

The Changing Face of Retail: Wal-Mart's Effect on Retail Sector Employment in Mexico

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Abstract

This study is designed to isolate Wal-Mart's effects on the retail sector employment index in Mexico at the federal entity level. As Wal-Mart is the largest supermarket chain in Mexico and the largest private employer, the case will be made that the findings are indicative of the greater effects of the modern retail sector on the traditional retail sector. On a broader level, this paper will argue that the retailer justly serves as a representative of the Latin American Supermarket Trend, a phenomenon that has been propelled by the trade and investment liberalizations institutionalized by the ratification of NAFTA. The statistical analysis consists of various regressions using two weighted Wal-Mart store variables; as the dataset is time-series and cross-sectional, panel corrected standard errors and autocorrelation corrections are used. Controlling for economic, political, geographic, and time trends, the results indicate that Wal-Mart's presence has a negative effect on the retail sector employment index. Furthermore, the retailer is not creating retail sales but is rather acquiring a larger piece of the retail sector pie. The entrance of one multinational corporation resulted in negative externalities in both the retail and agricultural sectors. Policy makers must consider the externalities associated with the pursuit of international economic integration and take appropriate measures for those unable to compete.

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Section 1:
General Introduction

Introduction

“Every Day Low Prices” (EDLP) is a phrase synonymous with the world’s largest retailer, the American-owned Wal-Mart. For some it conjures up images of a bouncing smiley face and enthusiastic greeters, while others ponder unemployment checks and outsourcing. Whatever the view, the retailer has likely imprinted an image in the psyches of all Americans from the lower classes to the business elite. Some love it while others hate it, and yet it appears that the lovers are winning as Wal-Mart is now a multi-national company with stores in 15 countries (Wal-Mart on-line). Its massive success has come with new catch phrases, such as EDLP, “the Wal-Mart Effect” and “Wal-Martization”, the latter two having rather negative connotations.

Mexico is second only to the United States in total number of Wal-Mart stores and it follows that American retail transformations attributable to Wal-Mart, or the Blue Giant, may also be transpiring in Mexico. One popular claim is that the retailer’s presence displaces smaller outlets, such as “mom and pop shops”. The concern is that as these smaller stores close, jobs are lost and are replaced with lesser quality Wal-Mart positions¹ or are not replaced at all. As Mexican retail is characterized by neighborhood stores owned and operated by local families, examining the validity of this claim is imperative. This paper tackles the question by isolating Wal-Mart’s effect on the retail sector employment index².

American examples of the “Wal-Mart Effect” may be seen in changing retail trends (Stone, 1997); state safety net programs (Dube and Jacobs, 2004); increasing family-poverty rates (Goetz & Swaminathan, 2006); and in the struggles and successes of

¹ The jobs may be of a lesser quality due to lower average wages or reduced benefits.

² This statistical portion of this study isolates Wal-Mart’s effect on the number of retail jobs and not the quality of those jobs.

companies such as Vlasic, Levi Strauss and The Lovable Company (Fishman, 2003). Efforts to sully the Wal-Mart image have been propelled by organizations such as the AFL-CIO and the groups Wal-Mart Watch and Wake Up Wal-Mart. The question is, while considerable evidence has been found supporting the negative claims of unions and interest groups concerned with American business and retail, do similar arguments apply for the commercial sector in Mexico as well?

In addition to the retailer's relationship with Mexican retail, the case can be made that Wal-Mart's effects are representative of the greater Latin American Supermarket Trend. In Mexico, this trend has been propelled by the economic liberalizations institutionalized with the ratification of the North American Free Trade Agreement (NAFTA) in 1993. This free trade treaty encourages international economic integration through the reduction of trade barriers and increased foreign investment, or as it is called, economic globalization.

I make these connections to illustrate that the retailer is a suitable example of the multinational corporation often cheered or jeered in discussions of economic globalization³. Statistical studies are useful insofar as they successfully explain a relationship between variables; this usefulness may be enhanced if the relationship can be generalized or compared to other relationships or trends. While estimating Wal-Mart's effects specific to Mexico's retail sector employment is a worthy cause, the challenge is to illustrate that this relationship is indicative of the competition's relationship with retail employment and the supermarket trend's overall effect on retail employment. The supermarket's ability to enter the Mexican and greater Latin American markets has been

³ Examples of often targeted multinational corporations include Wal-Mart, Nike, McDonald's, and Shell Oil (Klein, 2002).

supported and encouraged by reduced trade barriers, and the case can be made that the effects of this trend are indicative of how economic liberalizations and the global integration of markets may affect domestic retail employment rates. That does not imply that the results of this study must also be the case wherever there are reduced trade barriers and a Wal-Mart, but rather that if these results prove intriguing, similar economic environments should be evaluated.

In Mexico, the retail sector is changing as suppliers become more efficient and the competition adopts new business practices in an effort to keep up with Wal-Mart. Technological innovation and efficiency are signs of effective competition among business, yet it may also signify lost jobs. It is possible that in the midst of this retail sector transformation jobs are being replaced with improved technology or jobs are being lost by those unable to compete with the Blue Giant. One may ask if increased competition and modernization can be considered negative externalities. The question is less whether or not competition and modernization are good for business, but rather if competition is possible for everyone within this sector. Furthermore, if it is not possible, what exit options exist for the “losers”? The lower prices reaped from competition may benefit the consumer but what if that competition destroys more jobs than it creates⁴? If competition is to be sustained, then appropriate policies should be discussed to ensure that viable alternatives exist for those left behind.

Using regression analysis, this study seeks to determine the relationship between Wal-Mart’s presence and retail jobs. Before discussing the results, it is important that “the Wal-Mart Effect” be contextualized. The remaining portion of the introduction is

⁴ Jobs are “destroyed” when a retailer fails to create as many jobs as are lost. Jobs are lost when smaller stores close or fire employees due to their inability to compete.

intended to review facets of the Wal-Mart debate and illustrate the level of the retailer's presence in the U.S. and Mexico. These examples will conclude with a justification for choosing to target the Blue Giant when other big-box stores and multinational corporations are present in Mexican retail⁵.

Section two of the thesis will include a discussion of globalization and the common externalities associated with this process, focusing briefly on culture and agriculture. That will be followed by a brief summary of the state of Mexico before and after NAFTA, and will conclude with an overview of the Latin American Supermarket Trend and its effect on small/medium farmers. Section three will outline the structure of the Mexican retail sector, followed by a review of Wal-Mart's history in Mexico, and will end with an overview of the competition. The fourth section will introduce the variables of the regression model followed by the results of the statistical estimations. Finally, the fifth section will offer an interpretation of the regression results and discuss further study options.

Wal-Mart in the United States

Critics of Wal-Mart are abundant; in addition to anti-Wal-Mart website campaigns⁶, academic studies are increasing. The following examples discuss the retailer's effect on small-town sales, family-poverty rates, and state safety net programs. This subsection concludes with an anecdotal look at Wal-Mart's relationship with various

⁵ Examples include Soriana, Gigante, Comercial Mexicana, and Costco.

⁶ Sites include WalMartMovie.com, WalMartWatch.com, and WakeUpWalMart.com. Interestingly, "googling" the phrase "anti-Wal-Mart" results in 135,000 sites, while "pro-Wal-Mart" yields only 21,600 results.

suppliers. The examples provided are generally negative as the purpose is to illustrate the various criticisms hurled at the retailer.

Kenneth Stone, an economics professor at Iowa State University conducted a study to determine the impact of Wal-Mart's presence on small-town Iowa retailers. Comparing towns with Wal-Mart and those without, Stone concludes "that some small towns lose up to 47 percent of the retail trade after 10 years of Wal-Mart stores nearby" (Stone, 1997: 2). He notes that Wal-Mart is one of several "category-killers" among names such as Toys R Us, Home Depot and Staples; a "category-killer" "enter(s) a category with so much buying power that they almost instantly kill the smaller competitors (footnote excluded)" (Klein, 2000: 134). Wal-Mart belongs to a larger group of "category-killers" with the capacity and capital to destroy smaller establishments, but appears to be the target of choice for many.

Wal-Mart's effects are not limited to the retail sector but also affect state support systems; even taxpayers are vulnerable to Wal-Mart's ways. Research by the UC Berkeley Labor Center found that Wal-Mart employees in California "earn on average 31 percent less than workers employed in large retail as a whole...In addition, 23 percent fewer Wal-Mart workers are covered by employer-sponsored health insurance" (Dube & Jacobs, 2004: 1). The study estimates the cost incurred by California's state safety net programs as a result of the lower wages and benefits provided by the retailer. The conclusion: taxpayers in California spend \$86 million on Wal-Mart workers enrolled in safety net programs—\$32 million in health-related costs and \$54 million in other costs. If similarly-sized Californian retailers were to follow suit, it would amount to an additional \$410 million. "In effect", the authors argue, "Wal-Mart is shifting part of its

labor costs onto the public” and policy makers should consider the cost of these jobs when pursuing economic development (Dube & Jacobs, 2004: 8).

Poverty rates have also been affected by Wal-Mart’s presence. Goetz and Swaminathan conducted a county-level study that isolates the retailer’s effects on family-poverty rates, and found that “the presence of Wal-Mart was unequivocally associated with smaller reductions in family-poverty rates in U.S. counties during the 1990s relative to places that had no stores” (Goetz & Swaminathan, 2006: 223). Additional tests revealed that Wal-Mart store growth in the 1990s is correlated with increases in or smaller decreases in food stamp usage per capita.

The authors discuss the externalities associated with Wal-Mart’s entrance into a community, for example, the displacement of “mom and pop shops”. It is possible that the owners and employees of these stores may find positions at a Wal-Mart, however they may work for lower wages and fewer hours. One can argue that these workers can take jobs elsewhere⁷, yet the authors note that “(a)lthough individual workers have the option of working or not working for Wal-Mart, a public policy issue arises if the chain creates externalities that raise poverty levels in the community” (Goetz & Swaminathan, 2006: 214).

This displacement affects more than the “moms and pops” but also those businesses that supplied services to their stores, such as wholesalers, product transporters, and financial providers. As Wal-Mart relies on its headquarters in Bentonville, Arkansas for logistical support, those suppliers are no longer needed. This effect may contribute to a “brain drain” of sorts in which these business-people move to urban areas where their

⁷ This argument rests on the assumption that exit options other than Wal-Mart exist, or that the employees can afford the cost of moving if opportunities exist outside of the community.

services may be useful. Wal-Mart's effects, and those of other mass merchandisers such as the aforementioned "category-killers", can reach beyond the retail sector.

A final popular topic is Wal-Mart's relationship with its suppliers, and arguably, there are positive and negative effects when evaluating these relationships⁸. A positive effect: its volume and delivery requirements demand efficient production practices and precise delivery times, and this is achieved through effective computer systems. For American blue jeans company Levi Strauss, "(g)etting ready for Wal-Mart has been like putting Levi on the Atkins diet" (Fishman, 2003: 8). Prior to their relationship⁹, Levi Strauss was known industry-wide for late delivery times. Post-Blue Giant, the company has updated its technology and delivers on time and more frequently¹⁰. Arguably, meeting Wal-Mart's demands may improve the supplier's relationship with other buyers.

Additionally, suppliers that achieve the necessary efficiency have access to a company that "sells in three months what number-two retailer Home Depot sells in a year...(that) does more business than Target, Sears, Kmart, J.C. Penney, Safeway and Kroger combined" (Fishman, 2003: 1). However, increased sales may not guarantee higher profits. America's number one pickle brand, Vlasic, saw higher sales and growth numbers after the launch of its gallon-sized jar of pickles priced at a mere \$2.97; it also lost millions of dollars as its profits fell by 25 percent. Fearful of the future, a former Vlasic vice president, Steve Young, fought with Wal-Mart for a price increase. Young remembers the words of one Wal-Mart executive, "He said, 'Well, we've done to pickles

⁸ Characterizations of Wal-Mart's relationship with its suppliers as well as the stories of suppliers were extracted from Fishman (2003).

⁹ Levi Strauss and Wal-Mart began their partnership in October 2002; Wal-Mart sells Levi's Signature brand blue jeans.

¹⁰ Fishman also notes that Levi Strauss lowered their quality standards in this process.

what we did to orange juice. We've killed it. We can back off.” (Fishman, 2003: 3).

Wal-Mart finally reduced the gallon-sized jar to a little over half a gallon priced at \$2.79.

The Lovable Company¹¹ began doing business with the retailer in the “early days”; Wal-Mart eventually became its biggest client and, ultimately, controlled the company’s fate. Frank Garson II, grandson of Lovable’s founder, said “They had awarded us a contract, and in their wisdom, they changed the terms so dramatically that they really reneged... They leave a lot to be desired in the way they treat people... Wal-Mart chewed us up and spit us out” (Fishman, 2003: 6). Three years later, in 1998, the company closed its doors after 72 years of business.

Wal-Mart in Mexico

Studies have not yet been conducted of the same scale in Mexico as in the United States, and so the stage must be set using anecdotes and opinions from various newspaper articles. Tim Weiner writes that Wal-Mart is changing the Mexican retail sector as it did in the U.S. “and with the same formula: cut prices relentlessly, pump up productivity, pay low wages, ban unions, give suppliers the tightest possible profit margins and sell everything under the sun for less than the guy next door” (Weiner, 2003: 1). This “formula” is the Wal-Mart business model and the competition in Mexico has taken notice. Ken Bensinger notes that other “big-box” chains are doing what they can to set themselves apart such as offering higher-end products, specialty goods, and traditional Mexican fare (Bensinger, 2005).

¹¹ Lovable supplied retail chains such as Wal-Mart, Sears, and Victoria’s Secret with bras and lingerie.

The retailer also faces criticism from those concerned with the “cultural imperialism” often associated with the entrance of foreign firms. Weiner writes that in Mexico “a new consumer culture is rising, along with the sales of McDonald’s hamburgers and Domino’s pizzas” (Weiner, 2003: 1). Wal-Mart’s American roots may only add salt to the wound as, historically, Mexico’s relationship with its northern neighbor may be best described by the phrase “can’t live with ‘em, can’t live without ‘em”.

The retailer’s decision to build near the Pyramids in Teotihuacán sparked a battle within the Mexican community. The Pyramids of the Sun and the Moon are located in the historic “City of the Gods” in San Juan Teotihuacán. In an article titled *Wal-Mart Invades Mexico*, John Ross notes that some citizens looked forward to Wal-Mart’s lower prices and cleaner facilities compared with local shops, while another expressed anger at the Wal-Mart “conquest”. Yet despite the battle, the retailer was doing booming business only one month after opening its doors (Ross, 2005). Apparently, consumers gave up their fight against cultural imperialism and corporate bullying for a wider selection at lower prices, or perhaps, the concerned were also the minority.

Why Wal-Mart?

Hopefully the previous accounts have successfully demonstrated Wal-Mart’s influence. However, those familiar with Mexican retail know that the Blue Giant is not the only big-box supermarket in town, so why Wal-Mart? The argument is that this retailer is leading the supermarket charge, increasing competition and modernizing

business practices, and therefore it justly serves as a representative of the “supermarketization” of Mexico.

Naomi Klein discusses the danger of missing the forest for the tree in *No Logo*. Using opinions from various sources, including historical preservationist and Wal-Mart enemy, John Jarvis, and quotations from Bob Ortega’s *In Sam We Trust*, Klein addresses the dangers of choosing one “big tree”. Jarvis notes that “the good thing about Wal-Mart was that it was big enough, nasty enough, and aggressive enough to make the problem of uncontrolled growth clear (footnote excluded)” (Klein, 2000: 422)¹². However, Ortega warns that Wal-Mart critics spend too much energy fighting the Blue Giant and effectively ignore the copy-cats; “(t)o the extent that Wal-Mart’s critics blast it for wiping out Main Street businesses, for homogenizing communities, for trying to crush any and all rivals, for selling goods made in sweatshops here and abroad, they are missing the forest for the biggest tree (footnote excluded)” (Klein, 2000: 423).

