



The Massachusetts
Undergraduate Journal of
Economics

Undergraduate Economics Club
University of Massachusetts, Amherst
Department of Economics

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The University of Massachusetts Amherst

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Preface

An Overview

The inaugural edition of the Massachusetts Undergraduate Journal of Economics is a testament to hours of hard work by the Reading Group, the Publication Working Group, and the Editorial Board, and a further testament to just how many errors it's possible to learn from in the span of a single project. A competitive review process selected five papers for publication, which are outlined below.

A Note from the Editorial Board

Over the past several months each member of the Editorial Board has had the pleasure and opportunity to read and review some outstanding undergraduate papers, as well as work with a truly extraordinary group of individuals. Because of this we would like to start by thanking everyone who has been involved in this project. The purpose of this journal is to provide a forum for undergraduate students to publish exceptional works in the field of economics. After many submissions and weeks of review and editing with the authors, we have chosen to proceed with these final papers. The selection process was difficult, as all of our submissions showed outstanding effort in their authorship, but the following papers stood out as truly top-tier work. For all of those who submitted your papers, we thank you, and can assure you that selection process was an arduous one. For those of you whose submissions have been selected, we offer our congratulations and thank you for your participation in this project. Finally, we would like to give our thanks to the University of Massachusetts Amherst Department of Economics and the Economics Alumni Advisory Board, as this journal would not be possible without their support.

Best regards,

Sam Jordan

on behalf of the Editorial Board

Massachusetts Undergraduate Journal of Economics,

2012-13

A Note From the Submissions Liaison

The students who have worked on the inaugural edition of the Massachusetts Undergraduate Journal of Economics would like to thank the following:

We would first like to thank Michael Ash, Nicole Dunham, and Kevin Crocker, who, rather than shoot us skeptical looks and ask whether any of us have any experience that might be useful for assembling a journal, said "Sure, how many would you like to print?" Without their encouragement and initial belief that we might be able to pull such a thing off, we might not have even tried.

The MUJE also would not have been possible without the generous support of the Economics Alumni Board, whose continued support of the Undergraduate Economics Club brought together those students who would eventually collaborate on the MUJE and also provided us the framework for reaching out to students with whom we were not in more regular contact. In that sense, the MUJE builds on years of work put in by previous Undergraduate Economics Clubs whose careful stewardship of the club ensured its institutional viability and afforded this year's group the opportunity to reach for something really ambitious.

It would be a travesty not to mention those students who worked on the MUJE this year. They are, in no particular order,

- Yazid Alfata '14
- Jonathan Berke '14
- Maheen Iqbal '13
- Zan Yang '15
- Kurt Coleman '13
- Alex Major '14
- Sam Jordan '14
- Tom Peake '13
- Sanjay Singh '13
- Aaron Goslee '15
- Vick Mohanka '13

Something like ten thousand emails later, we finally pulled everything together into something we're all happy to put our names on.

The Layout

The journal is organized to give as much attention as possible to the published papers. Each is presented on its own, without introduction or post-script, with the expectation that the initial quality of the paper and editorial rigor have together resulted in something that can stand on its own.

We have reprinted papers from Thomas Peake (University of Massachusetts, Amherst), Luis Lei (Sarah Lawrence College), Maheen Iqbal (University of Massachusetts, Amherst), Judy Qiu (Mt. Holyoke), and Jonathan Berke (University of Massachusetts, Amherst). They cover regional craft beer brewing patterns, Brazilian social welfare, the political economy of dam building, pensions in China, and compensation schemes. With the quality and variety of papers submitted, we had no difficulty assembling a diverse list of papers to present.

We're honored to present to you the inaugural edition of the Massachusetts Undergraduate Journal of Economics.

Best regards,
James Santucci
Submissions Liaison
Head of Publication Working Group
Massachusetts Undergraduate Journal of Economics,
2012-13

Chapter 1

Regional Economics in the Craft Beer Sector
Thomas Peake, University of Massachusetts Amherst¹

Introduction

The initial motivation for this project came from a number of brewery tours and fascinating barstool conversations with individuals connected with the Pioneer Valley's craft beer manufacturers, including Berkshire Brewing Company (BBC), Opa Opa, and High and Mighty Beer, as well as other brewers outside of that region. While no notes were taken in any of these interviews, most of which took place before any decision had been made to write a thesis and nearly all of which were conducted

¹Due to the length constraints of this journal, many pages of raw data, marketing surveys, and other "behind-the-scenes" information has been omitted. Please feel free to email twpeake@gmail.com for more information on the appendices mentioned throughout the paper.

in noisy and distracting environments, a few observations about the industry, at least in New England, seemed to hold across the industry. The first is that craft beer manufacturing is not seen as a business particularly friendly towards businessmen. Due to high consumer standards and a very differentiated product, those hoping to succeed must be skilled brewers first and foremost, a craft that takes years of practice to hone. Few showed any interest at all in discussing economics, and it was difficult to get in-person interviews with the minds behind this growing industry. Finally, when they were willing to discuss economics, they seemed to agree on only two things: beer is very hard to distribute, especially for a small company, and no brewery can succeed without a local support base. The first point is really somewhat obvious; beer, like any liquid, is heavy. It is also perishable and various municipalities regulate it differently. So while there certainly are battles over various legislations affecting the ability of craft brewers to distribute, and while that may be an interesting paper on its own, the focus of this paper will be the second point; that a successful craft brewer requires a strong local support base.

Given the propensity of many craft brewers to associate their brand name with their region (Berkshire Brewing (MA), Bear Republic (CA), Motor City (MI)) it may seem obvious that many craft breweries hope to win over those looking for a locally made beer. The more important question is whether or not they need to. One thing that can be said is that this sort of behavior is not ubiquitous among beverage manufacturers. The wine industry, for instance, is located where it is because those are the best places to grow grapes. It may be the case that the

residents of those areas, being so immersed in wine culture, may be particularly partial to wine in general or local wine in particular. However, it would be silly to claim that these regions would not be wine producing areas were all the locals to suddenly become sick of wine, so long as global demand continued. Likewise, when Anheuser-Busch decided in the 70s to open a brewery in Merrimack, New Hampshire (Anheuser-Busch), it was probably not because Merrimack, a town of about twenty-five thousand residents, had a uniquely high demand for beer, relative to the larger metropolitan areas south. Large beer manufacturers and liquor distillers are assumed to make their choices of where to locate their manufacturing operations based on the local prices of inputs, in this case water, electricity, barley, yeast, hops, labor, etc.

Craft breweries, however, are smaller, younger and have considerably less capital than large manufacturers like Anheuser-Busch. When the twenty-first amendment was passed and breweries began opening their doors again, there were notably fewer breweries in the United States than before Prohibition (Brewers Association). Presumably, some did not have the capital to start back up, had sold off their assets, repurposed their facilities, or simply retired. This began a trend of increasing industry concentration that saw the market go from almost 1000 breweries immediately following prohibition to less than 100 in 1970. The reversal of this trend, beginning with the revival of Anchor Brewing in San Francisco (Elzinga, 132) and continues into the present day with the over 1700 breweries currently in operation (Brewers Association), has been well documented elsewhere and is a very interesting read for anyone interested.

The overwhelming majority of breweries currently operating in the United States are less than twenty years old. In those last two decades, certain metropolitan areas have become known as “brewing hot spots”, while others have not. While every area would love to boast about how great their brewing culture is, it wouldn’t be prudent to simply take their word for it. A good place to get a look at what the actual climate for craft beer in American cities is like is a group of publications sent out by an organization called Brewing News. Each of one of these publications (Great Lakes Brewing News, Southwest Brewing News, Mid-Atlantic Brewing News, Yankee Brew News, Northwest Brewing News, Rocky Mountain Brewing News, and Southern Brew News) covers everything related to craft beer and the culture surrounding it in a total of 43 States. Each one also features a map of the locations of breweries and beer-related businesses in each of those states. With an edition issued every two months, these journals, when taken as a whole, form a rather remarkable picture of where craft breweries are located, which are far from homogeneous. Well known beer meccas such as Portland, Seattle and Denver are hard to see under the mass of markers, while Mississippi features only one solitary brewery. Moreover, it was clear that population was not the sole driver of brewery location. Some major metropolitan areas, such as Dallas or San Jose, had only a few breweries, while smaller areas like Austin and Boulder, CO had many more. It was these maps which inspired the hypothesis that this paper will explore: that craft breweries, despite being manufacturers whose product markets often extend far beyond their locality, are clustered in a manner that would reflect a strong interest in local demand.

In one terminology, their behavior is more consistent with “firm behavior” than the “industry behavior” of their larger competitors.² This terminology, as it is central to the hypothesis, requires a certain amount of explanation.

For these purposes, “firm behavior” should be defined as behavior in which a local firm is competing for local demand with other local firms. Examples of this could be a restaurant, a pharmacy, or a hotel. There are more pharmacies in Boston than there are in Amherst because there are more people demanding pharmacy services in Boston than there are in Amherst. Thus, for a firm producing a good or service for which the demand is about the same for any given individual, the output of firms in that sector should be about proportional to the amount of people in that region. However, demand can vary across similarly sized populations. An example of this would be theaters. While theaters certainly display firm type behavior, competing with each other for the patronage of the nearby residents and tourists, demand for the theater performances is much stronger in certain areas than others. This shows in the fact that certain large cities (like New York and Boston) have many theaters while others do not.

Industry behavior, on the other hand, refers for our purposes to businesses that, while based locally, compete for market share in a much larger geographical area, and thus are less concerned with what is occurring locally than a firm type business might

²The “firm” vs “industry” terminology used in this paper was borrowed from the methodology of the REMI model, developed by Regional Economic Models, Inc. and should not be confused with more commonplace uses of the terms.

be. Perhaps the best example of industry behavior for many people would be the Detroit area in the 20th century. Here, America's auto manufacturing giants based huge operations that sent cars all around the globe. They were (and still are) no doubt fierce competitors in many ways, but their competition was not limited to the auto market of the Detroit area. If GM decided to move all of their operations to Texas, assuming no difference in the cost of production, Chrysler and Ford would not be particularly bothered or delighted over this news. Likewise, if MillerCoors, Anheuser-Busch's main competitor today, were to open up a factory right down the road from the AB plant in Merrimack, New Hampshire, it's unlikely that there would be much of a reaction. Anheuser-Busch already competes with MillerCoors in New England, as well as presumably every other part of the country, so where the beer is being made makes little difference to them unless it brings with it a significant cost difference. So while "clusters" of businesses - that is to say, a surprisingly dense grouping of businesses in a certain sector - mean an especially high demand for that good or service when discussing firm level behavior (theaters in New York), they can signify notable cost advantages to producing in this area over others in the case of industry-behavior firms (automakers in Detroit).

Obviously, a company does not need to perfectly fit into one definition or another. A company could rely primarily on a larger market for revenue, but gain some amount of business from a stronger-than-average local demand. Alternatively, there could be a sector for which there is strong demand in all parts of the country, but whose intermediate inputs only exist in cer-

tain areas. Craft beer absolutely falls between firm and industry behavior, and after a certain point, it may exhibit almost exclusively industry behavior, as in the case of Boston Beer Co. (Sam Adams),³ Sierra Nevada, Anchor Steam, or other hugely popular craft brands. For the purposes of this paper, the firm versus industry paradigm will be used only to look at a brewer's choice of location.⁴ This requires a few assumptions that should be addressed now.

The first assumption regarding brewery location is that the founders of the brewery were free to move where they pleased, and chose their location based on strategic behavior and not necessity. There may be some brewers to whom that does not apply to, who started brewing in one location because they wanted to brew beer and, for whatever personal or financial reason, did not have the ability to uproot and move to a different location, despite knowing that it would be a better place to have a brewery. Lacking a broad survey of brewery owners, it is difficult to test the truth of that assumption.

The second, perhaps more tenuous, assumption, is regard-

³Boston Beer is notable for its early adoption of "contract brewing", a practice shunned by many craft beer enthusiasts (Elzinga, 132). For the purpose of simplicity, this won't be addressed in this paper, but may be an interesting topic for further research. We will assume that in the case of breweries like Sam Adams, all beer is brewed on location. The main reason for that is the lack of adequate resources to check if each of the over 200 breweries used in the sample have ever used contract brewing services.

⁴This is to say that "firm" vs "industry" type companies behave differently on a number of other levels which are not being addressed here. The paper only addresses whether craft breweries display "firm-like" behavior when making their location decisions.

ing brewer distribution. The assumption here is that brewers either learned their trade on the job at established breweries or traveled to strategic locations in order to start their own. If the craft beer industry were similar to, for example, the technology industry, this would be obviously untrue. Technology company clusters exist in places like California and Greater Boston in part because they are within close proximity to what are understood to be the most elite educational institutions in their fields, and they are the easiest places to find an abundant, skilled labor supply. While various vocational programs for brewers do exist, we will assume here that those programs are not so established that they draw all of the nation's prospective craft brewers into certain areas where they will then be recruited to work. Therefore, anywhere where there is adequate demand for craft beer, people will either learn to brew or they will migrate into that area to meet the demand.

One final assumption must be made to adequately explain the hypothesis. While the other two assumptions address beer supply, this one must address beer demand. The assumption is that certain demographics demand craft beer more than others. That is to say, while all sorts of people may like craft beer, certain groups are more likely to enjoy it over other types of beer. The demographics in question, for these purposes, are not really important. All that matters is that there is a certain demographic makeup which would characterize an area as more demanding of craft beer than another.

With those assumptions in mind, the Brewing News maps of craft brewery locations can be given a possible narrative, as follows: As craft beer re-emerged in America as a product,

certain demographics seem to have adopted it as a regularly consumed beverage with far more regularity than other demographics. Brewers, eager to ply their trade in this hip new market, started breweries all over the country. In certain areas, the breweries were supported by local demand, became profitable, and soon thereafter took off and began distributing to a larger market. In other areas, where there was less demand, the breweries did not succeed. Over time, more and more breweries began to take hold in those areas which had become “craft beer meccas” and industry clusters emerged as a result of this growth. Although the breweries in question may have been able to produce at a lower cost by locating their brewery elsewhere, they would not have been able to realize the immediate demand, and would have ultimately failed.

The historical side of this paper is very difficult to test. The main reason for this is that the key data source being used here to show craft brewery location, the *Brewing News* periodicals, only has online archives of their periodicals going back to 2009. There is not much clear data about exactly when each regional affiliate of the periodical was founded. If, in fact, archives do exist dating back to the late eighties or early nineties, it would be far easier to actually see how the market took off over time. This paper will instead focus on a specific point in time in the life of the craft beer industry and examine it for evidence in order to test the hypothesis.

Demographics of Craft Beer

For any statistical analysis of the locations of craft breweries to be established, one must first develop a profile of what sort of person is likely to drink craft beer. If the hypothesis of the paper holds, areas containing an especially large number of breweries should also be full of the type of people who drink craft beer. Therefore it must be made clear what sorts of people are being identified as likely craft beer drinkers and why. There are a number of reasons why this is somewhat perilous territory, particularly because it assumes that craft beer is enjoyed by the same demographics over time. While this seems to be the opinion held by those in the marketing world (see below), it does not seem like something that should necessarily be taken for granted. For instance there's nothing to say that India Pale Ales will not suddenly catch on and become the favored drink of middle-aged African American men. Certain people (those who worry heavily about a beer's caloric composition and less about its taste, for instance) are very unlikely to ever catch on to this phenomenon. Others (those who really love the taste of beer, respect the work that goes into making it, and enjoy discovering new and interesting beers they had never tried before) will probably always hold a place in their heart for craft beer. However, while the craft beer market has seen a remarkable last few years, it is not entirely impossible to foresee a situation where many of its newest converts move toward some new beverage of choice, or stop drinking altogether due to a sudden change in cultural norms about health and alcohol consumption. Equally tenuous is the notion that different types of craft beer are enjoyed by the

same sorts of people. Again, this is probably the case. A quick look around any bar specializing in craft beers will demonstrate a somewhat homogenous demographic enjoying a great variety of different beers. However, that says nothing about individuals who purchase their craft beer for home consumption. It could be that while Belgian Whites and Pale Ales are heavily consumed by young, hip, affluent individuals, the stouts and porters which are also lumped into that category are consumed by the sorts of older, wiser, hardier men who often adorn the bottles of those particular varieties.⁵ Whether or not this actually matters is another question that should be asked, since many, if not most, breweries have a diverse portfolio of brews that could cater to a wide variety of consumers. In this case, if the hypothesis in question did hold, the breweries would locate where there was the strongest demand and other demographics that may enjoy some of their other varieties would not be so lucky.

Most of the published works addressing craft beer demographics are from the marketing world, not the academic world. As such, it is somewhat difficult to tell just how robust the existing literature is. In lieu of that, a number of different studies reaching similar conclusions will have to suffice.

One study that received a good deal of attention within the craft beer community was conducted by Ad Age Magazine and Mindset Media, a company described as a “market researcher specializing in psychographics” (Snyder Bulik). They offered a profile of the lifestyle and attitudes of the consumers of Bud-

⁵A casual observation would be that the darker and heavier a beer is, the more likely it is to feature a lumberjack-type gentleman on the label. However, this will not be tested in this paper.

weiser, Bud Light, Michelob Ultra, Corona, Heineken, Blue Moon, and a lump category for craft beer. They also point out that Blue Moon, while considered by some to be a craft beer, does not, in fact, meet the criteria given by the Brewer's Association, a Boulder-based trade organization, to qualify as a craft brewery. Their main offense: being owned by the same international conglomerate that owns Miller, Coors, and Molson.

The somewhat humorous but probably not incorrect assessment of the study on craft beer drinkers is as follows:

These specialty made beers get lumped into one category both because there are fewer fans (and thus less statistically significant data) of them, but also because the personalities of one type fairly well describe another. This group is more likely to spend time thinking about beer rather than work. They are more open-minded than most people, seek out interesting and varied experiences and are intellectually curious. Craft-beer drinkers also skew as having a lower sense of responsibility - they don't stress about missed deadlines and tend to be happy-go-lucky about life.

Craft-beer lovers are 153% more likely to always buy organic, 52% more likely to be fans of the show "The Office" and 36% more likely to be the ones to choose the movie they are going to see at the theater. (Snyder Bulik)

Elsewhere in the article, when describing craft beer drinkers in

relation to other beer drinkers (different) and to Blue Moon drinkers (similar), some interesting comments are made. For instance, the assertion is made that

people who prefer domestic beers over craft beers or imports are generally middle of the road in their politics. They're not nearly as conservative as people who don't drink beer at all, but not as liberal as people who prefer more exotic beer. (Snyder Bulik)

After noting that Blue Moon drinkers tend largely to follow craft beer drinkers, it is said that "Blue Moonies are socially liberal and usually quite willing to go against convention," and that they are "105% more likely than the average person to drive hybrid cars, 77% more likely to own Apple Mac laptops, 65% more likely to purchase five pairs or more of sneakers every year, and 32% more likely to not be registered voters" (Snyder Bulik).

This establishes one prevailing perception about craft beer consumers; they tend to be liberal and, for lack of a better word, hip. While this will be included in the final regression, political liberalism can take many forms, and some of the demographics that form the bulwark of support for the Democratic Party (for instance, African Americans and blue collar union workers) are not typically seen as the primary customer base for craft beer, so more insights are required. While many statistics are available, they tend to be from sources not extremely well known for citing their work (newspapers and marketing documents). For instance, Steve Adams, writing for *The Patriot Ledger*, says

“People aged 25 to 34 make up the biggest segment of craft beer drinkers, at 26 percent, and 38 percent of craft beer customers have incomes of \$ 100,000 or more. More than 40 percent are college graduates.” (Adams). Paul Gatz, director of the Brewer’s Association tends to agree. Being quoted in an article for Nightclub and Bar Magazine, he states that “The new beer drinker, at least those that are providing growth for beer, include 25- to 34-year-olds, women and those with household incomes [either] below \$ 45,000 or over \$ 100,000” (Gosselin).

This view is not universally held. One of the more thorough reports available is a statistical table of consumer characteristics on beer consumption generated by Simmons Market Research Bureau, Fall 2006 Study of Media and Markets. According to this survey 9.1% of craft beer consumers are between 21 and 24, 24.7% between 25 and 34, 22.8% between 35 and 44, and 24.6% between 45 and 54 years old. For comparison, the percentage of Americans above 21 in those age bracket is 7.7%, 18.6%, 18.6%, and 20.4% respectively (2010 Census). Another dissenting opinion when it comes to what demographics drive beer consumption comes from another undergraduate economics paper on craft beer. Steve Spurry of Mary Washington College, writing in *Issues in Political Economy*, concurs with an earlier study by Craig Levitt in *Discount Merchandiser* showing that the growth in craft beer has been fueled by the baby boomers aging, accumulating wealth and becoming more selective in their choices of beverage. Before giving too much weight to this apparent disagreement about whether it is the hip millennials or the refined baby boomers that are fueling growth in craft beer, it should be noted that the Spurry and Levitt articles were pub-

lished nearly ten years before the others, and may reflect a different economic reality at that time. However, the same cannot be said for the Simmons research. All the same, both ideas will be tested later in this paper.

So far, political affiliation, age, and income have been suggested as good variables to capture the typical craft beer consumer. Although it is considerably more controversial, one more variable should probably be added here, that being race. According to the Simmons research, 90% of craft beer drinkers are white, compared to 79.1% of beer drinkers in general. As for the other 10%, it breaks down as 2.7% African-American (as opposed to 10.4% of all beer drinkers), 2.8% Asian (as opposed to 4% of all beer drinkers), and 6.4% Hispanic (as opposed to 12.6% of all beer drinkers).⁶ This discrepancy in who enjoys beer has received some attention on craft-beer related forums and blogs, but little industry attention.⁷ Most of the musings as to why that is the case range from somewhat inane to completely ludicrous,⁸ but one concept that some people have suggested may

⁶The overlap here is noted, while Simmons does not explain itself it is assumed for these purposes to be due to overlap in racial identification.

⁷The reason for this is somewhat obvious. There's nothing inherently wrong with white people enjoying your product, but it's hardly hip and cutting edge to be the producer of something that only white people drink.

