTY
Map 3: Total Weekly Grocery Sales in 5 min Drive Per Pop Per Residential Acre, Incl FFFI
0
1 - 6
7 - 12
13 - 20
21 - 30
31 - 40
Over 40
Less Than 200 People in Block Group
For Stores >=$200K/Week in Thousands
TRF Financed Supermarkets
Grant
Loan
Loan and Grant
Five Min Area
Rivers
Parks
Weekly Grocery Sales in Thousands of Dollars
All Other Grocery Stores
39 - 100
101 - 200
201 - 300
301 - 500
501 - 825
Stores Outside Drive Time Study Area
Miles
0
1
2
4

BSR Urban Supermarket Employees Live in Distressed Communities Near their Store

The CDFI Industry has a mission to promote job opportunities for individuals living in economically distressed communities (people-based strategies) in addition to bringing economic development to distressed areas (place-based strategies). This analysis measures the extent to which urban supermarket employees live in socioeconomically distressed communities, as well as the extent to which they live in communities that are inclusive of, or adjacent to, their place of employment. BSR provided us with employee-level data from all ten Brown's ShopRite locations. These data include employee address, last four SSN digits, date hired, date terminated (if applicable), reason for termination (laid off, resigned, fired), job title, wage or salary, hours worked per week, and full or part-time status. These data will help measure the extent to which job opportunities are primarily being created for residents in nearby communities.

It should be noted that the supermarket industry has a high percentage of employees working part time. Reliable figures for national trends are not available, but within BSR the percentage of all employees working part time is 84% at urban stores and 81% at suburban stores. In terms of hours worked, 72% of urban hours are part-time compared to 68% at suburban stores. Even in the absence of industry benchmarks, these figures are notably high by any standard. For this reason, many of this study's analyses differentiate between part-time and full-time employment.

Seventy-eight percent of part-time employees and 36% of full-time employees at the three Brown's ShopRite locations that have received funding from TRF live in census tracts qualifying as "Strong Mission Fit." See Table 8 for additional figures.

Table 8: Census Tract Distress Indicators for Employees of BSR Stores Receiving TRF Loans/Grants

	Part-Time		Full-Time	
Census Tract Distress Indicator	%	#	%	#
Median HH Income <= 60% of AMI	63.9%	266	25.6%	22
Median HH Income <= 80% of AMI	84.1%	350	57.0%	49
Poverty Rates >= 30%	40.6%	169	16.3%	14
Unemployment Rates >= 1.5x Nation	76.9%	320	38.4%	33
TRF Strong Mission Fit	77.6%	323	36.0%	31
All 3 Indicators (income, poverty, unempl)	40.6%	169	16.3%	14

Table 9 shows that among employees living in low-income communities, those working part-time are much more likely to live within close proximity to their place of employment than full-time workers. Of the 84% of part-time employees living in low-income tracts (median household income of 80% or less than the area median), 27% live within 1 mile of their workplace, 57% live within 2 miles, 75% live within 3 miles, and 93% live within 5 miles of their workplace. These figures strongly support the argument that employees live in distressed census tracts located near their place of employment. Table 10 shows distance figures for both full- and part-time employees. Map 4 provides a spatial illustration of employees' neighborhood characteristics.

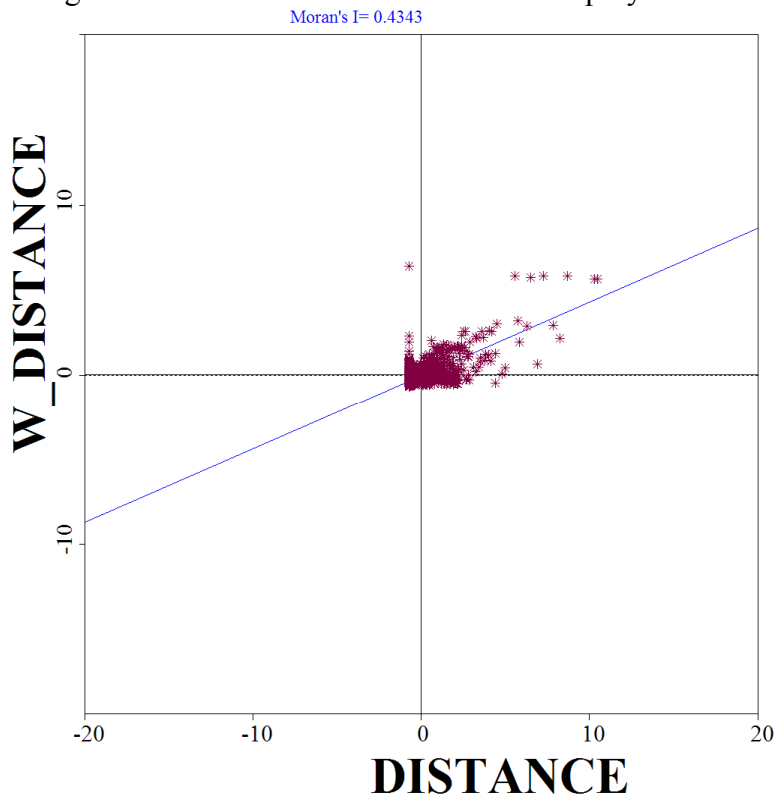
Table 9: BSR Employee Distance to TRF-Financed BSR Stores

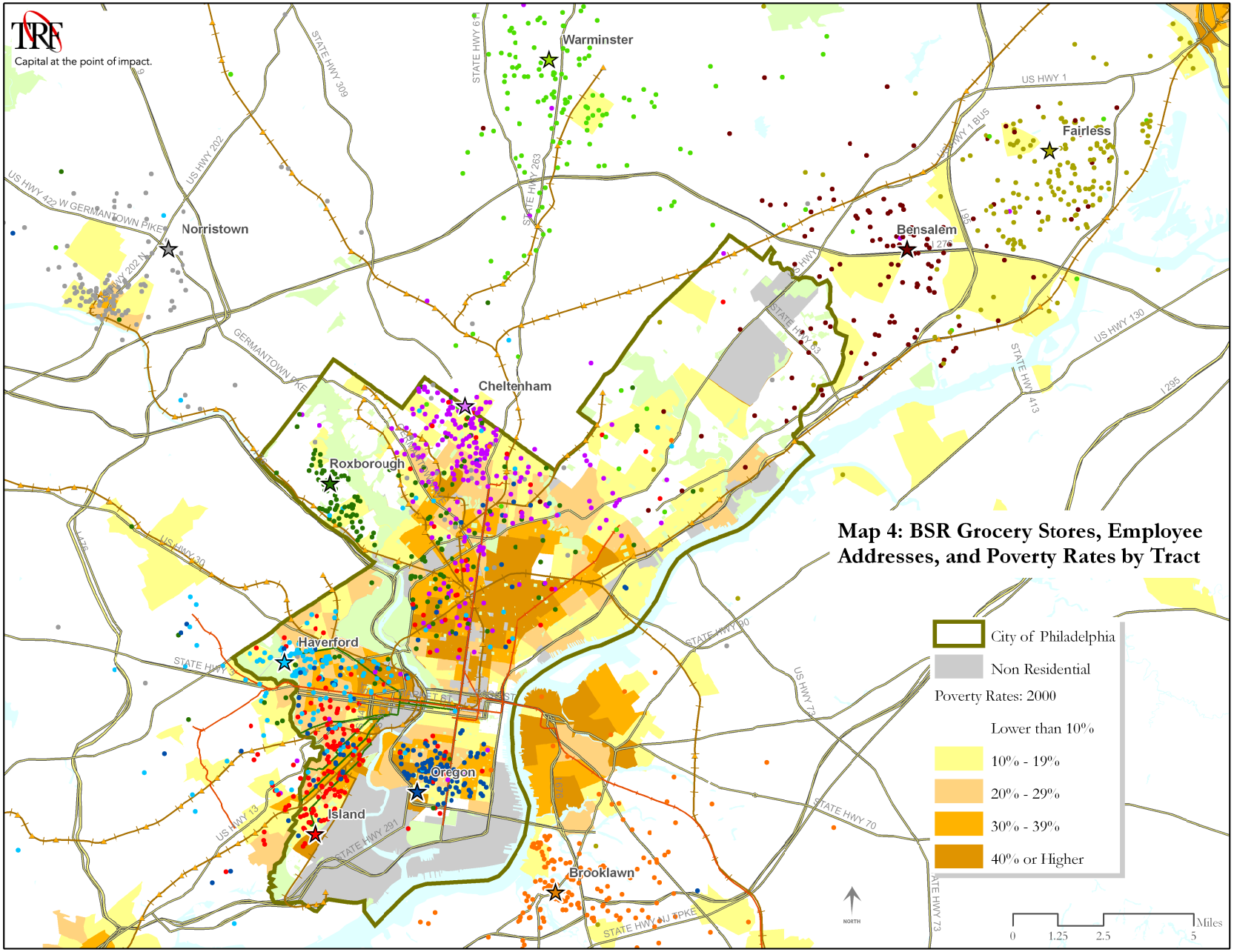
Distance Category	Part Time Low Income	Full Time Low Income	Part-Time
<= 0.5 mile	8.3%	4.1%	11.01%
<= 1 mile	26.8%	14.3%	27.41%
<= 2 miles	56.7%	32.7%	52.57%
<= 3 miles	74.6%	44.9%	66.96%
<= 5 miles	93.2%	55.1%	88.11%

Table 9: BSR Employee Distance to BSR Stores

Moran's I statistic was used to further identify the spatial clustering of employees. This statistic is calculated in three steps: 1) calculating each employee's distance to his/her employer, 2) calculating the average distance to employer for each employee's 10 nearest coworkers, and 3) plotting these values to determine the slope of the best fit line, which represents Moran's I value. This analysis is summarized in Figure 3, which produces a Moran's I value of 0.434 – this value is indicative of a fairly high level of employee clustering, which confirms the pattern observed in Map 4.

Figure 3: Moran's I Value and Plot for Employee Cluster




TRF
Capital at the point of impact.
Map 4: BSR Grocery Stores, Employee Addresses, and Poverty Rates by Tract
City of Philadelphia
Non Residential
Poverty Rates: 2000
Lower than 10%
10% - 19%
20% - 29%
30% - 39%
40% or Higher
Miles
0
1.25
2.5
5
NORTH
Warminster
Fairless
Bensalem
Norristown
Cheltenham
Roxborough
Haverford
Oregon
Island
Brooklawn
US HWY 1
US HWY 1 BUS
US HWY 422 W GERMANTOWN PIKE
US HWY 202
US HWY 202 N
GERMANTOWN PIKE
STATE HWY 309
STATE HWY 611
STATE HWY 263
STATE HWY 413
US HWY 130
1295
US HWY 30
STATE HWY 3
STATE HWY 291
US HWY 13
STATE HWY 70
US HWY 73
STATE HWY 73
STATE HWY NJ TPKE

Urban Supermarkets Bring New Job Opportunities to Residents in Distressed Communities

As mentioned above, the CDFI industry is committed to achieving both people- and place-based impacts. This analysis focuses on the extent to which BSR's urban supermarkets bring new job opportunities to the surrounding communities by determining whether suburban supermarkets already employ residents of distressed urban communities. If urban residents are already commuting to suburban stores, then the introduction of a new supermarket offers a more convenient job opportunity, but not necessarily a new one; while if very few urban residents commute to suburban stores, then the introduction of a new supermarket offers previously unavailable job opportunities. Again, we used BSR's employee data mentioned above for all 10 of its stores, which include stores in both distressed and non-distressed communities.