Klein explains, however, that the study of a single corporation can yield concrete examples of successes or failures that may also be characteristic of its peers. Focusing on one company is also more manageable, and robust findings will warrant the addition of more “trees” to see if statistical trends hold across corporations. Therefore, this paper will not claim that the nature of Wal-Mart’s relationship with retail sector employment is better or worse than that of the competition, but rather that it may be characteristic of the competition. Wal-Mart is the world’s largest retailer and its visibility and domination make it an attractive target.

¹² This discussion uses quotes from Klein’s *No Logo* that are extracted from Ortega’s *In Sam We Trust* (pp. 317 & xv, respectively).

Section 2:

Globalization, NAFTA, & the Supermarket Trend

Globalization

The purpose of this section on globalization, NAFTA, and the supermarket trend is not to debate the pros and cons of the phenomena but rather to evaluate their negative externalities. The argument is not that globalization and NAFTA are bad and must be stopped, but rather that they produce negative outcomes that must be recognized and therefore, appropriate policy measures must be discussed. The process of international economic integration is a reality and often takes the form of free trade agreements with the subsequent spread of multinational corporations. With this integration often comes unanticipated positive and negative effects, and it is the latter that will be outlined.

Globalization has a variety of forms such as cultural globalization and communications, but this paper is concerned solely with *economic* globalization which:

“constitutes integration of national economies into the international economy through trade, direct foreign investment (by corporations and multinationals), short-term capital flows, international flows of workers and humanity generally, and flows of technology” (Bhagwati, 2004: 1).

The process of entering the global economic market may result in a variety of outcomes: increased competition, more jobs, and technological advance. Labeling this process as positive or negative is often quickly done, at times without an honest effort at objectively evaluating the results (Bhagwati, 2004). Regardless of one’s opinion on this process, the reality is that it is taking place; Mexico will not renege on NAFTA and revert to protectionist policies, so instead of fighting this process, it is necessary to understand it thoroughly, and develop strategies for dealing with the negative externalities.

Thankfully, Dani Rodrik has done well in presenting what this opening of markets is and what it does¹³. The challenge: “that international economic integration does not contribute to domestic *disintegration*” (Rodrik, 1997: 2). This disintegration is caused by the social tensions that arise from the effects of market competition. Causes of these tensions include the worker’s loss of bargaining power and an increase in nonwage costs shifted to the worker. When corporations are able to cross international borders and when that change proves cheaper to the bottom line, many jobs, primarily low-skill become more “elastic”, that is, “trade increases the degree to which employment can react to changes in prevailing wages by outsourcing or investing abroad” (Rodrik, 1997: 12,13).

In developed countries, two changes are occurring on the demand curve for low-skilled labor: an inward shift and a flattening of the curve (Rodrik, 1997: 12). The inward shift occurs as low-skill jobs are being displaced by cheap imports from lesser developed countries. The flattening of the curve is due to increased uncertainty for low-skill workers as their jobs may be displaced by workers in other countries; workers also bear more of the nonwage costs of the job including benefits. The “substitutability” of their jobs results in lost bargaining power when negotiating wages, benefits, and hours.

Additional sources of tension include the difficulty that governments face in providing social insurance to protect their citizens. The opening of trade flows coupled with a reduction in social spending likens globalization to an International Monetary Fund (IMF) austerity program¹⁴. Rodrik presents an interesting chapter on the shift from

¹³ This globalization section draws heavily on Rodrik’s explanations and examples in *Has Globalization Gone to Far?*.

¹⁴ It should be noted that studies have been conducted which find that social spending is not reduced under IMF programs (Martin & Segura-Ubiergo, 2004).

the post-war welfare state in which governments cushioned the effects of reducing trade barriers with social provisions, to an era where opening trade and the shrinking government are a packaged deal¹⁵.

Finally, “trade becomes contentious when it unleashes forces that undermine the norms implicit in domestic practices” (Rodrik, 1997: 5). Rodrik uses the example of a child labor in a lesser-developed country (LDC) displacing working adults in America. The American reaction may be one of righteous indignation, while jobs of any sort may be considered progress in the LDC. The issue is determining whether the American worker is truly concerned for the children or if the “concern” is actually a hidden protectionist desire.

Rodrik argues that unsettling distributional outcomes, in and of themselves, do not serve as a proper justifications for protectionist policies. Consider technological advance, would it be appropriate to trade light bulbs for candles simply because making candles requires more manpower than manufacturing light bulbs? Although the reality of child labor is more disturbing than the thought of unemployed candle-makers both are examples of unsettling outcomes. Often, the answer lies in the legitimacy of the outcome, and the legitimacy of the outcome may hinge on its means; was the “distributional advantage obtained through *means* that society considers legitimate?” (Rodrik, 1997: 31)¹⁶.

¹⁵ Academics disagree about the impact of openness on social spending, and some of the debate depends on one’s measure of openness (Kaufman & Segura-Ubierno, 2001 and Avelino, Brown, & Hunter, 2005). Rodrik (1997) illustrates the varying outcomes that can be found when measuring trade openness versus external risk.

¹⁶ For a thorough discussion of a society’s stance toward child labor see *The Child and the State in India: Child Labor and Education Policy in Comparative Perspective* (Weiner, 1991). A society’s view on child labor may be related to its economic, industrial, and educational development.

However, the legitimate means argument does not provide food for the unemployed candle-makers, yet arguably, light bulbs should not be banned. The question becomes what opportunities exist for the displaced candle-maker or the low-skill worker? If the processes of technological advance and globalization are to be maintained and social disintegration avoided, an evaluation of a society's alternatives and exit options must occur.

While social disintegration must be actively avoided, restricting free trade alone will not provide an effective solution just as protectionist policies alone do not solve societal ills. Balancing domestic social needs and international economic integration is not a miracle cure, but rather an attractive alternative. It is imperative that policy makers are not satisfied with economic growth that exacerbates inequality, but shift their desire to raising the bar for the lowest level of society.

Globalization & Culture

A group smuggling illegal workers to the United States dropped their "clients" off in front of a mall home to, among additional stores, a Wendy's, an Appleby's, and a Wal-Mart, telling the workers that they were now on "the Other Side". In reality, they were in Chihuahua a city 100 miles south of the U.S./Mexican border (Ross, 2003: 1).

Economic globalization and cultural globalization are two different processes, but the social disintegration outlined by Rodrik may include cultural components. The relationship between the two is well-defined by Néstor García Canclini:

"(Globalization) exacerbates international competition and undermines endogenous cultural production, favours the expansion of companies with the

capacity to homogenize and deal with sectoral and regional diversities in a particular way: It destroys or weakens inefficient producers, and presents peripheral cultures with the choice of remaining fixed within their local traditions, or exporting themselves...to the demands of transnational communications companies.” (Canclini, 2000: 45)

The fear is that multinationals will enter with their brands and products and dominate domestic goods, create trends, and transform consumer tastes. They may also transform the landscape as evident in the story above. This idea of “cultural imperialism” is forefront when discussing Wal-Mart’s role in Mexico. Is the “Wal-Martization” of retail leading to the “Americanization” of Mexican tastes and purchasing trends? Francisco Rivero, an economic analyst in Mexico states that “(p)art of globalization is adopting the methods and customs of another country” and NAFTA negotiator Luis de Valle “proudly boasted” that “Mexicans and Americans now buy the same products and pay the same prices” (Weiner, 2003: 1 & Ross, 2005: 1, respectively). Quotes such as this coupled with persuasive, well-written arguments such as Canclini’s tend to strengthen the fear that globalization supports the displacement of culture.

Recall the account of Wal-Mart building near the Pyramids in Teotihuacán. Characterized by one as “an invasion, a new conquest”, concerns ranged from the desecration of a sacred site to the economic fallout for the local shops nearby (Ross, 2005: 3). I found cultural concerns tempered by my own experience at the pyramids. Fortunately, I visited before the Blue Giant was visible when standing atop the pyramid, but I distinctly remember being badgered by local businessmen and women to buy their Mexican-wares. Interestingly, these same products were available in stands at the *zócalo*,

at the flea market in Acapulco, and in their next-door-neighbor's stall. Is it less offensive when the locals are hawking mass-produced goods?

This experience did not erase my concern that Wal-Mart may transform retail tastes by offering homogenized goods, perhaps steering consumers away from locally produced/grown products. It did put into perspective the blame that may be assigned to large corporations doing business juxtaposed with the justifications assigned to local shop owners just "trying to make a living". This issue is muddied further by the reality that consumers are not being forced¹⁷ to eat McDonald's or Domino's or buy their groceries at a Sam's Club, and those certainly are not the sole establishments to procure food and goods. While I tend to be wary of the possible effects on culture, I also recognize that unless consumers lack choices altogether, they are responsible for their support of the multinational corporations.

Globalization & Agriculture

The effects of reduced government support and trade barriers are also seen in the agricultural sector of Mexico. Those in the countryside are being introduced to "new forms of agricultural finance, production, marketing, and processing that challenge the long-standing patterns of their economy and society" (Myhre, 1994: 145). What is necessary for these peasant farmers to compete and survive? Historically, politicians garnered support from the countryside using land redistribution and government subsidies, and while these measures were not always effective, the "rhetoric" of support

¹⁷ Being "forced" to eat and shop at these establishments would occur only if no other viable alternatives existed, which is not the case.

was constant¹⁸. The 1980s ushered in a new era, the rhetoric took on a neoliberal tone, and politicians encouraged competition while simultaneously yanking away the support system. Reduced oil prices, high debt, and capital flight resulted in the 1980s financial crises. In the midst of these crises, Mexico could no longer make debt payments, and the IMF demanded austerity measures: open the economy, reduce government social support.

Myhre examines how the politics of this process altered the agricultural credit system. It is the credit systems that provided the loans—the means necessary for peasants to actively pursue competition¹⁹. A group of small farmers, or *campesinos*, began the process of distancing themselves from state control before it was forced by President Salinas in the late 1980s. In 1985, the National Union of Autonomous Regional Campesinos Organizations (UNORCA) formed one of the largest campesino collectives. Its motive was to develop the countryside economy by working on policy issues that encouraged gaining independence from the state, rather than issuing demands for land redistribution. The problem was their need for state cooperation at the same time the state was intent on achieving separation. The result was a rather complicated dynamic as UNORCA needed help from the shrinking government in order to become independent from that very government.

State involvement was useful in negotiating with credit unions and arguably imperative after Salinas “generally reduced state outlays for investments in rural infrastructure, severely cut subsidies on most commodities, and curtailed lending” (Myhre, 1994: 155). This resulted in drastically reduced output and stricter loan requirements from the official lending institution, Banrural. While reductions were

¹⁸ Historical facts and characterizations throughout the paper are based on information from Skidmore & Smith (2001).

¹⁹ The facts on globalization and agriculture are supplied by Myhre (1994).

accompanied by Salinas' desire that alternative credit unions support the system, the reality of dealing with these financial regulatory bodies proved frustrating for UNORCA.

These financial institutions were dealing with their own set of frustrations and challenges associated with the privatization of nationalized companies and attempts to be competitive in an increasingly global financial system. It is likely that the absence of these realities may not have made these bodies more sympathetic to the rural plight, but their presence was exacerbating the problem. The financial institutions were unwilling to recognize that these campesino credit unions were not financially "sophisticated" and lacked the knowledge to deal with the institutions' bureaucracy.

Myhre argues that reverting back to protectionist policies and governmental control in the countryside was not the solution, but that instead there needed to be cooperation between state agencies, financial regulatory bodies, and campesino credit unions. The credit unions' limited understanding of financial matters should be recognized and standards and regulations should be adjusted accordingly. A willingness to learn and to foster competitiveness was being undermined by the unrealistic expectations of the financial institutions and the limited support of the government. The speed of Salinas' reforms was also an obstacle; though the campesinos desired to achieve what the President was asking, "the neoliberal ideology exacerbated the impact of globalization...because of the state's decision to act abruptly" (Myhre, 1994: 165). It was unrealistic to expect a segment of society controlled by others (the state, wealthy landowners, etc.) for hundreds of years to become competitive immediately in a globally competitive market *while* learning to be independent from their government.

Understanding complicated trade agreements, achieving competitiveness, and grasping financial requirements requires more than the state *wanting* it to happen.

It is important to note that the struggles of these farmers are representative of the struggles of actors in other sectors, particularly those that are less-educated. While each sector will face its own unique set of challenges, the effects of the liberalizations and the speed of these reforms will impact the economy as a whole. For example, in the retail sector, the comparative advantage lies with the organized, financially sophisticated multinationals and not, the minimally-educated family-shop owner²⁰.

NAFTA

Before

Salinas's aforementioned decision to act quickly likely originated after a less than enthusiastic response from investors at the World Economic Forum in 1990²¹. Following the debt crisis in the 1980s, foreign investment was viewed as the as the best option²². During the 1970s, "Mexico gambled that the price of oil would remain high and interest rates would remain low" (Cameron & Tomlin, 2000: 56). The bet was lost and Mexico endured a recession in 1981-82 when a reduced demand for oil led to decreased prices resulting in declining oil export revenue; this loss was accompanied by increased interest rates which raised Mexico's debt. Unable to pay the loans, Mexico succumbed to the demands of the IMF and embraced a structural adjustment program; the austerity measures included reduced state spending and higher taxes. President Miguel de la

²⁰ This factor will be discussed further in section three.

²¹ The World Economic Forum is annual gathering of the world's leading executives, government leaders and officials, and non-governmental leaders; these leaders discuss various topics including, business strategies, the economy, and war (Cameron & Tomlin, 2000).

²² The NAFTA section is drawn extensively from Cameron & Tomlin (2000).

Madrid Hurtado (1982-88) with his secretary of planning and budget, Salinas, initiated the opening of the Mexican economy.

Salinas continued the process of liberalization upon assuming the presidency in 1988, yet, initially, this meant liberalization policies not a trade agreement with the U.S.; “I am not in favor of such a proposal,” (Salinas) said (in 1988)... “There is such a different economic level between the United States and Mexico that I don’t believe such a common market would provide an advantage to either country” (Cameron & Tomlin, 2000: 59). Apparently, the investors’ lack of enthusiasm for Mexico changed his mind, and talks with the U.S. began in early 1990. As for domestic support, “the level of domestic opposition was sharply reduced by the perception that all of these reforms were necessary and beneficial within the larger context of the inclusion of Mexico in the First World via the negotiation of NAFTA” (Cameron & Tomlin, 2000: 232)²³.

The Document

So what is NAFTA and what was it meant to accomplish? The agreement itself is a commitment to economic integration between Mexico, the United States, and Canada that reduces trade barriers and tariffs and relaxes foreign investment requirements. The NAFTA document consists of 22 chapters and discusses trade in energy, agriculture, and investment, among other sectors. Goods gaining duty-free status include those “that are wholly obtained or produced in North America...(and) (g)oods containing non-North American content (which are) ‘substantially transformed’ through further processing in a

²³ NAFTA also led to the “reform of Mexico’s traditional land-tenure system” and a “new system of intellectual property rules” (Cameron & Tomlin, 2000: 232).