⁸For example, that since there are more white people, they will drink more beer, not taking into account the somewhat significant difference between the percentage of Americans who are White Non-Hispanics and the percent who are white craft beer drinkers, never mind the difference between craft beer and other beers... or that, since the styles of beer are often based on traditional European styles, perhaps it's in the genes of white people to love craft beer?

hold some merit. Since craft beer is more expensive than most beers, and since a disproportionately large share of the national wealth is known to be held by whites, it makes some amount of sense that whites would purchase a larger share of craft beer than they would beer as a whole. This is another concept that will be tested later in the paper.

This generates the demographic profile of the craft beer drinker that the remainder of this paper will use. If the hypothesis holds, then breweries would chose to locate themselves in areas with high median income, strong liberal political affiliation, a large number of 25-34 year olds or, alternatively, a high median age, and where there are a large number of White Non-Hispanics.

Data Sources

The data collection for this project varied in its difficulty. All of the county-level data on, age, ethnicity, and population comes from 2010 Census data. In addition, county level median income data was found from the American Community Survey's 5-year averages, 2006-2010.

For the political data in question, the paper relies on the research conducted by Dr. Mark Newman of the University of Michigan's Center for the Study of Complex Systems.⁹ It is from his work that the statistics on the number of people who

⁹Dr. Newman has produced an excel sheet (as part of his working on a larger, more interesting project about maps of election results) that details the election results in every county in every US state.

voted for President Barack Obama, Senator John McCain, and “other” are derived. In order to test the possibility that how many people total voted Democrat in a given county matters less than the overall political climate, a variable for the percent of people who voted for President Obama has also been added.¹⁰ The idea of using statistics from the 2010 election, which occurred at precisely the time that the other data in question was being collected was briefly considered again. Ultimately the decision was made to use the 2008 data instead. While the 2010 election may in certain ways be a more accurate predictor of the political affiliations at that moment in time, a problem arose in that the 2010 election did not see any national candidates, and therefore had no single standard with which to judge the political affiliation of a given population. That is to say, New Hampshire and Mississippi may both elect a Republican to the Senate, but that does not mean that they voted with equal degrees of conservatism, since New Hampshire tends to be considerably more moderate. This is evident in New Hampshire’s selection of Obama in 2008, while Mississippi, a far more conservative state, went strongly for McCain. It is also true that there are better indicators of political affiliation than the somewhat binary “did you vote for Obama or not?” test being used in this paper, such as the Cook Partisan Voting Index (PVI). The choice to use the number of Obama voters, rather than the PVI, is based upon the fact that the Census data used for this study is organized on a county basis, while the PVI is organized along congressional district lines. Although the PVI would pro-

¹⁰Calculated as $(\text{Obama}/(\text{McCain}+\text{Obama}+\text{Other}))\times 100$.

vide a better indicator of political affiliation, assembling data based around congressional district lines would be an arduous task for the purposes of this paper.

By far the most challenging data collection process was that of assembling a list of craft breweries. One key distinction needs to be made here, because of the unique nature of this paper relative to others on the subject. That distinction is the breweries being counted in this study. The world of beer is full of classifications, and the production side of it is no different. The Brewers Association often acts as the ultimate authority on craft beer classification, and provides a helpful set of classifications (reproduced below):

- *Microbrewery:*

A brewery that produces less than 15,000 barrels (17,600 hectoliters) of beer per year with 75% or more of its beer sold off-site. Microbreweries sell to the public by one or more of the following methods: the traditional three-tier system (brewer to wholesaler to retailer to consumer); the two-tier system (brewer acting as wholesaler to retailer to consumer); and directly to the consumer through carry-outs and/or on-site tap-room or restaurant sales.

- *Brewpub:*

A restaurant-brewery that sells 25% or more of its beer on site. The beer is brewed primarily for sale in the restaurant and bar. The beer is often dispensed directly from the brewery's storage tanks. Where allowed by law, brewpubs often sell beer "to go" and /or distribute to off site

accounts. Note: BA re-categorizes a company as a micro-brewery if its off-site (distributed) beer sales exceed 75%.

- *Contract Brewing Company:*
A business that hires another brewery to produce its beer. It can also be a brewery that hires another brewery to produce additional beer. The contract brewing company handles marketing, sales, and distribution of its beer, while generally leaving the brewing and packaging to its producer-brewery (which, confusingly, is also sometimes referred to as a contract brewery).
- *Regional Brewery:*
A brewery with an annual beer production of between 15,000 and 6,000,000 barrels.
- *Regional Craft Brewery:*
An independent regional brewery who has either an all malt flagship or has at least 50% of its [sic] volume in either all malt beers or in beers which use adjuncts to enhance rather than lighten flavor.
- *Large Brewery:*
A brewery with an annual beer production over 6,000,000 barrels (Brewers Association).

These standards roughly correlate with those that the Brewing News Publications use to classify the breweries on their list, with a couple clarifications. A company that brews beer for a Contract Brewing Company (Pabst being the most prominent

of its kind) is referred to as a Contract Brewery. While some of these breweries may, in fact, brew beer for craft breweries, the decision was made to prevent double counting breweries. Furthermore, the narrative of a contract brewery, whose sole purpose is to make beer because somebody else's recipe has a demand for it, does not seem to provide much insight into the questions being explored here. As such, contract breweries have been omitted from the analysis.

Unfortunately, the Brewing News publications do not distinguish between a Regional Brewery that produces craft beer and one that does not. In the initial round of data entry, a number of Regional Breweries were added to the list which, upon further inspection were discovered to not be craft breweries and were therefore removed. A more complicated problem arose when investigating these breweries, in that a number of them, in addition to producing their own, well respected craft beer, have, in fact, done good deal of contract brewing. This was particularly true for Regional Breweries in the Great Lakes/Rust Belt region. Presumably the cause of at least some of this was old, large brewing companies with huge facilities that over time lost market share to multinational conglomerates and began brewing some beer for said conglomerates in order to cover some of their fixed costs. For the purposes of this paper, however, the decision was made that if the main beer brewed at that facility was, in fact, a craft beer, then they would be included. It seems important to make that fact very clear, because a closer inspection by regional beer experts could find that some breweries within the sample should not be considered Regional Craft Breweries.

Another major omission from the dataset was Brewpubs. This is in some ways unfortunate, because Brewpubs are very much a part of brewing culture. In fact, as of 2011, they make up 1,063 of the total 1,938 breweries in the United States (Brewers Association), and their omission means that the dataset being used for this paper is considerably different than that being used in most other works on this subject. There are three reasons for this. The first reason is that Brewpubs do not just offer beer. They are often interesting, enjoyable restaurants or clubs in their own right. A restaurant may brew their own beer, but that is in fact a somewhat small part of their overall business plan. With a sample size of this magnitude, it is difficult to tell which ones are legitimately breweries in their own right versus restaurants that happen to brew a keg or two of ale for customers who happen to be interested. Second, many brewpubs are franchises, and there was some uneasiness about whether or not counting the same brewery two or three different times in the same area was fair. The most important reason, however, is that the focus of this paper is on whether the behavior exhibited by craft breweries should be described as industry behavior, like in the case of their larger competitors, or as firm behavior, like in the case of a restaurant. Many brewpubs are, in fact, restaurants, and none sell any more than 25% of their beer off premise. It stands to reason that all brewpubs display almost entirely firm-like behavior. The concern is that the inclusion of one thousand or so of them in the sample would mean that even if the behavior of the microbreweries and regional craft breweries in the sample displayed entirely industry-like behavior, the findings of this paper would be more or less in line with

the hypothesis.¹¹

Although new editions of the *Brewing News* magazine are published every two months, this study uses their respective October and November 2010 editions in order to better fit the demographic information given by the 2010 census.

Other than individual breweries, the most serious omissions of data in the sample of this paper comes in the form of geographical regions. Due to the fact that Puerto Rico did not vote for presidential electors in the 2008 election, and given that Dr. Newman's data on Alaska was somewhat difficult to work with,¹² the decision was made to constrain the sample to the continental United States. In retrospect, this may have been somewhat unfair to Hawaii, which suffered neither of these problems; however, it, as well as several other states ran into trouble when it came to the *Brewery Publications*. While the *Brewing News* does cover the majority of the United States, several states are omitted. In some cases, it is difficult to tell whether this is because the authors of the publication are truly unaware of any brewing activity in these states or whether they

¹¹A suggestion made by Professor Gerald Friedman during the defense of this thesis is that brewpubs, while not included as breweries for the sake of the analysis, could be a useful variable in a regression model, as they demonstrate a clear local demand for craft beer. While, as noted above, many brewpubs are much more functionally similar to restaurants than to pubs, or make most of their alcohol sales on beverages other than their own, and thus would not necessarily demonstrate a high demand for craft beer, the point is taken. This would be a very interesting variable to include in future studies on this topic.

¹²The data were organized along metropolitan and micropolitan statistical areas, not by county.

simply do not have any staff interested in writing about those regions. In addition to Hawaii, there is no information in the publications about brewery activity in Iowa, Kansas, Kentucky, Missouri, Nebraska, North Dakota, or South Dakota. Some of these states may truly have no craft beer presence, but others, such as Missouri, are known to have had multiple craft breweries at the time the maps were published (Kressman). For this reason, any state not featured in the map is simply removed from the Sample, with no assumption made about how many breweries are in those locations. There is another somewhat drastic and noteworthy discrepancy between the data and the figures from the Brewers Association when it comes to the number of breweries active during that period. Provided that no mistakes were made in the manual entry of the data, the *Brewing News* publications list 457 microbreweries and regional craft breweries in the sample in the period preceding their October-November edition. This is substantially less than the 615 microbreweries and 81 regional craft breweries said to be open during this period by *Brewers Association Statistics* (Brewers Association), which totals to 696 craft breweries. It is probably worthwhile to consider the nature of these 239 missing breweries.

One of the more obvious solutions is that there are actually a number of breweries located in the omitted states. If those breweries were located in those omitted states, then the sample that excludes those states should still give satisfactory results for that area. It would be concerning however if it is assumed that there were no craft breweries in all the counties within the omitted states. This is particularly true because, excluding Hawaii, the states omitted are all Midwestern states whose

many counties share a lot of demographic traits such as being overwhelmingly white, politically conservative, etc. So if, unbeknownst to the people publishing *Brewing News*, there was a craft beer hot spot in rural Kansas, that could have serious implications for the study.

An alternative theory regarding the missing data concerns the methods of data collection employed by *Brewing News*, who never explicitly state precisely how they get their information. No data source is explicitly stated, but each map does list contact information for business owners interested in having their businesses listed on the map.¹³ This leads to the possibility that the periodical's sample of breweries is less than perfect, so much so that 239 breweries across the United States were not included. Whether or not this would be an issue from a methodological point of view is dependent upon whether or not there is a trend among brewers who did not choose to be listed in the publication, or whether those who wanted to be listed were a random sampling. Obviously, a sample of over half of the breweries in the nation, if randomly selected, should be sufficient to test. However, it could be the case that the *Brewing News* was not widely distributed or well known in certain areas that had a great deal of breweries in them. Denver County, CO, for instance, has a surprisingly small number of breweries given its reputation as somewhat of a hub of craft beer (*Frosch*), although the low number could also be easily explained by the omitted Brewpubs, as described above.

¹³The magazine does not just cover breweries, but also craft beer stores, bars, and home brew supply shops.

Finally, it is possible that the Brewers Association's figure is somehow inflated. It should be noted that, like most of their publications, their statistics on the number of breweries does not include any data source (Brewers Association).¹⁴ Given the small nature of many of these breweries, it may be difficult for a centrally located trade organization such as the Brewers Association to adequately capture certain important facts about breweries, such as whether or not they are actually up and running or whether, while defining themselves as a microbrewery, they are in fact just a brewpub. The same could be said for self-described regional craft breweries that are, in fact, only microbreweries, as the list collected for this paper lists 20 of them, short of the 81 listed by the Brewers Association. These problems merit further research. However, it should be noted that the Brewing News maps were used as a data source only after the Brewers Association did not respond to a request for their data. Were those data made available in the future, it would certainly merit a follow-up study.

Theoretical Issues

Most of the problems that should be tested for the purposes of this study have been addressed previously, but for the sake of clarity they will be repeated here. The first problem is that there is a controversy regarding whether the best age-related

¹⁴In the time since this paper was written, the Brewers Association's website has added more data on craft breweries which may have been helpful.

variable to test would be number of 25-34 year olds or median age, so this paper elects to test both. There is a perception that craft beer, more so than other types of beer, is a commodity enjoyed mostly by white people. However it has been suggested that it is the higher cost of craft beer, and the concentration of wealth in the hands of whites, that causes this to be the case. Thus, the effect of the number of white non-Hispanics in a county on the presence of craft breweries will be tested with and without controlling for wealth. Regressions will be run without the Midwestern states not covered by the Brewing News publication as it is not clear whether or not it is fair to assume that, because they are not included in the Brewing News maps, there are no craft breweries in those states.

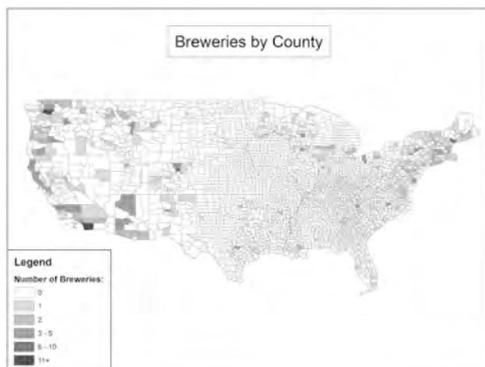
One concern that deserves addressing is that breweries are not uniform in output. An area with a very high demand for craft beer could be just as easily supplied by one regional craft brewery supplying 150,000 barrels of beer annually as twenty microbreweries each supplying 7,500 barrels. One reason that some may not view this as a concern is that craft beer consumers are considered to be nowhere near as loyal to a particular brand as drinkers of more conventional American beers. The classical argument between the “Bud man” and a “Coors man” has no real craft beer parallel, since that sort of branding has yet to really catch hold in the craft beer community. Tom McCormick, writing for *Probrewer.com*, a beer industry resource site, states that “Most craft beer consumers have a range of 5-10 beer brands that they buy on a consistent and repetitive basis. Two or three of these brands are favorites, which typically capture about 50-60% of their beer purchases.” The assumption, then, is that if

a community had a large demand for beer and only one, very large craft brewery, it would probably be getting a good deal of the beer it consumes from other areas, and exporting a good deal of the beer it produces to other counties, and there would be incentive for other breweries to move in. A possible counter-argument to this would be that large breweries may be able to diversify the number of different beers produced, thus keeping consumers from losing interest too quickly. Whether or not that is the case remains to be seen. However, in order to capture the possibility that large breweries could crowd out smaller ones in certain areas, another set of regressions will be run, with every regional brewery inflated to count for more than one brewery. Specifically, every one regional (larger) brewery will be assigned the weight of 4 microbreweries. The number 4 was based on the ratio between the output of Dogfish Head Brewery, as reported in a Senate press release (U.S. Senator Chris Coons of Delaware), estimated at 125,000 barrels, divided by 15,000, the minimum amount of beer that a craft brewery can produce while still retaining the “microbrewery” label (8.3) and then rounding down and dividing by two, assuming that less than half of most beer produced by a regional craft brewery is consumed in that county. Dogfish Head was chosen because of the availability of the data and their size, which falls somewhere between the very largest Regional Breweries, such as Sam Adams, and the smaller ones like Smuttynose, which up until recently was classified as a Microbrewery. This weighting system is obviously far from perfect, but it serves to test the possibility that results will appear different if larger craft breweries are weighted for their additional output. If the data were available, an ideal way to

test this would be to actually weight every individual brewery by its output. Since those data were not available, this weaker method will be used instead.

Finally, it is fair to note that county level data may not be the most ideal geographic estimator for this purpose, particularly in certain areas of the Northeast, where there are many small, densely populated counties whose residents may move between counties on a regular basis. In Massachusetts, for instance, Greater Boston and the Pioneer Valley would probably be much more useful geographies than Suffolk and Hampshire counties, respectively. The use of Metropolitan Statistical Areas was ruled out on the basis that it would specifically exclude from the sample any brewery located in a rural area.

Dataset



Many of the findings from the data collection were fairly unsurprising. There was a good deal of concentration in the industry across the Northeast and the West Coast and less concentration in the Midwest and South. There were, however, substantially more brewers in the Southwest and the Great Lakes region than was initially expected. The map above shows the lack of even distribution across the states, but it also highlights the validity of the many weaknesses of the study. It seems prevalent that counties containing several breweries tend to be adjacent to at least one other county also containing at least one brewery. Whatever the reason for the clustering effect observed in the map, this is somewhat concerning evidence that a county is, in fact, not an ideal unit for analyzing an area's economic and

demographic makeup. The map also demonstrates to the previously unaware the disparity in the size of American counties. The list of breweries, attached as Appendix 2, specifically indicates the city or town in which each of these breweries is located. In certain cases, such as the massive Coconino County, Arizona, it is difficult to tell if the breweries are within close proximity of one another in a single area (in the case of Coconino County, perhaps Flagstaff) or are evenly distributed across an area larger than all of Massachusetts. All the statistical regressions in this study do not distinguish between these possibilities, which could be a problem.

Four US counties have over five craft breweries in them. They are, in order, Boulder County, Colorado¹⁵ with 6, Cumberland County, Maine (the Portland area) with 8, San Diego County, California, with 12, and at the top with 14, probably not to many people's surprise, is King County, Washington (Seattle). Notably missing are places like Denver County, Colorado, Suffolk County, Massachusetts, and Cook County, Illinois. While a review of the Brewing News maps being used would suggest that those areas contain clusters of breweries, a further examination reveals that almost all of those breweries are in fact Brewpubs, and thus not relevant for this study.

The West Coast, Northeast, and Rocky Mountain regions showed little surprising data, with most of the nation's breweries clustered close to one of the oceans. The patterns of breweries appearing especially in these regions points to the idea that if metro areas were used instead of counties, more informative

¹⁵Boulder is the base of operations for the Brewers Association.

statistics may emerge. Around most counties with a high concentration of breweries, there are a handful of other counties with less. It is probably not unreasonable to assume that in these counties, which are often largely suburbs surrounding a dense urban core, the demand for beer produced in that county includes the populous areas not far away, not just the county in which they reside. For now, this is a problem with which we must contend.

One area which yielded more breweries than expected is the Great Lakes region, especially Michigan, Indiana and Wisconsin. While the area is well known for having a culture of beer drinking, it is generally associated with the larger brewers such as Miller in Milwaukee and there are a limited number of craft beers from the upper Midwest featured in a typical Northeastern liquor store. There could be several explanations for this. This is probably just a matter of output, with many of these breweries being smaller and relying on local brand loyalty to support itself. This would explain one trend, which is that these breweries seem to be far less concentrated in urban areas than elsewhere in the country. It should also be said that, as noted above, there were many breweries on the map listed as “microbreweries” or “regional craft breweries” and with a few exceptions, they are treated as such the purposes of this study. It is worth considering that some of these breweries may be regional producers of certain types of non-craft beer whose distribution does not extend beyond the Upper Midwest.

The South is by far the most sparse area covered here when it comes to breweries but a few counties do stand out, particularly Buncombe County, North Carolina (Asheville) with 5

breweries and Travis County, Texas (Austin) with 4. Travis County is no surprise using the hypothesis examined here; it is widely considered to be a young, hip city. Buncombe County, while not too far off from the demographic projection (it is overwhelmingly white, voted strongly for Obama, and has a population big enough to support a couple of breweries), comes as a bit of a surprise, as Asheville doesn't come up much in discussion about great places for craft beer. Other than those, most counties in the South have at most one brewery. A few exceptions to this are Wake County, North Carolina (Raleigh), with 3, and Fulton County, Georgia (Atlanta), St. Tammany Parish, Louisiana (Covington, in the New Orleans Metro Area), and Pulaski County, Arkansas (Little Rock), each with 2. Mississippi ranks as the least brewery-intensive state covered, with only one microbrewery in Hancock County.

Overall, the Southwest does far better than the Southeast. This is curious from a traditional, input-oriented view on regional economics as, were access to inputs the most important thing for breweries, the availability of water would likely be a hindrance. In that region, the county containing the most breweries is Maricopa County, Arizona (the Phoenix metro area). While Phoenix has not attracted the sort of attention that San Diego or Seattle does when it comes to brewing beer, it is a large metropolitan area with a good deal of young professionals. It is therefore not shocking that the area has a craft beer presence. Maricopa County also stands out in being tied with Orange County, California for the most brewery-intensive county to be

won by McCain in 2008.¹⁶ Liberalism seems to be a strong trend among brewery intensive counties with some caveats. Overall, 107 of the 288 counties which at least one microbrewery makes a home, voted for McCain. However, out of the counties containing three or more breweries, only 7 of the 37 went for McCain.

As far as income goes, it is certainly true that none of the most prominent craft beer areas is suffering particularly badly. However, it is also true that very few of them are huge outliers when it comes to wealth. For counties with three or more breweries, the range of median income is between \$40,089.00 in Humboldt County, California, and \$74,344.00 in Orange County, California. Most of the results in between fall somewhere between the high 40 and low 60 thousands, far from impoverished, but also curious considering the claim made earlier in the paper that craft beer is driven in large part by individuals earning over \$100,000. Part of this may be explained by the weaknesses of median income as a statistic. For example, there are plenty of people in Orange County, California making considerably more than \$74,344. Perhaps it is they that are supporting the craft beer industry.¹⁷

¹⁶That McCain had an advantage in being Arizona's Senator is worth noting, but with Obama winning only 44% of the vote in this very large area, it seems fair to assume that the results would have been similar had Obama run against an otherwise similar non-Arizonan.

¹⁷It's worth mentioning that prices also vary from region to region. A more complete analysis would incorporate a regional price index in order to capture real income.

Findings

Even reviewing the map, there are many different ways that the data could be interpreted. To shed some light on this, a multiple regressions model was used. While the information was initially compiled to use percentages a review of the findings leads to the belief that it was wiser to deal with values. The reason for this is that the study intended to test the idea that local demand was driving the location choices of craft breweries. For that purpose the number of people with a certain characteristic made more sense as an estimator of local demand than the percent. For instance, in the case of liberalism as an indicator, an area with only a few thousand people, all of whom voted for Obama, would probably still have less demand for craft beer than an area where several hundred thousand voted for Obama, even if those several hundred thousand are a minority of the population. However, given the huge swings of variation in all of these demographics, the natural logs of these variables are used instead of the numbers themselves. The intuition here is that a brewery, when considering location, would very much prefer a county of 100,000 over a county of 50,000, but be fairly indifferent between a county of 1,050,000 and a county of 1,000,000. Whether or not this assumption is true could be an interesting subject for further research.