At BSR's suburban stores, 75 percent of part-time employees live within 3 miles and 89 percent live within 5 miles of their workplace, while only 27 percent live in low-income census tracts (household income equal to 80 percent or less of metro area median). Comparatively, 68 percent of part-time employees working for urban BSR stores live within 3 miles and 87 percent live within 5 miles of their workplace, while 70 percent live in low-income census tracts. These figures support the overall argument that suburban supermarket jobs are typically filled by nearby suburban residents in moderate-income areas and not by urban residents in lower-income areas. Map 4 provides a spatial illustration of these findings.

These findings serve as a test for *spatial mismatch*, also known as the jobs/housing mismatch or structural mismatch. This term is used to describe the problem of emerging employment clusters in suburban areas that are far from inner-city residents with job skills and wage requirements desired by businesses located within said clusters. This results in disadvantageous commute times and fewer employment opportunities for inner-city residents (Brueckner & Zenou, 1997). A commonly cited example are large shopping malls located in distant, affluent suburbs with few residents willing to fill the low-wage jobs typically offered by retail stores. Low-wage job candidates tend to be concentrated in the inner-city and lack adequate transportation to access suburban employment opportunities deemed to be "matched" with their job skills and income expectations.

BSR data show that low-income urban residents are not commuting to suburban supermarket jobs and, as a result, the addition of a new supermarket in an urban community brings new job opportunities to residents in the surrounding, predominantly low-income communities.

It should be noted that although a new supermarket has the potential to increase the total number of jobs within a local community, from a regional economic perspective the new store does not necessarily create a net increase in the number of jobs due to the zero sum nature of adding retail stores that serve a predominantly local customer base. For example, adding a new supermarket in Southwest Philadelphia will increase food sales and employment within the local community, but because the new store's customers used to shop at stores in adjacent suburban counties or other Philadelphia neighborhoods (i.e. leakage), the shift in consumer purchases is likely to decrease food sales and employment in these areas. Moreover, because a relatively finite amount of a community's income is spent on food, a new store may also decrease sales at smaller grocery and prepared food stores within the same neighborhood. A more detailed discussion of the displacement effects can be found in the Appendix.

Regardless of the relative zero sum nature of retail job growth at a regional level, it has been demonstrated that Philadelphia's low-income communities have significant food retail leakage, meaning that supermarket development can offer new job opportunities for residents of economically distressed areas with less retail displacement (Econsult, 2006). Residents also benefit by having access to a larger variety of foods to improve their diets and pay lower prices for food due to better price competition; these impacts can result in lower unemployment rates, healthcare cost savings, and lower food expenditures, thus helping households retain a larger share of their disposable income (Hausman & Leitbag, 2007).

This section's key findings are that a variety of barriers (e.g. the cost and time involved in commuting) associated with the spatial mismatch theory appear to dissuade low-income urban residents from commuting to BSR supermarket jobs in suburban areas. As a result, the addition of a new supermarket in an urban community brings new job opportunities to residents in the surrounding, predominantly low-income communities. Data related to the city's retail sector location quotient (See Table B.1 in Appendix B) also indicate that the city has a relatively low share of retail activity throughout the metro area; thus, the addition of a new grocery store can stem food retail leakage from the city and result in a net increase in local employment as opposed to displacing other food retail businesses.

Supermarket Employee Wage Comparisons

The CDFI Industry strives to support businesses that offer adequate compensation to employees. In this analysis, we use BSR employee data and Public Use Microdata Sample (PUMS) data from the US Census Bureau to compare urban and suburban wages within BSR and to compare BSR wages to PUMS wage averages for grocery retail workers in Pennsylvania.

The data and analyses presented in this section explore the following two hypotheses:

1. Part-time urban workers in the BSR chain receive an hourly wage comparable to the wage received by their suburban counterparts.
2. Part-time workers in the BSR chain receive a wage that compares favorably to the wages received by their industry counterparts throughout Pennsylvania.

In the following analyses, we focus exclusively on the wages of part-time workers because of their limited job mobility and the high rates of part-time labor in the industry.

One of TRF's goals for its supermarket investments is to provide steady employment for low-income workers who might otherwise find it difficult to enter the workforce, because they lack the necessary education and skills, or because they cannot secure reliable ways to commute to a job far from the neighborhoods in which they live. Many of BSR's full-time workers occupy managerial positions, or have cultivated skills over several years of training (e.g., butchers). These workers have the skills necessary to move elsewhere in the grocery industry, or, in some cases, to move into a different industry altogether. Although TRF's supermarket investments almost certainly have a positive impact upon BSR's full-time workers, their professional trajectory is not of central concern to the impact assessment that forms the basis of the current study.

More concretely, there are nearly five times as many part-time workers in the BSR chain as there are full-time workers. As of June 30, 2007, there were 1,520 part-time workers as against 322 full-time workers. What's more, there are very few full-time workers in the entire system with tenure of less

than one year – only 14 in all. These very small numbers make it impossible to examine the effect of tenure on the wages of full-time workers.

Comparison of Urban and Suburban Wages within BSR

Table 11 below, compares the mean hourly wages earned by part-time workers in three job categories. The table is broken up by location (urban and suburban) and tenure ("less than one year" and "one year or more"). These categories are presented here for illustrative purposes, as they contain a sufficient number of cases to permit informal comparisons among the cells.

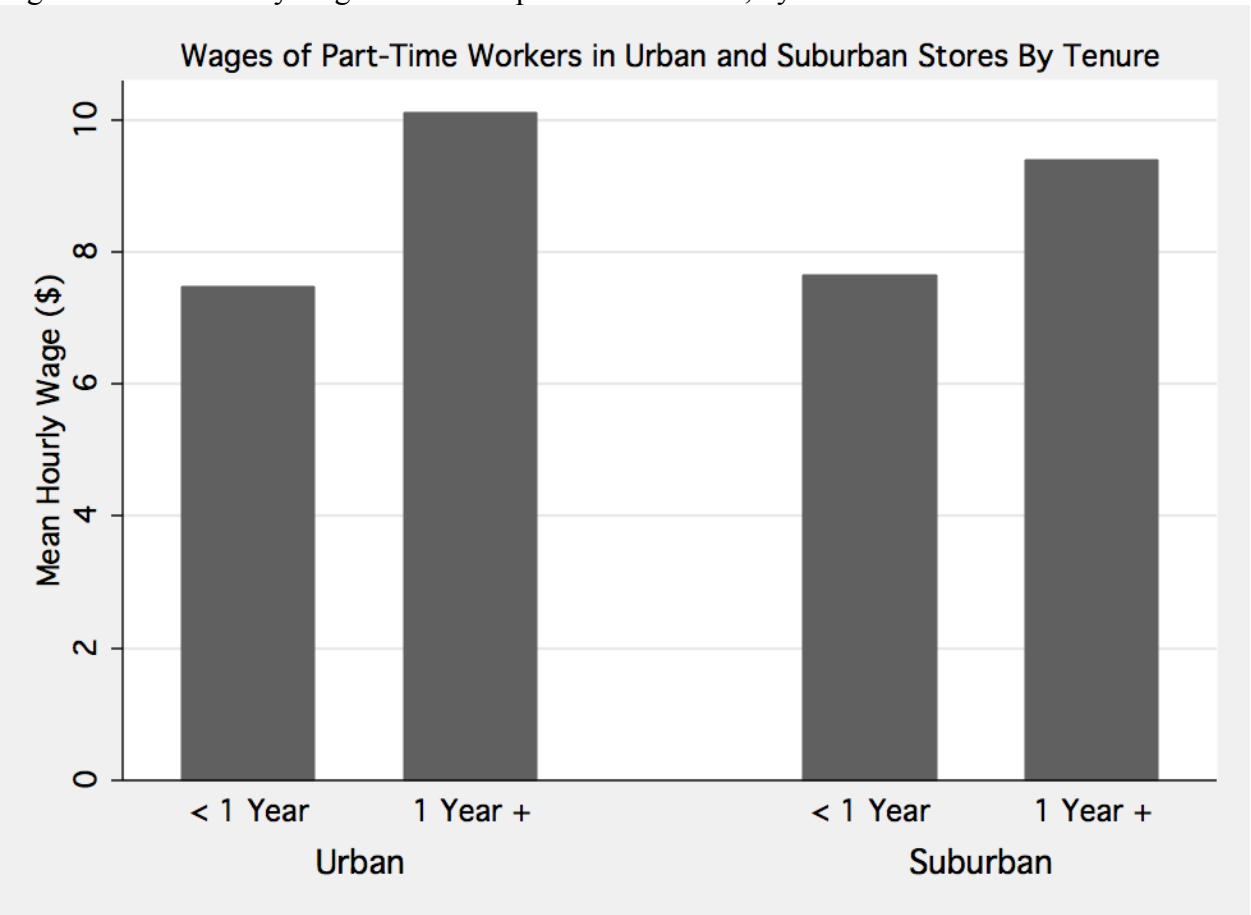
Table 10: Mean hourly wages earned by three categories of part-time BSR workers, by location and employment tenure.

Job Category	**Urban**		**Suburban**	
	< 1 Year	**1 Year +**	**< 1 Year**	**1 Year +**
Cashier	7.33 (M) 0.44 (SD) 185 (n)	9.98 2.75 164	7.49 0.66 111	9.34 2.16 164
Clerk	7.65 1.03 117	10.22 2.57 195	7.63 0.96 150	9.13 1.84 195
Night Crew	8.06 1.73 23	9.41 1.85 26	8.24 1.11 28	10.10 1.86 18

Note: M = mean; SD = standard deviation; n = number of cases

The graph below presents mean hourly wages for all part-time BSR workers, again by location and by tenure.

Figure 4: Mean hourly wage of all BSR part-time workers, by location and tenure.



Both the table and the graph suggest the following patterns:

- Part-time workers who have been employed by BSR for at least a year experiene a marked jump in their hourly wage.
- Urban workers with more than one year of tenure may earn slightly more than suburban workers with a similar tenure.

To determine whether these patterns are statistically significant, we performed a 2 (Location: urban vs. suburban) x 2 (Tenure: Less than one year vs. One year or more) Analysis of Variance (ANOVA). The results of that analysis are shown in the table below.

Table 11: Two-way analysis of variance for Location, Tenure, and the interaction between the two.