NAFTA country” (Cameron & Tomlin, 2000: 36)²⁴. Some products became duty-free immediately, while other reductions extend over a 5, 10, or 15 year period, for example, sensitive agricultural products such as corn and beans. NAFTA encourages foreign investment with the promise of fair treatment that meets national standards, for example, in the service sector, “(n)ational treatment and most-favored-nation principles (extend) to all service providers except those identified as not covered (and) (p)rohibits residency requirements” (Cameron & Tomlin, 2000: 42)²⁵.

For Mexico, “Salinas’s NAFTA initiative was the culmination of (a) strategy” that included making the economy more efficient and gaining access to technology and international markets through FDI (Cameron & Tomlin, 2000: 226). Skidmore and Smith note that Mexico hoped that NAFTA would accomplish four things: attract FDI, leading to job creation and therefore, reduced social tensions; institutionalize Salinas’s economic liberalizations; garner “international benediction for its not-quite-democratic political regime”; and position Mexico as “a ‘bridge’ between the developing world and the developed world” (Skidmore & Smith, 2001: 253, 254).

After

Did this agreement live up to Mexico’s expectations by attracting investors, reducing social tensions, and integrating markets? The day that NAFTA went into effect, Mexico’s Zapatista guerilla movement began protesting the neoliberal policies. This uprising was followed by the assassination of the PRI’s next-in-line for the presidency,

²⁴ Goods must be 60 percent North American made, excluding automobiles which must be 62.5 percent North American made.

²⁵ This sector includes, for example, credit card companies such as American Express.

Luis Donaldo Colosio, scandal²⁶ in the administration of Salinas's second-pick predecessor, President Ernesto Zedillo Ponce de León, and a second assassination within the PRI²⁷. Political and economic instability led to capital flight which threw Mexico into an economic crisis with the possibility of loan default. Additionally, having previously assured investors that a peso devaluation would be unnecessary, the administration issued a devaluation in December 1994. "Thus began the financial crisis that would leave many Mexicans feeling that just at the moment that NAFTA had opened a door to the potential for First World status, they had been shoved back into the Third World" (Cameron & Tomlin, 2000: 218).

Rescuing Mexico from loan default, President Clinton offered an aid package valued at \$50 billion. Following this economic crisis, the attention grabbing Zapatista National Liberation Army (EZLN) and a civil war in the ruling party, the PRI, "for the first time in its history...lost control of the national Chamber of Deputies—taking just 238 out of 500 seats" (Skidmore & Smith, 2001: 256)²⁸.

The irony is thick; NAFTA was hoped to ease social tensions and make Mexico attractive to foreign investors, yet it appeared the country would implode. Of course, the treaty was not expected to solve societal ills immediately, but neither was it touted, at least by the politicians proffering it, as the means to greater tension²⁹. Mexico's "vulnerability to external shocks" was evident during 1994, and not even the trade

²⁶ Salinas criticized Zedillo for the mishandling of the 1994 peso devaluation, and Zedillo responded by launching an investigation into the murder of a prominent PRI "family" member. Salinas's brother was a prime suspect, and Zedillo appointed a member of the PAN as the attorney general.

²⁷ The "family" member was José Francisco Ruiz Massieu; the Ruiz Massieu family was influential in the PRI and had connections with the Salinas family.

²⁸ In fact, the PRI lost the presidency in 2000 with the election of PAN candidate, Vicente Fox.

²⁹ The results and conclusion sections of this paper will show that Mexico still struggles with unemployment and low wages.

liberalizations of NAFTA were able to prevent capital flight in the presence of instability (Cameron & Tomlin, 2000: 212).

Mexico is a prime example of a country that must balance domestic needs and economic liberalizations. The outcomes of historical protectionism and the outcomes of two decades of neoliberal economic policy both included economic instability, labor surpluses, increasing inequality, and insufficient market integration. Yes, the argument can be made (in either case) that history also included a colonial period, multiple wars, a politicized military, and a nosy northern neighbor, which all certainly played a role in Mexico's instability. However, what country lives in a vacuum? None; there will always be alternative explanations for why free trade is not working or why protectionist policies alone are ineffective, the reality is that the singular pursuit of either path, for certain in Mexico's case, is not the correct strategy.

The Supermarket Trend

Wal-Mart's entrance into Mexico did not ignite the supermarket trend, but it does provide a concrete example of the recent "supermarketization" of Latin America.

"Supermarkets' share in retailing has quadrupled in Latin America"; they "have moved from a population-weighted average of 10-20% in 1990 to 50-60% of the retail sector in 2000" (Reardon et al., 2002: 1). This trend was driven by rapid urbanization, entry of women into the workforce resulting in an increased demand for easy shopping and quick meals, and increasing incomes (Reardon, 2004). These "drivers" coupled with the aforementioned liberalization of trade and foreign investment served as a welcome mat for foreign supermarket players (Schwentenius and Gómez, 2002). The effects of this

trend were witnessed throughout Latin America, and arguably, it is the smaller stores and public markets which lose the most (Reardon et al., 2002).

Schwentenius and Gómez offer 5 distinct categories amongst food retailers that aid in distinguishing between modern supermarkets and traditional specialty shops and public markets:

1. Open-air, public markets, generally in city centers and managed by city governments – the retailers sell from small stalls
2. Mobile street markets (*tianguis*) that change location from day to day (similar to the *ferias libres* in Chile or the *ferias livres* in Brazil) – communities and city neighbourhoods typically have a day of the week (‘plaza market day’) when the *tianguis* shows up and sells a variety of products similar to that of a supermarket, but usually of lower quality and at negotiable prices
3. Small traditional shops that sell a limited line of products, the types and quality depending on the incomes and tastes of the neighborhood – these shops have strong powers of survival and can adapt to changing tastes, and sell some of their product on credit
4. Specialised shops (such as fruit shops) – these are of little importance in Mexico as consumers prefer to buy perishables from *tianguis*
5. Self-service stores, including supermarkets and convenience stores

(taken from Schwentenius & Gómez, 2002: 488)

Schwentenius and Gómez also outline three phases in the rise of supermarkets in Mexico beginning in 1946 with the opening of the first supermarket. Lasting through the 1970s, stage one was limited to larger northern and central cities and the authors note that the majority of the retailers’ capital was domestic. Stores began branching out into additional cities, and phase two began in the 1980s as supermarket expansion led to increased competition among chains. This competition was marked by “the acquisition

of a number of small chains”, new marketing techniques, and “alliances with both domestic and foreign capital” (Schwentenius & Gómez, 2002: 490). The third phase, beginning in the 1990s, was initiated by the aforementioned liberalizations which led to an onslaught of FDI. The FDI was aided by the “(abandonment of) the 49/51 formula that assured control by domestic capital” and Mexico welcomed fresh players including the U.S. and France (Schwentenius & Gómez, 2002: 490).

In Mexico, the economic liberalizations institutionalized with the ratification of NAFTA created an attractive environment for foreign supermarket chains, and Wal-Mart was among a handful of multinational corporations to take on the Mexican retail market. Carrefour and Auchan, both French self-service retailers, entered the market in 1994 and 1997, respectively³⁰. Inditex, a Spanish department store, arrived in 1992, and the American participants include: JCPenney, a department store, in 1995; HEB, a self-service retailer, in 1997; and thirty years before Wal-Mart, 7-Eleven, a convenience store, made its entrance in 1971.

Clearly, Wal-Mart is not the sole participant in the supermarket trend, and in fact, has not even fared well in all of Latin American. In both Brazil and Argentina, Wal-Mart has failed to dominate the market. Its “every day low prices” slogan was nothing new in Brazil where other retailers had already employed this strategy, and in Argentina its problems were twofold as it made the mistake of catering to the higher classes during a recession and struggled to form relationships with local suppliers, the latter, Wal-Mart claims, being “due to pressure from other retailers” (Tilly, May 2005: 7). Tilly also notes that the Blue Giant even had troubles in Mexico, in the northern city of Monterrey, where Soriana and HEB were already the established customer favorites.

³⁰ Information regarding foreign supermarket entrants is provided by Tilly (May 2005).

Wal-Mart's struggles notwithstanding, it has undeniably made its mark throughout Central and South America, and with stores in 9 Latin American countries, it does well in representing the supermarket trend. On May 9, 2006, an on-line corporation update contained the following:

“(I)n December, Wal-Mart announced the acquisition of 140 Sonae stores in Brazil, adding a variety of retail formats to the company's wide range of existing formats in the country...These developments follow the September announcement that Wal-Mart had purchased a one-third interest in Central American Retail Holding Co. (CARHCO) with 363 supermarkets and other stores in Guatemala, Honduras, El Salvador, Nicaragua and Costa Rica. In March 2006, Wal-Mart increased its interest to 51% and the name CARHCO was changed to Wal-Mart Central America.” (Source: Wal-Mart on-line)

The retailer is not the only big-box chain in Latin America, but it is increasing its presence, even in areas where it has previously faltered, and that makes this “tree” stand taller than the rest.

With the entrance of so many seasoned retailers, one would expect this supermarket trend to indicate trouble for the traditional “mom and pop shops” in Mexico, and some authors argue that it has or will (Reardon et al., 2002), yet “1990s expectations regarding supermarket growth and their ability to displace traditional retailing have not been met” (Schwentelius & Gómez, 2002: 491). This fact actually makes the argument more intriguing, indicating that there are complex issues at hand. Mexico has experienced the supermarket trend yet has not seen the decline of the traditional sector. How then has Wal-Mart added new stores and experienced increased sales annually (Wal-Mart on-line)? Why did Wal-Mart survive and thrive, while some foreign retailers entering the market around the same time have sold their stores and left the country

(Tilly, May 2005)? If the traditional sector has not suffered, then it follows that supermarkets would not be flourishing, yet both Wal-Mart and the competition are growing.

It is possible that the supermarket trend is gaining speed in tandem with increased Mexican consumption. Increased retail sales could account for the simultaneous growth of modern retail and the continued survival of traditional establishments. If this is true, with Mexico's history of economic uncertainty and its recent growing inequality, is this type of growth sustainable? The apparent resiliency of the traditional sector may stand solid while supermarkets continue to grow, or it is possible that the years to come will result in a reduction of small stores.

However, it could be that the traditional sector survives only due to a lack of exit options. Aggregate retail sales, as will be evident in the data section, are not increasing; therefore as Wal-Mart increases its share of retail sales, the shares of other establishments are decreasing. It is also possible that the "mom and pop shops" and public markets presently maintain a competitive edge in the sale of fresh fruits and vegetables. Supermarkets have not yet overtaken the small shop and street fair in being the place to buy produce, yet experts fear their domination is imminent. Additionally, *tianguis* and other traditional shops have lower overhead costs as they are often family shops that "employ" family members a little or no cost, whereas supermarkets must compensate each employee. A second advantage is that the size of the traditional outlets allows them to avoid taxes while large chain stores could not succeed in tax evasion. It is these advantages that have perhaps have enabled smaller shops and markets to maintain their low prices, but supermarkets are making headway with changing business practices that

may swing the advantage their way. Perhaps as this transformation takes place, the effect on the traditional sector will also be felt.

Supermarket Trend & Agriculture

Increasing academic attention is being paid to how the supermarket trend will affect small/medium farmers in Mexico and throughout Latin America. These concerns are exacerbated by the conditions created by accelerating international economic integration and shrinking state support. Much of the literature regarding supermarkets in Latin America appears to be “preemptively” developing a game plan to ensure the survival of small/medium farmers, more specifically, fruit and vegetable growers. It is preemptive as supermarkets have not yet dominated the sales of fresh fruits and vegetables (FFV) as quickly as other products for reasons such as the cultural tradition of buying fresh daily, the abundance of street fairs in high foot-traffic areas, and the lower prices of small shops and fairs (Reardon et al., 2002). However, the supermarkets are gaining ground; Reardon argues that they sell \$12 billion of food annually, which is 50 percent more than Mexico’s food exports, have become “a crucial internal market issue”, and “are three to five times more important at present to small/medium producers in Mexico than trade” (Reardon, 2004: 1).

As supermarkets procure more of the FFV market, it is important that small/medium growers are able to sell their products to these chains, but they face a variety of obstacles such as changes in procurement, the shift to preferred suppliers, and the transformation of safety and quality standards (outlined in Reardon et al., 2002 & Reardon, 2004).

Traditionally, FFV procurement takes place in wholesale markets; in Mexico these markets are called *centrales de abastos* (CA). CAs are located in urban areas such as Mexico City, Guadalajara, and Monterrey; first, the suppliers transport their produce to the CA and then the supermarkets travel to the CA to procure the goods (Reardon, 2004). The switch from CAs to distribution centers (DC) occurs when the construction of a DC “is outweighed by the benefits of reduced coordination costs” (Reardon, 2004: 5). The benefits arise due to increased bargaining power as the buyer is now dealing directly with the supplier—the CA “middle-man” is gone; the buyer is also able to purchase larger volumes of product and sheds the cost of transportation as the supplier is expected to transport the product to the DC. While this switch does not occur immediately, once a supermarket has the capital to make the change, the benefits are great.

Small/medium farmers, on the other hand, must learn how to negotiate, as the loss of the CA middle-man puts them at a disadvantage. They must also provide more frequent transport to DCs which may not be financially feasible. Delivering to local shops does not entail long travel times, but the supplier bears the cost of transportation to the DC. Additionally, FFV must maintain their quality during transfer to the DCs, and this requires refrigerated trucks, which is an additional expense.

A second shift is from the spot market to preferred suppliers; preferred suppliers can be relied upon to deliver consistent, quality products, in the volumes required by supermarkets (Reardon, 2004). Smaller producers may have difficulty in providing produce of the consistent quality and volume that supermarkets expect, and if they wish to become “preferred”, it is likely that a collective will need to be formed to fulfill volume and quality demands. They also must be capable of promoting themselves or

their collective to the supermarket. Large chain stores will not lack suitors, and if the small/medium growers wish to get the job, they must self-promote.

While raising capital for transportation and learning how to self-promote effectively, small/medium growers must also meet the additional demands of the business. Schwentesius and Gómez provide a useful list of supermarkets' required standards and practices:

- they require delivery in consistent volumes and quality (consistency in terms of colour and size);
- they prefer deliveries to be of moderate volumes but continuous throughout the year;
- they tolerate up to 10% of damaged produce;
- they require refrigerated transport for the produce;
- they prefer the product to be packed in cardboard boxes rather than loose;
- they receive the produce only before noon;
- they pay from 8 to 45 days after delivery – depending on the product;
- they demand a discount to cover the supermarket's putting the product on sale (promotion).

(Schwentesius & Gómez, 2002: 494)

These requirements likely reach beyond the scope of the small/medium farm if they lack access to organizational and financial support. CAs provide immediate payment, while supermarket payment plans may be as long as 45 days, and that is assuming that the grower is able to meet every other standard. This delayed compensation may be an adjustment that many cannot afford, especially when considering the aforementioned decline of governmental support and difficulty for rural credit unions to secure the capital to provide loans. If these challenges can be overcome, the small farmer must also be willing to become "official" in the accounting sense and would lose the comparative advantage (to the extent that this is an advantage) of tax evasion.

“The scale of operations...is often not sufficient to offset the cost of such supermarket practices as delayed payments, high rates of rejected produce, and the occasional charging of shelf fees. Finally, by contrast with traditional markets, working with supermarkets means having to adopt formal accounting and invoicing practices, and thus being unable to avoid paying taxes” (Reardon et al., 2002: 4).

The problems are abundant as growers must acclimate themselves to a large set of new expectations, both agriculturally and financially. The literature not only outlines existing problems but potential policy solutions geared toward farmers, governmental organizations, and policy makers. Historically, land redistribution coupled with empty promises of social provisions resulted in lowered production and insufficient market integration indicating that this type of policy should be avoided³¹.