The set of regressions run here is done four times. In doing so, it tests the same coefficients when counting number of breweries, with and without weighting for output. It also considers one sample with the entire continental US, assuming that any state not covered by the Brewing News did not have any

Craft Breweries at that point, and another that only features the states that the Brewing News covers. From now on, for the sake of simplicity, the set using the unweighted breweries and only the counties from the Brewing News will be considered the main regression model, the set with the same counties but with breweries weighted for output the weighted main regression model, the unweighted set with all counties included the secondary regression model, and the weighted sample of the same to be the weighted secondary regression model.

For each of these sets of data, the basic model being used tests either breweries or weighted breweries against the natural log of the number of 25 to 34 year olds in the county, the natural log of the number of white people living in the county, the natural log of the county's median income, and the natural log of the number of votes for Obama in 2008. From here, a second regression is done, without controlling for median income. The point of interest here is what demographic trends, particularly with regards to race, can actually be explained by trends in median income. A third test replaces the log of the white population with the log of total population. This is another attempt to gain some insight into just how much the craft beer market is driven by the local white population. Finally, a fourth regression replaces the log of the number of 25 to 34 year olds with the median age, to consider the theory that it is not hip culture-creators, but baby boomers with increasingly fine tastes, that drives the craft beer sector. The results are displayed and described below.

Main Regression

The most important thing to note about this table is the relative strengths of the coefficients. The number of 25-34 year olds, which probably received the most amount of attention from the marketing literature, proves to be insignificant at even a 5% level in two of the three models in which it was featured. The one where it is significant is when the white population coefficient is swapped out for the total population coefficient, at which point it becomes significant at a 5% level. This seems to suggest that the young people in highly populated (urban) areas are somewhat relevant, regardless of the racial makeup of the areas they inhabit. The use of median age as an alternative coefficient does not yield any more meaningful results.

The white population seems to do even more poorly, being statistically insignificant in all three of the results where it is run. Its alternative, total population, is significant at a 5% level, but actually shows a negative coefficient once income, age, and liberalism have been controlled for. While not particularly immense or significant, there is a change in the sign of the white population coefficient when income is not controlled for.

Overall, the two coefficients that seem to be strong in the models are median income and number of Obama voters. In all the models that feature both, median income tends to be slightly stronger as a coefficient, while Obama voters are consistently the most statistically significant coefficient.

Table 1.1: Main Regression Results

VARIABLES	(1) breweries	(2) breweries	(3) breweries	(4) breweries
ln2534	0.008 (0.038)	-0.016 (0.037)	0.187** (0.082)	
lnmedinc	0.175*** (0.060)		0.188*** (0.057)	0.167*** (0.059)
lnwhitepop	-0.006 (0.041)	0.035 (0.038)		0.008 (0.019)
lnobama	0.158*** (0.016)	0.157*** (0.017)	0.173*** (0.017)	0.158*** (0.016)
lntotalpop			-0.211** (0.092)	
medage				0.004 (0.003)
Constant	- 3.073*** (0.585)	- 1.412*** (0.123)	- 2.670*** (0.599)	- 3.205*** (0.592)
Observations	2,458	2,458	2,458	2,458
Adjusted R-squared	0.155	0.153	0.157	0.156

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Weighted Main Regression

When weight is added for output, nothing really changes in the results. The coefficients become slightly more substantial and the R squared value for the regression falls slightly. No overall trends shifted too much.

Secondary Regressions

As for the secondary regressions, the inclusion of all the Mid-western counties seems to weaken the strength of the coefficients, as well as the strength of the R squared terms. This is somewhat intuitive, since their inclusion enters several counties into the regression that should, by the model's predictions, have breweries in them, but are said to have none. One interesting trend to note is that, including these counties, the median age coefficient, when tested, is seen as statistically significant at some level. The relation between the unweighted and weighted secondary regression is very similar to the relationship between the unweighted and weighted main regressions.

Table 1.2: Weighted Main Regression Results

VARIABLES	(1) weighted_ breweries	(2) weighted_ breweries	(3) weighted_ breweries	(4) weighted_ breweries
ln2534	-0.010 (0.043)	-0.036 (0.042)	0.187** (0.094)	
lnmedinc	0.194*** (0.069)		0.211*** (0.065)	0.188*** (0.068)
lnwhitepop	-0.000 (0.046)	0.045 (0.044)		0.000 (0.022)
lnobama	0.183*** (0.019)	0.182*** (0.019)	0.199*** (0.020)	0.180*** (0.018)
lntotalpop			-0.226** (0.105)	
medage				0.006* (0.003)
Constant	3.384*** (0.670)	1.543*** (0.141)	2.968*** (0.686)	3.623*** (0.677)
Observations	2,458	2,458	2,458	2,458
Adjusted				
R-squared	0.143	0.141	0.145	0.145

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 1.3: Unweighted Secondary Regression Results

VARIABLES	(1) breweries	(2) breweries	(3) breweries	(4) breweries
ln2534	0.002 (0.030)	-0.021 (0.030)	0.067 (0.068)	
lnmedinc	0.175*** (0.049)		0.179*** (0.047)	0.165*** (0.048)
lnwhitepop	-0.002 (0.033)	0.035 (0.031)		0.008 (0.016)
lnobama	0.135*** (0.014)	0.134*** (0.014)	0.140*** (0.014)	0.134*** (0.013)
lntotalpop			-0.076 (0.076)	
medage				0.006** (0.002)
Constant	- 2.856*** (0.480)	- 1.181*** (0.101)	- 2.706*** (0.496)	- 3.063*** (0.485)
Observations	3,109	3,109	3,109	3,109
AdjustedR-squared	0.144	0.140	0.144	0.145

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 1.4: Weighted Secondary Regression Results

VARIABLES	(1) weighted breweries	(2) weighted breweries	(3) weighted breweries	(4) weighted breweries
ln2534	-0.012 (0.035)	-0.037 (0.034)	0.059 (0.077)	
lnmedinc	0.193*** (0.056)		0.199*** (0.053)	0.183*** (0.055)
lnwhitepop	0.002 (0.038)	0.043 (0.036)		0.002 (0.018)
lnobama	0.156*** (0.016)	0.156*** (0.016)	0.161*** (0.016)	0.154*** (0.015)
lntotalpop			-0.080 (0.087)	
medage				0.008*** (0.003)
Constant	3.134*** (0.548)	1.293*** (0.115)	2.987*** (0.567)	3.432*** (0.554)
Observations	3,109	3,109	3,109	3,109
Adjusted R-squared	0.133	0.130	0.133	0.136

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Interpretation of Findings

The R squared values of any of these models is between .13 and .16. This suggests that, despite the robust nature of some of the coefficients, there is definitely more going on here than what is captured in the regressions. Some explanations for this are offered in the following pages, but it seems relevant to comment on what it is that the results do show. First of all, controlling for other factors, the two most important factors in every scenario are median income and liberalism. Age and race, controlling for these factors, are negligible in the main regression, and only slightly more important in the secondary regression. If these demographics are in fact the groups driving craft beer growth, then it suggests that those covering the craft beer market may be focused on the wrong factors. Most importantly, it seems that the characterization of craft beer as a hip, young trend may be in fact spurious. If liberalism is controlled for, the 25-34 year old population does not seem to matter much more than any other population. This could be an easy trend to miss, since this demographic is perceived as being more liberal, but it implies that the characterization of craft beer market as a trend may be unfair. Much of the interest in craft beer may come from a respect for small, artisan businessmen competing with enormous multinational conglomerates and carving out a market share through careful craftsmanship and quality ingredients.

So while the demographic makeup of the area may have some effect on the location of craft breweries, it only describes some small part of that trend. The question, then, that must conclude this paper, is what other factors are at play here? Or, alterna-

tively, what went wrong in the study that wasn't accounted for? For that, a few possible suggestions are suggested below.

Available Resources

It stands to reason that craft breweries, or at least many of them, do act like industries. Perhaps many breweries start out attempting to capture a national market rather than the local one and are comfortable taking a short term loss to eventually reach that point. If they assume that their product will be competitive on a national level, then they are going to locate in the place that makes the most sense from a business perspective. It is worth noting that places known for having a substantial amount of fresh water at their disposal, such as Maine, Washington, and Oregon, do also feature a great deal of craft breweries. Other factors to consider would be the local availability of hops and barley or the price of the necessary capital (particularly commercial real estate). A study of cost factors would be difficult and would require a thorough survey of brewers to be accurate. After all, even if a brewer lives next to a hops farm in Washington, that does not mean that they use local hops. They may brew with hops shipped from Germany or the Czech Republic. While many brewers may like the idea of buying local inputs, they probably will not do so if said inputs are not going to produce a beer that they can stand behind.

Legal Barriers

One possible explanation for at least some of the variation between areas may come from the fact that laws on beer manufacturing vary heavily between areas. This means that certain areas could have a conducive environment for starting a brewery, and indeed some breweries may open in these areas. However, they may ultimately have a great deal of trouble growing under the burden of various state and local ordinances and may ultimately close. This has some weight to it at least as far as that there are still dry counties in many parts of the Midwest and Southeast, where beer would obviously not be brewed. While the dry counties example may not be 100% relevant since many of those counties also do not have the population to sustain many breweries, other legal barriers, such as franchise and licensing laws, could be relevant. This is something that could lead to some interesting future research, but efforts would have to be made to control for pre-existing cultural views on alcohol. While cultural views would serve to shape legislation, they would also affect consumption patterns even in the absence of legal barriers.

Cannibalization and Output Effects

As mentioned before, data regarding just how many people the breweries in the sample employ was not available. Because of that, breweries as large as Sam Adams are considered to be just as important as the smallest microbreweries to a local econ-

omy. The rationale here was that once regional support has allowed the firm to grow large enough, it will no longer rely on local drinkers, and new entrants can enter the market without any cannibalization effect. Marketing literature seems to suggest that most craft beer drinkers are not loyal to only one brand, but rather enjoy a number of different beers, making this a somewhat safe assumption. However, perhaps it is not hard to identify some possible exceptions. To go back to the example of Sam Adams, when brewpubs are not included, Suffolk County, MA has a peculiarly low amount of craft breweries given the demographics of the county. Perhaps part of the reason for this is that its residents are really so enamored with Sam Adams and Harpoon that it would be unwise for a new brewer to expect any local support when opening up a new brewery in that town. Perhaps, in some cases, a single craft brewery can actually control the region's craft beer market through brand loyalty. There are probably better explanations to the Suffolk County problem. Given the density of Boston and the adjacent cities, it stands to reason that locating a manufacturing operation in Suffolk County could be very expensive. Moreover, there are a number of considerably more inexpensive locations where one would still consider to be part of Greater Boston.¹⁸ It is not entirely unreasonable to believe that larger breweries may compete with new entrants for their local market, even long after they have established themselves as exporters.

¹⁸Again, counties can be a pretty weak unit for measuring regional economies.

Other Cultural Factors

It is certainly worth mentioning that there are other factors that should be included in this model but were not because either they were difficult to quantify or because they were not available on a county-level breakdown. Many of these factors could have some part in making for a more significant regression. They include, but are not limited to, cultural and religious attitudes surrounding drinking, preferences in alcohol,¹⁹ attitudes towards luxury and inferior goods,²⁰ and specific ethnic makeup.²¹ In addition, components like race, age groups and political affiliation that were previously mentioned could be expanded to include the income levels within those categories. For instance, if the median income in an area is relatively high, and we assume income to be important, but we also assume liberalism to be important, and for whatever reason all the Obama supporters in a county were all very poor, then perhaps that would be a reason for less breweries occupying a certain area than would otherwise be expected.

¹⁹Some areas may prefer cocktails or wine over beer, regardless of its quality.

²⁰Some people in the “target demographic” clearly prefer cheaper macro-beer for its “hipster” credibility.

²¹Some people may come from cultures with their own unique drinks or drinking habits that have little interest in what it is that American companies are brewing.

Age of Breweries

There is no concept in the regression to take into account the age of the brewery. What this means is that there could be some breweries that appeared in one or two issues of *Brewing News*, including the one used as a sample, and then disappeared due to inadequate local demand. If a sample were used of breweries that had operated for several years, or which experienced consistent growth for some time, it may show results that are somewhat stronger. It could also give an idea of the average turnover rate for craft breweries, and how that turnover varies geographically, which represents another interesting subject for further research. This would be possible, albeit somewhat exhausting, through an examination of several *Brewing News* publications.

Conclusion

This study was a first step in looking at an industry that probably deserves more attention than it is getting. The industry has exploded in the last few years and there is a sentiment that in some ways it is an indicator of some major shifts that will affect not just the beer industry, but all of manufacturing. Globalization has rendered America's long standing strategy of producing low quality, cheap goods somewhat toothless, and perhaps, as David Sirota suggests in his piece "Can Beer Save America?" in *Salon*, American brewers will have to move into high quality, higher cost, highly differentiated product markets to survive (Sirota).

To this end, it seems important to discuss what factors are driving growth in these new, high-quality sectors. The marketing literature on craft beer suggests that the growth is due to craft beer becoming a new fad among young, hip, affluent individuals. For the macroeconomy, this has certain connotations. If this is a trend or a fad, then the market is at the mercy of the volatile consumption patterns of the youth. It suggests that the sector should not be taken much more seriously than the developers of the latest social media app. They may be getting some attention today, but in the long run they will not be remembered and their growth will be meaningless to the economy as a whole.

The findings of this paper seem to suggest that this may not be the case, because the marketing literature up to this point may be looking at the craft beer phenomena in the wrong way. Craft beer does seem to be responsive, to some extent, to certain regional factors, but they are not quite the factors that the marketing material would have predicted. Breweries seem to pop up where there is a good deal of wealth and demand for quality. Once wealth is controlled for, the race factor loses all statistical significance. It is not that craft beer is necessarily a market driven entirely by the consumption of white people as much as it is a costly, high quality good. The perception that it is a commodity aimed at white people stems from a failure to account for the unequal distributions of income across racial lines. The same can be said of age and liberalism. The regressions in this paper seem to suggest that it is not the youth of an area that drives growth in the sector, but the overall liberalism of the area. The implications of this observation are that

growth in the craft beer sector may not be a fad subject to the whims of the trendy. Instead, they are consequence in a rise in demand for high quality products among the affluent, as well as products made by creative, enterprising entrepreneurs rather than colossal multinationals among more progressive individuals. These are not fads, they are trends that are likely to hold, and, possibly, to grow. They are indicators that perhaps academics, businessmen, and policymakers should be paying more attention to what is happening in the craft beer sector and applying its lessons to other sectors. Hopefully, to that end, this paper can serve as a starting point upon which more sophisticated research can be carried out. There is lot of work that needs to be done on this subject, but there is also potentially a lot that could be gained from those efforts.

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Chapter 2

Bolsa Familia:

A Case Analysis of the Brazilian State's Embedded Autonomy Under Lula da Silva

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Introduction

Brazil's developmental state and its social policies have been the focus of much debate in the last few decades. The Latin American giant is one of the developing nations going through a momentous process of modernization and economic growth. In less than a decade, its GDP quadrupled, from US \$.5 Trillion to US \$2 Trillion (World Bank 2011, 606).¹ The country has become, together with Russia, India and China (BRIC group),

¹“World Bank 2011” consists of an excel spreadsheet. Therefore, page numbers for this source refer to the row #.

one of the leading forces behind worldwide growth.² One of the main achievements of the Brazilian state has been the deployment of the largest welfare programs in the world (Hall 2006, 697), which is symbolized by the Bolsa Familia.

The purpose of this paper is to assess to what extent the state has been capable of pushing back the market to create a public space from which to enact such ambitious social policies. What are the political processes through which the state negotiated with the dominant classes in Brazil, and achieved acceptance of state intervention on matters of development strategy, taxation policies, social expenditures, etc.? How fragile is the accord, and what are its weaknesses? These questions shall bring into light theoretical debates about the nature and role of the state, international competition, and other highly contentious issues.

Through the examination of the Brazilian state, I hope to critically assess its accomplishments and limits. Ultimately, I hope to link this to the broader debate about the ability and capacity of capitalist developmental states to solve social issues arising out of the process of capital accumulation.

²The four nations, which represent 40% of the world population, accounted for about half of global growth between 2000 and 2008. According to the International Monetary Fund, BRIC will account for 61% of global gross domestic product growth in 2014 (France-Pressé 2010).

Thirst for Welfare: The Inheritance of the PT

When the *Partido dos Trabalhadores* (PT)³ finally came to power in 2003, it faced a country that had been socially devastated through decades of economic development, modernization and rapid urbanization. From the industrialization efforts of Vargas, to the period of conservative modernization led by the repressive military dictatorship, Brazil developed at the cost of millions of dispossessed and disenfranchised people. Many of these people gave rise to earth shattering and heart wrenching favelas. Many others perished along their fight for survival. The contrasts between the haves and the have-nots created a country that was yearning for benign social and economic policies. This thirst for welfare was a palpable and tangible force in the political arena of the nation that was mostly channeled through massive social movements. The following historical recollection is a quick overview of the creation of this social condition, which became the inheritance of the PT once it came to power.

³Launched in 1980, it is recognized as one of the largest and most important left-wing movements of Latin America. It governs at the federal level in a coalition government with several other parties since January 1, 2003. For more details, see Baiocchi (2003, p. 10).

Industrialization, Rural Exodus, and the Rise of Favelas, 1930-1964

Until the beginnings of the 20th century, Brazil had an export oriented economy based on primary goods and an oligarchic political structure. This configuration entered into a process of deep structural change around 1930. The main cause behind this shift was the collapse of the financial markets and the ensuing global depression. The Brazilian elite had hitherto depended upon the export of primary products, with coffee providing over 61 percent of Brazil's export earnings during the period 1889-1933 (Peláez 1972, 64). However, this model ceased to be viable when global trade plummeted, dragging down with it the prices of raw materials and the influx of foreign capital into Brazil (Hilton 1975, 758). In dramatic fashion, the international price of coffee fell approximately 65 percent in the wake of the crisis (Peláez 1972, 33). The immediate response of the Brazilian government was to avoid the complete collapse of the coffee industry. Between 1931 and 1944, the Brazilian state purchased approximately 78 million sacks (equivalent to the worldwide consumption for three years) of excess coffee, and destroyed them, in an attempt to reduce the supply and maintain the prices (Fausto 1999, 200).

Nevertheless, these agrarian subsidies would prove to merely be one piece of the response to the crisis. The rise into power of Getúlio Vargas in October 1930 marked the beginning of a shift towards a broader plan of industrialization that transformed Brazil. Official documents from the time show that Vargas and

key members of his administration came to understand industrialization as paramount to national security. They argued that failure would condemn the Brazilian elite to play the role of a colony among the industrial powers (Vargas 1938; Hilton 1975, 758). The new strategy required an increased centralization of power into the hands of the State. Among other policies, Vargas dissolved the Congress and State Legislatures, replaced state governors with hand-picked Federal representatives, and monopolized military, monetary, and fiscal authority (Fausto 1999, 199). The crisis had created the perfect opportunity for this shift in the governing elite. Weakened in their economic power and dominance, the landed oligarchy lost the control over the state apparatus. The power to dictate Brazil's policies and its future now resided with a new cadre composed of industrialists, politicians, and military leaders, among others (Fausto 1999, 196).

Despite the shift in power, patterns of land ownership did not change. The oligarchy still presided over the *latifundios*, and exercised absolute power over peasants and workers. Vargas only subordinated the agricultural sector to the state, gained control over the social surplus generated through export crops,⁴ and used it to subsidize the industrial sector. The establishment of *autarquias*, semi-autonomous administrative units used to supervise and direct the activities of selected areas of the economy, is a good illustration of how this was achieved. It allowed the

⁴For a review of the role of agriculture in industrial development, see Johnston and Mellor (1961). For case studies of the contribution of agriculture to general economic growth, see Wilber (1969); Macrae (1971); Ohkawa and Rosovsky (1960).

central government to regulate, through production quotas and other measures, the supply of a commodity to meet the target market demand (Gordon-Ashworth 1980, 88-89).

As a result of Vargas's policies, industry became the leading growth sector of Brazil's economy for the first time in history (Baer and Villela 1973, 227). Between 1933 and 1939, the annual industrial growth rate was 11.2 percent (Hilton 1975, 757). Furthermore, by 1938 Brazil had nearly achieved self-sufficiency in light manufactures (import substitution). This is reflected in the fact that industrial raw materials, fuels, and machinery constituted over 90 percent of imports during 1935-1937 (Hilton 1975, 761). The import of these capital goods would also diminish rapidly, and by the late 1940's Brazil would be producing well over half its equipment needs (Leff 1969, 474).

Moreover, structural changes in this period encompassed the use of labor and technology in agriculture, both of which contributed to the massive rural exodus and the formation of urban slums. Firstly, labor relations changed drastically. Landowners decided to bring the *colono* system⁵ to an end. They pro-

⁵The colonato system generally consisted on yearlong contracts, and the colonos were required to perform three main kinds of agricultural tasks. The first was the cultivation of coffee plants, which involved the general task of taking care of the plants, including keeping the plantation weed-free. This entailed two or three weedings annually. The second task consisted of harvesting the coffee, which was usually done between May and July. The third task was to provide the landowner with several days of unpaid work per year. This included jobs such as clearing pasture, cleaning and maintaining paths and roads, fixing fences, and putting out fires (Martins 2002, 305; Brannstrom 2000, 330). In exchange for this work, colonos had three sources of income. They received a monthly wage according to the

gressively rolled back usufruct rights, and opted for cash wage systems instead. This was partly because the *colono* system itself became increasingly uneconomic with the introduction of new varieties of coffee plants, and the realization that planting subsistence crops in between rows of coffee bushes hindered productivity (Martins 2002, 313). The mechanization of agriculture and the introduction of chemical inputs further complemented the switch towards wage salaries. The use of tractors, which grew from 1,706 units in 1920, to 156,529 by 1970 (Stitzlein 1974, 39), and herbicides, meant that agricultural production became increasingly fragmented between tasks that still required manual labor, and tasks that did not anymore (Martins 2002, 315). These changes turned agricultural labor into a seasonal, rather than year-round activity. The wage system, therefore, became the most efficient system for capital accumulation; it allowed landowners to use workers when needed, and dispose of them when not.