Source	df	MS	F	Partial η^2
Location	1	28.13	7.87†	.005
Tenure	1	1796.05	502.26*	.249
Location x Tenure	1	73.91	20.67†	.013
Residual	1516	3.58		

† $p < .005$
* $p < .001$

The effects of both location and tenure are statistically significant, as is the interaction between the two. Not surprisingly, the longer a worker has been employed by BSR, the higher the wage he or she earns. The other results are more surprising: workers in urban locations earn more than their counterparts in suburban locations, and the effect of tenure on wages is more pronounced for urban workers than it is for suburban workers.

Although all of these results are statistically significant, they should not be given equal explanatory weight, because their *effect sizes* vary quite widely. One commonly accepted metric of effect size is the partial η^2 ("eta-squared"), which captures the proportion of overall variance that can be attributed to a particular factor, either alone or in combination with other factors. Note that both location and the interaction of location with tenure have small η^2 values. Location on its own accounts for about one half of one percent of the total variance in wages, whereas the interaction of location with tenure accounts for 1.3 percent of the total variance. By contrast, tenure by itself accounts for nearly 25 percent of the total variance.

Thus, although there are detectable effects of location on wage, they should not be given as much weight as the effect of tenure on wage. Ultimately, it is safe to conclude that urban and suburban workers earn a comparable hourly wage – a wage that increases substantially once they pass their first year of employment with BSR. The higher wage increase for workers in urban neighborhoods is likely due to the relatively limited supply of steady workers in these areas versus suburban neighborhoods.

This is an important finding. As we have previously discussed, there are substantial location-dependent costs associated with operating a supermarket in distressed urban neighborhoods. To compensate for these costs, an operator might well pay his urban workers less than he pays his suburban workers. In the case of BSR stores, this appears not to be the case.

PUMS Data Comparison

In addition to comparing wages within the BSR stores, we used Census PUMS data to establish a benchmark wage. An important question about the wages paid to BSR employees, especially part-time employees, is whether those employees are paid a wage that compares favorably with wages paid to workers in similar job categories in the retail grocery industry.

To make the PUMS data most comparable to the BSR part-time employee experience, we restricted the sample to persons who: 1) worked at least 26 weeks in the prior year; 2) worked fewer than 30 hours per week; 3) were employed in the "grocery store" industry; 4) had occupations listed as "cashier" or "stock clerks or order fillers"; and 5) were residents of Philadelphia. Further, as wages reported in

PUMS (2000) were for 1999, those wages were inflated by a factor of 1.24 to account for inflation between 1999 and 2007 – the cut-off date for BSR wage information.

Table 12: Comparisons of hourly wages paid to cashiers and clerks in the BSR chain (both urban and suburban) and as reported by respondents to the 2000 Public Use Microdata Sample (Philadelphia and Pennsylvania).

Job Category	**BSR**	**PUMS (Phila)**	**PUMS (PA, excl. Phila)**
Cashiers	$8.50 ($2.10)	$10.80 ($5.13)	$8.93 ($5.23)
Clerks	$8.85 ($2.13)	$11.63 ($7.16)	$9.53 ($7.06)

The results indicate that BSR workers are paid less, on average, than the average cashier or clerk in Philadelphia. Wage differences in comparison to Pennsylvania workers, exclusive of Philadelphia, show substantially less difference. The amount of variability in wages as reported in PUMS data is quite large, especially among clerks. It appears from the PUMS data that the average BSR cashier's wages fall approximately into the 44th percentile in the PUMS (Philadelphia) data and the average BSR clerk's wages fall at approximately the 40th percentile in the PUMS (Philadelphia) data.[9]

There are at least four reasons to exercise substantial caution as we interpret these results:

First, PUMS depends entirely on self-reporting, which can be faulty for a number of reasons, e.g., because the respondent (unconsciously or otherwise) has misrepresented his or her income, or incorrectly recalled the number of weeks they worked. BSR data, by contrast, come directly from corporate headquarters, and thus are not subject to that sort of error.

Second, it is not entirely clear that the PUMS data categorizes workers in a way that would permit the most accurate comparison with BSR data. PUMS appears to categorize as clerks workers who may in fact work in the back office; this is not the case with BSR.

Third, to the extent that the part-time grocery industry employees also hold second part-time jobs (of higher pay), this would skew the average up; of course, if they hold other part-time jobs with lower wages, this would skew the average down. Similarly, if a person held a relatively high-paying job (e.g., manufacturing sector employment) for part of the year and worked as a supermarket cashier for the rest of the year, their annual wages and salaries would combine those two occupations. This would tend to bias upward the PUMS wages.

Fourth, we do not know that wages in the grocery industry rose between 1999 and 2007 at a level consistent with inflation; it is unlikely that those wages rose more than inflation. Accordingly, inflating PUMS wages by the inflation rate could overstate the average 2007 wage.

Finally, as noted above, the PUMS data reports a total wage and salary figure for each person in the database. PUMS wages and salaries include: wages, salary, armed forces pay,

[9] Because urban and suburban wages are nearly equal among job categories (Table 10) BSR wage comparisons in Table 12 were not split between urban and suburban employees.

commissions, tips, piece-rate payments and cash bonuses earned before deductions were made for taxes, bonds, pensions, union dues, etc.

Given the definitional differences between PUMS and the BSR data, we submit that the difference in average wages may not, in fact, be as substantial as it appears.

Changes in Supermarket Employee Compensation

This analysis looks at changes in wages among BSR employees to establish the presence of an adequate compensation system. We have two years of employee data for the BSR Island Avenue location and one year of employee data for all other stores.

Island Avenue Location

As of December 31, 2007 there were 150 part-time and 30 full-time employees working for the Island Avenue location. Of these, 32 part-time employees (21%) and 3 full-time employees (10%) had at least one full year of job tenure; only 3 part-time employees (2%) had at least two years of tenure. Table 13 shows the percentage of total employment represented by these employees and their average percentage increase in compensation during the one- and two-year periods.

Table 13: BSR Island Avenue Retained Employee Compensation Trends

	Part Time	Full Time
Total Employees	150	30
Employees with 1 year	32	3
% Employees with 1 year	21.3%	10.0%
1 year compensation change	9.5%	4.3%
Employees with 2 years	3	3
% Employees with 2 years	2.0%	10.0%
2 year compensation change	18.1%	6.4%

Although only six employees had at least two years of tenure, the three part-time employees with two-year tenure received a substantial 9 percent increase per year on average; the full-time employees with two-year tenure received 4.3 percent in the first year and another 2 percent in the second year. The 32 part-time employees with at least one year of tenure received a 9.5 percent increase from 2005 to 2006. The demonstrated wage increases for part-time employees are roughly three times the inflation rate during the same period. Note that these are raw wage increases and are not displayed in constant dollars.

All BSR Locations

Because we have a full year of employee data for all BSR stores, we can calculate changes in compensation across all stores and compare between full- and part-time positions, as well as urban and suburban locations.

The *Turnover Analysis* table below (Table 14) compares turnover calculations between full- and part-time employees at urban and suburban supermarkets from 7/1/2006 through 6/30/2007. The "Employees retained during year" represents the number of employees employed during the entire

period, while the "Number of positions turned over" represents the difference between "Total employees at year start" and "Employees retained during year." In other words, "Number of positions turned over" is the number of positions that were not held by the same person during the year and were therefore filled and vacated by the employees that left during the year ("Number of employees terminated"). The traditional turnover rate is simply the number of employees terminated during the year divided by the number of employees at the beginning of the year. The turnover rate on non-retained jobs represents a more direct turnover calculation because it divides the number of terminated employees by the number of positions that were not retained by the same employee during the year. As expected, this turnover calculation is significantly higher than the traditional calculation, especially for the full-time positions where most were retained by the same employees, thus leaving very few positions for former employees to cycle through.

Table 14: Turnover Analysis

	Urban		Suburban	
Indicator	Full Time	Part Time	Full Time	Part Time
Total current employees (year end)	154	805	168	717
Total employees at year start	156	820	162	742
Employees retained during year	148	429	161	398
% retained during year	96.1%	53.3%	95.8%	55.5%
Number of positions turned over	8	391	1	344
Number of employees terminated	19	1,174	15	1,130
Traditional turnover calculation	12.2%	143.2%	9.3%	152.3%
Turnover rate on non-retained jobs	237.5%	300.3%	1500.0%	328.5%
2006 average wage	$15.40	$9.41	$15.19	$8.78
2007 average wage	$16.42	$10.14	$15.93	$9.45
1 year compensation change (avg)	7.9%	8.5%	6.0%	8.4%

The traditional turnover rate is the industry standard and should be used as a comparative figure. To put the BSR turnover rates into perspective, Table 15 shows median turnover rates by employment category as well as by store ownership structure. The BSR group of stores is considered a regional supermarket chain. In comparison, the median turnover rate for part-time employees at regional chains is 58 percent compared to 143 percent and 152 percent at BSR urban and suburban stores, respectively. In other words, BSR turnover rates average around 2.5 times the national median.

Table 15: Supermarket Industry Median Turnover Rates

	All Stores	Independently Owned	Regional Chains	National Chains
All Employees	47.7%	35.0%	45.0%	57.0%
Full-time	14.1%	12.7%	13.0%	15.8%
Part-time	61.1%	50.7%	58.1%	81.0%
Headquarters Personnel	8.0%	1.5%	10.5%	11.9%

Source: Food Marketing Institute, 2008

High turnover rates create additional expenses for a business' human resources department and contribute to lower job productivity due to frequent training of new hires. Worth noting is that the traditional turnover rate among urban stores is roughly the same, and in fact lower for part-time employees, as their suburban counterparts. This suggests an industry phenomenon that is not geographically specific. According to the Food Marketing Institute, it costs a company one-third of a position's annual salary to manage the termination and replacement of an employee (Food Marketing Institute, 2008).

Despite the extremely high turnover rates among part-time employees, those who remain on the job for at least one year receive compensation increases that are 2 to 3 times higher than the inflation rate: Table 15 shows that urban and suburban part-time employees received average pay increases of 7.9 percent and 8.4 percent, respectively. These findings suggest that, in the case of BSR, supermarkets in economically distressed areas are able to offer their employees annual pay increases on par with the increases offered to employees of non-distressed stores; this finding coupled with the finding in Section 2.7 that wages paid to employees of stores in distressed areas are also on par with non-distressed stores suggests that BSR is offering comparable wages and wage increases to residents of distressed areas.

BSR Frequent Shopper Characteristics: Using Frequent Shopper Cards to Determine Who Shops at Brown's ShopRites

A central aim of TRF's supermarket investments is to provide the residents of distressed neighborhoods with access to reasonably priced, high-quality foods. In order to be considered successful, these markets must make more sales to customers in the immediate neighborhood than to customers in other neighborhoods. To measure the success of these markets in this regard, we analyzed the spending patterns of BSR customers who participate in the "PricePlus" program. Like other frequent shopper programs, PricePlus entitles card holders to participate in sales not open to other customers and to receive special promotional offers by post and/or email.