Llambi discusses the issue of competition in the context of making nontraditional exports more marketable in an integrating economy, and his thoughts are comparable to the present domestic situation. He encourages product diversification and experimenting in value-added industries; these do require the necessary capital and knowledge beyond what already exist, but organizations and collectives may be helpful (Llambi, 1994). For example, the National Association of Credit Unions of the Social Sector (ANUCSS), which was established in 1990 by credit unions supported by UNORCA, is focused on dealing with financial institutions’ regulations and bureaucracy (Myhre, 1994). If specialization is too much to tackle presently or growers are uninterested, ANUCSS may provide help in securing capital for transportation requirements or teaching farmers how to deal with changing payment plans.

³¹ President Lázaro Cárdenas (1934-40) redistributed 44 million acres of land to peasants, yet the decision to rely on a communal system (*ejidos*) coupled with inadequate governmental support resulted in decreased production and insufficient market integration. Cárdenas was also responsible for the expropriation of firms from the U.S. and Britain (Skidmore & Smith, 2001).

The issue of self-promotion is also being addressed through the formation of agricultural groups. Cook notes that formally independent grower-shippers “have joined forces with competitors and are marketing jointly” though their operations remain separate (Cook, 2003: 5). There are also examples of wholesalers that use small/medium growers to “make up gaps in product and periods” from other suppliers (Reardon, 2004). There was even an attempt to form a small growers’ union, The Union of Lime and Tropical Fruit Growers, and though this failed it serves as a useful case study for finding fixes for the problems faced by the lime growers, which will prove useful when future associations are formed (Schwentesiuss & Gómez, 2002).

For the traditional sector it is imperative that modernization and development occur so that both farmers and shop owners are able to compete as supermarkets grow in popularity. Presently, they maintain a comparative advantage in regards to FFV prices, but local shops and markets should anticipate a shift in FFV procurement and pricing and plan accordingly. This may include “adjust(ing) to consumer preferences in terms not so much of product quality as of quality of services (cleanliness, safety, parking space, honest and transparency of weights and measures)” as supermarkets transform consumer shopping habits and tastes (Reardon et al., 2002: 5).

The key for policy makers and organizations is to recognize issues regarding capacity, capital, business sense, and technology while remembering the importance of integrating small/medium farmers into this market (Reardon, 2004). Additionally, exit options should be discussed for those farmers unable to compete; even assuming perfect cooperation between financial institutions, state agencies, rural credit unions, and even supermarkets, it is unrealistic to assume that every farmer will succeed. It is imperative

that social provisions are discussed whether it be financial support or job training skills³².

Small farmers are already situated in the lower echelons of society and cannot be expected to find alternatives to agriculture, in the event it is necessary, without some form of support.

³² Of course, this measure assumes that jobs are available.

Section 3:
Mexico's Retail Sector, Wal-Mart de México,
& The Competition

Retail Sector Structure

The commercial sector in Mexico can be divided into two main divisions: *mayoreo* and *menudeo*, the former being “wholesale” and the latter “retail”. This study focuses on *menudeo*, which is classified as those selling to the general public; conversely, *mayoreo* refers to those selling to large entities such as pharmacies or supermarket chains. The retail division is further broken down into 13 categories:

Tiendas de Abarrotes	= “mom and pop shops”
Tiendas de discos, juguetes y regalos	= record, toy and gift stores
Tiendas de ropa y calzado	= clothing and shoe stores
Mueblerías	= furniture stores
Ferretería y tlapalería	= hardwares, paints, electronics
Vehículos	= cars
Refacciones para vehículos	= car repair shops
Farmacias	= pharmacies
Papelerías y librerías	= stationary and bookstores
Gaseras	= cooking gas
Estaciones de gasolina	= gas stations
Tiendas departamentales	= department stores
Supermercados	= supermarkets

(Source: INEGI on-line³³)

The dependent variable of this study, the levels of the retail sector employment index, refers to the rate of employment for the entire sector. The regression analysis, therefore, does not limit itself to determining Wal-Mart’s effects on supermarkets or *tiendas de abarrotes* (“mom and pop shops”) but on the employment index for all divisions within this sector.

Gastelum and Ruiz describe additional retail categories: modern and traditional³⁴. Stores are placed into a group based on the number of persons employed. Two categories constitute modern retailers, *grande* and *mediano*; *grande* refers to establishments that

³³ English translations provided by Marcus Kurtz and the on-line dictionary of *Real Academia Española* at www.rae.org.

³⁴ Facts on Mexico’s retail sector structure are drawn extensively from Gastelum and Ruiz (2003).

consist of 50 or more workers while *mediano* establishments consist of 21 to 49 workers. Examples of modern retailers are department store and supermarkets. The traditional sector includes the *micro* and *pequeño* stores that consist of 1 to 20 workers; *tiendas de abarrotes* are considered traditional³⁵. This category includes smaller grocers as well as family-owned shops that may be operated out of the home.

The clientele and number of employees are not the only differences between modern and traditional retail. Additional characteristics include the use of technology and the nature of the employee-customer relationship. Modern retailers utilize technology to aid in organization, infrastructure, and product acquisition and distribution while traditional stores use little, if any, technology. Modern retailers also tend to be self-service, while shopping at a traditional outlet will involve extensive employee-customer interaction. Additionally, traditional shops are often family-owned and may offer lines of credit and home delivery, while modern stores are often owned by corporations and require payment upon purchase. The categories also differ in the types and amounts of goods offered. While traditional stores are generally limited to basic necessities, the modern retailers stock a variety of items such as foodstuffs, home goods and electronics.

Wal-Mart is considered a modern, self-service supermarket due to its size, number of employees, use of technology, and product variety. As it is not limited to food products, its effect is not unique to food shops but may reach into all divisions of the retail sector. Traditional food stores, clothing stores, and department stores, among others, are subject to the increased competition among rival modern units, and the information above illustrates the challenges faced by traditional shops. Often those

³⁵ Traditional stores may be broken down further by size.

running the smaller shops are minimally educated and lack a thorough knowledge of the service sector making technological advances less attainable; others may lack the space to offer a larger variety of goods; and finally, innovation and competition are expensive and funds may be unavailable (Gastelum and Ruiz, 2003). Mexico's downward employment trend also limits exit options for unsuccessful retailers as will be discussed later.

Competition and modernization are good for business, but one must be able to compete for this to hold true for their business. As it stands now, meaningful competition is arguably limited to those within the modern retail division. The traditional shops will remain the most affected but the least able to participate as they face financial and organizational limitations. These "mom and pop shops" are also more vulnerable to sales uncertainties; if Wal-Mart faces decreased sales it can compensate with worker redundancies or scaled back expansion plans. Smaller stores, however, may not have employees to fire and will have to "swallow" the losses by consuming less. This appears to be a reality as Wal-Mart's sales are increasing, but overall retail sector sales are not. The implications of this trend will be outlined shortly.

Furthermore, modern retailers, such as supermarket chains, are not confined to one village or even state, therefore the profits from one store may not remain in that locality. While it can be argued that the profits from traditional shops will likely be spent, saved, or invested locally, Wal-Mart's profits may be moved to other stores in Mexico or perhaps leave the country entirely. Therefore, the redistribution of sales from traditional to modern stores can impact individual "mom and pop shops" as well as the local economy as a whole.

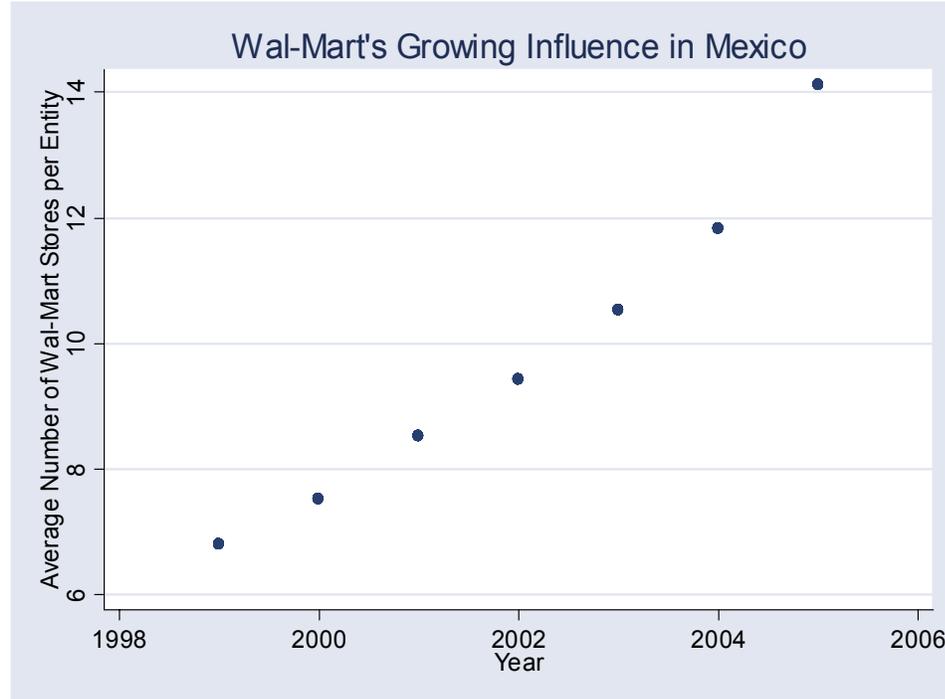
Wal-Mart de México

Founded by Spaniards, Cifra opened its first grocery store, Aurrera, in Mexico City in 1958, and in the following twelve years, Superama, Vips, Suburbia, and Bodega Aurrera stores were unveiled³⁶. In 1991, the U.S.-based Wal-Mart joined forces with Mexico's leading retailer and opened its first store outside of the United States, a Sam's Club located in the vicinity of Mexico City. Wal-Mart Supercenter then opened its doors in 1993 and the following year, NAFTA went into effect. The liberalization of foreign investment only made easier the Blue Giant's transition in Mexico; Wal-Mart obtained a majority stake in Cifra in 1997, and today boasts 783 stores³⁷ in 109 cities. The retailer's growth has been steady as the number of average Wal-Mart stores per federal entity, or state, has increased annually (see Graph 1). Wal-Mart de México, or Walmex, as it is also called, is Mexico's largest private employer with over 100,000 employees countrywide and is dominating the commercial retail sector.

³⁶ Facts on Wal-Mart and the competition are drawn from both Wal-Mart on-line sources and Tilly (May 2005 & Sept. 2005).

³⁷ This total includes department store and restaurant formats. The 2005 Annual Report listed the total number of stores at 783, 432 of which were self-service stores.

GRAPH: 1



The retailer operates six different formats in Mexico: Wal-Mart Supercenter, Sam’s Club, Superama, and Bodega Aurrera, Suburbia and Vips: Wal-Mart is a self-service “supercenter” that offers a wide variety of goods including foodstuffs, clothing, electronics, home goods, toiletries and more; Sam’s Club is a self-service wholesale club requiring a membership; Superama is a self-service grocery store found in residential areas; the final self-service format is Bodega Aurrera, a discount store that offers groceries, home and staple goods; Suburbia is the sole department store format, selling apparel aimed at the middle-class; and the restaurant division includes Vips and El Porton.

Wal-Mart not only exported its Supercenters and its Sam’s Clubs but its business model as well. Low prices, cutting-edge technology, efficient product acquisition and distribution, and aggressive price comparison have made the Blue Giant the world’s

leading retailer. Love it or hate it, the business model proven effective in the United States has been successfully exported to Mexico.

As in the U.S., the company uses its “every day low prices” (EDLP) slogan to gain consumer confidence and loyalty—why take time to shop for bargains if the cheapest products are all under one roof? Offering the lowest prices requires its own business strategy, and the Blue Giant has the buying power to purchase large volumes of product resulting in deep discounts from the supplier (think pickles). The retailer then passes on these savings to the consumer and EDLP becomes gospel. What is the downside? The consumer buys what he/she wants at the lowest possible price, Wal-Mart’s sales increase, and the supplier sells massive amounts of product to the world’s leading retailer.

The critics, ranging from academics and journalists to union members and activists of all types, argue that Wal-Mart couples bullying with its buying power. An unnamed clothing manufacturer executive in Mexico comments:

“Wal-Mart has driven many suppliers out of business. Wal-Mart maintains its profit margin...They never reduce *their* margin. They *do* pass on savings in price, but at the expense of the manufacturer...(T)hey may tell you, ‘We’re going to sell shirts at a discount of 40 percent—you the manufacturer, have to cut your price 40 percent’. So the consumer benefits, but they’re driving out of business the manufacturers that provide *jobs*.” (Tilly, May 2005: 5)

Yet the argument may be made that the supplier has the right to cut off their relationship with Wal-Mart if, in fact, it feels pressured. Regardless of opinion or truth behind the

claims, Wal-Mart secures low prices, the consumer buys, and the supplier is not forced into joining the Blue Giant³⁸.

The retailer has also mastered the use of technology to create an efficient, well-run establishment. The Wal-Marts of Mexico and America are “connected...(by a) huge, automated distribution network” (Tilly, May 2005: 5). This network also joins store and supplier so that no time is lost in replenishing popular items or recognizing failing ones. A May 11, 2006 on-line statement explains the role of technology:

“(T)echnology plays an important role in helping Wal-Mart stay customer focused. Wal-Mart invented the practice of sharing sales data via computer with major suppliers, such as Proctor & Gamble. Every time a box of Tide is rung up at the cash register, Wal-Mart's data warehouse takes note and knows when it is time to alert P&G to replenish a particular store. As a result, Wal-Mart stores rarely run out of stock of popular items.” (Wal-Mart on-line)

EDLP and technology join forces to ensure the customer that they will find stocked goods at the lowest prices. To further the belief that Wal-Mart is the cheapest, the retailer posts in-store price comparisons with competitors; this resulted in the retailer being kicked out of ANTAD, Mexico’s National Association of Supermarket and Department Stores (Tilly, May 2005). Additionally, the use of DCs amounts to savings. Rather than a supplier traveling to each Wal-Mart store or Wal-Mart traveling to a CA, the process is consolidated as the supplier travels to the DC. The products are then transported to the nearest area stores.

Interestingly, Wal-Mart’s wages and benefits do not follow the business model as seen in the United States. In Mexico, Wal-Mart’s wages and benefits are comparable

³⁸ Though the argument may also be made that selling to Wal-Mart may become essential, as in the case of The Lovable Company. While the supplier is not “forced” per se, the options may be meet Wal-Mart’s demands or go out of business.

with the next three largest supermarket chains (Tilly, Sept. 2005). It is also not considered a low-end retailer as in the U.S. Though touting the lowest prices, “Wal-Mart is far less affordable in Mexico than in the United States”(Tilly, May 2005: 7).

The Competition

The retailer’s business model prompted transformations within Mexico’s supermarket retail sector as the competition geared up to combat the Blue Giant. The next three largest chains, Soriana, Comercial Mexicana, and Gigante, faced the retailer head-on by adopting their own forms of EDLPs, aggressively marketing price differences, and forming a buyers’ consortium (Tilly, May 2005). This buyers’ alliance, *Sinergia*, allows the chains to buy in larger volumes from suppliers thus lowering prices for the consumer, a practice perfected by Wal-Mart. Larger volumes are a positive for suppliers if they have the capacity to fill orders from both Wal-Mart and the alliance. Missing an opportunity to sell to the Blue Giant, for any reason, is not an option for some suppliers. Cristina Morales, an analyst at a Mexican brokerage firm, remarks that “(i)f you miss a sale for Walmex because you don’t want to give them the discount the they’re asking for, you could miss you annual sales target by as much as 50%” (Lagorce, 2003: 1).