As part of the structural changes of the epoch, landowners systematically evicted peasants from the land. This catastrophic situation, in which millions of women and men lost their ability to subsist, had a deep impact on urbanization patterns and rural migration. A great number of the dispossessed flocked into Brazil's major cities in hopes of finding jobs in the burgeon-

number of coffee trees they were responsible for maintaining. They were also paid a certain amount per sack of coffee harvested. Lastly, colonos had limited usufruct rights. This allowed them to plant subsistence crops - such as corn, beans and even rice - between the rows of coffee bushes, as well as in the small plot of land within the landowner's estate where they lived (Brannstrom 2000, 330; Martins 2002, 306).

ing industrial sector. Consequently, the percentage of urban population jumped from 15 percent in 1940 to more than 50 percent in 1970 (Wagner and Ward 1980, 249). Unfortunately, the numbers of jobs in the formal economy, partly due to the technical modernization of Brazilian industry, was limited in comparison with the influx of migrants. The great majority of the newly arrived was relegated to the informal economy,⁶ where working conditions were poor, jobs were insecure, and wages were low. For the most part, migrants were denied access to health, education, housing and jobs. They had no other choice but to congregate in the peripheries of the city and build shacks as a last recourse for survival (Pino 1996, 436). The growth of *favelas*⁷ in Brazil, with all of its dehumanizing implications,⁸ would only get worse with the decades. In Rio de Janeiro, the numbers of favelas would swell from 7 percent (160 thousand) of Rio's total population in 1950, to 18 percent (over 1.1 million) in the year 2000 (Perlman 2006, 158). It is also important to point out that Vargas fully endorsed and facilitated the establishment of these settlements. The government

⁶For a discussion of the role of informal sector economies in Latin America, see Soto (1989).

⁷For a literature on Brazilian favelas, see Perlman (2006); Pino (1997); Pino (1996); Wagner and Ward (1980). For a debate about slums across historical and geographical expanses, see Davis (2007); "United Nations Human Settlements Programme" (2003); Clinard (1970).

⁸"In 1970 only 36.9 percent of Brazil's urban households had gas service, 42.8 percent had sewerage links and 53.2 percent had water. Malnutrition in urban areas is prevalent. A study of migrants living in Fortaleza in 1976 indicated that 68 percent of the urban migrants suffered from caloric deficiencies" (Wagner and Ward 1980, 256).

passively looked the other way as the landless built their shacks, and even actively extended railroad transportation to the poor areas (Pino 1996, 436).

Vargas' administration marked a stark shift in the economic orientation of Brazil. More crucially, labor, whose scarcity was once a chronic problem for the landowners, became redundant. This changing condition for capital accumulation created massive levels of social exclusion. The ensuing social upheaval is the manifestation of one of the most fundamental contradictions in capitalism. The lack of resolution of this contradiction - i.e. increasing human misery and economic growth - would become the most central issue in Brazilian society thereafter. The cruel disposal of countless human lives, presided over by those who owned the means of production and by extension the state apparatus, would not go unchallenged. Dispossessed peasants organized themselves into Peasant Leagues (*Ligas Camponêsas*). Together with the Maoist branch of the Communist Party of Brazil⁹ and the Catholic Church, they demanded a rad-

⁹There were two branches of the Communist Party in Brazil at the time; one was Maoist, the other pro-Moscow. For the "Maoist Communist Party of Brazil (*Partido Comunista do Brasil*, or *PC do B*) . . . the struggle in the countryside would be spearheaded by dispossessed peasants for land, and not by landless agricultural workers exploited through the wage relation. The pro-Moscow Brazilian Communist Party (*Partido Comunista Brasileiro*, or *PCB*) took the opposite view, and argued that the struggle would be a peaceful one, involving the implementation of existing rural labour legislation recognizing the claims of both colonos and permanent labourers not as peasants with rights to land but rather as agricultural workers with rights to a decent wage, reduced working hours, and improved working conditions. In short, groups with a shared political outlook were fighting for different policy objectives (land reform; improvements in pay

ical agrarian reform program (Julião 1972; Hewitt 1969; Stepan 1973; Welch 1995). As we shall see, the reactionary counter-movement to the popular uprising was swift and brutal.

Military Dictatorship and Conservative Modernization 1964-1985

The military coup, which took place in March 1964 with U.S. support,¹⁰ had two clear goals: To “. . . forestall the communist plan for seizing power . . . and to reestablish order so that legal reforms [could] be carried out” (Dines 1964, 144). Forestalling communists meant, in this context, the violent repression of those who fought for social inclusion through agrarian reform—i.e. distribution of land and wealth. The military intelligence and the DOPS (the political police), carried out massive state terrorism schemes, such as “Operation Clean-Up”.¹¹ They tar-

and conditions) on the basis of socio-economic identities that were equally distinct (peasants; agricultural wage labourers)” (Martins 2002, 318).

¹⁰The U.S. intervention in Brazil and Latin America in general has to be considered in the context of the Cold War, and the attempts to curtail Communist expansion around the globe. For detailed accounts of the U.S. role in facilitating the military coup in Brazil, see Parker (1979; Black (1977). For accounts of U.S. involvement with Operation Condor, a campaign of political repression in the Southern Cone of South America, see Menjívar and Rodríguez (2005); Dinges (2004); McSherry (1999); McSherry (2000); McSherry (2001); McSherry (2002); McSherry (2005)

¹¹For an overview of the repression, see M. H. M. Alves (1988); Fiechter (1975, p. 44). For a complete inventory of denunciations of torture, see M. M. Alves (1966); M. M. Alves (1973)

geted Catholic Church organizations,¹² political parties on the left,¹³ dissidents within the military, union officials, peasant militants, lawyers, human rights advocates, among others. Political persecution, assassinations, and torture were all part of a structural strategy that was especially strong in the Northeast of Brazil¹⁴ (Skidmore 1990, 23-27).

The second stated goal of reestablishing order to carry out legal reforms was, in effect, the continuation of the process of agricultural and industrial modernization, which started during Vargas' first term. Agricultural policy continued to favor not land redistribution but increased production, most of which was destined for export in a time when 30 million Brazilians were going hungry (Skidmore 1990, 299). The military regime implemented what was effectively a Green Revolution. They created the conditions for the use of new inputs (from hybrid seeds and chemical fertilizers) and mechanized implements, all of which led to profound changes in agricultural production,

¹²MEB (Movimento de Educaçdo de Base, or Basic Education Movement), JUC (Juventude Universitdria Catholica, or Catholic University Youth), and others whose organizing or charitable activities aroused suspicion.

¹³The Moscow-line Communist Party (Partido Comunista Brasileiro, or PCB), the Maoist Communist Party (Partido Comunista do Brasil, or PC do B) and the Trotskyists, such as the ORM-POLOP (Organizafdo Revoluciondria Marxista-Politico Operdria, or the Revolutionary Marxist Organization/Workers' Politics)

¹⁴This area was the strongest center for Communist Party activities, and harbored many leaders deemed dangerous, such as Pernambuco Governor Miguel Arraes, SUDENE Superintendent Celso Furtado, literacy specialist Paulo Freire, peasant league lawyer Francisco Juliao, and long-time Communist Party activist Gregorio Bezerra (Skidmore 1990, 24).

and the creation of agro-industrial complexes. These policy goals were achieved through subsidies to big landowners, who received generous allocations of financial resources and other benefits (Delgado 1985; Müller 1985). For example, the National Monetary Council waived taxes on all key farm products and inputs—fertilizer, tractors, processing equipment, etc. Subsidies also took the form of special interest rates for agricultural credit that had lower even negative real rates. The government also extended a program of guaranteed minimum prices for agricultural products, invested in agricultural research, and created upper-level governmental educational programs for the training of agricultural specialists (Skidmore 1990, 92; Sauer 2006, 2).

The Brazilian Green Revolution exacerbated the trend of rural exodus, social exclusion, income inequality, and land concentration. While in 1960 the rural population comprised 55 percent of the population, by the end of the military dictatorship in 1985 this number dropped to only 28.7 percent (World Bank 2011, 955). Simultaneously, the urban population skyrocketed. São Paulo, Brazil's largest city, offers a good sample of the general situation. Within the same period, its population rose from 3.6 million to 9 million, favela dwellers grew from 30 thousand to 629 thousand (Lloyd-Sherlock 1997, 291), and real wages fell by two-thirds (Wolford 2004, 411). Furthermore, income inequality widened to extraordinary levels. From 1960 to 1990, the share of the total national income of the wealthiest five percent of Brazil's population jumped from 27.7 percent to 35.8 percent (Skidmore 1999, 198). Last but not least, land concentration also increased, with ten percent of the landowners in control of 80 percent of the land (Wolford 2004, 411). This

is why many historians and academics call this period either painful or conservative modernization. The military government, clearly enacting policies that favored the capitalist class, modernized the latifundios and the industrial sectors while reinforcing the socially pernicious effects of the model (Sauer 2006, 2; Silva 1982).

Within this social context, economic growth proceeded at a breakneck pace. Led by industrial growth,¹⁵ GDP increased at an annual rate of 11.2 percent between 1967 and 1973 (Fausto 1999, 291). The Brazilian “miracle,” however, came to a halt when the turmoil in the international market, which started with the oil price shock of 1973, unleashed the perfect economic storm on much of Latin America. To understand the debt crisis that subsequently hit Brazil, an overview of the weaknesses of its growth model is crucial.

Brazil’s economy was built around oil. This was the case for agriculture, which, thanks to the Green Revolution, became highly mechanized and dependent on oil-based inputs such as fertilizers and pesticides. But this oil dependency was true for industry as well. In the late 1950s, Brazil’s government decided to commit the expansion of Brazil’s transportation future to highways rather than railways, mainly due to the lower initial investment costs (Skidmore 1990, 178). Thereafter, the state

¹⁵ “The most dynamic industrial sector was motor vehicles, growing at an annual rate of 34.5 percent. Of that production, which reached an annual output in 1969 of 354,000 units, 67 percent were passenger cars, the rest trucks and buses. That ratio contrasted sharply with the 1957-69 period, when the passenger car share was only 49 percent. Production was tilting toward the least fuel-efficient form of transportation” (Skidmore 1990, 139).

oil company, Petrobrás, neglected the exploration of national reserves, and focused on refining and distributing cheap imported oil from the world market. As a result of these policies, Brazil imported 80 percent of its oil consumption (Skidmore 1990, 179).

This structural weakness was exposed when the oil crisis of 1973 and 1979,¹⁶ coupled with a global recession, put Brazil's growth strategy in jeopardy. The sudden increase in oil prices, coupled with the diminishing demand for Brazilian products, threw Brazil's international balance of payments in disarray. While imports and exports were almost in balance in 1973, from 1974 onwards, imports followed the rising international prices for oil, oil-derived products, and costs of transportation (Skidmore 1990, 180). This trend continued for more than a decade, and Brazil would run an uninterrupted deficit in its trade balance from 1970 to 1982, which would amount to a total of US \$34 billion (World Bank 2011, 535).

To make up this deficit, Brazil had three options: to reduce imports, to deplete foreign reserves, and to incur foreign debt. The first option would have slowed growth, so it was not a viable choice for the government. Insofar as Brazil did not have nearly enough reserves to balance its trade, its only remaining option was to incur foreign debt,¹⁷ which went from approximately US

¹⁶For a history of OPEC and the oil crisis, see Yergin (1993); Sampson (1991); Raymond (1976); Terzian (1985).

¹⁷Total external debt is debt owed to nonresidents repayable in foreign currency, goods, or services. Total external debt is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt. Short-term debt includes all debt having an

\$5.7 billion in 1970 to US \$103 Billion in 1985 (World Bank 2011, 103). Consequently, Brazil now not only had to cope with the deficit in the trade balance, but also with the servicing of interests on its enormous debt. In only three years, payments on interest had more than tripled, from US \$2.7 billion in 1978 to US \$9.2 billion in 1981 (Skidmore 1990, 231). Inevitably, this debt treadmill started falling apart. The first indication came when interest rates went from 8.7 percent in 1978 to 17 percent in 1981, and continued soaring in the following years (Skidmore 1990, 236). Then, due to Mexico's default on its debt servicing in August 1982, commercial banks became suspicious of Brazil, whose debt had surpassed that of Mexico, and refused to lend new money (Skidmore 1990, 232). Trapped without any other possible recourse, and faced with the prospect of a total collapse, Brazil was forced to seek help from the IMF (International Monetary Fund) (Skidmore 1990, 274).

The savage recession of 1981-83, which had been Brazil's worst since the Great Depression, was the immediate consequence of the debt crisis (Skidmore 1990, 236-254). As the military government started to lose its grip on the economic situation, its legitimacy began to suffer as well. Internal class warfare and strife, which had never quite subsided, intensified when clamors for democracy and agrarian reform resurfaced into the center stage of Brazilian politics. Eventually, different social movements and political parties exercised enough pressure to force a return to democratic rule in 1985.

original maturity of one year or less and interest in arrears on long-term debt.

The PT's Rise to Power

The PT arose in 1979 in the wake of a massive labor revolt by millions of industrial workers in the years 1978 and 1979. The party was officially formed in February 1980, when 1200 workers approved a manifesto during a meeting in São Paulo (Baiocchi 2003, 10). It was during this period of labor unrest that Lulathen president of the Metalworkers' Union of São Bernardo do Campo and Diadema on the outskirts of São Paulo, Brazil's most industrialized city emerged as the new movement's leader (Foster 2007). In the 22 years that the party spent trying to win the presidency (Lula unsuccessfully ran in 1989, 1993 and 1998), it progressively shifted its discourse and political program. By 2002, when Lula finally won the elections, the campaign platform had omitted the term socialism, given up plans of radical land reforms, and promised to adhere to the existing agreements with the IMF (Kingstone and Power 2008, 24). Since then, the largest leftist political party in Latin America has presided over the largest economy and welfare program of the region, which is called *Bolsa Família*. It is to this program that I turn now.

Bolsa Família: A brief description

When Lula came to power, there were already social protection policies in place and multiple cash transfer programs. Three programs were inherited from Fernando Henrique Cardoso's (1993-2003) administration. First was *Bolsa Escola*, which provided R\$15 to each child attending school, up to a maximum of R\$45

per family (three children). Second was *Bolsa Alimentação*, which provided between R\$15 and R\$45 per month to families at risk to assist them in covering their basic food needs. Lastly, *Auxílio Gás* provided a monthly stipend of R\$7.50 to low-income families to assist them in purchasing cooking gas (Fenwick 2009, 113).

Table 2.1: Bolsa Familia: Beneficiaries, annual expenditure (in nominal reales) and average value per household (in reales of 2004), 2004-10

Years	Number of households	Annual expenditure	Average value per household
2004	6,571,839	5,621,199,080	66.93
2005	8,700,445	6,386,260,128	59.5
2006	10,965,810	7,638,053,493	56.17
2007	11,043,076	8,755,556,795	65.66
2008	10,557,996	10,522,086,121	71.18
2009	12,370,915	11,844,280,000	73.96
2010	12,778,220	13,457,000,002	72.57

Source: Sánchez-Ancochea and Mattei 2011, 305

Lula enacted Federal Law 10.836 and officially combined these three programs (plus a fourth one started by Lula himself called *Cartão Alimentação*) under the Bolsa Familia on January 9th 2004. He also tremendously increased the reach and scope of the social assistance. From 6.5 million families in 2004, Bolsa Familia was subsidizing almost 13 million families by 2010.

With an average family size of four, Bolsa Familia was affecting an estimated 52 million citizens, or an astounding 26.6% of the 196 million people in Brazil.¹⁸ Official annual expenditures on the program also increased from approximately US \$3 billion in 2004 to US \$7 billion in 2010. Accumulated total expenditures since Bolsa Familia's inception are roughly US \$34 billion (Fenwick 2009, 115; Sánchez-Ancochea and Mattei 2011, 305).

In terms of the concrete benefits that families receive, the rules have been revised multiple times. When Bolsa Familia began in 2004, there were two categories of benefits targeting households in poverty and extreme poverty. Households in extreme poverty, who qualified as those earning up to R\$50 a month, received a monthly cash allowance of R\$50 independently of household characteristics. They could also receive an additional R\$15 per child below 15 years of age with a maximum of three children per family. Households in poverty, who qualified as those earning between R\$51 and R\$100, could only benefit from the conditional children-based allowance.

These benefits were revised in 2006, 2009 and in 2011. In Bolsa Familia's latest iteration, the cut-off point to receive benefits is R\$70 for extremely poor and R\$140 for poor households. Furthermore, the fixed transfer for extremely poor families is R\$70 while the cash transfer per child in school has increased to R\$32. A third type of benefit was also introduced in 2009. Households with children between 15 and 17 were entitled to re-

¹⁸Geographically speaking, the Northeast region of Brazil receives the largest portion of the cash transfer (about 50 percent in 2005). Historically this has been where poverty rates are highest (Fenwick 2009, 123; Marques and Mendes 2007, 26).

ceive R\$38 per child, with a maximum of two per family. This was implemented to encourage continuing secondary schooling. With these reforms, the total value of benefits transferred varies between R\$32 (US \$20) and R\$242 (US \$152) per family per month (Sánchez-Ancochea and Mattei 2011, 304).

In the face of such an enormous government program, the lingering question is how the PT managed to accomplish its goal. We will explore the process by which the state procured the financial resources and the political backing of international and national capital. We will also discuss the results of Bolsa Família in terms of the level of efficiency with which the state managed the cash transfers, as well as the ultimate goal of poverty alleviation.

Welfare in the age of neoliberalism: The discourse of the PT's state intervention

The pivotal shift in the conceptualization and discourse of welfare in Brazil came with the return of democracy. The massive social movements, which had created enough pressure to delegitimize and ultimately dismantle the military government, played a crucial role in the institutionalization of welfare programs in the policy agendas of subsequent administrations. The National Constitution of 1988, which reflected a hotly contested process of establishing new ground rules for a young democracy, embraced social inclusion as a citizenship right (Title VIII, Articles 203-204). With this shift, the welfare of all Brazilians became a

public responsibility. Unrestricted from the domains of private philanthropy and the church, this public conception provided the legal and discursive framework for a universal expansion of benefits (Fenwick 2009, 110).

It is worth emphasizing the role of the underlying societal pressure vis-à-vis the state apparatus and the larger context of IMF imposed neoliberal structural adjustment programs. During the 1990s, while most of Latin America was going through a period of market reforms predicated on the non-intervention of the state, Brazil saw a series of contradictory state policies. On the one hand, the Brazilian state was dismantling protectionist policies, subsidies, and regulatory frameworks. In a dramatic turn after six decades of the developmental state, neoliberal reforms became the order of the day (Nylen 1993; Green 2000). Simultaneously, the state also established the National Secretary of Social Assistance (SNAS, Secretaria da Assistência Social) in 1995 and created Bolsa Escola in 1999, the first national noncontributory cash-transfer program in Brazil's history (Fenwick 2009, 111). In other words, the demands from radical groups such as the MST -which politically advocated for the end of capitalism, and demanded land redistribution, played a key role in creating a political space for the state to legitimize the enactment of welfare policies in its tussles with domestic and international capital.

It is also interesting to note that these welfare policies and the general shift towards social inclusion in Brazil started decades before the PT came to power, and were always presided by an administration not known for its radical politics. While, for example, Cardoso never implemented a program as ambitious in

scope as Bolsa Familia, he nevertheless took steps in that direction.¹⁹ Rather independently from the state's political leanings, societal pressure was a key factor in shaping state policy regarding welfare.

The discourse of welfare as a citizenship right, however, could only go so far when confronted with the stony veins of domestic and international capital. When the PT set out to gain their support, it astutely framed Bolsa Familia under a purely neoclassical discourse. On an Inter-American Development Bank loan proposal for Bolsa Familia, it was stated that "cash transfers directed at poor families, conditional on school attendance, can play a critical role in poverty reduction, given . . . their contribution to the accumulation of human capital" (Inter-American Development Bank 2004a, 1). In a similar

¹⁹One could argue that Cardoso's administration was forcefully induced to do so. On August 11, 1995, a conflict between police and land occupiers in the rural town of Corumbiara, Rondonia, left 13 dead, 11 of them occupiers. Then, on April 17, 1996, a larger massacre occurred in the desolate mining town of Eldorado do Carajás, in southeastern Para. Police opened fire on 1,200 MST protestors blocking a highway, leaving 19 dead. As with Corumbiara, there was evidence that some of the victims had been executed (Ondetti 2007, 13; Bergamo and Camarotti 1996). These popular uprisings and police massacres attracted international media attention, and forced Cardoso to respond immediately. First, he sought to decelerate the quickly escalating level of land occupations (Pereira 2003, 53) and issued a decree making occupied farms ineligible for expropriation for at least two years. As a result, by 2002 land occupations had declined to slightly above 1995 levels (Ondetti 2007, 14). Simultaneously, Cardoso jumpstarted a state led agrarian reform program. He quintupled the annual budget for INCRA (Institute for Colonization and Agrarian Reform) (Wolford 2005, 248), and settled 287,000 families on expropriated private land during his first term (Pereira 2003, 45-51).

fashion, the World Bank stated that “the broad objectives of the Bolsa Familia Program are to reduce poverty and inequality and promote human capital investments among poor families through the provision of direct monetary transfers to poor families and incentives for investing in human capital [i.e. schooling for children]” (The World Bank 2004a, 4).

Beyond adjusting the discursive and theoretical framework, the PT also made sure the implementation of Bolsa Familia followed mechanisms deemed as efficient- i.e. market oriented. As a policy of targeted conditional cash transfers, Bolsa Familia was perceived as a social risk management program that took pains to weed out those who are not poor (as opposed to policies that reach all citizens, such as universal health systems, price controls on food and services, etc.). Furthermore, cash transfers signified an emphasis on individual choices in the market that favored privatization: Goods and services purchased with the money go to private businesses, constituting an indirect business subsidy (Ansell 2011, 24; Hall 2006, 695).