The PricePlus Database

BSR does not manage its PricePlus program. Instead, PricePlus is managed by the Wakefern Food Corporation, the multi-state retailer-owned cooperative known to the shopping public as "ShopRite," to which BSR belongs. Wakefern supplied TRF with a list of all PricePlus transactions for the five Philadelphia BSR locations, beginning in July of 2006 and ending in June of 2007, aggregated to the level of the card holder's zip code. Each record contained the following information:

- zip code
- number of account holders in that zip code
- earliest date during the reporting cycle when a card belonging to any card holder in that zip code was used
- latest date during the reporting cycle when a card belonging to any card holder in that zip code was used
- total number of transactions involving all card holders from that zip code
- total sales made to all card holders in that zip code

Of course, participants in a frequent shopper program do not necessarily represent the shopping population as a whole. They self-select into the program, and their habits may differ from those of other shoppers, even other regular shoppers. In the analyses that follow, we will compare PricePlus shoppers to other PricePlus shoppers, in effect controlling for self-selection.

When shoppers apply for a PricePlus card, they are asked to provide their complete home address. However, shoppers who refuse to give their address are still given a card. The transactions of these shoppers cannot be analyzed and have been dropped from the analyses described below.

Only one aspect of the PricePlus database poses any real interpretive challenge: When shoppers move, they are under no obligation to update their address with ShopRite. The accuracy of card holders' addresses is important because our analyses depend upon matching the zip codes of shoppers with the zip codes of the stores they patronize. But we have no way to tell which of the addresses on record are current and which are not. Even with the complications that this problem might present, the PricePlus records provide a rich and highly informative database from which to draw conclusions about the degree to which markets are serving customers who live nearby.

Analyzing Patterns of Patronage: Sales and Trips

Our general approach to analyzing the patronage patterns of BSR markets was to assign the zip codes of card holders to one of three "zones," as defined below:

- Home: the zip code in which the market is located;
- Contiguous: any zip code immediately adjacent to the Home zip code;
- Other: any other zip code, regardless of distance to the Home zip code.

Figures 5 and 6 below present the mean expenditure per account and the mean number of trips (respectively), by store and by zone. Both figures suggest a very similar pattern: The shoppers who spend the most in a BSR market live nearby, as do the shoppers who make the most trips. (There is likely to be substantial overlap between these two groups, but because we are working with aggregate data, we have no way to know for sure.)

Figure 5: Mean expenditures per PricePlus account by zip code zone and store. Expenditures are for fiscal year July 2006-June 2007. See text for definitions of zones.

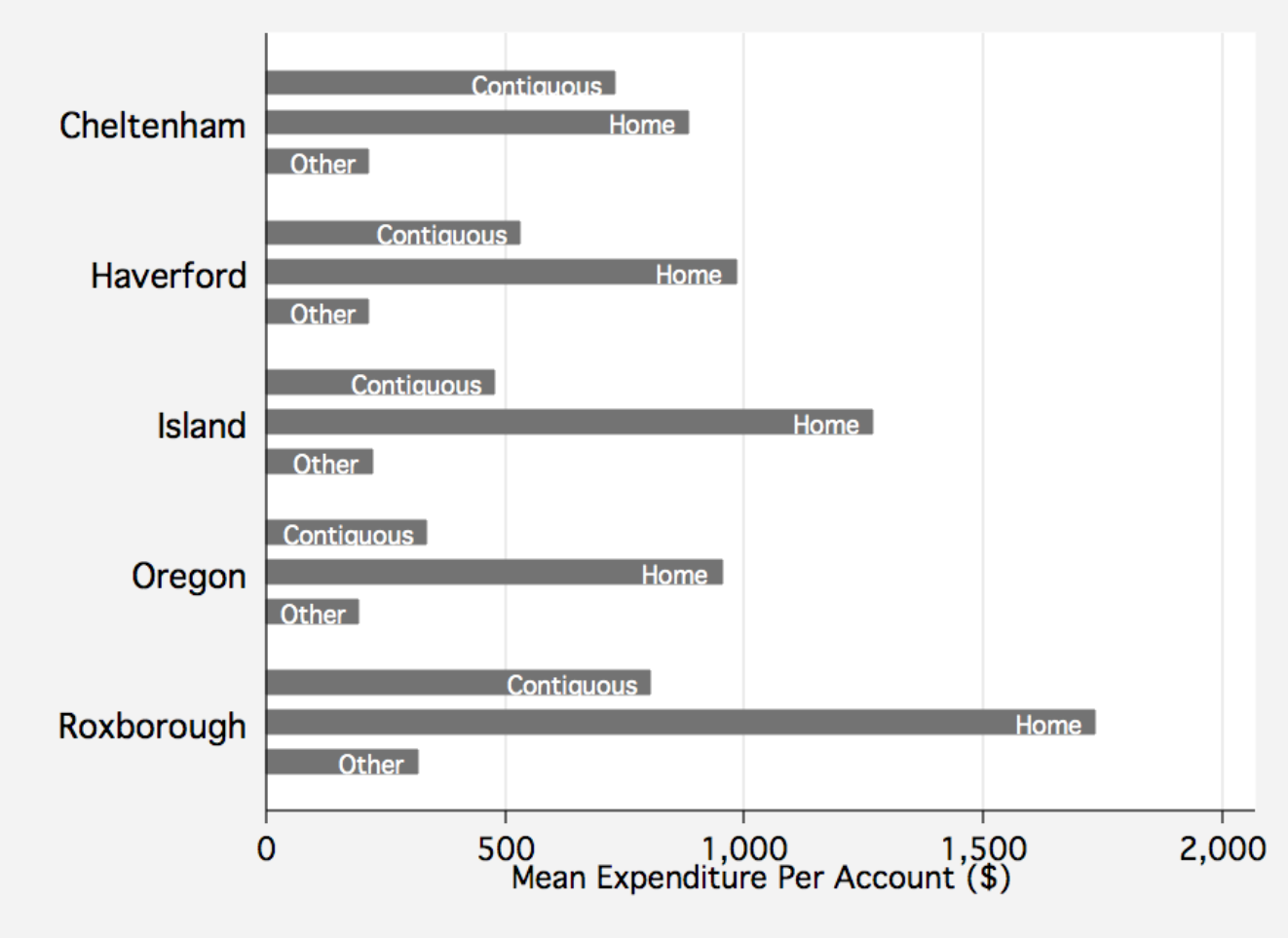
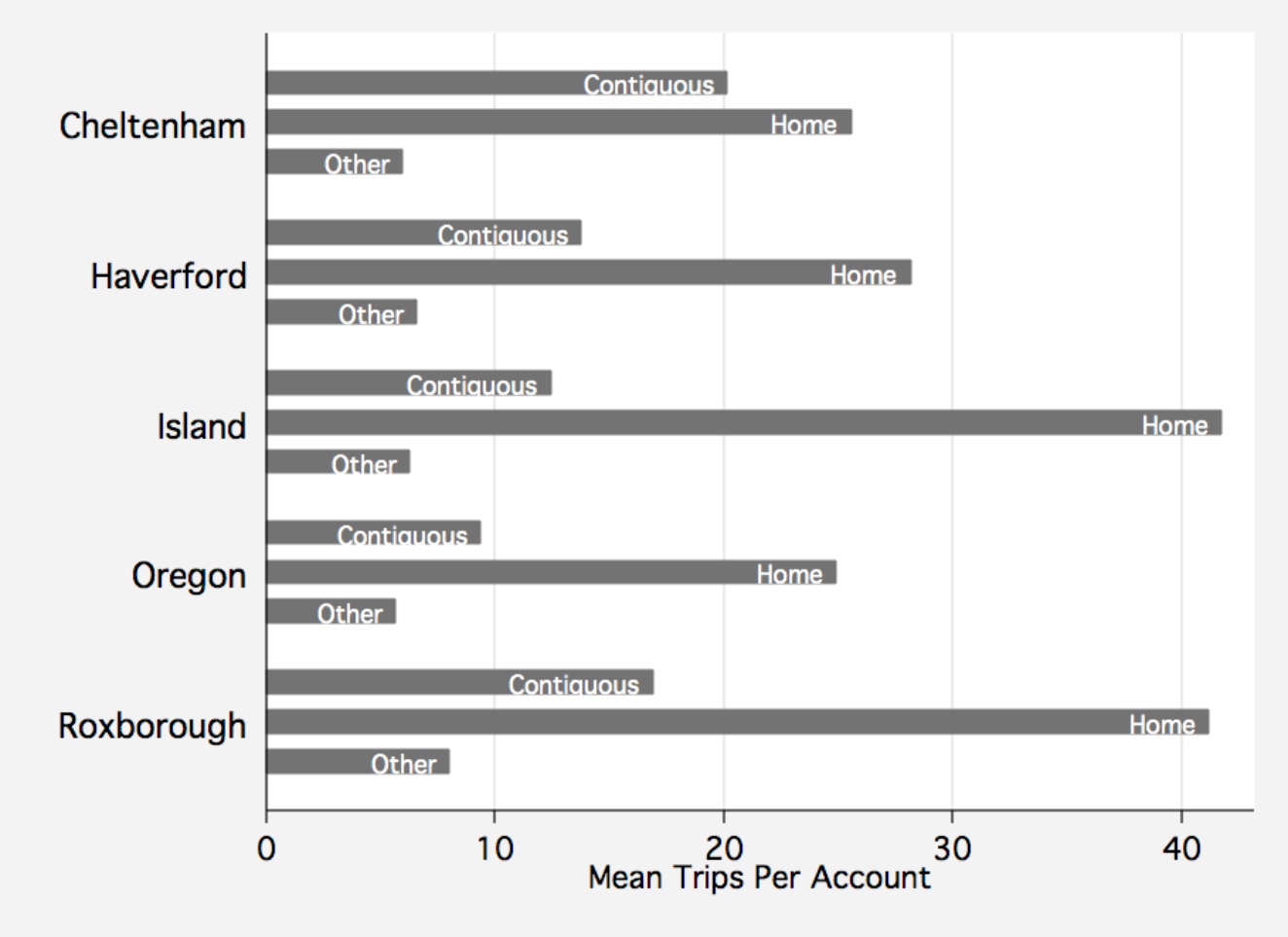


Figure 6: Mean trips per PricePlus account by zip code zone and store. Expenditures are for fiscal year July 2006-June 2007. See text for definitions of zones.



Before conducting inferential tests to confirm the reliability of these patterns, we eliminated all cases assigned to the Other zone. The Other zone contains a huge number of zip codes relative to the Home and Contiguous zones: Whereas the Home zone contains five cases and the Contiguous zone contains 30 zip codes, the Other zone contains 7,360 zip codes. In fact, many zip codes have just one account associated with them, and very often that account was used just one or two times during the reporting cycle – perhaps because a shopper visiting from out of town wanted to take advantage of a PricePlus special and got the card even though he or she would use it only once or twice.

Ultimately, it doesn't matter why there are so many accounts in the Other zone. The huge disparity in the number of cases in the Other zone versus the number of cases in the remaining two zones threatens to undermine the validity of nearly any inferential test we might run.