As for the three alliance chains, the plan should prove beneficial if coordination is not a problem. While the companies will “keep separate operations, distribution centers and pricing strategies, (they) must jointly decide which quantities of what products to buy together and coordinate shipping and inventory” (Lagorce, 2003: 1). In fact, they are still

competing with one another and must balance the need to cooperate with the need to be distinct—from one another and from Wal-Mart.

Soriana has proven to be the best of the bunch, making headway in the northern city of Monterrey where Wal-Mart faltered in securing higher-class customers. Tilly explains that Soriana offers specialty food items including authentic Mexican offerings, and its ability to secure a loyal customer base grew their sales 160 percent between 1992 and 2003 (Tilly, May 2005, Sept. 2005). The pursuit of the higher-classes is a popular strategy as Comercial Mexicana works to draw customers such as Claudia Gonzalez, who avoids Wal-Mart because its customers “just aren’t like (her)” (Bensinger, 2005: 1). Bensinger describes the addition of cafés, fine foods, and specialty products as well as the development of higher-end goods (like Target) as attempts to create distance between the Blue Giant and the rest. The author writes that this is “a bold move, especially in a country where 70 percent of the population lives below the poverty line”; growing inequality and economic instability may undermine this “high-class” strategy (Bensinger, 2005: 2). Not everyone is chasing the economic elite; Bensinger notes that Gigante has developed two formats, Super G and Bodega Gigante, which are very similar to Wal-Mart’s Bodega Aurrera in that they offer fewer items and mostly staple goods.

As evident by competitor acclimation to the Wal-Mart way, any effects produced by Wal-Mart may also be attributable to the competition. Therefore the findings of this study will underestimate the greater effects of the entire supermarket sector. The argument is not that Wal-Mart’s statistical effects are better or worse than those of the next three chains, but rather that Wal-Mart is leading the charge. Its entrance into

Mexico propelled the already existing supermarket trend as seen in the transformation of its competition's business and marketing strategies.

Section 4:

Dataset Creation & Regression Results

Dataset Creation

Using data from Mexico's governmental statistics department, Instituto Nacional de Estadística Geografía e Informática (INEGI), Mexico's official elections department, Instituto Federal Electoral, and Wal-Mart de México's on-line annual reports, I created an original dataset to estimate Wal-Mart's effect on the retail sector employment index. The dataset includes 196 observations for the years 1999-2005 (the number of years was determined by the available data for Wal-Mart stores). The unit of analysis is a federal entity; Mexico has 32 federal entities consisting of 31 states and 1 federal district – Distrito Federal.

The dataset includes observations for 28 of these entities, including the federal district. The remaining four were excluded due to missing data; INEGI reports many statistics by urban or metropolitan area and does not include areas for four federal entities: Durango, Hidalgo, Nayarit, and Tlaxcala. In a few cases, more than one urban area is reported for a federal entity, and I chose which urban area to report based on the inflation rate variable. INEGI obtains its data on inflation from the Bancó de México which also reports inflation by urban area; however, Bancó uses a different set of areas for inflation than the set that INEGI uses for its other economic statistics. In the cases where one Bancó area matched with one INEGI area, the choice was easy, and in the cases where more than one urban area was shared, I chose the capitals of each entity. There was no complex line of reasoning behind this choice, only the thought that no intentional bias was created in choosing the capital.

The regression models control for economic, political, and geographic factors as I do not wish to blame Wal-Mart for employment trends that are a consequence of national

trends. I also use panel corrected standard error regressions³⁹, and I use an error correction model. The data cover a 7-year period, therefore caution is used when correcting for time-series issues, such as autocorrelation, as I do not want to burden the data with too many corrections. However, I want to account for time trends. Additionally, each of the independent variables is lagged one year⁴⁰, as I believe that the effect on one year's employment retail index is a result of the previous year's trends. These various measures are intended to control for the effects of time so that the model is able to isolate the relationship between the independent variables and the employment index.

The models also contain “noisy” data and are therefore predisposed to statistically insignificant results. Due to data availability issues, the use of weighted variables to measure the number of Wal-Mart stores was necessary, resulting in observations that are best statistical guesses of the true nature of the variable. Urban areas would have been the ideal choice for the unit of analysis, however, as Wal-Mart data was only available on a regional level, I felt that creating a variable by city, as opposed to federal entity, would further burden the stores variables. The use of urban areas as the measurement for many variables coupled with a federal entity unit of analysis may result in an underestimation of the results.

Considering these various factors, my focus is on result trends, and robust findings are a bonus. I will not claim that this dataset is without fault, instead, I recognize the weaknesses and take caution when making conjectures or laying blame. However, I believe that the necessary measures have been taken so that the results may

³⁹ The regressions were estimated using the ‘xtpcse’ command in STATA 9.

⁴⁰ Fixed effects and year dummy variables are not lagged.

be considered a fair indication of what is taking place in the Mexican retail sector. I couple this caveat with a detailed explanation of variable creation in an effort to be as forthright as possible of dataset weaknesses.

To estimate how Wal-Mart's presence affects retail sector employment, the following regression models are used (the differences between the two are in **bold**):

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{Average Number of Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \sum D_{i,t}\alpha_i + \varepsilon_{i,t}$$

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{GDP-Weighted Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \sum D_{i,t}\alpha_i + \varepsilon_{i,t}$$

where:

Retail Employment Index = retail employment index relative to the base year of 1994

Average Number of Wal-Mart Stores = number of Wal-Mart stores based on average

GDP-Weighted Wal-Mart Stores = number of Wal-Mart stores, based on GDP weight

Standard Deviation of Inflation = standard deviation of the annual inflation rate

Retail Sales = measures the change in annual retail sector sales

Year = dummy variable for years 1999-2005

PAN = dummy variable for PAN governor

PRI = dummy variable for PRI governor

PRD = dummy variable for PRD governor

D = federal entity fixed effects

The independent variable measures the levels of the retail sector employment index relative to the base year of 1994. This variable is reported by urban area and was

created by averaging the monthly indexes for each year. The index change relative to the base is reported in percentage figures, not in raw numbers. This is important when evaluating the results as a -0.5 value indicates a 0.5 percent decrease in the employment index rather than indicating the loss of “half” of a retail sector job.

The Wal-Mart stores variables include only the retailer’s self-service formats and exclude its restaurant and department store formats. The reason for this is twofold. First, the creation of these variables is based on regional data and the process is already marred by uncertainty. Recall that four federal entities are not included in the dataset, but, due to the regional nature of the Wal-Mart data, the stores variables will include those entities’ stores in the total. The exclusion of Wal-Mart’s restaurant and department stores ensures that the results are not inflated, but are likely underestimations of the actual effect.

Secondly, Wal-Mart is serving as a representative of the supermarket trend which, as outlined, refers to the proliferation of self-service grocery stores throughout Latin America. For this reason, including department stores and restaurants in the total would detract from the greater purpose of making generalizations regarding the competition. I would rather maintain the ability to make comparisons across supermarket chains than possibly achieve more dramatic results.

The two variables that measure the number of Wal-Mart stores are weighted variables. Being a weighted measurement, I thought it best to estimate two regression models and report consistent trends. The intent is that these extra measures serve as a “control” for any biases that arise in the creation of the variable. The first, which is referred to as the average number of Wal-Mart stores, was created by dividing the total number of stores within a region by the number of federal entities within that region.

Each entity, regardless of its characteristics, received the same amount of stores as the other entities within their region. This weight will give some federal entities more stores than they should have and other significantly less, and any biases created will likely be cancelled out by one another.

The second, referred to as the GDP-weighted variable, assigns the number of stores based on the federal entities' percent participation in the gross domestic product (GDP) of the commercial area of economic activity, referred to in this paper as retail GDP. This economic area is listed as *comercio, restaurantes, hoteles*, and its index values are relative to the prices of the base year of 1993. The variable was created by calculating each region's share of retail GDP, then determining each entity's proportion of that share, and finally, multiplying that proportion of retail GDP by the total number of Wal-Marts within the region. The theory is that the entities that contribute a greater share to retail GDP will likely have more Wal-Mart stores than those with a lesser share.

Next, to control for trends in consumption, the standard deviation of inflation, reported by urban areas, is used. Consumer buying power is affected by increases and decreases of the inflation rate and the uncertainty of prices, and consumption trends, regardless of their nature, should not be attributed to Wal-Mart. The standard deviation is used to measure uncertainty as this uncertainty may prove more detrimental to stores than actual inflation rates. Shops and supermarkets can plan on there being ups and downs, but the uncertainty of the timing and the nature of those trends may prove difficult to anticipate. This is especially relevant for the smaller "mom and pop shops" whose owners likely lack a thorough knowledge of economic indicators. Regressions were estimated using the annual rate of inflation as well, but the standard deviation models

were most consistently statistically significant. The annual rate was created by taking the monthly average relative to the base year of the second fortnight in June 2002 and calculating the standard deviation.

The retail sales variable controls for overall retail sector trends. An overall downward trend in sales may result in worker redundancies, and as with inflation, Wal-Mart should not be blamed or lauded for general trends. Capturing these trends is the reason for choosing to include the entire sector's sales rather than only Wal-Mart's share. The annual sales index change was created by taking the average monthly value relative to the base year of 1994 and then calculating the change in retail sales from one year to the next.

The year dummy variable, which spans the years 1999-2005, accounts for yearly trends, for example, economic shocks or downward employment trends, that are not captured by the remaining variables. As these are time-series data, this variable also aids in de-trending the data so that Wal-Mart's effects can be isolated, and it also controls for the relationship that the present year's employment index has with the previous year's index.

To control for political trends, the PRI, PAN (National Action Party), and PRD (Party of the Democratic Revolution) dummy variables are used. These refer to the political party affiliation of the governor of each entity. While Mexico has been on a neoliberal economic path for nearly two decades, it is a federal system, and this variable controls for political actions taken at the state level.

Finally, federal entity fixed effects control for any yet unmeasured trends. These are measured by creating dummy variables for the 28 entities, and are necessary as the

differences between districts are great. The number of Wal-Mart stores varies greatly; for example, in 2005 Distrito Federal had 146 stores and Baja California Sur had none. The fixed effects allow for a comparison between federal districts by controlling for the extensive differences between them.

Results

The following regression models were estimated:

Regression Models Using the Average Store Variable See Table 1 for Estimated Coefficient Values

Ia (XTPCSE)

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{Average Number of Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{PAN})_{i,t-1} + \beta_5(\text{PRI})_{i,t-1} + \beta_6(\text{PRD})_{i,t-1} + \varepsilon_{i,t}$$

IIa (XTPCSE)

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{Average Number of Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \varepsilon_{i,t}$$

IIIa (XTPCSE)

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{Average Number of Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \sum D_{i,t} \alpha_i + \varepsilon_{i,t}$$

IVa (XTPCSE) with fix for autocorrelation

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{Average Number of Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \sum D_{i,t} \alpha_i + \varepsilon_{i,t}$$

Va (XTPCSE) with fix for autocorrelation, without fixed effects

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{Average Number of Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \varepsilon_{i,t}$$

Regression Models Using the GDP-Weighted Store Variable
See Table 2 for Estimated Coefficient Values

Ib (XTPCSE)

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{GDP-Weighted Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{PAN})_{i,t-1} + \beta_5(\text{PRI})_{i,t-1} + \beta_6(\text{PRD})_{i,t-1} + \varepsilon_{i,t}$$

IIb (XTPCSE)

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{GDP-Weighted Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \varepsilon_{i,t}$$

IIIb (XTPCSE)

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{GDP-Weighted Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \sum D_{i,t} \alpha_i + \varepsilon_{i,t}$$

IVb (XTPCSE) with fix for autocorrelation

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{GDP-Weighted Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \sum D_{i,t} \alpha_i + \varepsilon_{i,t}$$

Vb (XTPCSE) with fix for autocorrelation, without fixed effects

$$(\text{Retail Employment Index})_{i,t} = \beta_0 + \beta_1(\text{GDP-Weighted Wal-Mart Stores})_{i,t-1} + \beta_2(\text{Standard Deviation of Inflation})_{i,t-1} + \beta_3(\text{Retail Sales})_{i,t-1} + \beta_4(\text{YEAR})_{i,t} + \beta_5(\text{PAN})_{i,t-1} + \beta_6(\text{PRI})_{i,t-1} + \beta_7(\text{PRD})_{i,t-1} + \varepsilon_{i,t}$$

TABLE 1: Regression Models Using Average Store Variable

Employment Index	Ia (XTPCSE)	Ila (XTPCSE)	IIla (XTPCSE)	IVa (XTPCSE)	Va (XTPCSE)
Average Stores	-0.28*** (0.05)	-0.28*** (0.50)	-0.93*** (0.26)	-0.92*** (0.26)	-0.24*** (0.08)
Standard Deviation of Inflation	-8.71 (18.41)	-17.88 (26.21)	-20.42** (6.56)	-18.90*** (6.24)	-12.83 (0.958)
Retail Sales	3.05 (3.54)	3.07 (3.54)	0.53 (0.51)	0.47 (0.49)	0.84 (1.53)
Year Dummy Variable		-2.13 (3.37)	0.67 (0.87)	0.81 (0.87)	-0.54 (1.92)
PAN	41.50*** (10.37)	42.06*** (9.82)	-0.86 (9.00)	-1.14 (9.33)	1249.00 (3851.50)
PRI	-33.97*** (11.18)	-34.38*** (11.38)	-3.70 (8.51)	-3.85 (8.87)	1197.46 (3849.02)
PRD					1215.73 (3853.00)
Constant	134.77*** (18.05)	4405.87 (6751.29)	-1222.24 (1753.08)		
Fixed Effects? ⁺⁺	NO	NO	YES	YES	NO
Autocorrelation Correction?	NO	NO	NO	YES	YES
No. of Observations	168	168	168	168	168

NOTES:

All independent variables in levels lagged one year; change variables are measured contemporaneously.

A blank space indicates that the variable was not included in the regression.

⁺⁺ Fixed Effects suppressed due to space considerations. “YES” denotes when fixed effects were included in the model, “NO” if not.

* P < 0.10 ** P < 0.05 *** P < 0.01

TABLE 2: Regression Models Using GDP-Weighted Store Variable

Employment Index	Ib (XTPSCE)	IIb (XTPSCE)	IIIb (XTPSCE)	IVb (XTPSCE)	Vb (XTPSCE)
GDP-Weighted Stores	-0.48*** (0.04)	-0.47*** (0.04)	-0.38 (0.38)	-0.40 (0.38)	-0.43*** (0.08)
Standard Deviation of Inflation	-10.12 (18.51)	-18.83 (26.43)	-20.13*** (6.54)	-17.89*** (6.05)	-12.67 (9.26)
Retail Sales	3.02 (3.53)	3.04 (3.53)	0.53 (0.52)	0.44 (0.49)	0.74 (1.42)
Year Dummy Variable		-2.03 (3.38)	0.19 (1.25)	0.42 (1.24)	-0.21 (1.86)
PAN	37.42*** (9.18)	38.00*** (8.68)	-0.73 (9.13)	-1.19 (9.64)	592.97 (3727.99)
PRI	-38.23*** (10.34)	-38.57*** (10.50)	-3.40 (8.95)	-3.64 (9.48)	544.52 (3725.31)
PRD					564.36 (3728.75)
Constant	141.12*** (18.29)	4204.13 (6769.92)	-254.06 (2501.41)	-727.30 (2490.54)	
Fixed Effects?⁺⁺	NO	NO	YES	YES	NO
Autocorrelation Correction?	NO	NO	NO	YES	YES
No. of Observations	168	168	168	168	168

NOTES:

All independent variables in levels lagged one year; change variables are measured contemporaneously.

A blank space indicates that the variable was not included in the regression.