Theoretically speaking, the concept of conditional cash transfers is not dissimilar to a negative income tax, a policy supported by libertarians (in the American sense of the term) such as Milton Friedman (2002). In adopting a market oriented discourse and policy, the PT obtained all the political support it needed from powerful classes both within and without its borders. It avoided a conflict that could have potentially created capital flight, disinvestment issues and the consequent negative impact on the state’s fiscal revenues. Quite the contrary, the PT was generously rewarded in terms of resources to bankroll Bolsa Familia.

Funding Bolsa Familia: Taxation and Loans

The launching of Bolsa Familia in 2004 was received with widespread support from the World Bank and the Inter-American Development Bank. Their political endorsement, which signified the wider support of the business community, was materialized in two loans for a total of US \$2.57 billion that covered approximately 25 percent of total costs of Bolsa Familia in 2004 (Hall 2006, 698). First, the World Bank provided a US \$572 million loan in June 2004. The funds were not mainly intended to be used for the cash transfers. Rather, its goals were to support (a) the consolidation of conditional cash transfer programs and reductions in gaps and duplications in coverage; (b) a strengthening of the system for identifying the target population; (c) the development of a monitoring and evaluation system; and (d) a strengthening of the basic institutional functioning of the program (The World Bank 2004a, 4; The World Bank 2004b, 6). Second, in December of the same year, the Inter-American Development Bank approved a loan of US \$1 billion for Bolsa Familia, with the promise of up to US \$2 billion (Inter-American Development Bank 2004b; Inter-American Development Bank 2004a).

Despite these sizeable inflows of foreign exchange, the Brazilian state financed most of the US \$34 billion that Bolsa Familia has cost to date. In the decade since Lula came to power, the Brazilian state was able to increase revenues to finance increased expenditures. This was possible not because taxation rates rose

(total taxation as % of GDP rose only slightly), but because the total revenue increased accordingly with the four-fold increase in GDP from 2003 to 2010. As many economists argue, economic growth, high productivity and improved competitiveness in global markets were the backbone upon which Lula's social policies were enacted. But whose taxes financed Bolsa Familia?

While it is hard to trace the exact sources of the state's fiscal revenue that directly funded Bolsa Familia, an examination of Brazil's taxation system gives us some insights. As Figure 1 shows, indirect general taxes on goods and services (at about 13 percent of GDP in 2010) comprises the main source of tax revenue. This category of taxes includes value added taxes, which is considered to be highly regressive. Value added taxes impact working class peoples the most because they consume most of their income while having less savings and investments.

Moreover, Figure 1 also shows that taxes collected on the working class and the taxes collected on the income, profits and capital gains of the richest segment of the population have not changed dramatically during Lula's administration. From 2003 to 2010, taxes on income, profits and capital gains timidly increased from 6.35 to 6.89 percent of GDP, while general taxes on goods and services barely increased from 12.02 to 12.89 percent of GDP.

These insights suggest that the increased public expenditures on welfare programs were not financed by an increased taxation on the rich. Rather, I suggest we are in the presence of an intra-class transfer of resources, rather than an inter-class transfer. In other words, the taxes paid by the working class matched the social expenditures directed toward it, making Bolsa Familia a

self-financed program. While the evidence at hand does not prove this in a conclusive manner, case studies about welfare programs in the United States, Australia, Canada, Germany, Sweden and the United Kingdom show that intra-class transfers are the norm (Shaikh 2003, 537).

Further evidence of the self-financing nature of Bolsa Familia can be found in the reforms to the public pension system under Lula. In 2003, the state negatively readjusted the formula for calculating pensions, effectively reducing the amount received by all workers in the formal economy. In 2007, Lula extended pension benefits to informal workers who make up more than half of Brazil's workforce. Therefore, ". . . while many formal workers had their pensions reduced, 28 million informal laborers who previously had no social security will now be entitled to pensions, which will largely be subsidized by the contributions of their formally employed counterparts" (Ansell 2011, 26).

If Bolsa Familia is indeed a case of self-financed welfare program, then this would explain, to a large extent, the positive reaction of the landowning, industrial and financial elites of Brazil towards Lula's social policies. Ultimately, they did not see Bolsa Familia as a redistribution of resources from the rich to the poor, and therefore had little incentive to oppose the measure.

The politics of implementation: Seeking efficiency, avoiding corruption and clientelism

Even though the PT secured the funding and had earned the support of domestic and international capital, success was far from secured. As we will explore, the task of coordinating a bureaucracy that can efficiently enlist eligible households, channel the resources to them without overtly large administrative costs, monitor results, compile statistics, etc., becomes a herculean challenge when confronted with partisan opposition and potential corruption at multiple levels of government, among other problems. I will argue here that there were two key factors that allowed the PT to navigate the politics of implementation in a successful way.

The first factor is the creation of the Ministry of Social Development and Fight against Hunger (MDS), a centralized coordinating state agency that brought the much needed streamlining and efficiency boost to the entire social assistance complex in Brazil. This agency was created in January 2004, and integrated the Ministry of Food Security and Fight against Hunger with the Ministry of Social Welfare (Hall 2006, 697). As previously noted, under MDS's tutelage Bolsa Escola, Bolsa Alimentação, Auxílio Gás and Cartão Alimentação were combined under one single program: Bolsa Família. This integration had the powerful impact of resolving intra-bureaucratic chaos and reducing administrative costs. Before the changes, families who were eligible to the four redistributive programs had to go through four

separate bureaucratic processes in order to register and present themselves to four separate local offices. After MDS's creation, each family had to complete only one application, show up to one local office, receive one single payment per month, and be registered in one federal registry.²⁰ As a result, the administrative cost to run Bolsa Familia is about 6 percent of the total value of the disbursed cash transfer, or an average of R\$3.66 per household per month (Fenwick 2009, 116).

Even though MDS was the central coordinating agency, Bolsa Familia was actually a highly decentralized operation. This is a direct result of PT's embeddedness and experience with grassroots social movements, worker unions, identity groups, etc. across the country during the years of the party.²¹ I argue that this embeddedness and the consequent decentralized governing style allowed the PT to avoid corruption and political resistance to the program based purely on party line divisions. In other words, PT's uniquely horizontal state-society relation is the second reason for Bolsa Familia to have achieved its self-established goals.

Bolsa Familia is in essence a central-local collaboration, while local municipalities (which are constitutionally autonomous entities) work directly with MDS and the central government. Crucial tasks such as data collection, registration of potential

²⁰The Cadastro Único is a census of the Brazilian poor based on a standard questionnaire elaborated by the National Secretary of Income and managed by the municipalities. It is reported that MDS was inputting up to one hundred thousand families a day into the database (Fenwick 2009, 116).

²¹For an account of this process, see (Moreira Alves 1990).

beneficiaries and monitoring of adherence to conditionalities remain decentralized to municipal level (Hall 2006, 697). In channeling the funds to the municipalities directly, Lula was able to leapfrog powerful state governors and other state level power brokers in the legislative branch. This was important, as Lula would have had an uphill struggle to garner the support of opposition party leaders in powerful positions. In 2002, when Lula won the elections, PT's representation at the state level was extremely low, and only 13 percent of the 27 states had a PT governor. In other words, the PT had to implement a nationwide policy in a politically hostile environment (Fenwick 2009, 122).

Working with municipalities, creating incentives for them to voluntarily join Bolsa Familia, and making sure funds were not being misused was not easy either. As a matter of fact, in 2004 only 7.9 percent of the 5564 municipalities had a PT governor. In a rather ironic situation, the ace of spades that allowed Lula to break the partisan line in the municipalities was none other than the budget cuts and fiscal decentralization process, both of which were part of Cardoso's austerity measures.

On the one hand, the 1988 constitution turned municipalities into the federation's primary social services providers. This mandate to offer social services, as per article 15 of the Organic Law of Social Assistance, also became legally enforceable post-2000 through fiscal regulation imposed by the federal government. On the other hand, municipalities were given little financial support to accomplish this legal mandate. In a rather paradoxical move, the fiscal Responsibility Law of 2000 turned a dire situation into a full-blown fiscal crisis from which munic-

ipalities could not escape (Fenwick 2009, 110-117). As a result, municipalities were to a large extent fiscally coerced into participating and supporting Bolsa Familia. The inflow of federal assistance for Bolsa Familia became a godsend for local governors seeking to balance their fiscal accounts while also complying with the legal requirement of offerings social services. By 2006, all municipalities in Brazil had voluntarily adhered to the program, and some of them derived as much as 40 percent of their overall budgets from Bolsa Familia (Hall 2006, 705; Fenwick 2009, 115).

Participation, however, did not guarantee transparency. To avoid municipal level corruption, Lula installed conditions for the disbursement of funds to municipalities. Under Brazil's decentralization law, each municipality was required to set up a social council (*Conselho de Controle Social*) for this purpose, whose members are chosen by the mayor from public and civil society sectors (Hall 2006, 697). Furthermore, fraud hotlines were established. These measures allowed Bolsa Familia to provide cash transfers to the poor without subjecting them to the manipulation of local political patrons (Ansell 2011, 25; Sánchez-Ancochea and Mattei 2011, 312). In an equally important way, these measures promote a democratic system of checks and balances and foster the creation of public spaces for debate and for the practice of citizenship. Ultimately, the implementation of these policies was possible due to PT's historical involvement with grassroots organizing, their deeply rooted commitment to democracy, and an emphasis on the autonomy of local authorities and social movements.

Betrayal of the left? The agency and structural constraints of the state's embedded autonomy

In order to implement Bolsa Familia, the PT had to strike deals with multiple social actors, especially with those who hold economic and political power domestically and internationally. The party had to walk an extremely fine line between complying with specific group and class interests, and exercising its power to twist the arm of those who stood in its way - e.g. state governors. However, the PT's willingness to negotiate with opposition conservative parties and business elites caused a tremendous backlash. If during its inception the PT could be characterized as being part and parcel of the broader social movements that swept through Brazil in the second half of the 20th century, its rise to power signified an abrupt break with these same grassroots political groups. Not only did the PT come under heavy criticism from its former allies, but also from an increasingly hostile intellectual left that saw in the PT the disappointing story of a hero fallen from grace. So the question remains: Did the PT betray the left?

The main indictment about PT's betrayal is a comparison between pre-presidency promises and post-presidency action. On the side of promises, the left argued that Lula's and the PT's strengths laid in their focus on radical agrarian reform, suspension of payment on Brazil's enormous foreign debt, and redistribution of income and wealth (Foster 2007, 16). To a large degree, many on the left expected the PT to completely

break with international capital, dominate domestic elites in the agricultural, industrial and financial sectors, and enact revolutionary economic and social policies that would ultimately lead to a post-capitalist society. Unfortunately, when this did not come to pass, hope turned into a sour disillusionment. In March 2006, a group composed of the leading grassroots movements in Brazil²² delivered a document to the Food and Agricultural Organization of the United Nations denouncing measures implemented by the Lula government that impeded *campesino* agriculture and the larger fight against business interests.²³

²²The Movimento dos Pequenos Agricultores (MPA), the Movimento dos Trabalhadores Rurais Sem Terra (MST), the Movimento dos Atingidos por Barragens (MAB), the Movimento das Mulheres Camponesas (MMC), the Comissão Pastoral da Terra (CPT), and the Associação Brasileira de Reforma Agrária (ABRA).

²³Among other points, they argued: “. . . the government has wholeheartedly embraced neoliberal policies and supported international organizations such as the WTO and the World Bank. At the Montreal round of the WTO, the Brazilian government helped to block the initiative to make it mandatory worldwide for transgenic products to be labeled, thus defending the interests of multinational agribusiness companies. Specific policies biased toward the big farm sector include: the continuation of the tax-exempt status for supplies used for export-oriented agribusiness (a hidden subsidy to the foreign commodity trade); legalization, through a presidential decree, of the use and trade of transgenic soy; ignoring any and all environmental research and the actual infringement of law through the smuggling of banned cotton and corn transgenic seeds; ignoring *campesino* and environmentalists’ demands in the drafting process of the biohazards law; lack of enforcement of the law ordering the food industry to carry warning labels on all products containing more than 1 percent of transgenics; continuation of financial support through public banks for large agribusiness concerns, for a total sum that went from 20 to 42 billion reais per year . . . ; granting of credits through a federal development bank, the Banco Nacional de De-

Many academic scholars have also been highly critical of the PT. James Petras, a professor Emeritus in Sociology from Binghamton University, analyzed in an article on the *Journal of Peasant Studies* the phenomenon of the 'centre-left' regime that has emerged recently in Latin America. He concluded that the government of Lula in Brazil, when measured against a set of criteria designating espousal of "leftist politics," fails the test (Petras 2006). He argued, for example, that the composition and agenda of the Social Economic Development Council, which was tasked with creating a social pact between labour, business and the government, revealed Lula's pro-business, anti-working class bias.

Of the 82 members of the Council, 41 are businessmen and 13 are trade unionists, a better than three to one proportion favouring the bosses. The pur-

senvolvimento Social (BNDES), for paper mills and eucalyptus foresting; and taking the initiative to pass a law opening national parks to logging interests. The government has also ... failed to fulfill its promises to settle the landless families occupying large estates; implement an encompassing agrarian reform program ...; pass a law to expropriate estates that use slave labor; stop ... the final conclusions that define land occupations as a major felony; push for judicial punishment of rural massacres such as those in Corumbiara (1995), Carajás (1996), and Felisburgo (2004); stop the rise in violence in rural areas; remove older laws and statutes that block agrarian reform; demarcate native land belonging to several ethnic groups, especially the Xavantes, Guaranis, and Pataxós; control the advance of cultivation of soy and cotton in the Amazon and bush areas process which could have dire environmental consequences in the future; and create a wide network of cooperative agri-industries among campesinos (Stedile 2007, 54).

pose is to discuss tax reform - reduce business taxes, in other words - and social security reform, decrease payments to workers, pensioners and other state beneficiaries. When Lula was confronted with the preponderance of the business elite among his inner circle, he roundly defended his proindustrial/agribusiness bias, embellishing his choices with an apolitical, meritocratic varnish and accusing his critics of nepotism. Lula conveniently forgets that his businessmen's 'disinterested talent for thinking for the country' has resulted in the greatest social inequalities in the world. Like his 'Third Way' counterparts elsewhere in the world, Lula deliberately overlooks the class interests of the business elite precisely because they are his strategic allies in the pursuit of a neoliberal project (Petras and Veltmeyer 2003, 13).

John Bellamy Foster, a professor of sociology at the University of Oregon and editor of *Monthly Review*, echoed these criticisms. Foster argued the following:

In 2002 . . . the PT . . . indicated a greater willingness to accept the conditions imposed by neoliberalism, including full repayment of Brazil's debt. Taking care of economic "fundamentals" was to be prioritized even at the expense of the PT's broader social program . . . Lula's first term consequently was characterized by . . . very stringent economic programs aimed at debt repayment and "fiscal responsibility." This was coupled with a much less ambitious pro-

gram than originally conceived on behalf of the poor ... the PT has also promoted neoliberal structural reforms that directly undermine the overall position of workers. This has then constituted a kind of Latin American social-democratic “third way” strategy in which neoliberal ends are hegemonic (Foster 2007, 16).

While it is certainly accurate that the PT changed its policy agenda in route to winning elections in 2002, the argument that this constitutes a betrayal of the left is a simplistic -yet understandable- reaction that stems from an incomplete theory of the state. The belief that the state apparatus can unilaterally make economic and policy decisions; that its autonomy and agency, while certainly substantial, is such that if only the right people were in power anything could happen, is nothing more than a ludicrous assumption.

In his *Embedded Autonomy: States and Industrial Transformation*, Peter Evans argued that successful state policies require bureaucratic autonomy from the dominant societal forces, as well as embeddedness with those same forces. While the autonomy argument stresses the value of government agency, the embeddedness argument reflects the fact that government agencies cannot effectively involve themselves in policy matters without obtaining detailed information from nongovernmental actors and generating trust with those actors by more or less representing their interests (Evans 1995). What is lacking in this picture, however, is an analysis of limits and constraints. To what extent can governments assert their autonomy over

societal constraints? Can the state lose its agency by being co-opted by special interests?

This theoretical void is filled by David Held. In recounting Napoleon Bonaparte's France, he said:

The state is portrayed as an immense set of institutions, with the capacity to shape civil society and even to curtail the bourgeoisie's capacity to control the state . . . There were ultimate constraints on the initiatives Bonaparte could take, however, without throwing society into a major crisis, as there are on any legislative or executive branch of the state. For the state in a capitalist society . . . cannot escape its dependence upon that society and, above all, upon those who own and control the productive process. Its dependence is revealed whenever the economy is beset by crises; for economic organizations of all kinds create the material resources on which the state apparatus survives. The state's overall policies have to be compatible in the long run with the objectives of manufacturers and traders, otherwise civil society and the stability of the state itself are jeopardized (Held 1989, 35).

In other words, while class interests can definitely take over the state's autonomous agency, this does not preclude the possibility that the state can retain a scaling degree of autonomy. However, the degree to which the state can be an autonomous decision maker has very concrete material limits. In the case of Brazil, the fact that Lula chose to pursue a conditional cash

transfer program, instead of the promised radical agrarian reform, was because of this exact limitation. In Brazil, agricultural products are used as inputs into other manufacturing and industrial sectors, such as the biofuel industry.²⁴ Agriculture also plays the crucial role of earning foreign exchange through exports. In the case of Brazil, 34 percent of total exports come from the agribusiness sector²⁵ (World Bank 2011, 1024), which amounts to approximately US \$52 billion (World Bank 2011, 1031). Without this influx of foreign currency, the Brazilian state would not be able to import essential inputs to sustain industrial activity. As a matter of fact, 75 percent of Brazil's imports are manufactures,²⁶ (World Bank 2011, 1001) for a total of approximately US \$101 billion (World Bank 2011, 1004). Because agriculture is such an essential element within the economic model, it creates a partnership of mutual dependency between the state and corporate agribusinesses, whereas the survival of the former is a function of the profits and economic

²⁴Brazil is a biofuel industry leader. For favorable assessments, see World Bank (2010); Silveira et al. (2009). For a critical assessment of the social and environmental impacts of biofuel production in Brazil, see McMichael (2010); White and Dasgupta (2010).

²⁵Agribusiness exports comprise the commodities in SITC (Standard International Trade Classification) sections 0 (food and live animals), 1 (beverages and tobacco), and 4 (animal and vegetable oils and fats) and SITC division 22 (oil seeds, oil nuts, and oil kernels). For a detailed structure and explanatory notes of SITC, see <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=28>.

²⁶Manufactures comprise the commodities in SITC sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (nonferrous metals).

viability of the latter (Stedile 2007, 50). If Lula was to disrupt the agricultural elites, the state apparatus and society at large would have collapsed under the storm of a crisis.

Does this mutual dependency mean that the structural conditions nullify the state's agency? I would argue that they only constrain it. Popular pressure is important too for legitimation purposes. While Lula would have never been able, under the specific historical and economic conditions, to enact the kind of agrarian reform that the left was clamoring for, the state had enough leverage to create the largest welfare program in the world (as discussed earlier, social movements were largely responsible for creating such a political space). A more conservative administration would have not implemented a welfare program as ambitious as Bolsa Familia, even if it had the capacity to do so. The fact that the PT was in power - and the kind of agency and political commitments it had - mattered a lot.

In short, contrary to what the left was arguing, there was never a betrayal from the PT, because the tool in question - i.e. state apparatus - never had the ability to carry out the demands for agrarian reform in the context of 21st century Brazil. The PT only created a misconception due to its own political inexperience and lack of theoretical insight. When it realized the mistake of the promises they made, it was too late to reverse the hopes and expectations of millions of people.

Assessing Bolsa Familia's results

Now that we have explored the multiple negotiations surrounding the creation and implementation of Bolsa Familia, one task - maybe the most important one - remains: assessing the efficiency of the program. The matter seems rather trivial and uncomplicated when compared against technical measurements of poverty. Nevertheless, the full complexity of the issue comes to light when we address the question of whether this kind of program can solve poverty around the globe. In other words, whether Bolsa Familia is something other capitalist developmental states with high poverty rates should emulate. This exploration will lead us into different theoretical frameworks underlying the origins and causes of contemporary poverty.

Technically speaking, poverty in Brazil diminished in a dramatic fashion since the inception of Bolsa Familia. As Figure 2 shows, the percent of people living below US \$2 a day dropped from 21.74% in 2003 to 9.87% in 2009, and those living below US \$1 a day dropped from 10.45% to 3.8% (World Bank 2011, 813-814). It is estimated that approximately 35 percent of this drop was attributable to Bolsa Familia (Hall 2008, 811). Quite conclusively, Bolsa Familia brought a marked improvement in the material livelihoods of millions of Brazilians. This was ultimately reflected in the elections of 2006, when Lula was rewarded with the votes he needed to attain reelection. In fact, there is a general consensus in the literature that the success of Bolsa Familia played a pivotal role on this matter (Hall 2008, 812; Hunter and Power 2007). Studies have actually shown that in 2006, 22 out of 26 states displayed an inverse proportionality

between the votes obtained by Lula and the level of socioeconomic development at the municipal level. In other words, the poorer the municipality, the more votes Lula captured (Zucco 2008, 33).

The newly formed relationship between the poorest in Brazil and Lula prompted critics to argue that Bolsa Familia creates greater dependence of the poor on government hand-outs. While the political implications that Bolsa Familia had on Brazilian politics is palpably real, the argument that this creates a relationship of dependence that fosters laziness and idleness lacks empirical support. Contrary to these accusations, a study conducted by the International Poverty Centre concluded that Bolsa Familia was not detrimental to labour force participation among program beneficiaries (Soares, Ribas, and Osório 2007). Other studies have shown that 75 percent of Bolsa Familia recipients are actually employed, which represents an almost identical proportion to that of the wider population (Hall 2008, 815).

The fact that most beneficiaries use Bolsa Familia as a supplementary income to their jobs is a consequence of Brazil choosing to use the World Bank's arbitrary benchmark to measure poverty.²⁷ Even with Bolsa Familia benefits, the income of recipient families remains well below the minimum wage (Marques and Mendes 2007, 27). While immediate starvation and death is staved off, Bolsa Familia does not provide much more.