A pair of *t*-tests comparing the Home and Contiguous zones confirms the patterns evident in the figures above. Table 17 below contains the relevant means and standard deviations, and values of *t* and *p*. Note that these effects are significant even though the number of cases is small –meaning that the magnitude of these effects is quite large.

Table 16: Means and associated *t* values for Expenditures Per Account and Trips Per Account (collapsed across zones). Standard deviations are in parentheses.

Measure	**Home** (n = 5)	**Contiguous** (n = 30)	***t***
Expenditure Per Account	$1,164.46 ($351.16)	$600.19 ($272.51)	4.12***
Trips Per Account	32.32 (8.44)	14.88 (6.25)	5.51**

*** $p < .001$

Before concluding this section, it is worth noting that two of the five BSR stores in Philadelphia are unlike the others: Roxborough (the oldest in the BSR chain) and Cheltenham. Neither was financed with TRF monies. The Roxborough store is in a stable working- and middle-class neighborhood, and the Cheltenham store is close enough to more affluent areas of the city that it might plausibly draw its customers from a somewhat wider geographical area (a pattern that the graphs appear to suggest).

Reassuringly, however, the removal of these two stores does not alter the results. If we look only at the three stores that are in decidedly distressed neighborhoods, the overall patterns remain unchanged: The differences between the Home and Contiguous zones remain statistically significant.

Map 5 categorizes zip codes based on their total sales for the three BSR stores that have received funding from TRF: Island (grant and loan), Oregon (grant), and Haverford (grant). The map also shows census tract poverty rates within each zip code. Zip codes with the highest frequent shopper sales figures for all three stores are primarily comprised of relatively high-poverty census tracts, especially the Island and Oregon stores.

Summary of Findings

The results of these analyses and maps support the notion that shoppers who patronize the Philadelphia BSR stores are much more likely to live in the neighborhood that contains the store than they are to live in nearby neighborhoods. TRF's investments in inner-city stores appear to have accomplished one of their central aims: to provide reasonably priced, high-quality goods to residents who would otherwise lack access to such goods.

Map 5: BSR Stores Receiving TRF Funding Sales by Zip Code and Poverty Rates

Brown's ShopRite Stores

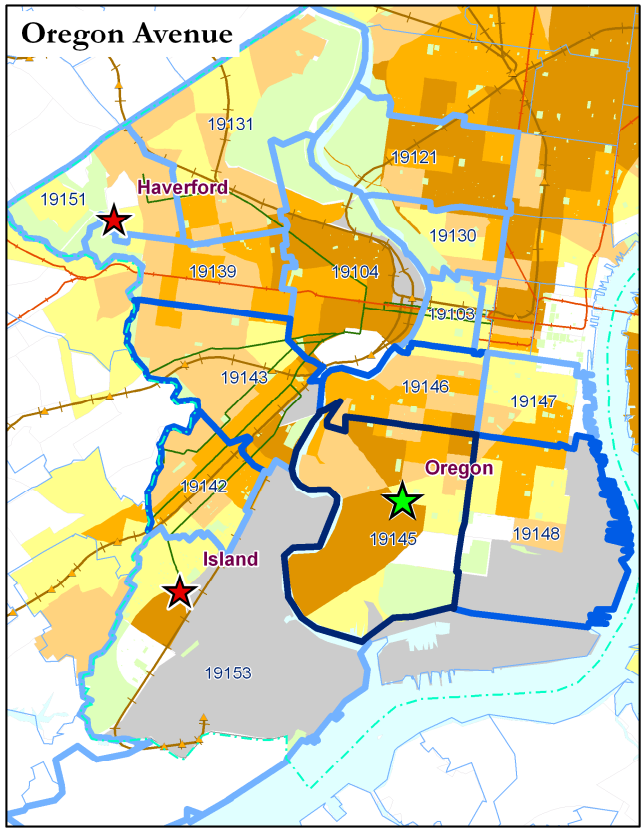
- Featured Store
- Other BSR Funded by TRF
- Other BSR Not Funded by TRF

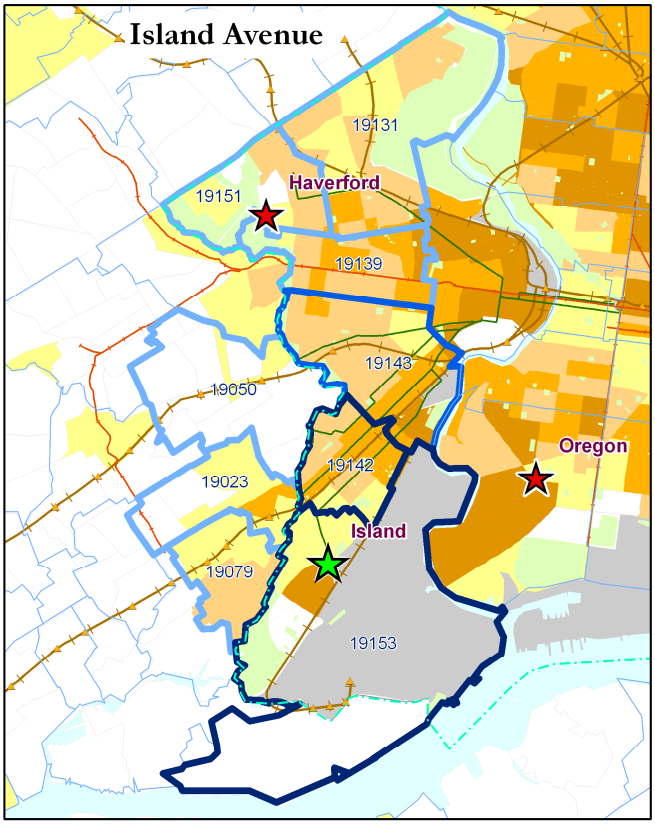
Annual Sales by Zip Code: 2007

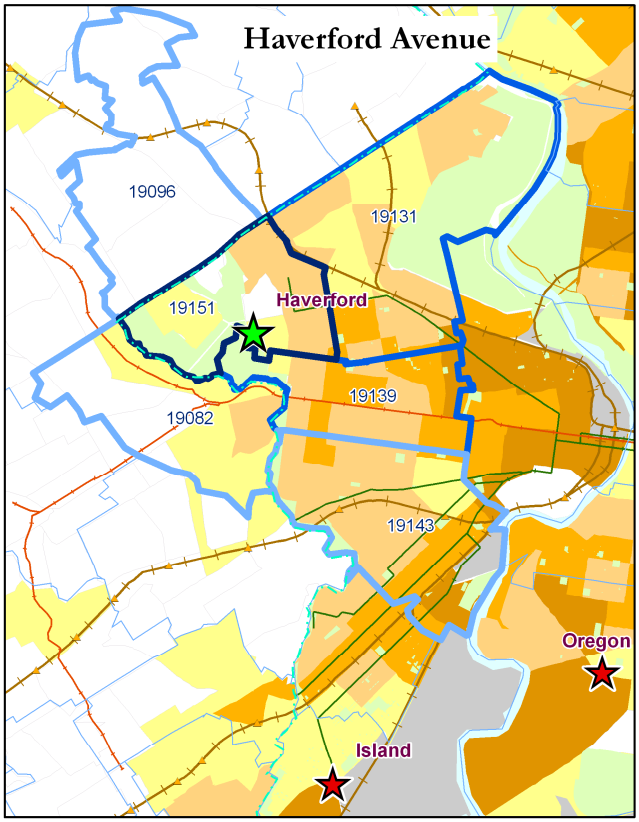
- Tier 1
- Tier 2
- Tier 3
- Tier 4
- City of Philadelphia Boundary

Poverty Rates: 2000

- Lower than 10%
- 10% - 19%
- 20% - 29%
- 30% - 39%
- 40% or Higher
- Non Residential







Are TRF-financed Supermarkets Retail Anchors in their Communities?

TRF's commercial real estate lending program is intended not only to directly support the individual business or developer, but also to help economically distressed communities attain viable commercial development on a larger scale. TRF hired Econsult, an economic consulting firm, to assess the impact of new supermarket development on consumers and their communities. Econsult looked at three commonly suggested community benefits that supermarket development can bring to areas currently served by only small grocers and convenience stores: increased real estate values due to supermarket amenity, increased economic activity and employment, and lower food prices. For this study, we expand on Econsult's previous effort by using address level data to better understand a supermarket development's ability to attract additional economic activity to a community, sometimes referred to as an anchor effect.

This analysis attempts to measure the extent to which TRF-financed supermarkets serve as anchors for additional economic activity in the retail and service sectors. TRF purchased data from InfoUSA listing all businesses operating in industries within the retail and service sectors, based on a custom selection of Standard Industry Classification codes. These industries were chosen because they are likely candidates for locating within close proximity to a larger retail anchor store, such as in strip malls and other shopping clusters. The dataset includes all businesses in operation at any time from 2001 through 2008, which allows for a time series trend calculation of total employment within the immediate areas surrounding each grocery store before and after its opening. Additionally, we use total retail and service sector employment throughout the city as a comparative benchmark. The presence of an anchor effect would be shown if there was a positive change in the trajectory of employment within ¼ mile of the subject supermarket in years after the store opened or expanded.

Figure 7 shows the results for all stores (including those not in the BSR chain) meeting the following criteria: received a TRF loan, began operating prior to 2007, and is located in a distressed urban community within the Philadelphia metro area. Each line in the chart illustrates trends in the number of employees working for retail and service sector businesses that are located within ¼ of a mile of grocery stores that received TRF financing. The large square marker on each trend line identifies the year in which the store received financing from TRF. Overall, it is difficult to observe clear and consistent findings from the results shown in Figure 8. However, trends do indicate that after each supermarket opened, total employment surrounding 4 out of 5 stores increased relative to City-wide trends. With the exception of ShopRite Chester, where the relative increase is dramatically high, the stores show a steady increase in total nearby employment in the years following their opening. Only the BSR Island Avenue location exhibits a relative decline in total employment, though it is only a slight decline. Tables 18 shows the raw number of employees within a ¼ mile of each store as well as the index figures that were used to construct the line chart.