⁺⁺ Fixed Effects suppressed due to space considerations. "YES" denotes when fixed effects were included in the model, "NO" if not.

* P < 0.10 ** P < 0.05 *** P < 0.01

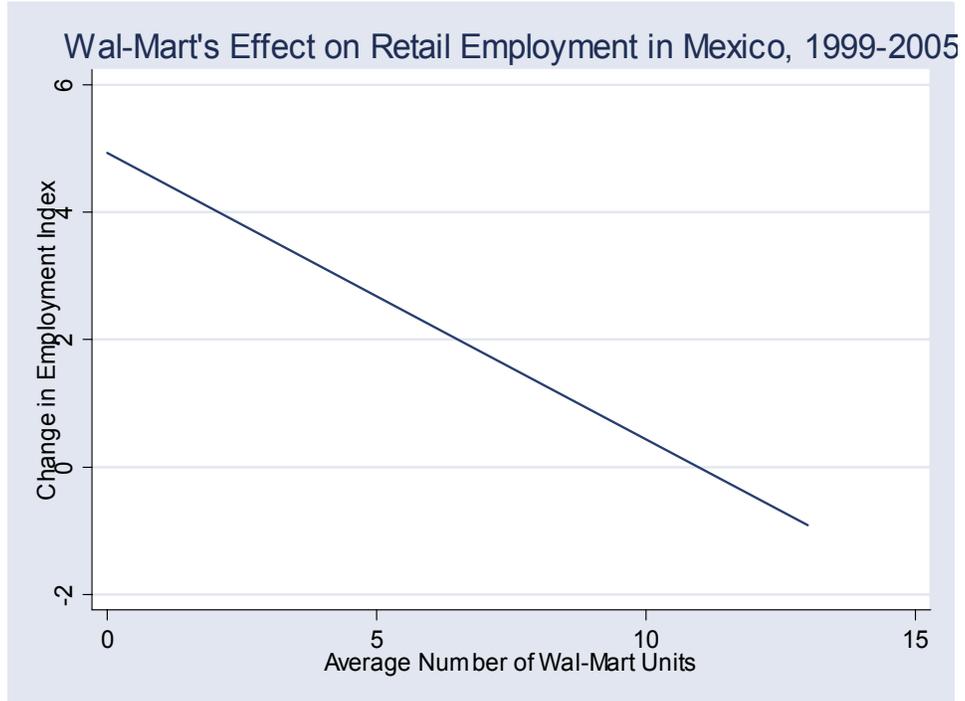
The results are consistent between models using the average store variable and those using the GDP-weighted variable⁴¹. Sensitivity and specification tests were also conducted (see Appendices I and II for test results)⁴². As these are panel data, corrections for autocorrelation were made and are noted when included in the regression.

In all of these regressions, the Wal-Mart store variables estimated coefficients are negative and, excluding regressions IIIb and IVb, statistically significant. It is safe to conclude then, that the addition of Wal-Mart stores results in a decrease of the retail sector employment index relative to the base year of 1994 (see Graph 2 & Graph 3). The standard deviation of inflation estimated coefficients are also consistently negative and are statistically significant at a 95 percent confidence interval 4 out of 10 times. These negative values are to be expected as higher inflation may result in reduced sales which may lead to employee redundancies; it may also lead to decreased investment which could mean that fewer jobs are “created”. Although “creation” may not be the appropriate word here as more Wal-Mart stores, which “create” jobs, also result in a decreased employment index.

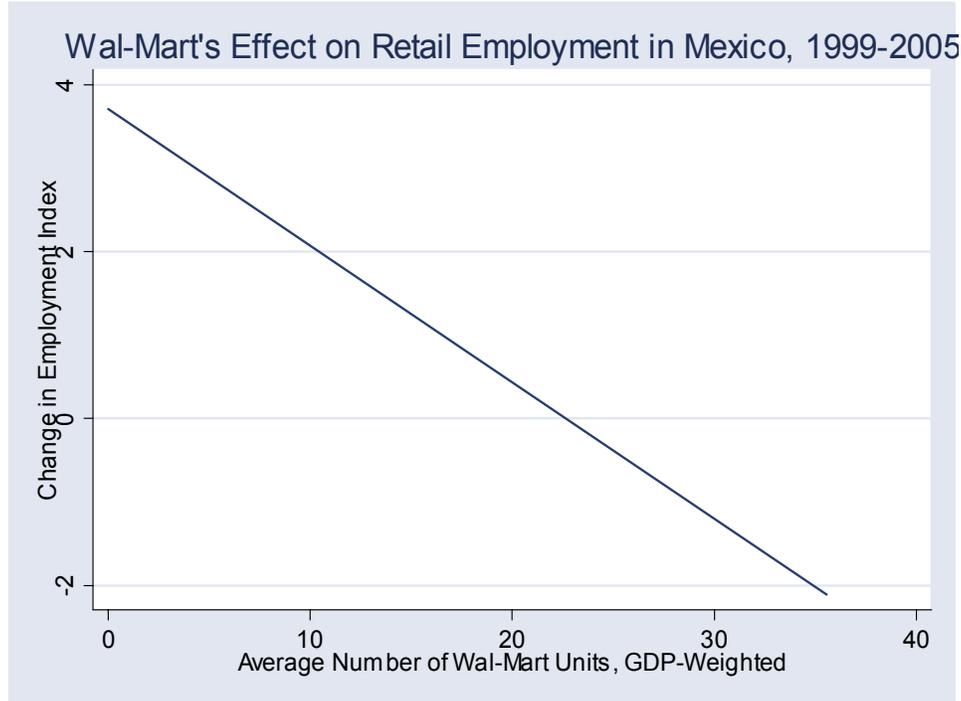
⁴¹ In addition to Panel Corrected Standard Error regressions (XTPCSE), XTREG and XTGLS panel data regression models were estimated. Though the results were not robust, the estimated coefficients were similar. Wal-Mart store variables estimated coefficients were consistently negative.

⁴² Regressions were estimated after dropping observations identified as outliers by the Cook’s D statistic, and while the results were not robust, estimated coefficients were similar. Please refer to Appendices I and II for these regression tables.

GRAPH 2:



GRAPH 3:



While finding that Wal-Mart's presence has a negative effect on the retail sector employment index was the purpose of this study, it is also necessary to discuss additional trends that occur when certain variables are included or excluded (please refer again to Table 1 and Table 2). The first and second regression models, Ia, IIa, and Ib, IIb, exclude the fixed effects. In each of these regressions the Wal-Mart store estimated coefficients are negative and robust with p-values less than 0.01. The second regressions, IIa and IIb, include the year dummy variable, which although not statistically significant, has a negative coefficient indicating an overall downward trend in employment.

With the addition of fixed effects in regressions IIIa and IIIb, the year variable estimated coefficients switch signs although they are still not robust. This indicates that the fixed effects are catching the negative employment trends previously caught by the year variable. Additionally, controlling for entity-unique trends drastically reduces the

value of the PAN and PRI estimated coefficients and renders them statistically insignificant; also, in both regressions, the PAN dummy variable estimated coefficients are no longer positive. The average Wal-Mart store variable is robust even with the inclusion of the fixed effects; however in regression IIIb, the GDP-weighted store variable is no longer robust. It is probable that the fixed-effects are causing an increase in the standard error, but it should be noted that the estimated coefficient remains negative and the value is similar to the GDP-weighted Wal-Mart store coefficient in regression IIb.

Regressions IVa and IVb include a control for autocorrelation, and the estimated coefficients in each regression are similar to the previous regressions, indicating that even with controls for panel data, the negative relationship between Wal-Mart stores and the retail employment index is maintained. The last set of regressions, Va and Vb, include autocorrelation corrections but exclude the fixed effects. The effect of this exclusion is seen in the governor dummy variables, as both have estimated coefficients above 500, and in the year coefficient which is again negative. Although those results are not robust, the regressions indicate the important role that the fixed effects have in catching trends that are otherwise explained by the governor dummy variables.

Another interesting result is that the retail sector sales estimated coefficients are positive, but are never statistically significant. Intuitively, it makes sense that increased sales would have a positive relationship with retail employment. What is interesting is that regardless of the regression model, the results are not statistically significant⁴³.

Controlling for inflation, political trends, Wal-Mart stores, fixed effects and annual

⁴³ Retail sales estimated coefficients were robust in a basic regression estimated after dropping observations identified as outliers by the Cook's D statistic but without controlling for autocorrelation. Please refer to Appendices I and II for regression tables.

trends, retail sales do not have a robust relationship with Mexico's retail sector employment. This is likely due to an overall downward trend in Mexico's retail employment.

Finally, high levels of multicollinearity, and the presence of heteroscedasticity are issues that plague cross-sectional data resulting in inefficient regression models. It was likely that the estimated regressions would have large standard errors and few robust results, however, the estimated coefficients of the Wal-Mart store variables were consistently robust across XTPCSE models. For time-series data, autocorrelation may result in inflated t-values, and as a consequence, coefficients that are not robust may appear to be. With only a seven-year time span, corrections had to be made cautiously, but were in fact included.

Section 5:

Conclusions & Further Study

Controlling for time, employment, economic, political, and geographic trends, I find that Wal-Mart's presence has a negative effect on retail sector employment. As for Wal-Mart's future in Mexico, those arguing that future economic stagnation may jeopardize the Blue Giant's growth may prove correct as the liberalization policies, which aided in Wal-Mart's entrance, may backfire on its ability to grow. Tilly writes that "neoliberal policies have not brought Mexico sustained growth or broadly shared prosperity—and the resulting economic stagnation threatens Wal-Mart's prospects for growth" (Tilly, Sept. 2005: 12). An economically polarized population would reduce the number of middle-class shoppers presently supporting the retailer. Tilly also argues that the competition's ability to conform quickly and compete is a threat as are pressing public policy issues at the forefront of the 2006 presidential elections.

President Fox is considering the institution of a value-added tax, a policy, which Wal-Mart and its competitors could not avoid, but would not touch the small, local merchants that are able to be more creative when reporting sales; this would be an advantage, of sorts, to the traditional sector⁴⁴ (Tilly, Sept 2005). While free trade and free market has been the political environment the last few decades, Mexico's populist base along with political actors are calling for government to slow the Blue Giant and the next leader may respond (Tilly, May 2005).

Yet in spite of the dismal future that Wal-Mart appears to be facing, it should be remembered that the retailer overcame economic crises in the 1990s, outlasted other foreign establishments, and, in 2001, its sales surpassed the combined sales of its top three competitors (see Figure 1) (Tilly, 2005). Wal-Mart did not become the world's largest

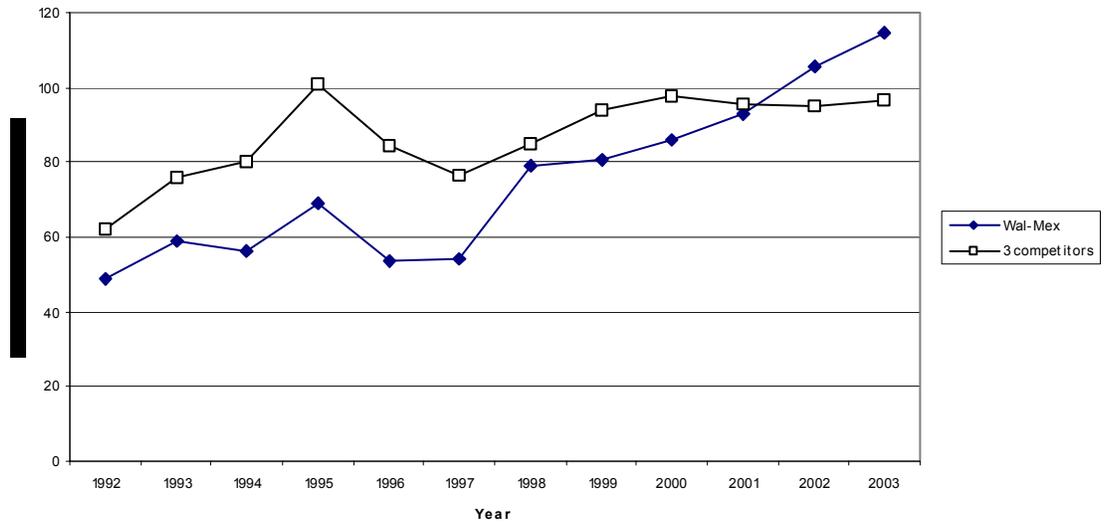
⁴⁴ While the VAT tax may negatively affect the supermarkets' bottom line, it is unlikely that it will run them out of business. The "comparative advantage", therefore, should not be given too much credit.

multinational company without anticipating and preparing for economic and political obstacles. Therefore, it would be unwise to count the company out simply because Soriana is making strides and Fox may be broadening the tax base. As Mexico's largest private employer, the government is as likely to respond to Wal-Mart as its citizens and Mexico's commitment to free trade and free market will probably not be reversed because of one retailer's success.

Furthermore, Wal-Mart's effects are not only seen in retail employment but also in retail sales. The retailer is not producing an increase in aggregate retail sales as the number of stores appears to have no correlation with the level of retail sales. What does this mean? These results indicate that not only is the retailer's presence negatively related to employment, it may also be negatively related to the living standards of small shop owners in the retail sector. How so? Wal-Mart's sales are increasing (see Figure 1), yet overall retail sales are not (see Graph 4). The Blue Giant is not creating sales, but is taking more of the retail economic pie.

FIGURE 1:

Figure 1: Wal-Mex sales compared to sum of three top competitors, 1992-2003
(Sales in billions of 2002 pesos)



Source: Data from *Expansión* magazine, compiled by Enrique Dussel Peters, UNAM, Mexico City as reproduced in Tilly, Sept. 2005.

GRAPH 4:



This can have two effects on the competition depending on the type of retailer. A modern supermarket or even a small traditional grocery store that hires outside employees can respond to a decreased sales share by making workers redundant, thus recouping lost sales with the wages of former employees. Family-owned and operated stores that “employ” family members do not have the luxury of firing them, but must reduce their personal consumption. If they are “lucky”, this may mean less disposable income, if they are not, this may mean less food on the table.

One could argue that the family members should go outside of the family business and find a job. If the negative retail employment trend holds, then finding a job in the retail sector may prove unlikely, unless, they are able to secure one of the jobs “created” by Wal-Mart. As many family-owned shops are operated by less educated citizens, entering the formal sector is also unlikely.

Of course, finding a job rests on the assumption that there are jobs to be found which, in Mexico, has not been the case. According to a 2004-2005 economic survey of Mexico, the open unemployment rate grew by 0.50 percent and the permanent employment rate rose only 1.2 percent after declining the three years prior, and it is the informal sector⁴⁵ that absorbs many of the 1.2 million people entering the workforce each year (ECLAC, 2004-2005). While permanent employment may have experienced an increase, those in the informal sector forced to find new jobs are facing competition from an onslaught of new entrants.

In the formal sector, jobs increased at a lower rate in 2004 than in 2000 and manufacturing sector employment fell by 2.6 percent (ECLAC, 2004-2005). In general, if employment is not decreasing in Mexico, the posted increases are minimal and insufficient to support the number of people entering the job market each year. Additionally, “(c)ontinuing the trend observed since 2002...(the) unit labour costs dropped in all sectors...4.8% in commerce” (ECLAC, 2004-2005: 257). Therefore, the wages of the available jobs are declining, thus those fortunate enough to have a job must contend with the declining wage trend.