²⁷As a reminder, Bolsa Familia's cut off line was R\$50 (Us\$26.62) and R\$100 (Us\$53.23) in 2004, and R\$70 (Us\$37.26) and R\$140 (Us\$74.52) by 2011. If these monthly incomes are divided by 30, they reflect the two categories (Us\$1.25 and Us\$2 a day) the World Bank has to measure poverty almost exactly.

Thus, the argument that such a meager income creates idleness can only be the product of the imagination of subjects who are completely out of touch with the lives of the poor.

More astute critics of Bolsa Familia, on the other hand, point out the fact that Bolsa Familia, as a policy that intends to lift people out of poverty, is a failed enterprise because it does nothing to create employment opportunities (Hall 2008; Hall 2006). Furthermore, they argue that “Bolsa Familia cannot . . . deliver a sustained improvement in health and education outcomes and a reduction of inequality in the long run” (Sánchez-Ancochea and Mattei 2011, 313). Lastly, they point out that the expansion on Bolsa Familia has been accompanied by a drop of investment on other social services.

. . . expansion in noncontributory benefits in Brazil through . . . welfare programmes has been accompanied by a significant drop in longer-term social investment . . . between 2002 and 2004, federal spending on basic sanitation and housing fell in real terms by 46 per cent. Over the same period at state level, investment in education saw a reduction of 12 per cent, housing by 14 per cent and basic sanitation by 18 per cent. Very similar results were recorded for social investments by municipal governments in terms both of overall as well as per capita spending . . . [in conclusion] there has been no coordinated effort at federal or sub-national levels to provide essential public services indispensable for the reduction of inequalities in lifestyle and improvements in

welfare alongside improvements in individual and family income and consumption (Lavinás 2006, 7).

It is clear that these critics move beyond the narrow definition of poverty as a quantitative average that disregards quality of life, employment opportunities,²⁸ etc. If we accept these rather reasonable re-framings of what poverty is, then the accomplishments of Bolsa Familia are much less impressive in light of the massive resources and exceptional circumstances that made the program possible.

Human Capital: The solution to poverty?

Despite Bolsa Familia's accomplishments, it will never be enough by itself to solve poverty in Brazil. Surprisingly, this is a well-known fact that both Lula and the World Bank acknowledge. As the following quotes show, they both see Bolsa Familia as a temporary and complementary measure.

²⁸UNDP's Human Development Index is an example of this. The HDI indicates that Brazil advanced to 0.718 in 2011, compared to 0.600 in 1990. This reflects a life expectancy of 73.5 years; 7.2 years of schooling on average (for those 25 years old); 13.8 years of schooling expected for that younger; and annual per capita income of \$10,162. However, the HDI does not indicate the quality of education, or whether the education is conducive to employment. It merely measures the years children and young adults remain in schools. Similarly, quality of life is measured in per capita income, and disregards important aspects such as access to water and sanitation, level of ecological and social vulnerability, etc. Most importantly, the measurements are taken as averages, blurring the huge issues of inequality.

Higher quality and more equitable access to education (including secondary and tertiary education) are key to reducing poverty and inequality in the long run. However, the positive impacts of education reform take time to materialize. Reforms to social assistance programs and a more equitable pension system can achieve complementary results sooner and substantially reduce inequality and alleviate poverty (The World Bank 2004a, 1). Bolsa Famlia is not our salvation, merely an emergency measure . . . and the ideal is that in a few years' time Bolsa Famlia will no longer be necessary (Hall 2006, 704).

The difference, however, is that the World Bank holds education as the ultimate long term eradicator of poverty due to its capacity to build up "human capital".²⁹ The theoretical framework and the assumptions underlying this approach to poverty reduction remains, unfortunately, largely unchallenged and unexamined in the literature. The notion that education has the power to lift people out of poverty is an entrenched and mainstream narrative that is reproduced on academic and pop-

²⁹This quote reflects their human capital approach: "The objectives of the new Bolsa Familia Program itself include: (a) reducing poverty and inequality today, through the provision of direct monetary transfers to poor families; and (b) reducing poverty and inequality tomorrow, by providing incentives and conditions for investments in human capital on behalf of beneficiary families, and by linking beneficiary families to complementary services that could help them invest and grow out of poverty in the future" (The World Bank 2004b, 9).

ular outlets alike. However, the entire notion of human capital rests on a flawed theory of marginal productivity that was challenged and disarmed by the Cambridge capital controversy in the 1960s.³⁰

The implications of the logical inconsistency in marginal productivity theory shattered the notion that value of the factors of production can be measured independently from income distribution - i.e. the illusion that we get what we deserve because income is somehow determined by what we contribute to the production process. The poor can get all the education in the

³⁰Marginal productivity theory stems from neoclassical economics, and is the formulation that determines income distribution- i.e. how much each factor of production is remunerated, wages for labour and interests/profits for capital. This marginal productivity (mp) is a function of the additional output over the additional unit of factor employed. In other words, mp is the economic value produced per each utilized input. If labour is the input, mp will be high if one hour of work can produce a lot of goods. If fewer goods are produced per hour of work, then mp will be low. The level of mp is then used to determine wages. In other words, if your work is very productive, then you will be paid a lot, and very little otherwise. It all depends on how much one's labour can produce, that is to say, one's human capital. The implication of this theory is that workers are paid what they contribute to the production process. If poverty exists, it is largely because people do not possess enough human capital to raise their mp/wages. Therefore, they need education to improve their contribution to the economy. To put it another way, the poor are responsible for being poor. Unfortunately, the Cambridge capital controversy brought this theory's logical inconsistencies to light. To calculate the mp of capital, and settle the income distribution - i.e. profit/interest rates/wages - the formula needs to know the prices of heterogeneous capital goods such as machinery. However, the prices of machinery and other capital goods change according to the income distribution! The circular reasoning is impossible to overcome (Edwards 1985).

world, but their “human capital” will not help them get better wages.

A separate argument against the human capital approach would be the fact that the poor confront structural unemployment. College graduates without jobs will still remain poor and indebted, as many American citizens are finding out these days. To this criticism, neoclassical economists, such as those presiding over the World Bank, would reply that under perfectly competitive markets, there is full capacity utilization and therefore no unemployment (or a very low Natural Rate of Unemployment). To the extent that this ideal situation does not exist in any country in the world, the blame would be put on imperfectly competitive markets. However, as many economists in the classical vein have argued, full capacity utilization is not a feature of industrial production. In other words, unemployment is a structural feature endogenous to how capitalist firms operate (Moudud 2010).

The consequences of this theoretical argument are quite serious. It implies that poverty due to unemployment or underemployment will be a permanent feature of any capitalist economy. This insight, while surprising to some, is not new to those elites in power. The State, since the times of Vargas, has considered the exclusion of large segments of the population as inevitable and an acceptable price for growth and modernization. Cardoso, for example, openly admitted that a significant portion of the population was not part of the dynamic segment of the economy, and that he could not offer them a place in the new globalized order (Pereira 2003, 50).

Bolsa Familia: Two lessons

I believe there are two main lessons that can be drawn from the investigation of Bolsa Familia. The first one relates to the complexities of the relations and interlinkages between the state and diverse groups in society. Lula's government had to adopt the human capital discourse to make Bolsa Familia a palatable project for domestic and international capital. Furthermore, the state had to procure the economic resources to fund the initiative without resorting to an economically and politically costly inter-class transfer of resources. This move, at the same time, depended largely on a booming economy that allowed for an explosion in fiscal revenue. The state's agency, while conditioned and constrained by each of these factors, still played a crucial role in the creation of a program that offered invaluable aid to millions of people in poverty.

The second lesson refers to the inherent limits of state capacity in resolving the contradictions and pernicious consequences of the capitalist mode of production. The state may do many things, but it cannot challenge the underlying prerogatives of the business enterprise without undermining its own legitimacy. Unemployment and poverty are features of a system that is inherently unequal. While states like Brazil can certainly diminish the negative impact of these features on the population, it cannot eradicate the root of the problem. Capitalist states cannot be expected to hinder their own development. If society, whether due to environmental and/or social concerns, wishes to move beyond capitalism, it should not expect the change to come from the state apparatus.

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Chapter 3

The Political Economy of Dams in Pakistan
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Introduction

In recent decades, dams have come to personify “nation-building” (Roy) - the bigger, the better. In developing countries, economic growth is often predicated on the expansion of infrastructure. That’s the mantra of Pakistan’s political elite.

Our current economic structures define economic growth as an exponential growth of gross domestic product (GDP), the goods and services produced in a country in a given period of time. In an agro-based country the pursuit of exponential economic growth means increasing crop cultivation, even in places nature does not allow. Man-made irrigation has turned swathes of arid, dry land into flourishing crops, and to feed this irrigation system in the context of Pakistan’s geography, water storage is

necessary. The elite at the national and transnational levels present mega-dams as the solution to this necessity.

In Pakistan, Punjabi officials and the Punjabi-dominated army are considered as the political elite of the country. On the transnational level, I use the term political elite to refer to international development agencies, particularly the World Bank, and First World diplomats. I also include multinational companies in this world of elitism. Although they frame their mega-dam proposition in economic terms of GDP, agricultural growth, megawatts of power produced, etc, their driving force is political and economic self-interest.

This paper will examine how and why the project came to be proposed and built, the role played by the global elite in choosing this project, and the consequences it had for the politically marginalized communities. The framework of this essay borrows the following features of Political Economy Analysis (PEA), as delineated by Alex Duncan and Gareth Williams in their journal article *"Making Development Assistance More Effective Through Using Political-Economy Analysis: What Has Been Done and What Have We Learned?"*:

- Emphasizing the centrality of politics

- Identifying underlying factors that shape the political process

- Recognizing that development agencies are political actors

Geographical and Economic Realities



The Indus River is the bloodline of Pakistan. The people of the Pakistani provinces of Punjab, Sindh, Khyber Pakhtunkhwa, Azad Kashmir and Balochistan all depend on its flow. Most of the major cities are near the Indus banks, and its tributary of Chenab, which itself has four major tributaries of Jhelum, Ravi, Beas and Sutlej. These flow down the fertile province of Punjab, feeding the crops that form the backbone of the economy. They converge into the Indus River, in the lower province of Sindh, before flowing out to the Arabian Sea as shown in this map of

the country (Ahmad & Lodrick).

The Indus River and its major tributaries are all snow-fed. This drastically affects the rivers' flow seasonally: during the winter months (December to February) it is at the lowest, rising in spring and early summer (March to June) and flooding over in the monsoon season (July to September). In some places, there are destructive flash floods. All the rivers originate in the northern hills and mountains of the country. Therefore, their flow is stronger upstream whereas downstream Sindh receives the least surface flow, from a river exhausted by the greedy plains of Punjab. Evaporation and seepage significantly reduce the flow volume as well ("Indus River [river, Asia]").

"The Indus basin has the largest irrigated area on any one river system" in the world (Sinha). The canals that divert water out of the river are a source of livelihood for thousands of farmers. Without this artificial supply of water, many lands cannot grow any crops. Of the 20 million hectares of cultivated land in the Indus basin, 17 million hectares depend on irrigation (Gill & Sampath, p. 77).

In Pakistan, dams are considered the mainstay of irrigation. They store water in the high flow and rainy seasons for crops that are grown in the drier winter season. These are known as the rabi crops, which are cultivated from November to April. Wheat, the staple food of the country, is the most prominent rabi crop. Kharif is the second type of crop or season of cultivation, lasting from May to November. It includes the cash crops of cotton, rice and sugarcane ("Encyclopedia of the Nations"). These are water-intensive crops, which combine with irrigation inefficiency to leave little water for rabi, thus serving as an ex-

cuse for building dams. Never mind the reconstitution of crops grown or lack of irrigation efficiency enhancement. By the 1990s average delivery efficiency from canal head to the root zone was an unimpressive 35-40 percent (Faruqee & Hussain, p. 569).

For the urban population and industries, the river is a source of energy and drinking water. Hydropower is Pakistan's second largest source of electricity (Sinha). Thus big dams are common in the country, although they tend to be politically contentious. Not only is there tension over sharing the Indus between Pakistan and India, there is also political conflict within the country, especially between the provinces of Punjab and Sindh.

River Indus, the Bargaining Chip

Even though irrigation in Pakistan surpasses the country's creation in 1947, dating back to 6000 years, 'modern' canal irrigation was introduced during British colonization (Rahman, p. 364, 368). The partition of the subcontinent into India and Pakistan fractured this irrigation network that spilled over on both sides.

The drawing of borders was a rushed affair, resulting in a flawed final boundary that exacerbated the split of water headworks, a hydraulic structure that diverts water from a river to a canal ("Canal Headworks"). The infamous Radcliffe Award, which drew the border between India and Pakistan, granted the Ferozepore headwork to India even though it belonged to a Muslim majority tehsil, an administrative division (Michel, p. 178). As a result India could control the flow of water to

Punjab. This worked greatly in favor of India and its certain leaders who viewed Pakistan as a temporary entity, which they were determined to bring back to India by wrecking its economy and making it vulnerable in any way possible (Michel, p. 223). While there are plausible justifications behind this grant, attention needs to be paid to a strategic alternative that was missed.

Sir Cyril Radcliffe who drew this partition line had never been to India and was hardly familiar with the geopolitical realities of the region. He was chosen for the task because of his intellectual reputation and because his lack of familiarity with the subcontinent made him an unbiased decision maker. While it is true that he was impartial toward both the new Hindu-Muslim nations, he did have a bias in favor of the British interests. His loyalties with the British government were deeply embedded through his experience during the war as the director general of the British Ministry of Information. This former position had explicitly exposed him to the goals and interests of the British crown (Chester).

Thus it is arguable that Radcliffe deliberately left the former British colony in an unstable position. He could have awarded the entire Ferozepore headwork, which admittedly served India as well, to balance the Indian control over water flowing from the Madhopur headworks into Pakistan. Such a scenario would have given both countries an equal bargain tool of control of water flowing to the other's land (Michel, p. 181). There may never have been the need for the 1960 Indus Water Treaty, which pushed forward mega-dam projects for the development of Pakistan's storage facilities, in order to offset its reliance on Indian

controlled water.

However with all headworks granted to India, Pakistan as a downstream state came to be dependent on Indian goodwill. This proved to be unreliable as early as 1948, when the river flow was breached by India. On April 1, 1948 the Indian government disrupted the flow of water from canals on its side, cutting off water to 5.5 percent of the sown area and almost 8 percent of the cultivated area in Pakistan (Ahmad). This Indian control of canals that fed Pakistan was dangerous because according to William Iliff, the Vice President of the World Bank and International Development Association from 1956-1962: “[i]f Pakistan was deprived of her canal water from the Indus system, the whole of west Pakistan would really become a desert” (Alam, p. 342).

At the occurrence of this incident, the Pakistani leadership realized the extent to which the country was dependent on the Indian controlled Sutlej River. The whole ordeal may have been avoided were it not for K.B Sheikh Abdul Hamid, the Secretary of Irrigation from Punjab, who withdrew the complaint against the Ferozepore headwork award to India, from Committee B. Committee B was an arbitral tribunal set up by Radcliff, with government officials from each department, one from both countries, to settle any problems that arose from the partition.

Hamid, the Pakistani nominee for the Irrigation Department, was swayed by his former colleague Mr. Kanwar Sen, the Indian nominee, to withdraw the issue of water apportionment (Kazi, p. 25-26). In doing so, he deprived Pakistan of getting a chance to regain some of its control over water that flowed through the country but originated in India. The bargaining chip was lost.

Hamid let his personal relations with Sen get in the way of his country's interest.

India let the water flow to Pakistan till precisely the end date of the Committee on March 31, 1948. The next day the flow was blocked; Pakistan had been tricked into not only accepting Indian goodwill but also giving up its right to the water of rivers Sutlej and Ravi, at least according to Mr. Jawaharlal Nehru, the Indian Prime Minister (Kazi, p. 26). He agreed to reopen the canals only on the condition of monetary compensation by Pakistan for what was now Indian waters. Pakistan disputed this claim, by stating that its payments were for the costs of operating and maintaining the irrigation works and not for the water itself (Michel, p. 202).

Nevertheless, this arrangement was a temporary solution that was reached on May 4, 1948 when Inter-Dominion Agreement was signed, whereby India agreed to open water supplies for irrigation in Pakistan until the later developed alternative water resources (Ahmad). It also called for continued talks between the two countries but these were largely unsuccessful (Alam, p. 344). These political developments, motivated by India's national self-interest, thus contributed to the increasing need for storage facilities in Pakistan.

The water dispute came to the attention of the World Bank, when both India and Pakistan applied for loans to develop water resources on the Sutlej River. The Bank had to turn down these projects, despite their economic feasibility, due to the continued political dispute over the river (Alam, p. 344). In 1949, when India requested the Bank to finance the multipurpose Bakhra-Nangal project on Jhelum River, Pakistan objected by high-

lighting the late water controversy. Similarly, when Pakistan sought finance from the Bank for the Kotri barrage project on Indus River, India cited the same reason for its objection.

These disrupted projects hindered socioeconomic development hence obstructing the World Bank's stated mission to "reduce global poverty" ("About Us"). More critically, this situation threatened the Bank's ability to raise money from donor countries, which could become skeptical of the agency's effectiveness, in the light of two of its largest potential customers caught in such a political deadlock (Mason & Asher, p. 612).

However, a closer examination of the World Bank's intervention in the water dispute between India and Pakistan shows that it was driven by a prominent American public figure, David E. Lilienthal. He was the founding director of the Tennessee Valley Authority (TVA) and later the first chairman of the Atomic Energy Commission. In the 1950s, he exported his ideas of development internationally, with the subcontinent serving as one of his first targets (Neuse, blurb).

Lilienthal toured the Indus Valley in 1951 as a private citizen, and soon published an article in the *Collier*, offering a solution to the dispute and emphasizing that the matter be dealt technically rather than politically. He suggested developing the Indus system as a single unit, modeled after the TVA, which would be operated by both India and Pakistan. He directly called the World Bank to attention by proposing that "perhaps" the Bank would help the two countries in jointly financing the project (Mason & Asher, p. 612). Lilienthal was a "good friend" of Eugene R. Black, President of the then World Bank (D'Souza, p. 165), whom the President along with Davidson Sommers,

the general counsel for the World Bank, met with on August 8, 1951 to discuss his proposals. It was Lilienthal himself who suggested to Black to forward these proposals directly to Nehru and Liaquat Ali Khan, the prime ministers of India and Pakistan respectively (Michel, p. 225).

At this time, Lilienthal was transitioning from his public service career to the private sector by joining Lazard, an international financial advisory, asset management, and investment firm (Albinia, p. 49). He made it known to his new employer that it was a “must” that he “accumulate a substantial sum of money in the next ten years”. Lilienthal was not to be disappointed; by 1955 he earned a yearly income of over \$110,000 in addition to \$1.5 million worth of Lazard stock, in exchange for his economic development expertise and political contacts around the world (Phillips-Fei & Zelizer, p. 113).

Lilienthal’s prominence in the public sector, and influential contacts such as Nehru, the then Prime Minister of India with whom he stayed during his Indus Basin visit to India, added weight to his article. He was effectively using his Lazard partner’s advice to capitalize on his “brilliant name” to open new markets for the company (Phillips-Fei & Zelizer, p. 112). In September 1951, President Black endorsed his friend’s proposal by citing it in his letter to the prime ministers of Pakistan and India. He offered the bait of qualified staff and finance to gain the favor of the two bitterly opposed countries (Mason & Asher, p. 612).

It was in this context that the World Bank got involved in assisting talks between the two nations. The interim negotiations, however, could not maintain the envisioned focus on en-

gineering and technicality nor the plan for an integrated Indus Basin Project. The latter would have required India to accept partition “as a final and permanent thing” as advised by Lilienthal. However, as previously mentioned, certain Indian leaders were not ready to accept Pakistan as a permanent entity and thus waited for the weak states implosion. Also, India could develop its water infrastructure at a much lesser cost on its own by focusing its energy on the Bhakra-Beas-Rajasthan Project (Michel, pp. 197, 223).

Pakistan was conscious of India’s attempt to derail the country out of its new existence. The whole movement for a separate state for Muslims was premised on the Muslim leadership’s mistrust of Hindu-dominated Indian politics in safeguarding the rights and interests of the minority population (“Jinnah”). In the late years of colonial India, the Muslims, who were now in Pakistan, were repeatedly betrayed or marginalized by the Hindu politicians. The Muslim experiences from the Cabinet Mission, Mountbatten-Menon negotiations, and the Partition massacres were deeply embittering. The canal closure of 1948 was the most obvious incident to convince Pakistanis that they could not trust India with their irrigation water, something a joint project would require (Michel, p. 223).

Consequently, the talks quickly spilled over to “identity politics” (D’Souza, p. 165), and led to the Indus Water Treaty of 1960, in which the project was split between the two rival countries (Iyer, p. 3140). The World Bank had essentially stepped in the middle of two countries’ governances by striving to establish a unified administration over their water resources, to which end it failed due to political mistrust between its subjects (D’Souza,

p. 165).

Ben Orlove, an anthropologist at Columbia University, and Stephen C Canton, also an anthropologist, warn that the term governance obscures “the debates and conflicts over (the) goals and values of water (which) lead us to the sphere of politics” (405). A perfect case study of this phenomenon can be found in the political tension between Punjab and Sindh. It is assumed that the national governance of Pakistan negotiated and signed the Indus Water Treaty but a close examination shows that it was an act of a subset of the governing body of the country.

One of the main provisions of the Treaty was to allocate the three western rivers of Indus (Jhelum, Chenab and Indus) to Pakistan and the three eastern rivers (Ravi, Beas and Sutlej) to India (Iyer, p. 3140). The negotiations that led to this agreement were fraught with political tensions between Punjab and the downstream province of Sindh. The former was preoccupied with diplomacy and foreign affairs, while the latter feared losing water flow to India. The Punjabi delegators, assured of control over water for itself given its national upstream position, were full of “desperation” to come to an agreement (Kazi, p. 31). Meanwhile Sindh actively opposed allocating any of the Indus Rivers to India because it recognized the shortfall in flow that would follow such an agreement (p. 33).