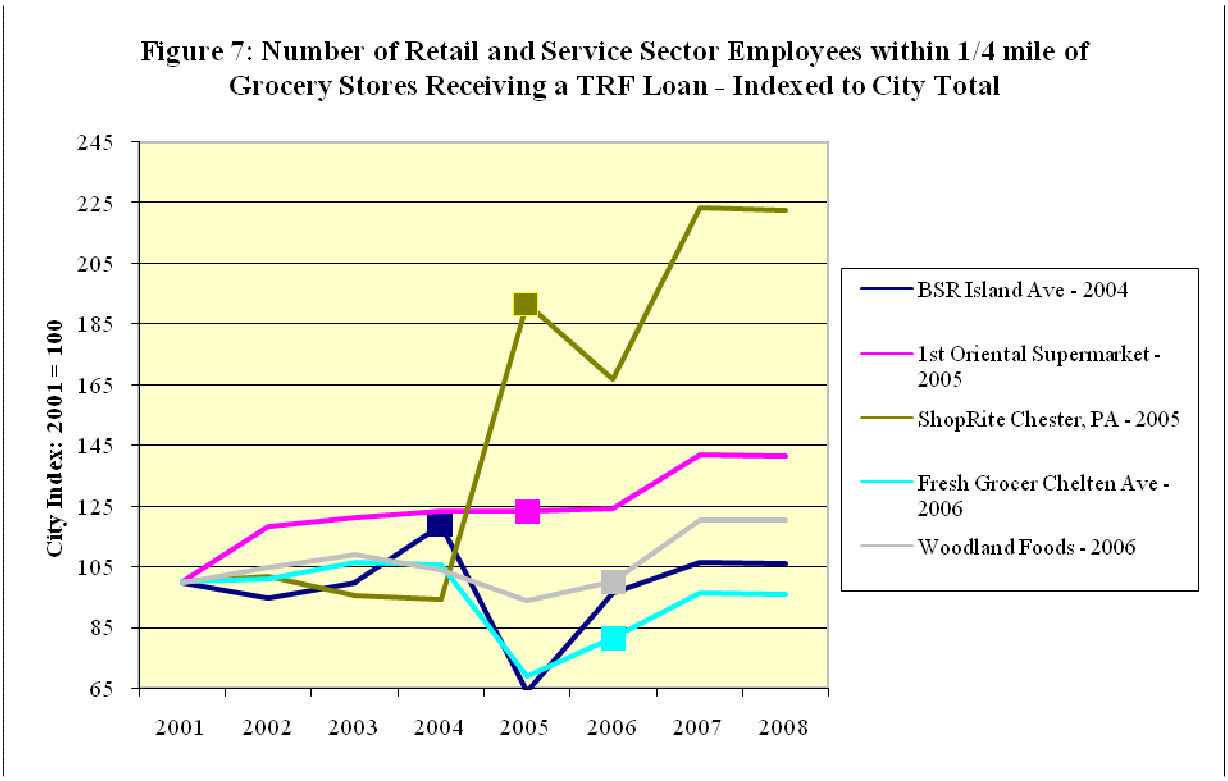


Table 17: Number of Employees at Retail and Service Sector Businesses Surrounding Grocery Stores Financed by TRF

	Number of Employees at Businesses Surrounding Grocery Stores							
Stores	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
BSR Island Ave - 2004	238	229	238	291	154	245	246	246
1st Oriental Supermarket - 2005	261	314	317	331	327	346	360	360
ShopRite Chester, PA - 2005	582	603	557	564	1,133	1,035	1,261	1,261
Fresh Grocer Chelten Ave - 2006	360	369	384	391	252	313	336	336
Woodland Foods - 2006	391	417	428	418	373	417	457	459
City Total	169,130	171,836	169,457	173,892	171,745	180,220	164,151	164,774
Index (to City total)	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
BSR Island Ave - 2004	100	94.7	99.8	118.9	63.7	96.6	106.5	106.1
1st Oriental Supermarket - 2005	100	118.4	121.2	123.3	123.4	124.4	142.1	141.6
ShopRite Chester, PA - 2005	100	102.0	95.5	94.3	191.7	166.9	223.2	222.4
Fresh Grocer Chelten Ave - 2006	100	100.9	106.5	105.6	68.9	81.6	96.2	95.8
Woodland Foods - 2006	100	105.0	109.3	104.0	93.9	100.1	120.4	120.5
City Total	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0

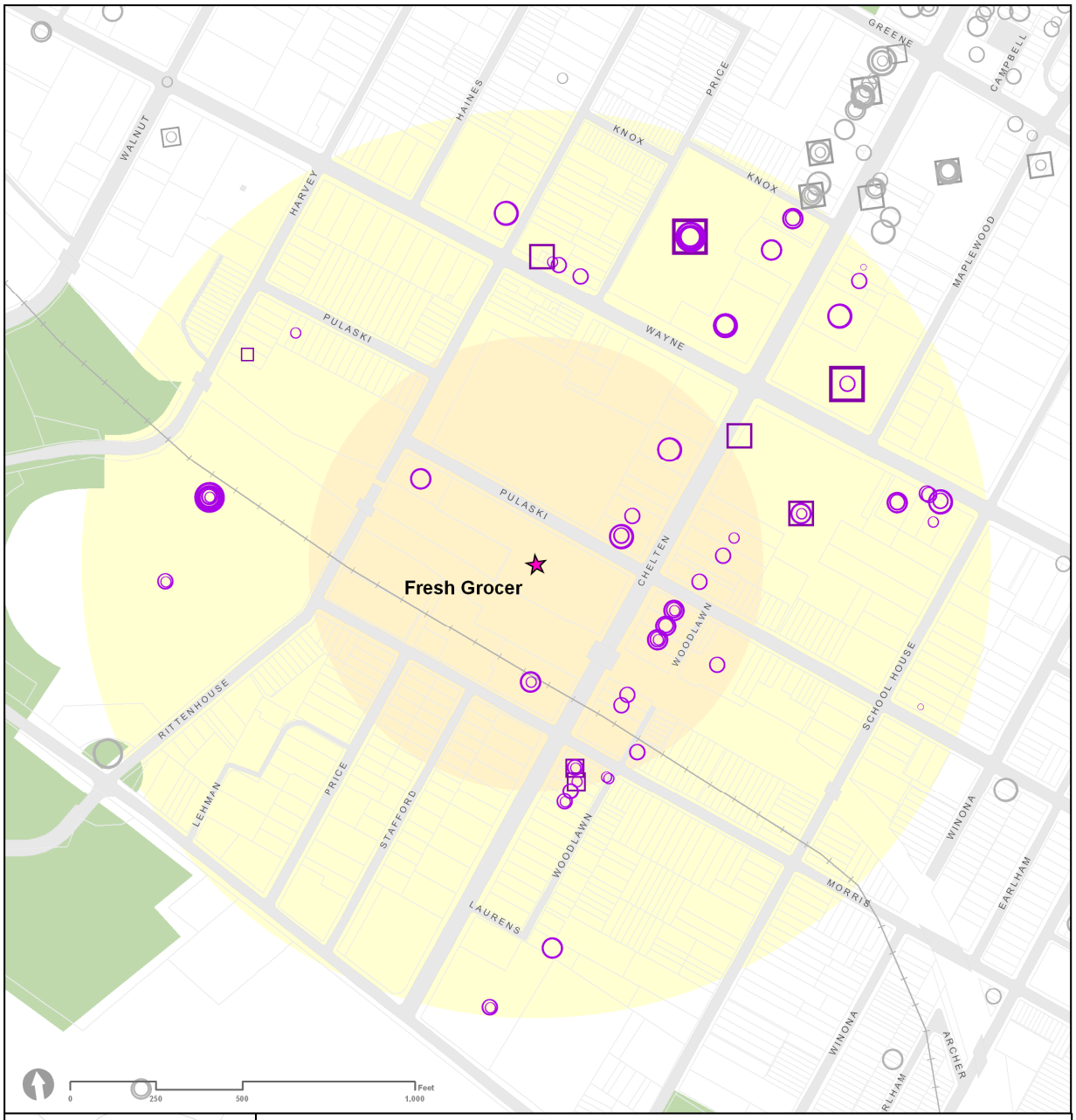
Source: TradeDimensions, 2007; InfoUSA, 2008.

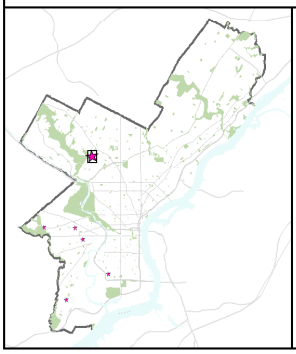
Again, these results are not unambiguous. Nonetheless they do suggest the presence of a positive effect on overall economic activity resulting from the introduction of a new supermarket. We did notice some discrepancies in the data set and thus we have reason to question certain aspects of the InfoUSA file.[10]

[10] It is possible that the business listing data are skewed by either data errors or address locator gaps in the geocoding process. Also, we would prefer to use total sales and employment figures to calculate trends. Unfortunately, nearly 25% of the business records a missing one or both of these attributes. Data errors might include basic errors in InfoUSA's historical database records, their query language that removed duplicate records for prior years, or another unknown complication. Worth noting is that instead of purchasing a listing of all businesses matching the SIC list in every year, InfoUSA performed a merge/purge query that extracted each business's most recent year of data and we then used each record's "year first appeared" field to determine for which years the data should be counted. This reduced the total data cost to around $9,000 versus nearly $40,000 for the entire listing from each year. Unfortunately, our purchased listing included

Map 6 shows retail and service sector businesses within the ¼ mile anchor area surrounding Fresh Grocer at Chelten Avenue. At this level, the reader can more clearly grasp the difficulty of identifying anchor effects for a large number of stores. Perhaps a study focusing on a smaller geography and fewer anchor stores would allow more time to fully verify business listing data, thus providing a more reliable assessment of supermarket anchor effects.

many duplicate entries from the historical databases, as well as incomplete data related to sales and employment. We manually corrected these duplicate entries. InfoUSA admits that their older databases are less reliable than in recent years, but because it is too expensive and logistically challenging, they have no plans to clean their historical databases.