This is the crux of the matter. In the retail sector those competitive enough to stay in business or find alternative work are still vulnerable to declining retail sales and wage trends. Though not retail workers, the agricultural sector illustrates the point beautifully. Assume that a group of small farmers successfully market themselves to a supermarket chain and succeed in providing the produce and meeting the demands of the business. They have done it; they have modernized and become victors in the process of

⁴⁵ The informal sector is distinct from the formal sector in that it is unregulated and does not adhere to government wage and benefit regulations. It actually “illegal” but is not policed.

international economic integration and the global competition that accompanies it. Except as supermarkets secure more of the market farmers face a downstream monopsony coupled with an overall downward retail sales trend, the result: declining prices. Those without jobs are not able to be active consumers, and without consumption sales decrease, and as sales decrease, supermarkets and grocery stores may fire more, hire fewer, and buy less.

Is this all Wal-Mart's fault? Should NAFTA be revoked and globalization halted (assuming those were options)? No, to all of the above. Wal-Mart is a successful business that has done all the "right" things in today's economy: secured the lowest prices, mastered the use of technology, redefined retail efficiency, and become *the* company to emulate. Does it employ repulsive methods to secure those low prices and run others out of business who cannot modernize fast enough? This much has been suggested. Loving or hating the Blue Giant may hinge on your fixed values, but one thing is certain, personal opinions will not make them go away. Likewise, personal views on trade agreements and globalization will not stop the processes. The attention must shift to dealing with the negative externalities of these phenomena and procuring positive outcomes. Debate and discourse have their time and place, but whether a skeptic or a globalist, conversation about the evils or virtues of globalization, separate from ways to cope with its negative externalities, should be set aside.

For example, NAFTA's failures should not simply be debated, but solutions should be discussed. NAFTA was supposed to attract foreign investors that would create jobs and opportunity thereby easing social unrest, and has thus far been unsuccessful. Protectionist policies did not solve societal ills and economic instability and neither has

free-trade. The Mexican government must be willing to evaluate the success of recent economic reform, disregarding personal economic beliefs. *Wanting* decreased trade barriers and a reduction in social provisions to be the solution does not make it one. Perhaps the current situation in Mexico will prove to be short-term growing pains, but regardless, discussions of feasible development options must begin.

Then again, maybe the answer is that an entirely new look at development is necessary. Viewing development from an economic standpoint means that if Mexico experiences a higher GDP per capita and increased foreign investment, things are in an upswing. But what if the extra income goes to the top ten percent and the investment does not lead to increased employment or improved wages? Is it still a success? Admitting that a freer market is not successful in providing for every facet of society does not mean that it needs to be scrapped, just understood for what it can and cannot do. A government should not dump the responsibility of providing for the people onto an economic system, at least not a government that spent years redistributing land and providing subsidies. That may sound like heresy to most conservatives, but wanting more than economic development and recognizing that free trade and small government alone do not guarantee success must be acknowledged.

Further Study

The exact number of Wal-Mart stores located in each federal entity must be found to improve the integrity of the dataset. The years 1997 and 1998 certainly must be added as well as thinking of statistically sound ways to include the Wal-Mart stores that existed prior to its majority ownership of Cifra. Additionally, knowing the location of each store

would allow me to use the urban area rather than the federal entity as the unit of analysis. It would also be interesting to include the annual sales for Wal-Mart's self-service formats and estimate a statistical relationship between Wal-Mart sales and aggregate retail sales as well as Wal-Mart sales and employment. Conjectures of these relationships have been formed with the use of illustrative graphs, but estimating regressions is necessary to understand the relationships fully.

The addition of the stores and sales from the competition would be useful to see if the negative employment trend is exacerbated by the presence of Soriana, Comercial Mexicana, and Gigante. Also, finding data specific to the traditional retail sector would enable me to analyze Wal-Mart's effects on family-operated shops rather than simply overall retail sector employment. Ideally, my dependent variable would be number of self-employed within the retail sector. The majority of the self-employed will fall in the traditional sector due to the number of family-operated establishments, for example "mom and pop shop" owners as opposed to Wal-Mart employees.

In addition to employment, Wal-Mart effects retail sector sales and this relationship deserves further study. As mentioned, it is unlikely that the family-operated stores are closing up shop but they are likely losing sales; this could be determined by isolating the effects of Wal-Mart stores and sales on the retail sales share of these specific stores. Focusing on the redistribution of retail sales, I could determine if the modern retailer affects the small store owners' quality of life.

With the abundance of literature discussing how supermarkets are affecting the agricultural sector, statistically isolating the effects would prove useful when considering policy measures to support farmers in becoming competitive or in finding alternative

employment. This issue of exit options would itself be an interesting study, if there is a viable way to analyze whether or not options exist for certain sectors of the Mexican economy.

Options are abundant for this particular question, and data mining has proven to be the greatest stumbling block. Ideally, this research will take me to Mexico where I can visit local Chambers of Commerce and talk with family-shop owners. Finally, I am presently working on estimating a regression using survey data from Mexico. The question is “what type of person has confidence in NAFTA”. This will be included in the final draft of this project as an accompaniment to the Globalization section and will hopefully add an additional human dimension to the project.

Appendix I

Sensitivity & Specification Tests:

Regressions Using the Average Stores Variable

Federal Entity Codes

f1 Aguascalientes
f2 Baja California
f3 Baja California Sur
f4 Campeche
f5 Coahuila de Zaragoza
f6 Colima
f7 Chiapas
f8 Chihuahua
f9 Distrito Federal
f10 Guanajuato
f11 Guerrero
f12 Jalisco
f13 México
f14 Michoacán de Ocampo
f15 Morelos
f16 Nuevo León
f17 Oaxaca
f18 Puebla
f19 Querétaro Arteaga
f20 Quintana Roo
f21 San Luis Potosí
f22 Sinaloa
f23 Sonora
f24 Tabasco
f25 Tamaulipas
f26 Veracruz de Ignacio de Llave
f27 Yucatán
f28 Zacatecas

Multicollinearity

Multicollinearity is always present; however, tests were conducted to determine to what degree collinearity is present. Time-series variables were not allowed, thus the absence of lagged variables.

Pairwise Correlation:

- It is likely that the relationship between the PAN (pan) and PRI (gpri) governor variables stems from their similar views on conservative fiscal policy.

Variable	Employment Index	Average Stores	St. Dev. Inflation	Retail Sales	Year	PAN	PRI	PRD
Employment Index	1.00	-0.03	0.00	0.09	0.04	0.25	-0.22	-0.01
Average Stores		1.00	-0.13	-0.01	0.10	-0.08	-0.23	0.41
St. Dev. Inflation			1.00	-0.07	-0.62	0.08	0.01	-0.12
Retail Sales				1.00	0.07	0.05	0.02	-0.08
Year					1.00	0.05	-0.10	0.08
PAN						1.00	-0.70	-0.27
PRI							1.00	-0.50
PRD								1.00

Variance Inflation Factor

While the mean variance inflation factor of 17.91 is greater than 10, indicating that the degree of multicollinearity is a problem, the reported regressions do not suffer from large variances. The average stores variable is consistently robust.

Variable	VIF	1/VIF
Average Stores	201.50	0.00
St. Dev. of Inflation	2.00	0.50
Retail Sales	1.21	0.83
Year	2.94	0.34
PAN	21.51	0.05
PRI	18.38	0.05
PRD		
Mean VIF	17.91	

Heteroscedasticity

As heteroscedasticity may be a problem in cross-sectional data, the Breusch-Pagan / Cook-Weisberg test was conducted.

Hetest:

The null hypothesis that constant variance exists may be rejected. However, because the dataset is cross-sectional and time-series, panel corrected standard errors were used (XTPCSE).

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of retail employment index

chi ²	527.95
P > chi ²	0.00

Studentized Residuals:

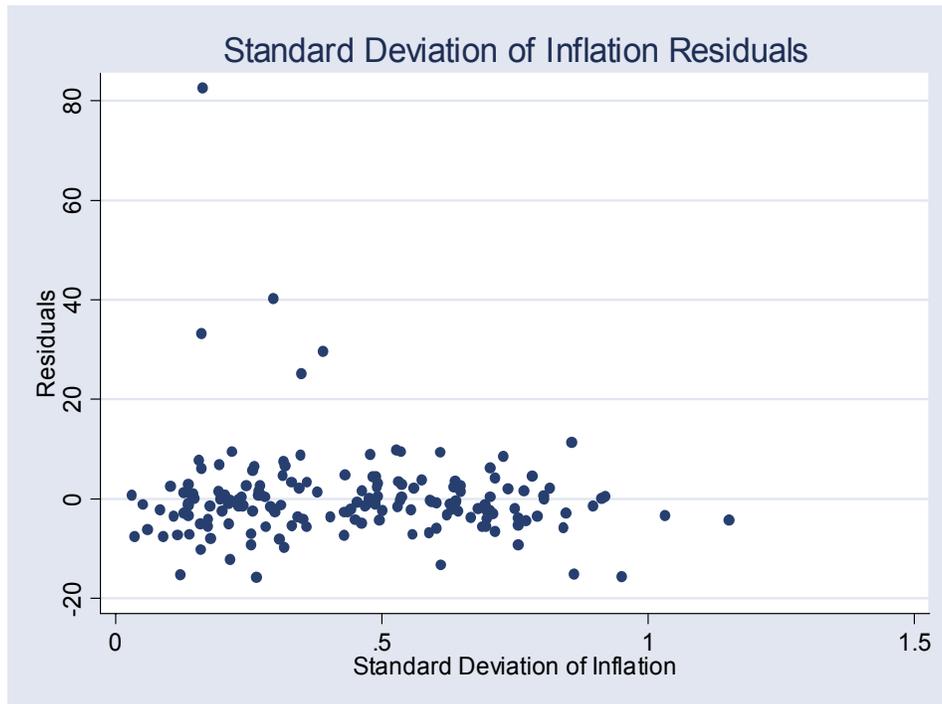
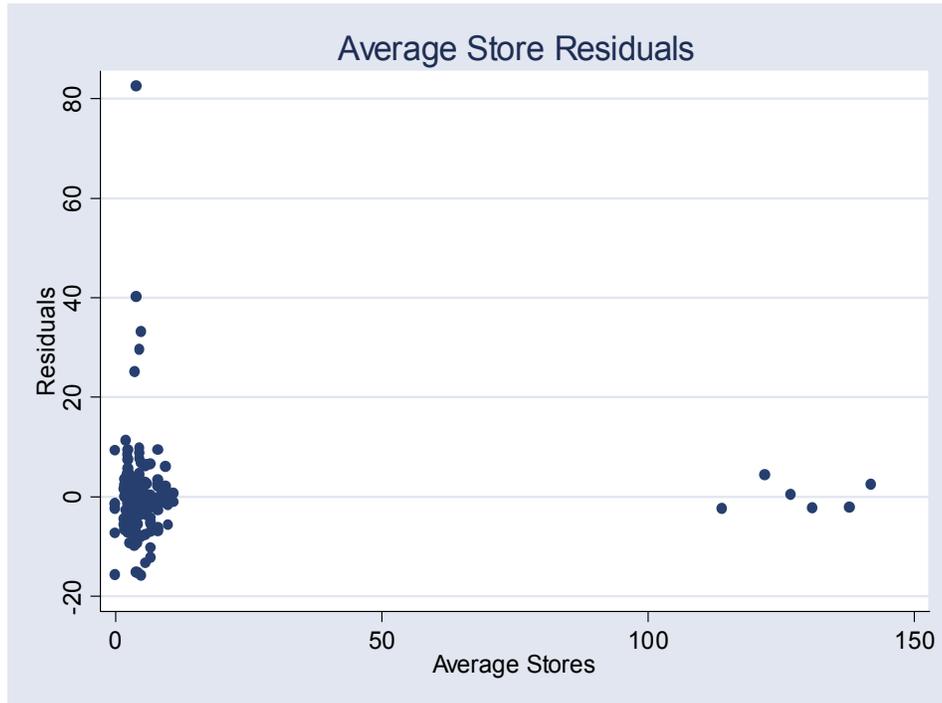
The following observations fell outside of the parameters (-2 2):

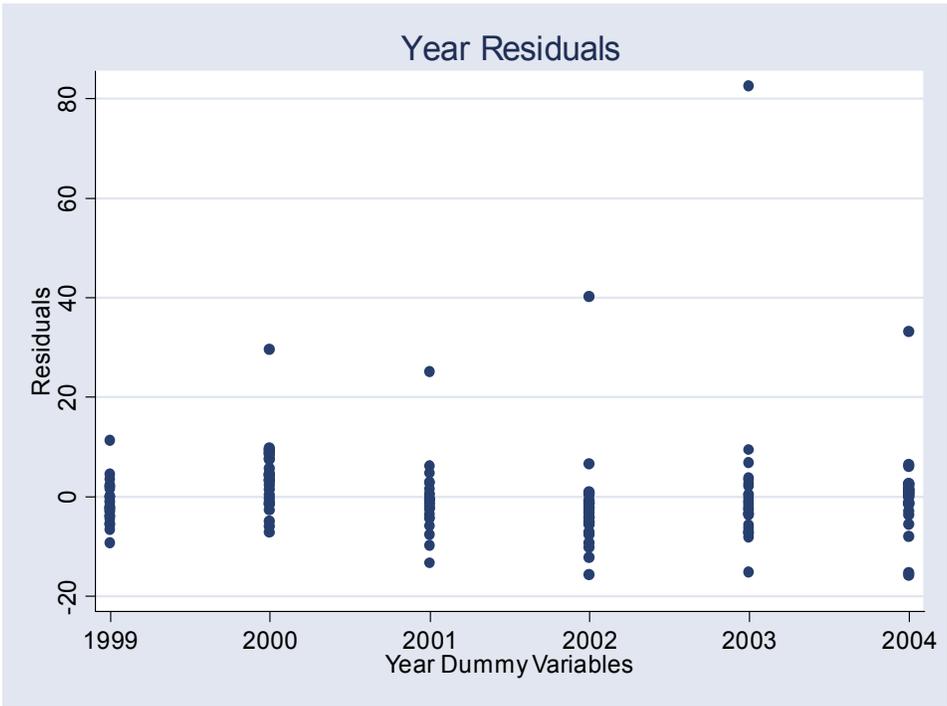
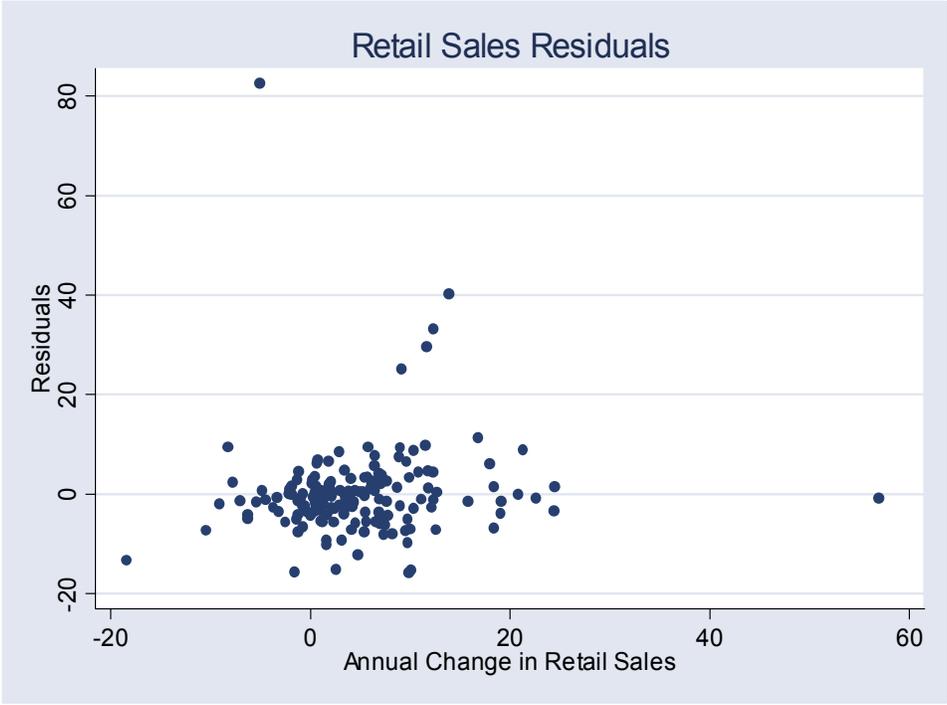
Federal Entity	Year
Aguascalientes	2001
Coahuila de Zaragoza	2005
Chiapas	2004
Zacatecas	2002
Zacatecas	2003