The original Pakistani delegation had fair representation of all provinces, with their respective interests, but their bickering undermined and prolonged the negotiation process. The opposing voices were soon silenced when in October 1955 the four provinces were merged into one province despite strong resistance from Sindh. The One Unit now represented West Pak-

istan while present day Bangladesh was East Pakistan, under which a new delegation was formed, known as the Indus Basin Advisory Board (IBAB). The IBAB was fully appropriated by Punjabis, who were given all the seats. Sindh was therefore systematically excluded from the deliberations that took place henceforth. This was not the first instance of Punjab playing bully politics towards Sindh; it was a continuation of a historical pattern stretching back to colonial times (Kazi, p. 22 & 31).

When the British developed irrigation systems in colonial India, they anticipated water disputes between the provinces and hence set up an India Irrigation Commission (1901-1903). The commission made it mandatory for Punjab to seek the permission of lower riparian Sindh before undertaking any projects on the Indus Rivers. The following years, Punjab and Sindh went back and forth on projects through the British intermediary Viceroy of India, who often recognized the threat to the interests of Sindhis (Kazi, p. 22).

The repeated water disputes induced the British to set up Rao Commission in 1941, which sought to find a permanent solution between the two provinces. Sindh took this as an opportunity to file its complaints against completed and ongoing irrigation projects of Government of Punjab, on the Indus and its tributaries. These included the Haveli Project, feeders for water transference, and Thal Project that had formerly been rejected by Viceroy Lord Chelmsford (Kazi, p. 23-4). Unfortunately, the agreement that came out of the commission was lost in partition and never came to be ratified.

There were other grievances that Sindh held against Punjab. For instance, after partition Punjabi and mohajir (migrants) bu-

reaucrats and military officers were allocated 1.32 million acres of agricultural land, almost half of the newly irrigated land created by various barrages. Sindhis were treated like second class citizens in their own province; they were continually under represented in services, business and law enforcing agencies. Karachi, a cultural and financial center of the province, was made a federal capital. The Urdu language was imposed on their higher education system, replacing the local language of Sindhi. This was viewed as an act of “Punjabi imperialism,” to borrow the words of Syed G.M (Waseem & Hayat, p. 729).

Tarbela Dam, the Tool of Aid-Imperialism

Another state action informed by a transnational body was the decision to construct the large Tarbela Dam. This too was a product of the Indus Water Treaty but in the case of Tarbela, the most influential and powerful institution was the World Bank. As Ghulam Mueenuddin, Pakistan’s chief negotiator, explained: “The biggest factor was the moral pressure of the Bank. Both of us [India and Pakistan] were terribly reluctant to appear before the world and say we were not prepared to accept the Bank’s advice” (“India and Pakistan”).

To compensate Pakistan for the loss of the flow of three perennial rivers to India, the World Bank proposed to invest in an Indus Basin Project (IBP), which included Tarbela, Mangla and Chashma dams, six barrages, eight new canals and improvements in three existing canals. In anticipation of these development projects, WAPDA, the federal Water and Power Devel-

opment Authority, was created in 1958 as a semi-autonomous body. Its purpose was to coordinate and provide a unified direction to the development schemes in Water and Power Sectors, which were previously under the respective Electricity and Irrigation Department of the Provinces (“WAPDA”). This allowed the government to consolidate its power at the center, and undermine the political power of provinces with minority populations.

An Indus Basin Development Fund (IBDF) of \$895 million was established to finance the IBP (World Commission on Dams, p.111). \$541 million of the total fund was in the form of grants from the “friendly Governments” of the United States, Canada, United Kingdom, West Germany, Australia and New Zealand. India’s compensatory grant - for gaining the right to the three rivers - amounted to \$174 million and the remaining \$150 million was covered by loans (Michel, p. 248). A large infrastructure project with such a huge and largely free budget was hardly something the young Pakistan could pass up on.

However, the scale of the project opened the way for corruption, and directly benefited contractors and officials who could make big commissions. As Peter Bosshard, the Policy Director of a grassroots nonprofit International Rivers points out, large infrastructure projects, like Tarbela, are prone to corruption due to their complexity, capital intensity, and high cost (Bosshard & Lawrence).

The magnitude of the project put Pakistanis at a disadvantage. They did not have enough qualified engineers or the required technology to carry out the project on their own. It is also argued that Pakistan was under a time constraint; it needed

to keep pace with the growing population (Michel, p. 360). As a result the Indus Basin Project (IBP) created a lucrative market for foreign contractors, particularly consulting firms.

Since its inception in 1958, WAPDA tied itself to the Harza Engineering Company International of Chicago. The company served as a general consultant for both water and power development, including the IBP. Pakistan imported its regulatory work by making Harza responsible for overseeing the work of other consultants before its submission to WAPDA. This responsibility, combined with Harza's assignment to prepare a master plan for development, opened the door for this American company to maintain its interests (Michel, p. 358-359).

In the case of the Tarbela Dam, the most prominent consulting firm was also American: the Tippetts-Abbett-McCarthy-Stratton (TAMS) company of New York. They were former consultants to the World Bank during the Treaty negotiations, who were tasked to design the dam for Pakistan (Michel, p. 358). TAMS also contracted documents for the project and supervised the construction work ("WAPDA Hydrel Generation").

Foreign construction companies made huge profits through the decision to make this mega-dam. The Tarbela Dam project was "the world's largest single contract for the construction of civil works", priced at \$623 million. WAPDA gave the contract to the Tarbela Dam Joint Venture, which was a group of three Italian and three French heavy construction companies. Later, five German and two Swiss contractors joined the group as well, making up a European thirteen member consortium led by Impregilo, an Italian firm ("WAPDA Hydrel Generation"). The payment to these foreign firms, in effect, returned the grant

money to the first world. In fact the contract was in excess of the \$541 million grant.

Development, the Chart of Hierarchy

The Tarbela Dam has come at a high environmental cost. For instance, “the tail end of Indus receives so little water that today Sindh’s agriculture faces extinction. Further reduction of water will increase salinity, land erosion and sea-flooding that will severely damage the Indus delta” (Serling). This environmental problem is ripe with political tension as well as economic and social consequences. It is what fuels Sindh’s grievances with the Government of Punjab and its opposition to dam projects. “Islamabad’s diversions of water to upstream communities with ties to the government are inflaming sectarian loyalties and stoking unrest in the lower downstream region of Sindh” (Wheeler).

The government generally focuses on macro-level goals and tends to ignore the locals who get impacted by dam projects, at a micro-level. For instance, the locals as individual dwellers of Tarbela were excluded from the decision making process of the dam, in the late 1960s. Even after the signing of the project that made WAPDA the active authority, the government did not exercise public participation. In 2000 the World Commission on Dams consulted 900 individuals who were affected by the Tarbela Dam and their consensus was that they were “never consulted about the development of the [Tarbela] project or given alternatives to achieve the same objective” (“World Commission on Dams”, p. 309).

The dam project submerged one hundred and twenty agricultural communities, displacing ninety six thousand people, most of whom were subsistence farmers. The communities were not resettled together, disrupting their old social order. The set compensation criteria discriminated against small landowners (plots lesser than 0.2 hectares/0.5 acres of irrigated land or 0.8 hectares/2 acres of rain-fed land) who were eligible for cash compensation only, while two thirds of the affected population qualified for agricultural replacement land. “The negotiations and discussions excluded women and the landless” (Bennett & McDowell, p. 39). Those who depended on the river for their livelihood, but did not necessarily live in Tarbela, were also extremely disadvantaged, namely the fishermen, boatmen and zarkash (gold panners). They had no say or legal rights to compensation (Bennett & McDowell, p. 39).

The actual resettlement was a political stunt. The government of Sindh refused to release “65 percent of the allocated land” (Bennett & McDowell, p. 39). On paper, some fictitious names were recorded to evidence the compensated. Those who were fortunate enough to actually receive compensation obtained only partial dues; they were previous owners of 100s of acres of good quality land, for which they received 4 acres (World Commission on Dams, p. 367).

It has been over three decades since the dam was built, but many of the dislocated are still struggling for full compensation of the land they lost to the Tarbela Dam. Their entire lives have been spent on recovering from a loss that they were forced to incur in the name of national progress. There are currently 500 outstanding cases of those affected by the those affected by

the Tarbela Dam Project and by the smaller, Ghazi Barotha Project that are stuck in litigation in courts across the country, including the Supreme Court. It is an issue that has continued to haunt WAPDA, which in April 2012 set up an independent and impartial Resettlement Claim Commission (“Commission Constituted”).

The injustice of the compensation process is made worse by the fact that resettlement was imposed by the government on the local people. The decision to build the Tarbela Dam was made in the international and (Punjabi) national arena but its negative consequences were felt by the locals, both the upstream farmers/landowners who were uprooted from their land as well as the downstream Sindhi farmers who suffered from the decline of water flow and silt deposit and, the fishermen whose catch dropped (World Commission on Dams, p. 309).

Most of the agricultural population of Tarbela was relocated to townships similar to the rural Chinese who were moved to towns to make way for the recent Three Gorges Dam (Up the Yangtze). This move to urban centers had a profound impact on the displaced, as it changed their waterworld, the totality of social domains that are informed by water in a given society (Orlove & Caton, p. 403). Interviews, with people who were displaced by Tarbela, conducted thirty years later show how long lasting the impact has been. Rafaqat Ali Khan, who moved to Karachi after being evicted from Tarbela related:

[To create] an alternative to Tarbela is not possible. The people there followed a collective pattern of life. They would work the whole day but in the

evening you would see them in the hujra [traditional meeting place for men] sharing information with one another, and one another's problems, too. Here we don't have it; everybody is part of a machine...they have to work as laborers...No one has time to share the problems of others...There is no such thing [as the hujra] here. (Bennett & McDowell, p. 46)

This quote touches on how locals may not see urbanization and industrialization as "development". Many locals would rather be self-sufficient subsistence farmers and live in small communities, where they have a strong social and safety network (Bennett & McDowell, p. 46). They would rather depend on a river than on money. Also, for the rural locals in Sindh, the dam has resulted in the depletion of the natural resources of the Indus such as water, fish, and silt, rendering their farmland or fishing grounds unproductive. Consequently they are forced to migrate to Karachi, a large metropolitan that has a population of over 10 million people. They come in as environmental refugees who struggle to find jobs and end up living in lawless slums (Pearce, p. 32).

However it is misleading to homogenize the experiences and views of the local peoples. There are also narratives of the displaced who found the move to a city liberating, both economically and socially. These were often the people from marginalized groups such as the landless and women. A city gave them the opportunity to secure a job and become economically independent or to acquire an education that allowed for upward mobility. Women, from both poor and rich families of Tar-

bela, especially prized access to education; it empowered them to work and/or take care of themselves when the men they depended on became jobless or drug addicts. However even those who have benefited from their relocation feel a deep sense of loss that no amount of money or public service can erase (Bennett & McDowell, p. 52 & 57).

Conclusion

The average rural Pakistani, in general, loses out in the scheme of mega-dam projects. So who wins? The Punjabi political elite that has captured a foreign aid market for itself and First World “allies” who funnel millions of dollars towards Pakistan’s “development”. Foreign companies are another big winner in this situation, earning millions of dollars worth of contracts. Meanwhile the World Bank serves as a platform for the political and business elite of the world to capture and maintain their interests.

The interests of these elite groups are political, which in the context of the Tarbela Dam can be understood in three ways. The control over Indus Rivers through the construction of this dam was used as a political bargaining chip; as an excuse for aid-imperialism; and as a national top-down structure. The elites vested interests around the Tarbela Dam are also largely economic. The international dam industry is hugely profitable, with a value of 20 billion dollars a year. And the beneficiaries are the same everywhere, as Arundhati Roy a social activist for the most marginalized Indians states in her famous essay,

The Greater Common Good:

If you follow the trails of big dams the world over, wherever you go - China, Japan, Malaysia, Thailand, Brazil, Guatemala - you'll rub up against the same story, encounter the same actors: the Iron Triangle (dam jargon for the nexus between politicians, bureaucrats and dam construction companies), the racketeers who call themselves International Environmental Consultants (who are usually directly employed by or subsidiaries of dam builders), and, more often than not, the friendly, neighbourhood World Bank.

By working as a network to assist in each others greed for money and political power, this global elite circle creates adversity and environmental havoc for the masses, particularly for those who are politically marginalized. They disguise profit making as national development, which often comes at the cost of destruction of livelihood, homes, and a way of life of those at the very bottom.

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Chapter 4

Pension Reform in China: An Economic and Sociological Analysis Judy Qiu, Mt. Holyoke

Over recent decades, China has been recognized as the world's fastest growing economy, with annual growth rates averaging 10% (IMF, 2011). Furthermore, China is gaining attention for its rapid development and increasing potential to be a world leader. In the midst of its powerful ascent, however, old age security has become a growing socioeconomic concern in China. In particular, since the post-Maoist reform era, two interacting factors have posed a threat to the future of China's pension system. Fundamentally, its vast population is aging at a very fast pace disproportionate to the growth of its younger generation. Additionally, China's recently established National Social Security Fund suffers heavily from debt, threatening the scope of pensions that are already highly negligent towards rural and

migrant workers. In light of the rapidly aging population and looming pension-funding crisis, China faces a serious social challenge ahead on its road to economic prosperity, which may be obstructed by a nation-wide phenomenon of “Getting old before getting rich” (Wee, 2012).

Compared to other developing nations, China is aging at an alarmingly rapid rate. In 2013, just under 15% of the population will be over 60 (Hu, 2012), the current male retirement age. Furthermore, if the current trend continues, this is expected to reach 33% by 2050 (Hu). The magnitude of China’s population growth is exacerbated by its fast pace, a product of both the Maoist era baby boom and the one-child policy implemented at the start of the post-Mao period. China’s population ageing also takes place at a much lower socio-economic level than in developed countries, raising economic concerns about supporting dwindling pension funds. Pension finances already struggle to keep up with inflation and the rising wages of workers, resulting in many of the elderly being left behind (Zhao, 2009).

To tackle the pension fund debt, China established the National Social Security Fund in 2000, which aims to help solve its aging problem and serves as a reserve fund for the government to support growing social security needs. Nonetheless, this system remains heavily underfunded, with a current deficit of 18.3 trillion RMB (Wee, 2012). Currently, the funding gap in old age security expenditures is mostly covered by tax and fiscal support, which the Chinese government is trying to gradually eliminate and replace with institutional support. At the end of 2011, government fiscal subsidies for pensions had totaled to 1.25 trillion RMB (China Daily, 2012). China’s vast state-owned

assets are its best means to raise money for the fund; however, its economic structure makes it very difficult to transfer these funds. The government cannot sell state-owned shares on the market and transfer the proceeds as funding because the domestic market cannot withstand the massive sell-off pressure without triggering turbulent fluctuations (Wang, 2010). In response to these factors influencing the future of its old age security system, the Chinese government has recently announced its plan to reform the pension system, an economic action that could launch many sociological consequences with conflicting moral complications.

The primary component of China's pension system reform is raising the retirement age to 65 for men and 60 for women, a policy change that would increase the national workforce by 25% and reduce its retirees by 28% (China Daily, 2012). This would help offset China's shrinking human capital potential, as the ratio of younger workers to the elderly population declines and current workers face the challenges of producing enough to sustain the entire nation. For the Chinese government, whose priority continues to be economic development, raising the retirement age will allow it to raise spending on old age care without undermining its capacity to sustain high economic growth in the long term. Because China's economic success is largely due to its vast supply of cheap labor, the Chinese government is highly averse to its shrinking workforce and hopes that a higher retirement age will delay the growing burdens of its working population.

The extra funds generated from this policy change would also allow the government to widen the pension system to in-

clude more rural and migrant workers. This could help decrease the inequality in pension opportunities between urban and rural communities, where more than half a billion rural Chinese are not yet covered by social security (French, 2007). As well, according to current policies, pensions are highly immobile, causing many migrant workers to forego them altogether because they fear losing their entitlements when they cross provincial borders (The Economist, 2012). Moreover, in many state-owned companies, employees are allowed early retirement. Under the current age regulations, this allows some women to retire as early as age 50 (Gu, 2012), meaning they will collect pension benefits for more years than they work. This unjustly exacerbates the pension deficit, as these workers begin to collect earlier, while contributing fewer funds overall. Therefore, to the central government, many potential benefits suggest that raising the retirement age is a worthwhile and reasonable sacrifice, as China continues to struggle with the trade off between old age care and national economic growth.

The Chinese public, however, holds differing opinions about the future of their pension system. In an online survey by the People's Daily newspaper, over 93% of 450,000 respondents were opposed to raising the retirement age (China Daily, 2012). This potentially puts the government in a difficult position, as suddenly breaking a lifelong promise towards the elderly may create a large class of malcontents, adding to the government's current troubles. Some disapprove of the government's motives for increasing the retirement age, criticizing that the adjustment is fueled largely by economic incentives to reduce the state's pension subsidies. As a result, they accuse the government of failing

to fulfill its responsibility to cover the pension payment shortfall, as required by the Social Insurance Law (China Daily).

However, all elderly workers do not necessarily share this disapproval. Many teachers, doctors, and government and public employees support postponing retirement. These workers feel that, since they are in good physical condition and enjoy their jobs, it would not be a problem to extend their careers beyond the retirement age. Nonetheless, many others, who face long commutes or work in heavy-pressure industries, are still strongly opposed to prolonging their retirement.

The debate is further complicated by the nature of Chinese society's cultural expectations and values. Most of China's elderly population today grew up during the height of the Maoist era; as a result, following traditional socialist policies, many elderly citizens still expect their government and society to "take care of them from cradle to grave" (Gu, 2012). Furthermore, in Chinese culture, the elderly are to be highly respected and valued for their life experiences. As such, they are viewed as assets rather than liabilities and important role models for younger generations (Zhao, 2009). Thus, many consider it a duty and moral obligation to take good care of the elderly.

Lastly, China's pension system crisis and the government's proposed solution may have drastic consequences for future generations. The rapidly aging population, coupled with China's one child policy, has already created discernible changes in family structure. Working Chinese couples must now support four parents in addition to their own family and heavy financial burdens are falling on the next generation. Consequently, economic pressures on second and third generations of only children are

threatening the filial piety bonds of Confucianism that traditionally tied Chinese society together (Wee, 2012). Even more troubling, the government is also using payroll taxes paid by current workers to supplement pensions for their parents' generation. If the deficit crisis is not resolved soon, the younger generation, who, in theory, are paying into their own retirement accounts, may unexpectedly find themselves facing even more funding shortages in the coming decades.

At the same time, however, the government's solution of raising retirement rates might actually hinder rather than help the struggling younger generations. Approximately 30% of university graduates remain unemployed a year after entering the job market, while unemployment among non-university graduates is at least as high (French, 2007). Thus, prolonging employment for older workers could have volatile consequences for the younger generation of workers who will ultimately bear the burden of supporting them. One-third of China's annual new jobs are vacancies left by retirees (China Daily, 2012) and a delay in new workers starting their careers could create more damage than the benefit of nearly retired employees working for a few additional years.

China's rapidly aging population and old age funding deficit are its two main concerns as the central government seeks to reform its national pension program. Amidst numerous financial and structural considerations, the government must also acknowledge the moral implications of its policy revisions on all members of Chinese society, as well as the potential long-term repercussions of the system on its future generations. The future of China's pension rests on a combination of numerous

social, financial and cultural factors, all of which policymakers must take into account if they hope to maintain China's delicate balance between growing old and growing rich.

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Chapter 5

**Examining the Effects of
Changing from a Piece-Rate to an Hourly
Compensation Scheme:
The Annual Fund Cold Callers
Jonathan Berke, University of Massachusetts Amherst**

Introduction

The University of Massachusetts Amherst Annual Fund raises money for the university by hiring students to cold call alumni, parents of students, and other friends of the school. Potential donors are separated into different lists based on individual profiles (i.e., people who have never donated, people with high incomes, and people who donated the previous year). Each student worker is randomly assigned to call different lists of people during a work session with the goal of receiving as many dona-

tions as possible. Because donations fund the cost of faculty, campus upkeep, scholarships, and other endeavors beneficial to the university,¹ the Annual Fund is a vital university organization.

The Annual Fund measures success by the amount of pledge dollars received, so understanding the pay schemes that most motivate student workers is crucial. Before the fall of 2011, the Annual Fund used a piece-rate compensation scheme. A piece-rate compensation scheme is a pay schedule in which a worker is paid a base salary plus a “piece” for each unit produced or action performed. For instance, in 2011 each employee at the Annual Fund earned a base pay of \$8 an hour and received additional bonuses for receiving donations on credit cards, receiving large pledges, or meeting nightly goals. The Annual Fund’s 2011 compensation scheme is reminiscent of the piece-rate scheme Edward Lazear (1996) studied in the autoglass industry. Lazear found that a piece-rate scheme not only maximizes a worker’s output (the effort effect), but also attracts more productive workers to the firm (the sorting effect). Lazear’s piece-rate findings are reaffirmed by Shi’s research on the lumber industry (2010) as well as by Heywood, Wei, and Ye’s research on university professors (2011). These studies seem to confirm the significant effects of piece-rate schemes on worker productivity. However, the literature regarding piece-rate compensation is devoid of a calling center example, such as the Annual Fund.

Starting in the Spring of 2011 the Annual Fund changed their pay scheme from a piece-rate scheme to an hourly wage

¹<http://www.umass.edu/giving/opportunities/>

structure. Under the new compensation scheme, workers earned a base pay of \$9.25 an hour - an increase of \$1.25 an hour. However, all piece-rates and bonuses were removed. According to Sarah Sligo, the Executive Director of Annual Giving,² the compensation scheme switch aimed to create a sorting effect. In theory, offering a base pay of \$9.25 an hour - the highest student wage on campus - prompts high ability workers to apply to the Annual Fund, while simultaneously discouraging unproductive workers from applying. Assuming the sorting effect holds true, it would subsequently create an effort effect in which pledge dollars are maximized because only high ability workers are present at the firm.

There is some research done on the effects of changing from a piece-rate to an hourly compensation scheme; however, the literature does not support Sligo's assertions about creating sorting and effort effects. For instance, Freeman and Kleiner (1998) found that production declined when an unnamed shoe manufacturing company switched from piece-rate to hourly pay. However, the company saved money because both the reduction in wage costs and reduced workers' compensation claims outweighed the costs of reduced production. Although production declined as a result of the switch to hourly pay, Freeman and Kleiner (1998) factored in additional costs of piece-rate schemes - such as supervisor costs, quality control costs, and hiring costs - in order to analyze the benefits of switching to an hourly wage scheme.