Map 6: Fresh Grocer at Chelten; Surrounding Business Sales Volume

Stores Opened After or Same Year FFFI Store Opened

- No Data
- Up to $100,000/year
- $101,000 - $400,000/yr
- $401,000 - $1,000,000/yr
- $1,001,000 - $2,500,000/yr
- Over $2,500,000/year

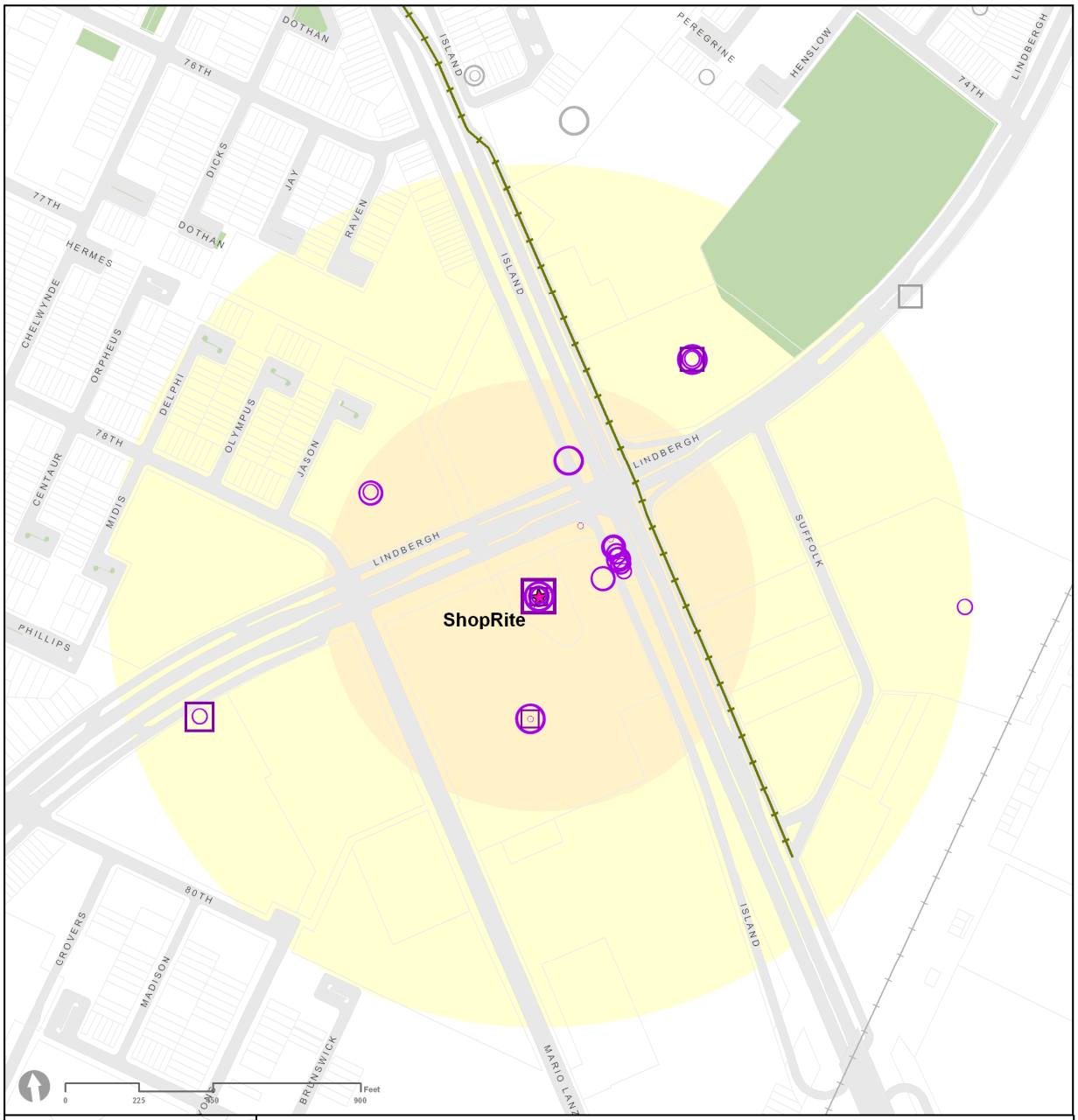
Stores Opened Before FFFI Store Opened

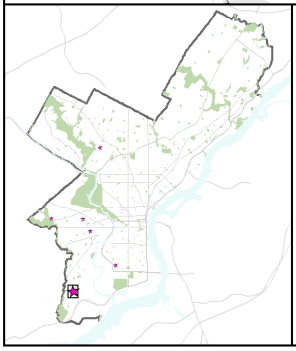
- No Data
- Up to $100,000/year
- $101,000 - $400,000/yr
- $401,000 - $1,000,000/yr
- $1,001,000 - $2,500,000/yr
- Over $2,500,000/year

Distance to FFFI Store

- Up To 1/8th Mile
- 1/8th to 1/4 Mile

TRF
Capital at the point of impact.





Map 7: ShopRite on Island Ave; Surrounding Business Sales Volume

Stores Opened After or Same Year FFFI Store Opened

- No Data
- Up to $100,000/year
- $101,000 - $400,000/yr
- $401,000 - $1,000,000/yr
- $1,001,000 - $2,500,000/yr
- Over $2,500,000/year

Stores Opened Before FFFI Store Opened

- No Data
- Up to $100,000/year
- $101,000 - $400,000/yr
- $401,000 - $1,000,000/yr
- $1,001,000 - $2,500,000/yr
- Over $2,500,000/year

Distance to FFFI Store

- Up To 1/8th Mile
- 1/8th to 1/4 Mile

TRF
Capital at the point of impact.

Section 4: Conclusion

There are many reasons to believe that there is a shortage of supermarkets in many distressed urban places. One thing is clear: there are added operating and ongoing costs to proprietors of supermarkets in these locations. This research shows that there is a way for a CDFI to use a variety of financing tools to expand opportunities for stores in these communities. We also find that: 1) the advent of these stores increases the opportunity to shop in larger stores thus enhancing choice; 2) employees of these stores tend to reside in close proximity, also in distressed urban places; 3) the employees obtain jobs with a positive wage trajectory and at wage levels comparable to their industry peers; 4) customers of these stores reside in close proximity to the stores; 5) supermarkets may serve as retail employment anchors, although this finding remains ambiguous; and 6) these stores reduce leakage of food retail expenditures resulting in a net increase in employment for the local communities. We believe these findings substantiate the role that the CDFI industry could play in this sector and that there are lessons to be learned from the analysis of the approach to how these markets are financed.

Appendix A

Subsidy Program Detail

Philadelphia Industrial Development Corporation

PIDC is a private, nonprofit, and mission driven organization offering subsidized, low-cost financing and free technical assistance to businesses and developers that create and/or preserve economic opportunity in areas where traditional, non-subsidized financing mechanisms are less feasible, if at all. It has served as the City of Philadelphia's economic development agency for 50 years. Financing programs provide support for purposes of both operating and real estate. Typically, PIDC financing serves as subordinate debt to a senior loan(s) provided by commercial banks and other financing sources and usually constitutes around 20% of a project's total costs. Many PIDC clients are nonprofit organizations that do not hold equity in a project but instead use numerous grants and low cost financing to put together a deal. PIDC plays a critical role in coordinating and administrating many of these grant and financing programs for its clients. Without PIDC assistance, many clients would be unable to bear the burden of coordinating numerous sources of funding.

Programs Administered by PIDC

Urban Development Assistance Grant (UDAG) – No longer active: HUD provided a grant to the City of Philadelphia (the City) which was then managed by PIDC. PIDC used the money as a grant and loan fund to finance commercial and industrial development. Because UDAG funds were largely discretionary, PIDC was able to offer extremely low interest rates (sometimes 0%) and favorable loan terms.

Department of Housing and Urban Development (HUD) CDBG Section 108 – Section 108 is the loan guarantee provision of the Community Development Block Grant (CDBG) program, providing communities with a source of financing for economic development, housing rehabilitation, public facilities, and large-scale physical development projects. Because the program allows communities to convert a small portion of their future CDBG fund allocations into much larger federally guaranteed loans, it is an extremely powerful tool for local governments. The city's Office of Housing and Community Development (OHCD) receives a HUD loan and then contracts with PIDC to administer the program, which then serves as a lender of subordinate debt with a maximum loan-to-value (LTV) of 80%, maximum loan amount of $35,000 per job created and/or retained, and interest rates that are pegged to US Treasury rates, which end up being slightly higher than the interest rate HUD charges the City. This spread helps PIDC cover loan origination and administration expenses, not unlike funds invested in TRF by banks seeking CRA credit. CDBG funds are less discretionary than the UDAG grant funds mentioned above and are therefore more limited as to the types of projects they can finance. Also, CDBG funds have declined significantly over the years and have become a less productive resource for PIDC.

PIDC Growth Loan Program – PIDC is able to loan these funds at interest rates equal to approximately ½ of the prime rate and for longer terms than other programs under management, which are typically limited to 5 years. The general loan fund offers 10, 20, or even 30 year loans on commercial and industrial financing; these longer terms are rare in commercial and industrial lending due to the significant financial risk and uncertainty associated with longer economic cycles. Longer loan terms are very attractive to borrowers because they allow for more predictable long-term debt service expenses, thus making it easier for firms to create long-term business plans and strategies. PIDC's

provision of long-term financing is a tremendous benefit for its clients; one that is largely unavailable from other lenders.

The Welcome Fund – The Welcome Fund provides a source of low-cost capital to commercial, retail, industrial, and non-profit firms located or planning to locate in Philadelphia. This fund provides senior loans only (first collateral, lien, etc.) for up to $50,000 per job created and/or retained and a loan amount range between $2 million and $50 million at interest rates fixed at half of prime (no less than 2%) to be repaid within 3 to 5 years. Financing can be used for new construction, property acquisition, building rehabilitation, tenant improvements, machinery and equipment acquisition, and working capital. An especially unique feature of the Welcome Fund is that offers foreign investors an opportunity to finance a US business and to receive a provisional visa that under certain conditions becomes permanent.[11]

Tax Increment Financing (TIF) – TIF is authorized by the state of Pennsylvania, approved through a public ordinance process, and then administered by PIDC. PIDC assists businesses and developers with the application process and then works to bundle TIF funds with other PIDC programs. The program works by freezing property tax liability at predevelopment levels and then allowing the recipient to apply any increases in tax liability towards debt reduction on the loan. TIF recipients borrow funds from a lender to pay for the project and then use any increase in tax liability to help repay the original loan. A borrower can use TIF funds for predevelopment, construction/rehabilitation, and machinery and equipment purchases. The program is rarely used to finance a single-tenant development due to the high cost of completing the program's application and complying with its reporting requirements. TIF developments are typically larger, multi-tenant shopping centers.

Various other funding sources – PIDC has access to nearly 50 different funding sources for both grant and loan disbursements, including peripheral programs related to infrastructure and workforce development.

PIDC Services – PIDC offers free real estate acquisition and development services that alleviate the burdens associated with site assembly, zoning, utilities, and other development related activities that require city authorization and approval. PIDC schedules a single meeting between the client and all relevant city agencies, thereby allowing clients to obtain all necessary approvals in much less time than if each city agency was addressed separately. Worth noting is that these real estate services are available to all operators and developers of commercial and industrial facilities, regardless of whether or not they use PIDC funding programs.

Philadelphia Commerce Department

The Commerce Department is the umbrella organization for all economic development activity in the City, coordinating the efforts of PIDC, OHCD, the Philadelphia Commercial Development Corporation (PCDC), and the Redevelopment Authority (RDA) to develop strategies that create, retain, and expand businesses in Philadelphia. The Commerce Department helps businesses obtain licenses and permits, locate/identify land and/or buildings for expansion, obtain financing, and access business assistance services.[12]

Programs Administrated by the Commerce Department

[11] http://www.pidc-pa.org/PhiladelphiaWelcomeFundLoanProgram.asp
[12] http://www.phila.gov/commerce/comm/lvl_2/mbat_tax_incentives.htm

Empowerment Zones (EZ) – This program is federally funded and locally administered in the three EZ neighborhoods in the city of Philadelphia. The EZ program provides tax credits, tax exempt bonds for facilities, and tax deductions to businesses located in designated EZ areas. Employment tax credits provide up to $3,000 per year per employee (20% tax credit on the first $15,000 in wages paid) and are available each year wages are paid, but only for employees who also live in designated EZ areas. Tax exempt facility bonds for financing capital projects are available to EZ areas for up to $130 million. The program also provides low-interest business loans, tax abatements on accelerated depreciation, and tax deductions for environmental cleanup costs and up to $35,000 per year for equipment purchases.[13] The EZ program is set to expire in 2010.