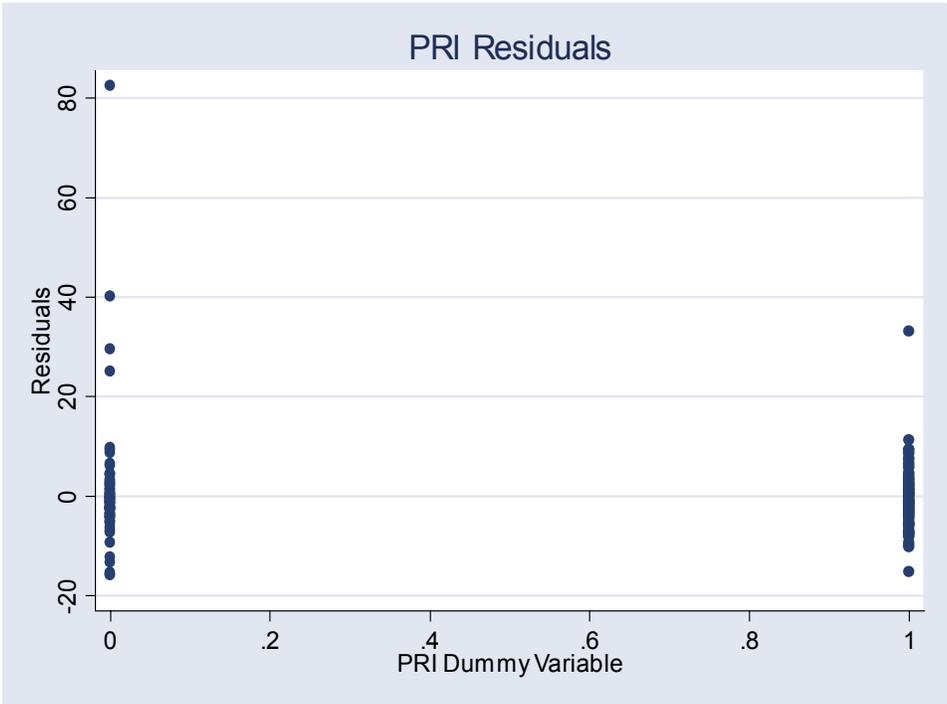
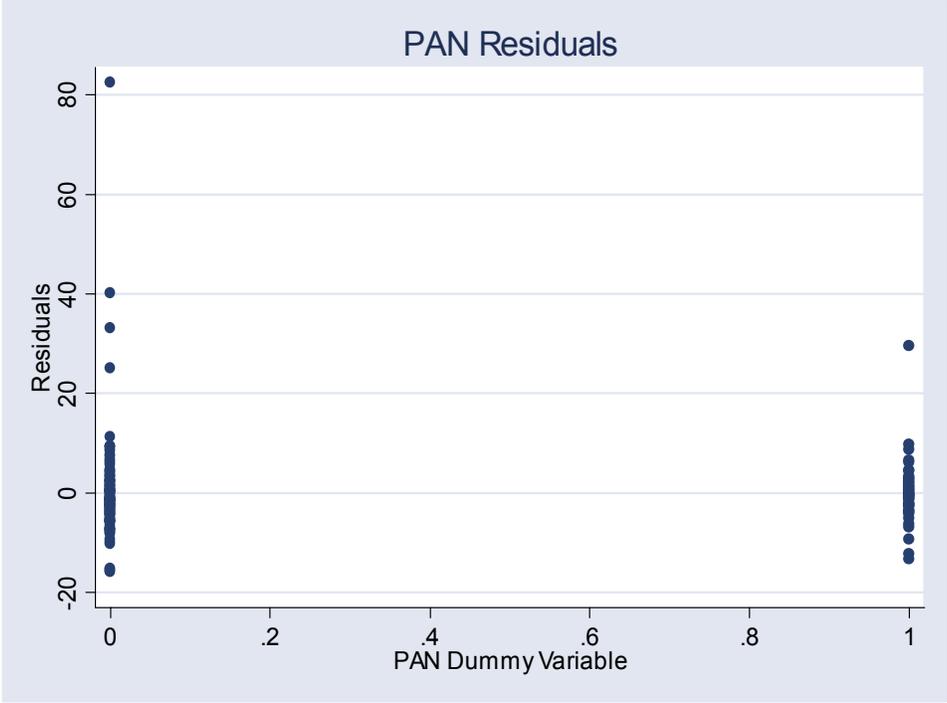
Studentized Residuals Scatter Plot Graphs:

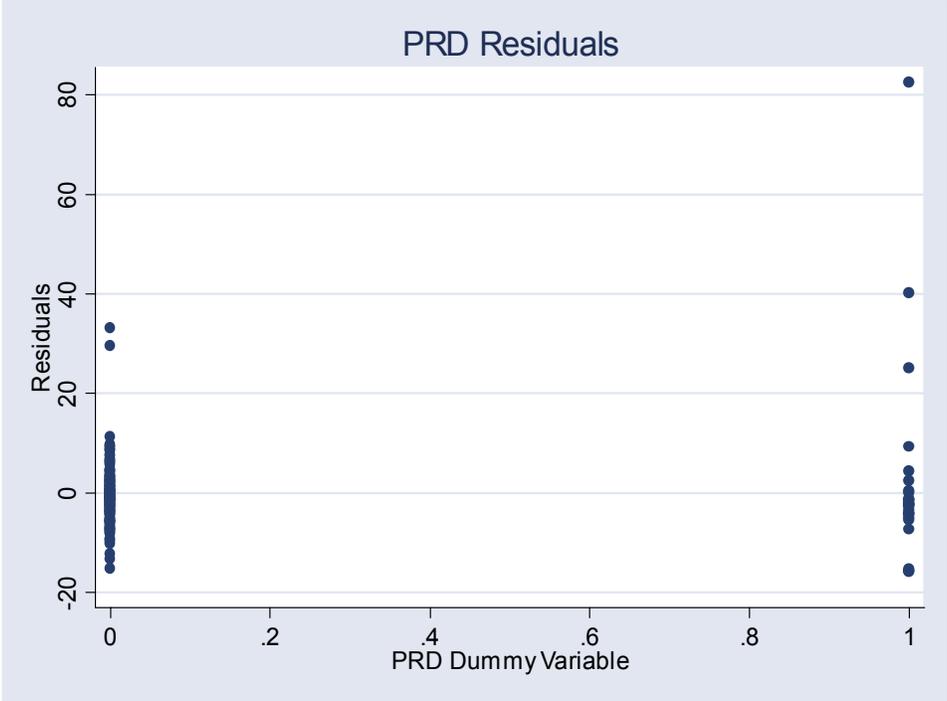
Note: Lagged variables are used.

A persistent outlier is Chiapas 2004 which is seen in the upper left-hand corner of the stores, standard deviation of inflation, and sales scatter plots.









Autocorrelation

Autocorrelation is generally a problem in time-series data due to the correlation between years. The Durbin-Watson test could not be conducted due to the use of panel-data. However, the regression models include corrections for autocorrelation.

Outliers

Two tests were conducted to determine outliers: DF Beta and Cook's D.

DF Beta: Lagged Variables could not be used.

Average Stores

Federal Entity	Year
Baja California Sur	2003
Baja California Sur	2004

Standard Deviation of Inflation

Federal Entity	Year
Aguascalientes	2001
Zacatecas	2004

Retail Sales

Federal Entity	Year
Baja California Sur	2003
Coahuila de Zaragoza	2005
Chiapas	2004
Zacatecas	2002
Zacatecas	2003
Zacatecas	2005

Year

Federal Entity	Year
Aguascalientes	1999
Aguascalientes	2001
Chiapas	2005
Chihuahua	2005
Zacatecas	1999
Zacatecas	2000
Zacatecas	2001
Zacatecas	2004
Zacatecas	2005

Fixed Effects

Federal Entity	Year
Aguascalientes	1999
Aguascalientes	2004
Aguascalientes	2005

PAN

Federal Entity	Year
Baja California Sur	1999
Baja California Sur	2000
Baja California Sur	2001
Distrito Federal	1999

PRI

Federal Entity	Year
Baja California Sur	1999
Baja California Sur	2000
Baja California Sur	2001
Distrito Federal	1999

PRD

Federal Entity	Year
Baja California Sur	1999
Baja California Sur	2000
Baja California Sur	2001
Distrito Federal	1999

Cook's D⁴⁶:

Federal Entity	Year
Aguascalientes	2001
Baja California Sur	2003
Coahuila de Zaragoza	2005
Chiapas	2004
Zacatecas	2002
Zacatecas	2003

Regression without Cook's D outliers: No correction for autocorrelation.

Employment Index	Coefficient	Standard Error	t	P > t
Average Stores	-0.86	0.81	-1.06	0.29
St. Dev. Inflation	-12.91	8.08	-1.60	0.11
Retail Sales	0.51	0.19	2.71	0.01
Year	1.81	1.36	1.32	0.19
PAN	-1.40	13.90	-0.10	0.92
PRI	-2.19	11.55	-0.19	0.850
PRD				
Constant	-3395.47	2672.39	-1.27	0.21
N	F	P > F	Adj. R ²	Root MSE
162	213.53	0.00	0.98	17.15

Regression without Cook's D outliers: Corrected for autocorrelation.

Employment Index	Coefficient	Robust SE	t	P > t
Average Stores	-0.86	0.66	-1.30	0.21
St. Dev. Inflation	-12.91	7.42	-1.74	0.09
Retail Sales	0.51	0.45	1.13	0.27
Year	1.81	1.83	0.98	0.33
PAN	-1.40	7.69	-0.18	0.86
PRI	-2.19	8.49	-0.26	0.80
PRD				
Constant	-3395.47	3623.10	-0.94	0.36
N	F	P > F	R ²	Root MSE
162			0.98	17.15

⁴⁶ Note: Cook's D outliers include Chiapas 2004 which was a persistent studentized residual outlier; it has been dropped in the above regressions.

Appendix II

Sensitivity & Specification Tests:

Regressions Using GDP-Weighted Stores Variable

Federal Entity Codes

f1 Aguascalientes
f2 Baja California
f3 Baja California Sur
f4 Campeche
f5 Coahuila de Zaragoza
f6 Colima
f7 Chiapas
f8 Chihuahua
f9 Distrito Federal
f10 Guanajuato
f11 Guerrero
f12 Jalisco
f13 México
f14 Michoacán de Ocampo
f15 Morelos
f16 Nuevo León
f17 Oaxaca
f18 Puebla
f19 Querétaro Arteaga
f20 Quintana Roo
f21 San Luis Potosí
f22 Sinaloa
f23 Sonora
f24 Tabasco
f25 Tamaulipas
f26 Veracruz de Ignacio de Llave
f27 Yucatán
f28 Zacatecas

Multicollinearity

Multicollinearity is always present; however, tests were conducted to determine to what degree collinearity is present. Time-series variables were not allowed, thus the absence of lagged variables.

Pairwise Correlation:

- It is likely that the relationship between the PAN (pan) and PRI (gpri) governor variables stems from their similar views on conservative fiscal policy.

Variable	Employment Index	GDP-Weighted Stores	St. Dev. Inflation	Retail Sales	Year	PAN	PRI	PRD
Employment Index	1.00	-0.07	0.00	0.09	0.04	0.25	-0.22	-0.01
GDP-Weighted Stores		1.00	-0.11	-0.03	0.08	-0.08	-0.21	0.39
St. Dev. Inflation			1.00	-0.07	-0.62	0.08	0.01	-0.12
Retail Sales				1.00	0.07	0.05	0.02	-0.08
Year					1.00	0.05	-0.10	0.08
PAN						1.00	-0.70	-0.27
PRI							1.00	-0.50
PRD								1.00

Variance Inflation Factor

While the mean variance inflation factor of 13.38 is greater than 10, indicating that the degree of multicollinearity is a problem, the reported regressions do not suffer from large variances. The GDP-weighted stores variable is consistently robust.

Variable	VIF	1/VIF
GDP-Weighted Stores	130.21	0.01
St. Dev. of Inflation	2.00	0.50
Retail Sales	1.21	0.83
Year	2.79	0.38
PAN	21.51	0.05
PRI	18.51	0.05
PRD		
Mean VIF	13.38	

Heteroscedasticity

As heteroscedasticity may be a problem in cross-sectional data, the Breusch-Pagan / Cook-Weisberg test was conducted.

Hetest:

The null hypothesis that constant variance exists may be rejected. However, because the dataset is cross-sectional and time-series, panel corrected standard errors were used (XTPCSE).

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of retail employment index

chi ²	535.73
P > chi ²	0.00

Studentized Residuals:

The following observations fell outside of the parameters (-2 2):

Federal Entity	Year
Aguascalientes	2001
Coahuila de Zaragoza	2005
Chiapas	2004
Zacatecas	2002
Zacatecas	2003

Studentized Residuals Scatter Plot Graph:

Please refer to Appendix I for remaining studentized residual graphs.

Note: Lagged variable is used.



Autocorrelation

Autocorrelation is generally a problem in time-series data due to the correlation between years. The Durbin-Watson test could not be conducted due to the use of panel-data. However, the regression models include corrections for autocorrelation.

Outliers

Two tests were conducted to determine outliers: DF Beta and Cook's D.

DF Beta: Lagged Variables could not be used. Please refer to Appendix I for remaining DF Beta tests.

GDP-Weighted Stores

Federal Entity	Year
Aguascalientes	2004
Baja California Sur	2004
Distrito Federal	1999

Cook's D:

Federal Entity	Year
Aguascalientes	2001
Baja California Sur	2003
Coahuila de Zaragoza	2005
Chiapas	2004
Zacatecas	2002
Zacatecas	2003

Regression without Cook's D outliers: No correction for autocorrelation.

Employment Index	Coefficient	Standard Error	t	P > t
GDP-Weighted Stores	-0.54	0.64	-0.84	0.40
St. Dev. Inflation	-12.53	8.09	-1.55	0.12
Retail Sales	0.51	0.19	2.69	0.01
Year	1.59	1.34	1.19	0.24
PAN	-1.41	13.93	-0.10	0.92
PRI	-1.61	11.61	-0.14	0.89
PRD				
Constant	-2996.26	2632.92	-1.14	0.26
N	F	P > F	Adj. R ²	Root MSE
162	212.84	0.00	0.98	17.18

Regression without Cook's D outliers: Corrected for autocorrelation.

Employment Index	Coefficient	Robust SE	t	P > t
GDP-Weighted Stores	-0.54	0.79	-0.68	0.50
St. Dev. Inflation	-12.53	7.41	-1.69	0.10
Retail Sales	0.51	0.44	1.17	0.25
Year	1.59	2.34	0.68	0.50
PAN	-1.41	7.98	0.86	0.86
PRI	-1.61	9.21	-0.17	0.86
PRD				
Constant	-2996.26	4603.14	-0.65	0.52
N	F	P > F	R ²	Root MSE
162			0.98	17.18

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