I hypothesize that a change from a piece-rate compensation

²<http://www.umass.edu/giving/contact/directory/>

scheme to an hourly compensation scheme negatively affects the output of workers. I examined twenty-two call lists, each consisting of the aggregate amount of pledge dollars, call attempts, and called party responses for Spring 2011 and Spring 2012. Also included are the month-by-month totals for both springs. The Fall of 2011 is not included because the fall and spring calling periods vastly differ due to the compositions of call lists. In order to protect the confidentiality of the student callers, personal information such as major, gender, and year of graduation were not disclosed; however, the data includes the number of student callers who worked in both springs. The information provided on the sheets allows for a comparison of the effort effect, sorting effect, and tenure effect between the two springs. Through an extensive literature review, I will examine research done on compensation schemes to support my hypothesis that a change in compensation scheme from a piece-rate scheme to an hourly compensation scheme negatively affects the output of workers. Next, I will look for differences in output across all twenty-two lists between the Spring of 2011 and the Spring of 2012 for an effort effect. Because the turnover for student callers is so high between semesters, the presence of an effort effect implies a sorting effect. Essentially, if worker effort in Spring 2012 is different from worker effort in Spring 2011, it can be inferred that different ability workers were hired. Finally, I will examine the month-by-month data to see if there is a tenure effect (i.e. if workers' ability increased by learning the nuances of the job) as a result of the compensation scheme change.

Literature Review

Edward Lazear's 1996 research on Safelite Autoglass Company's compensation scheme change remains the predominant study assessing the effects of such modifications. Safelite initially paid their workers an hourly wage; however, they gradually switched all of their workers to a piece-rate scheme. Lazear tested for significant differences in worker output before and after the compensation scheme switch. More importantly, Lazear computed the optimal piece-rate that maximizes worker output and subsequently the firm's profit. He predicted three main effects: both productivity of workers and the variances between workers' productivity would increase (the effort effect), low productivity workers would leave while high productivity workers would take their place (the sorting effect), and the longer a worker receives a piece-rate the more productive he or she will be (the tenure effect).

In order to predict worker output, Lazear created a model using a dummy, or indicator, variable for the type of compensation scheme used and subsequently controlled for how long the worker functioned under the new compensation scheme. Lazear found both the effort effect and the tenure effect to be positive and significant. Not only did the piece-rate scheme incentivize workers to increase productivity, but also variance in productivity increased because high ability workers improved their efforts. The sorting effect, which tested to see if low productivity workers were replaced with high productivity workers, was also proven. Thus, high productivity workers were attracted to the firm because their effort dictated their pay, and low productiv-

ity workers left because they could not compete with the higher achieving workers.

Lazear's model also encompasses other controls - such as paid sick time - in order to measure the optimal piece-rate that dissuades workers from calling out sick. Because Safelite's piece-rate compensation scheme incentivized workers to increase output, quality control measures became necessary. For example, if a Safelite employee failed to satisfy Safelite's standards (i.e., the autoglass chipped soon after installation), the task would be randomly assigned to another worker at the firm for no piece-rate compensation. This created a peer pressure effect in which an employee's fear of being ostracized from his or her work group deterred low quality workmanship. Lazear's findings at Safelite paved the way for researchers to look for these cascading effects in other industries.

A study by Lan Shi (2010) examined the effects of piece-rate changes in the lumber industry. A group of workers at a tree-thinning company in Washington State were randomly assigned to receive piece-rate compensation instead of an hourly wage. The basis of the piece-rate scheme was to reward workers for removing "bad apples," or apples of lesser quality, from trees (Shi, 2010). Following the compensation scheme change, the company had an incentive to ensure that all of the bad apples were removed. Thus, when the company switched to a piece-rate scheme, worker productivity statistically improved, as did the variance in the worker productivity. The variance in worker productivity is expected because the effort is greater for high ability workers compared to low ability workers. Similar to Lazear, Shi tested for the optimal piece-rate the business should

pay workers in order to maximize productivity and profit.

Booth and Frank (1999) expand piece-rate literature by examining the wide scale effects of a compensation scheme change. Aside from supporting previous findings that piece-rates cause an increase in overall production (Lazear, 1996; Shi 2010), Booth and Frank found that companies and industries using piece-rate schemes attracted workers with higher “unobservable ability.” Higher unobservable ability means that these workers have a low cost of effort and will work more than a worker with a high cost of effort. Interestingly, Booth and Frank also found differences in gender responses to piece-rates. There was a 9% earnings increase for males compared to 6% for females. This seems to suggest that men respond to piece-rate schemes slightly more than women.

Heywood, Wei, and Ye (2011) found that even professors respond positively to piece-rate compensation, in which piece-rates are given for publishing research. For example, a highly ranked research university in China greatly increased their piece-rate for publishing research and tracked, with the help of Heywood et al., the subsequent publishing rate. Heywood et al. used a similar research university in China as a control group. Different academic journals were put into tiers according to prominence and assigned appropriate piece-rates. The results were both positive and extremely significant across each tier, with increases of 55% to 76% for each tier. Most of the increases were attributed to full-time professors and professors who were already research active. Besides documenting an effort effect, Heywood et al. also found evidence of a sorting effect. For instance, professors hired after the piece-rate change were found

to be more “productive” overall than the current professors.

Not all institutions find that piece-rate compensation is optimal. Freeman and Kleiner (2005) found that changing from a piece-rate compensation scheme to an hourly compensation scheme benefited a United States shoe firm. Faced with foreign competition that employed cheap labor, the US shoe firm changed its labor costs to remain profitable. Switching to an hourly compensation scheme reduced production, but firm profits improved because the reduction in wage costs offset reduced production. Freeman and Kleiner attribute this to the effects foreign competition has on domestic manufacturing industries.

Another researcher who finds support for hourly compensation schemes over piece-rate is Clemens. He focuses on the determinants of a piece-rate pay decision and argues that when output is hard to measure or there are hard to define piece-rates, industries should use an hourly compensation scheme (Clemens, 2012). Thus a piece-rate scheme is only more likely if production is dictated by endogenous factors. By using data from the Fourth European Survey on Working Conditions, Clemens controlled for such factors as workplace team pace, customer pace, target pace, automatic pace, and boss pace. He found that automated pace is not related to piece-rate schemes; however, team pace, customer pace, and target pace are. This implies that companies whose workers have more control over their production are likely to have piece-rates because the determinants of work pace are endogenous. Hence, companies whose workers have less control over their production are likely to pay with an hourly compensation scheme.

Contributions

This study adds to the preexisting literature by providing a unique example of an abrupt pay scheme change in a call center environment. It may interest non-profits or other organizations that rely heavily on donations by laying the framework for an optimal compensation scheme. Additionally, most of the compensation literature focuses on the effects of switching from an hourly wage to a piece-rate, whereas my study examines the opposite change - from a piece-rate scheme to an hourly compensation. Furthermore, this study will test if the effort effects are linear for calling centers - meaning that I will determine if going from a piece-rate to an hourly wage reduces output.

Data Analysis

The change from a piece-rate compensation scheme to an hourly compensation scheme was enacted in the fall 2011, however the fall giving period is typically not comparable to the spring period. Thus, data from Spring 2011 and Spring 2012 are used. The data was received directly from the Annual Funds records. There are 23 call lists in total: 11 from Spring 2011 and 12 from Spring 2012. The additional group from Spring 2012 is omitted from the results because there is not a corresponding control group from Spring 2011.

The list categories were as follows:

- List 2 (Second Ask): Individuals asked to be called in spring for second donation.
- List AB (Assigned Prospects): High income individuals given to the Annual Fund to call.
- List D (Donors): Individuals who give \$0-\$250 every year for under 5 years in a row.
- List F (Donor First): Individuals who gave for the first time last year.
- List G (Long Lapsed): Individuals who haven't shown support for at least 4-7 years.
- List H (Holding Poll): Individuals whom research has shown to have a high income.
- List L (Lapsed): Individuals who gave 2-3 years ago.
- List N (New): Individuals who have never shown support.
- List P (Donor Plus): Donors that give \$250-\$1000 annually.
- List R (Recent Grads): Individuals who graduated from UMass in the last 5 years.
- List S (Spring Donor): "Call only in spring" donors.

Table 5.1: Call attempts and pledges by list

List	Spring 2011 Call Attempts	Spring 2011 Pledge Amount (\$)	Spring 2012 Call Attempts	Spring 2012 Pledge Amount
2	117,679	255,700	107,782	222,044
AB	5,747	35,036	9,184	40,075
D	28,408	75,494	15,085	30,197
F	2,658	4,190	173	250
G	95,745	43,700	47,429	14,428
H	5,937	7,735	1,865	2,940
L	92,921	67,946	30,694	16,715
N	261,499	97,188	305,375	90,607
P	2,733	27,100	1,394	24,425
R	13,635	2,705	147,993	34,493
S	68,895	67,236	96,946	89,474
Total	695,857	684,030	764,190	565,648

The number of call attempts decreased for groups 2, D, F, G, H, L, and R; the amount of call attempts increased for groups AB, N, R, and S. The amount of pledge dollars decreased for groups 2, D, F, G, H, L, N, and P; the amount of pledge dollars increased for groups AB, R, and S. The total amount of call attempts increased by 68,333; however, the total amount of pledge dollars decreased by \$118,390.

Table 5.2: 2011 and 12 pledge per attempt by pay scheme

2	2.173	2.060	-5.2*
AB	6.096	4.364	-28.4*
D	2.657	2.002	-24.7*
F	1.576	1.445	-8.3*
G	.456	.304	-33.3*
H	1.303	1.576	20.952
L	.731	.545	-25.4*
N	.372	.297	-20.2*
P	9.916	17.523	76.7
R	.198	.233	17.7
S	.976	.923	-5.430*
Total	.983	.750	-24.7*

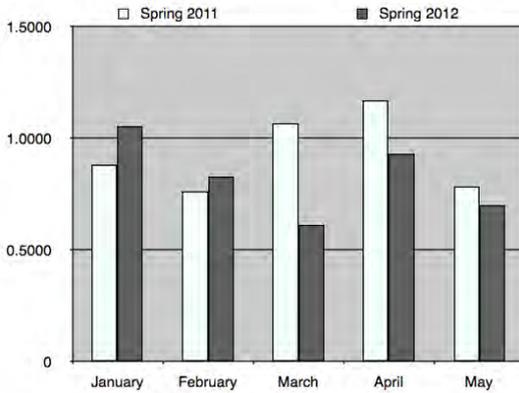
* indicates a percentage decrease in pledge per attempt

For lists 2, AB, D, F, G, N, and S the amount of pledge dollars received per call attempt decreased. For lists H, L, P, and R the amount of pledge dollars received per call attempt increased. Overall, seven out of the eleven lists decreased in pledge dollar amount per attempt, which is consistent with how much pledge dollar amount decreased overall. Additionally, the overall amount of pledge dollars per call decreased by almost twenty-five cents.

Table 5.3: Percentage changes in pledges by compensation and industry

Compensation Type	Industry	% Change
Hourly	Donation calling center	-24.7
Piece-rate	Autoglass installation	36.0
Piece-rate	Tree thinning	20.0 to 23.0
Piece-rate	Published research	50.0

Period	Days Spring 2011	Days Spring 2012	Spring '11 Pledge per Attempt	Change Previous Month %	Spring '12 Pledge per Attempt	Change Previous Month %
January	31	31	.884	-	1.056	-
February	28	29	.763	-13.7	.828	-21.6
March	31	31	1.067	39.8	.613	-25.9
April	30	30	1.168	9.5	.929	51.5
May	30	30	.784	-32.9	.699	-24.8



Discussion

The aggregate work productivity declined after the pay scheme change; thus there is evidence of both an effort effect and a sorting effect. I found that the change in incentive scheme from a piece-rate scheme to an hourly compensation scheme adversely affected pledge dollars received. For a majority of the lists, pledges per call attempt decreased after the pay scheme, as shown in Table 2. Table 1 shows that even though the amount of call attempts increased by nearly 10%, the amount of pledge dollars decreased by 17%. As expected, the amount of production, or pledge dollars per call attempt, decreased by about 25%. The decrease in production from switching to an hourly wage scheme is consistent with my hypothesis that the effort effect is

linear.

Because an effort effect was found, and only six employees out of hundreds worked both springs, a sorting effect could be inferred. The high wage with low incentive to increase worker productivity attracted lower ability student callers to the Annual Fund. As shown in Table 3, Lazear (1996) found a 36% production increase for the autoglass industry, Shi (2010) found a 20-23% production increase in the tree-thinning industry, and Heywood, Wei, & Ye (2011) found a 50% increase in research publication for professors. According to my hypothesis, the Annual Fund should have had a decrease in production similar to the amount of increase in production for other industries. This hypothesis is supported as the Annual Fund saw a 25% decrease in production.

There is no clear tenure effect from the data, meaning workers did not become more productive after each successive month. The Spring 2011 production was not linear; however, the Spring 2012 data looks more promising. After the initial month in January Spring 2012, effort decreased by 22% and 26% in the next two months respectively. Production then shot up in April but decreased in May back down towards the level seen before April. Depending on what happened in April to make production rise for that month, the prevalence of a tenure effect is inconclusive.

The factors involved in making a successful cold call are both endogenous and exogenous. For example, the student caller could be more talkative or friendly, which may incline the potential donor to give a pledge. However, the potential donor could be irritated that he or she was called at an inconvenient time or not have the money to donate, and thus not donate regardless

of the student worker's effort. According to Clemens (2012), if the factors are more endogenous there should be a piece-rate, whereas if the factors are more exogenous they should use an hourly wage scheme. Because the student workers responded so strongly to the incentive, it can thus be inferred that the determinants of a successful call (one that ends in a pledge) are mainly endogenous. The implications of this are profound. Other donation calling centers which use an hourly pay scheme because of the perceived exogeneity of factors leading to success in a cold call could drastically increase their workers' production by switching to a piece-rate scheme.

Future Work

The limitations in the data prevented more in-depth statistical analysis. With better data from the Annual Fund on the individual callers, a model could control for both the different call lists and individual worker ability:

$$\begin{aligned}
 Y = & \beta_0 + \beta_1 \textit{Gender} + \beta_2 \textit{SR} \\
 & + \beta_3 \textit{JR} + \beta_4 \textit{SOPH} + \beta_5 \textit{FRO} + \beta_6 \textit{Major} \\
 & + \beta_7 \textit{List2} + \beta_8 \textit{ListAB} + \beta_9 \textit{ListD} + \beta_{10} \textit{ListF} \quad (5.1) \\
 & + \beta_{11} \textit{ListG} + \beta_{12} \textit{ListH} + \beta_{13} \textit{ListL} + \beta_{14} \textit{ListN} \\
 & + \beta_{15} \textit{ListP} + \beta_{16} \textit{ListR} + \beta_{17} \textit{ListS} + \beta_{18} \textit{Scheme}
 \end{aligned}$$

where the dependent variable, Y , would be pledge dollars per attempt. The different call lists are controlled for by a dummy

variable, with a 1 indicating that list is being called and a 0 indicating that the list is not being called. The scheme type is also controlled for using a dummy variable, with 1 indicating an hourly wage and 0 indicating a piece-rate. Additionally, both gender and year of graduation are indicated by dummy variables. The majors would be broken down and grouped by which college they belong to. Dummy variables similar to the ones set up for lists would be used to control for colleges.

If the descriptive statistics hold true, there would be a statistically significant change in production between compensation schemes. Specifically, when all else is controlled for, production should go down by around 25%. Because this model incorporates gender, differences in how males and females respond to piece-rates could be examined. Booth and Frank (1999) found that males responded to piece-rates at a 9% level compared to 6% for females. This model would be able to expand the literature on gender differences in compensation schemes.

If the data were available for how much money each employee made under the piece-rate, I could have calculated the optimal piece-rate to award for each pledge dollar. Because the Annual Fund does not have a minimum standard for pledge amount to remain employed, the methods used in Lazear (1996) do not directly apply; however, the intuition remains similar. The Annual Fund would want to create a piece-rate that maximizes profit as well as induces low ability workers to maximize their effort. High ability workers will produce at a high level of output regardless, and the lost output from not maximizing the incentive for the high ability workers is more than counteracted by the savings to the firm.

Production was drastically reduced, but the effects on the Annual Fund's overall profits are uncertain. The research done by Freeman and Kleiner (2005) found that a shoe company saved money from switching to an hourly wage scheme from a piece-rate scheme despite the decrease in production. However, without knowing how much money the Annual Fund saved by switching to an hourly wage, no conclusions can be drawn on the profitability of this change.

Conclusions

The Annual Fund changed its compensation scheme from a piece-rate scheme to an hourly wage scheme. The rationale was that high ability workers would be attracted to a job with a high base wage. The subsequent influx of high ability workers would increase production, measured in pledge dollars per attempt. However, this was not the case. The data suggests that production decreased by nearly 25%, which means that low ability workers were attracted to the high base wage with no piece-rates, and thus productivity went down. No linear tenure effects were found, which means workers were not consistently more productive or less productive after being assimilated with the pay scheme.

The changes in output suggest that the Annual Fund workers respond best to a piece-rate compensation scheme. According to the research done by Clemens (2012), this implies that the factors of productivity are endogenous. Call donation centers or other nonprofit organizations that rely heavily on call dona-

tions could increase their profit from switching to a piece-rate. This research provides additional support that switching compensation schemes from a piece-rate to an hourly wage scheme decreases production and it paves the way for more research on incentivizing cold callers.

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Afterword

The Editorial Board

Sanjay Singh

Sanjay Singh is a senior Economics major and Aerospace Studies minor. He is a Governor of the Undergraduate Economics Club at the University of Massachusetts Amherst. He is also a staff member at the Center for Education Policy and Advocacy (CEPA), which is a student-run advocacy agency of the UMass Student Government Association. After graduation in May, he will be entering the corporate Human Resource Development Program at Liberty Mutual in Boston, MA, complementing his interests in labor economics, human resources, and industrial relations.

Thomas Peake

Thomas transferred to UMass after earning an Associate's Degree from Springfield Technical Community College in Springfield, MA. He was the 2011-2012 President of the Undergraduate Economics Club and had the privilege of working as a Research Assistant for Dr. Arindrajit Dube over the last year. Tom will be taking a consultant position at Ernst & Young after graduation. Tom spends the majority of his spare time with his pit bull Flora and his heavy metal band Krakatoa. He feels very lucky to have been a part of the UMass Economics Department at such an exciting time.

Jonathan Berke

Jonathan Berke is a junior double majoring in Economics and Psychology. He will be applying to PhD programs in Economics next fall to help him pursue various research interests around risks and incentives. In his free time, Jonathan enjoys slapping bass guitar and playing basketball.

Yazid Alfata

Yazid Alfata is a junior Political Science and Economics double major. He is a member of the International Relations and Model United Nations Club and currently serves as Research Assistant to Professor Nicholas Xenos of the Political Science Department. In the past, Yaz has worked for organizations like Human Rights Watch and MERCY Malaysia. His interests include economic and political development in peace processes and

theories of political economy. Following his graduation in May 2014, he plans to pursue a doctoral degree in Political Science concentrating in Political Theory.

Samuel Jordan

Samuel Jordan is a junior at the University of Massachusetts, and is working towards a degree in Economics, with a minor in Computer Science. He is a recent Governor Elect of the Undergraduate Economics Club at UMass, and winner of the 2013 Undergraduate Economic Debate: Developing Countries Should Prefer Open Trade Policies. Currently, Sam is employed as an Assistant Economist at Regional Economic Models, Inc. (REMI), which was founded by former University of Massachusetts Amherst professor George Treyz and specializes in economic modeling, analysis, and consulting. Sam plans to graduate in May of 2014.

The Publication Working Group**James Santucci**

James Santucci served as head of the Publication Working Group and as submissions liaison. The latter responsibility involved making an Excel spreadsheet, compulsively checking his email for a month and a half, and generally panicking about vlookup functions. The former involved trying to coordinate meeting times, giving up on that, and hoping that a few periodic emails might convince everyone else to learn publication software well

enough that he might not have to. He's hoping to go to a mathematical economics master's program as a way to fill the time between undergraduate and graduate education, as if the latter is a sure thing. Someday he hopes to do something good for someone else just to see what it feels like.

Alex Major

Alex Major is an economics and math (statistics) double major with research interests in labor economics, econometrics, and the theory of the firm. He served as a Governor of the Undergraduate Economics Club in '12-'13 and will again next year. He worked as a research assistant to Professor Marta Murray-Close in the fall of 2012, and he will spend the summer doing an internship with Collective Copies in Amherst, in completion of the Certificate in Applied Economic Research on Cooperative Enterprises. In his spare time he regales children with horror stories of data replications gone wrong, and mumbles about "institutional memory." He actually paid money for a Stata license, because he is a strong reciprocator. Everywhere he looks he sees rents.

Aaron Goslee

Aaron W. Goslee is a current undergraduate Economics major, with minors in Mathematics, Chinese, and Art History. His research interests include development economics, auction theory, and the art market.

Kurt Coleman

Kurt Coleman is an economics and communications major who works at REMI and DJs for WMUA 91.1. He is a Renaissance man, although he would never tell you himself.

The Reading Group

Maheen Iqbal

Maheen Iqbal is a senior double majoring in Public Health and Economics at the University of Massachusetts Amherst. She is currently writing a thesis on the Political Economy of Dams in Pakistan. Her most rewarding internship experiences have been with Corporate Accountability International, a non-profit based in Boston and Dubai Health Authority's Department of Health Policy and Strategy. Upon graduation, Maheen is aspiring to start her career in the non-profit/think tank sector.

Zan Yang

Zan Yang is a sophomore double major in Economics and Legal Studies. He is a first year member in Undergraduate Economics Club (UEC). As an international student from Shanghai, China, he really enjoys the wonderful experience in UEC. He loves to get involved in the discussions and share thoughts with all the amazing Econ major students. Being a member in the reading group of Massachusetts Undergraduate Journal of Economics

(MUJE) is another good opportunity for him to communicate with more students and exchange ideas.

Vickash Mohanka

Vick prefers to remain mysterious.

About this document

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bers of the Undergraduate Economics Club, a thriving student
group at UMass Amherst which organizes a variety of meetings
and events for all interested students throughout the school year.

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