Renewal Communities (RC) – Large sections of North, South and West Philadelphia are designated as Renewal Communities. Businesses located within these areas are eligible for incentives designed to encourage new business development, expand existing businesses, and hire residents of Renewal Communities. The incentives are similar to those provided by the EZ program, including employment credits and the $35,000 equipment deduction, though RC areas are also eligible for a 0 percent tax on capital gains and a tax deduction for the construction and/or rehabilitation of property. Employment tax credits provide up to $1,500 per year per employee (15% on the first $10,000 of qualified wages) and are available each year for which wages are paid, but only for employees who also live in designated RC areas. The capital cost of new construction or substantially rehabilitated property can be expensed by either deducting half of the costs in the first year or amortizing all costs over 10 years. The maximum deduction per project is $10 million with a $12 million cap per designated RC per year. For investors that purchase a RC asset, such as stock, partnership interest, or business property and hold it for more than 5 years, they can exclude qualified capital gains from the asset's sale or exchange. In other words, the investor does not pay federal capital gains tax on their investment. The RC program is also set to expire in 2010.

Keystone Opportunity Zones (KOZ) – Local governments select parcel-specific areas (up to 5,000 acres) to be considered for KOZ eligibility; the state then determines whether or not they are eligible. KOZ eligibility requires that an area exhibit adverse economic and socioeconomic conditions but also exhibit the potential for removing these adverse conditions if the area experiences strategic and targeted economic development incentives. Businesses located in a KOZ are exempt from state and local business taxes. Each KOZ within Philadelphia is approximately 500 acres and the current zones in Philadelphia are eligible through 2013.[14]

Pennsylvania Enterprise Zone Program (PEZ) – This program expired in 2004 and was administered by the Pennsylvania Department of Community and Economic Development (DCED). The program provided grants to local governments, redevelopment authorities, nonprofit economic development organizations, and other nonprofit organizations and business district authorities working to promote economic development in economically disadvantaged communities. Approved applicants could receive a planning grant (up to $50,000), basic grant (up to $50,000), or a grant-to-loan (up to $500,000). The grant-to-loan allowed the applicant to create a revolving loan fund for directly financing business development within the community.[15] Loan funds could be used for up to 30% of the total project investment to acquire machinery and equipment; they could also be used for new business construction or building improvements, site improvements, infrastructure, and in some special cases, for up to 40% of inventory or working capital needs. Loans could also be used for the cost of preparing business lease space, especially for facilities with fiber optic wiring, costs of public infrastructure development, and hazardous waste testing if the lack of conventional funding sources for such costs was documented. Competitive grants would not exceed 30% of total project investment, and

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[13] http://www.empowermentzone.org/business_services/programsAndIncentives.html
[14] http://www.newpa.com/default.aspx?id=346
[15] http://www.newpa.com/programDetail.aspx?id=76

one full-time job must be created or retained for each $30,000 of loan capital. Many PEZ areas also qualify for the KOZ, RC, and EZ programs; all of these subsidy programs can be combined since they are not mutually exclusive.

Appendix B

Displacement Effects of New Supermarkets

The example cited in the narrative helps explain the economic base theory and its concept of a location quotient, which compares each industry's percentage of total employment in a local economy to that of a reference economy, such as the national or regional economy, thus identifying the local economy's industry specializations (basic industries).[16] It is calculated by dividing each industry's percentage of total jobs in the local economy by the same percentage of the reference economy so that a value of 1 or less indicates non-basic industry activity and a value greater than 1 indicates basic industry activity. In other words, it identifies industries that are simply satisfying their share of local demand and those that are contributing to economic growth by exporting goods and services to consumers and businesses in other economies, thus importing money and investment into the local economy. Industries that constitute the retail sector, especially those selling essential items such as food and clothing, are expected to have a location quotient between 0.95 and 1.05 because these retail purchases are predominantly made by residents of the local economy. It should be noted that the economic base theory holds all other factors constant, especially changes in population.

Table B.1 lists industry location quotients for the city of Philadelphia and the Philadelphia metropolitan area. These calculations were made using 2005 County Business Patterns Data from the US Census Bureau. This table shows that in the city of Philadelphia the percentage of total employment devoted to the retail sector is 25% below the national and regional averages with a location quotient equal to roughly 0.75 for both benchmarks. This may suggest that Philadelphia residents are purchasing food retail items from stores located outside the city limits (leakage) and that a portion of the additional retail employment associated with a new supermarket will result in net job creation, albeit only in the city of Philadelphia, and is likely to result in reduced employment in nearby areas where city residents used to shop.

[16] http://garnet.acns.fsu.edu/~tchapin/urp5261/topics/econbase/lq.htm

Table B.1: Location Quotients

Industry Group	Phila / National LQ	Phila / National LQ Rank	Phila / Regional (MSA) LQ	Phila / Regional (MSA) LQ Rank	Phila / Top 20 Cities LQ	Phila / Top 20 Cities LQ Rank
Petroleum and coal products manufacturing	3.0870	1	1.7623	6	5.1802	1
Performing arts, museums, and related activities	2.9082	2	3.2035	1	1.3431	10
Educational services	2.8520	3	1.8269	5	2.2300	3
Air transportation	2.6950	4	2.6921	2	0.9681	20
Securities, commodity contracts, investments	2.5486	5	1.6071	9	0.9364	22
Apparel, leather, and allied product manufacturing	2.2437	6	2.4179	3	0.8230	29
Social assistance	1.9988	7	1.9654	4	1.7168	7
Funds, trusts, and other financial vehicles	1.5993	8	1.3163	11	0.7247	33
Other transportation and support activities*	1.5566	9	1.6070	10	1.0637	16
Hospitals and nursing and residential care facilities	1.5122	10	1.2910	12	1.8798	4
Insurance carriers and related activities	1.4782	11	1.0933	22	1.2083	12
Professional, scientific, and technical services	1.4187	12	1.1432	17	1.0031	19
Broadcasting and telecommunications	1.3617	13	1.2757	13	1.0744	15
Ambulatory health care services	1.2594	14	1.1060	20	1.2876	11
Federal Reserve banks, credit intermediation and related services	1.2317	15	1.1060	21	0.9619	21
Other services*	1.1439	16	1.1139	19	1.0922	14
Printing and related support activities	1.0894	17	0.6592	39	1.1887	13
Food, beverage, and tobacco product manufacturing	1.0681	18	1.1625	16	1.5130	8
Publishing including software	1.0540	19	0.8164	31	0.7172	35
Management of companies and enterprises	1.0503	20	0.8955	27	0.7905	31
Real estate	1.0267	21	1.1643	15	0.6836	37
Chemical manufacturing	0.9466	22	0.9381	25	1.4804	9
Food services and drinking places	0.9270	23	1.1289	18	1.0075	18
Transit and ground passenger transportation*	0.9153	24	0.6036	40	0.8805	25
Rental and leasing services and lessors of intangible assets	0.9151	25	0.8667	30	0.8646	26
Paper manufacturing	0.9124	26	0.8807	28	1.7538	5
Accommodation	0.8430	27	1.7399	8	0.8188	30
Warehousing and storage	0.8225	28	0.9420	24	0.8597	27
Motor vehicle, body, trailer, and parts manufacturing	0.7937	29	1.7432	7	2.3264	2
Wholesale trade	0.7664	30	0.7083	37	0.6876	36
Electrical equipment and appliance manufacturing	0.7524	31	1.0029	23	1.7530	6
Retail trade	**0.7497**	**32**	**0.7570**	**33**	**1.0183**	**17**
Administrative and support services	0.7053	33	0.7186	36	0.5953	40
Motion picture and sound recording industries	0.6309	34	0.8146	32	0.3354	49
Information and data processing services	0.5672	35	0.8772	29	0.3887	47
Miscellaneous manufacturing	0.5607	36	0.5459	41	0.7206	34
Utilities*	0.5502	37	0.7189	35	0.6724	39
Furniture and related product manufacturing	0.5362	38	0.7551	34	0.9007	24
Other transportation equipment manufacturing	0.5100	39	1.1986	14	0.8422	28
Textile and textile product mills	0.4827	40	0.9285	26	0.9318	23
Fabricated metal product manufacturing	0.4640	41	0.6778	38	0.7352	32
Amusements, gambling, and recreation	0.4592	42	0.5233	42	0.6746	38
Waste management and remediation services	0.3840	43	0.3738	46	0.5082	44
Construction	0.3820	44	0.4470	43	0.5129	43
Truck transportation	0.3009	45	0.4087	45	0.4037	46
Computer and electronic product manufacturing	0.2316	46	0.2624	49	0.2612	50
Primary metal manufacturing	0.2291	47	0.3153	47	0.5745	41
Machinery manufacturing	0.2157	48	0.4099	44	0.4114	45
Plastics and rubber products manufacturing	0.2154	49	0.3087	48	0.5499	42
Nonmetallic mineral product manufacturing	0.0704	50	0.0688	53	0.1539	52
Crop and animal production	0.0606	51	0.1455	51	0.3885	48
Wood product manufacturing	0.0540	52	0.2181	50	0.2027	51
Water transportation	0.0218	53	0.0417	54	0.0168	54
Forestry, fishing, and related activities	0.0040	54	0.0926	52	0.1403	53
Mining, except oil and gas						
Pipeline transportation						
Support activities for mining						
Oil and gas extraction						
Households						
Rail transportation						

Source: US Census Bureau County Business Patterns, 2005. Figures calculated by TRF.

It is also worth noting that the introduction of new supermarket is likely to displace existing food retail activity within the community, especially at smaller and medium sized food stores that are unable to compete. A quick summary of the TradeDimensions data for Philadelphia stores shows that smaller grocery stores have a higher employee to sales ratio (see Table B.2 below). This would suggest that the transfer of sales from a smaller store to a larger one, combined with the smaller store's closing, would result in a net loss in total employment. On the other hand, some of the smaller stores may be able to remain open if they can absorb the price competition posed by the larger store. Also, if the larger store is stemming leakage to large stores outside the community, then much of the large store's sales will fill the leakage gap and not take away from existing smaller stores, likely resulting in a net gain in employment for the local community. However, determining the actual number of businesses and jobs displaced by the introduction of a new supermarket constitutes a large scale effort worthy of its own study topic and is therefore beyond the scope of this paper.

Table B.2: Philadelphia Grocery Store Employee to Sales Ratios

Sales ($ per week in 000's)	Employees per $100,000 in Weekly Sales	Number of Stores	Total Weekly Sales (000's)	Total Employees (FTE)
<100	0.3482	22	$1,499	522
100-199	0.2716	35	$4,425	1,202
200-299	0.2828	39	$8,725	2,467
300+	0.2129	24	$11,175	2,379

Source: TradeDimensions, 2007.

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