The Impact of Smoking Bans on Bar and Restaurant Values

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ABSTRACT. The state of Florida implemented an indoor smoking ban in 2003 that exempted bars. Using a data set containing the sales price of bars and restaurants in Florida that spans 1999-2011, we utilize a difference-in-difference framework to examine whether or not a smoking ban impacts the value of bars and restaurants and in what direction. We find that the value of restaurants decreased following the smoking ban, while the value of bars increased. These results suggest that a smoking ban has a negative impact on a business' value. (D23, H75, I18)

I. Introduction

Since the introduction of the first indoor smoking ban in San Luis Obispo, California on August 2, 1990, indoor smoking bans have become a public policy staple in numerous states in the United States. According to the Americans for Nonsmokers Rights, twenty-four states have smoking bans that do not include exemptions for bars and restaurants. Only ten states do not impose any sort of a smoking ban.[1]

Given the widespread prevalence of smoking bans, it is of interest to examine the impact they have on bars and restaurants. In particular, we examine the impact that smoking bans have on the valuation of bars and restaurants that are covered by a smoking ban, with valuation operationalized as the sale price of the bar or restaurant when it changes hands. Alamar and Glantz (2004, henceforth "AG") argue that smoking bans increase the value of restaurants. They argue that revenues will either remain unchanged or rise, as consumers frequent restaurants more because they are smoke free. Costs should also fall as employees take

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fewer sick days and capital needs to be replaced less frequently due to reduced smoke damage. Indeed AG, using a data set containing the sales prices of restaurants from across the United States, find that a smoking ban increases a restaurant's value. Other studies, however, such as Pakko (2008a and 2008b) find the opposite effect. He finds that sales revenues fall as consumers who prefer an environment that allows smoking go to the smoke-free businesses less, and this is not compensated by nonsmoking consumers going to the businesses more. It seems likely that lower sales revenues would translate into a lower sales price when the business is sold.

We utilize data on the sales prices of 1,015 bars and restaurants in the state of Florida from 1999-2011 as collected by the Biz Comps database, which is the same data source as in AG. Florida implemented a smoking ban in 2003, but exempted bars from the ban. This presents a nice framework to investigate the impact of a smoking ban on a bar or restaurant's value using a difference-in-difference framework, which allows us to see the effect of the smoking ban on the treatment group, relative to the control group. If a smoking ban increases a business's value, we should find that the sales price of bars falls relative to restaurants, following the imposition of Florida's smoking ban. If, on the other hand, a smoking ban decreases a business's value, we should find the opposite effect, with the value of bars rising relative to restaurants, as bars were exempt from Florida's smoking ban.

We find the smoking ban reduced the value of restaurants and increased the value of bars. These results suggest that a segment of the public that goes to bars and restaurants has a preference for being able to smoke in these places, and the restaurant covered by a smoking ban suffered a loss of profitability by not being able to serve this segment of the market.

Section II surveys the previous literature that examines smoking bans. Section III describes the data. Section IV describes the econometric model. Section V presents the results, and Section VI concludes.

II. Previous Literature

Research on the economic impact of smoking bans address two general research questions. First, how does a bar or restaurant accommodate smokers and nonsmokers absent a smoking ban? Second, if a smoking ban is put into place, does the ban help or harm the bar or restaurant

covered by it?

Survey data is used to address the first research question. Boyes and Marlow (1996) surveyed 64 bars and restaurants in San Luis Obispo, California in 1992 to see how they accommodated smokers and nonsmokers absent a smoking ban. They found that 61% of bars and restaurants surveyed attempted to reduce smoke through smoking and nonsmoking sections, ventilation, the use of a patio, and/or other means. The authors also found that 57% of bars and restaurants felt no impact from the smoking ban, while 25% reported a negative impact and 17% reported a positive impact.

Dunham and Marlow (2000a) use a 1996 nationwide survey of 650 bars and 650 restaurants by the National Licensed Beverage Association to examine what determines the seating allocation in smoking versus nonsmoking sections. The authors find that smoking laws are not a statistically significant predictor of the fraction of seats in a bar or restaurant that are designated as nonsmoking. States with such laws already had fewer smokers and hence a larger demand for nonsmoking sections prior to the law. Instead, the authors found that the size of the smoking and nonsmoking sections depended on the incidence of smoking in the state where the business is located, whether the business was part of a national chain, and whether or not the business was a bar. The authors argue that consumer preferences shape the size of smoking and nonsmoking sections as businesses cater to these preferences. Dunham and Marlow (2004) found very similar results in a 2001 survey of 1,000 bars and restaurants in Wisconsin.

Biehl and Douglas (2011) surveyed 125 restaurants in Genesee County, Michigan. This survey was conducted prior to Michigan's smoking ban being implemented in order to see how bars and restaurants accommodated smokers and nonsmokers absent a ban. The authors found that restaurants accommodated nonsmokers simply by banning smoking, while bars accommodated nonsmokers by restricting smoking to the bar-area of the establishment or in a separate room. Just under half of bar owners were supportive of Michigan's proposed smoking ban, while nearly 70% of restaurant owners were supportive of the ban.

The second research question – whether a smoking ban is beneficial or detrimental to a bar or restaurant – has received more attention from researchers. Perhaps the first paper addressing this question is Glantz and Smith (1994). Using data spanning 1986-1993 that includes 15 California cities that had a smoking ban and 15 that did not, the authors

find that a smoking ban did not lower restaurant sales as a proportion of total retail sales for a given city. The authors argue this is evidence that a smoking ban does not adversely impact restaurants. This result was questioned by Evans (1997). He argues that Glanz and Smith (1994) ignored the fact that 14 out of the 15 cities with smoking bans also exempted free-standing bars, bar areas of restaurants and cocktail lounges, patios, and separately ventilated and enclosed smoking rooms from their smoking bans. Evans (1997) also alleges that Glantz and Smith (1994) misclassified 8 out of the 15 cities without smoking bans. When he addresses this issues, Evans (1997) finds that a smoking ban resulted in a 5% decline in restaurant sales.

In a series of papers, Pakko (2006, 2008a, and 2008b) finds that a smoking ban either harms a business (Pakko 2008a and 2008b) or has so many exemptions that it has no effect on a business (Pakko 2006). Pakko (2008a) uses monthly sales tax receipts from 2001-2007 for the city of Columbia, Missouri to investigate the impact of the city's smoking ban, which took effect January, 2007. The author found a 5% average loss in sales tax revenue following the smoking ban, despite there being no change in the sales tax rate at that time. Pakko (2008b) uses monthly net proceeds from Delaware's "racinos" (a combination of a casino and horse race track) from 1997-2005 to examine the impact of the state's 2002 smoking ban on these businesses. The author finds that a smoking ban resulted in an average revenue decline of 14.9% at the racinos, costing the state $33 million in foregone tax revenues annually.

Pakko (2006) uses quarterly sales tax data for Maryville, Missouri from 1998-2004 to investigate the city's smoking ban, which took effect on June 9, 2003. The author cites a study from the Missouri Department of Health and Senior Services (DHSS) that found that bar and restaurant sales increased, following the smoking ban. Pakko (2006) finds that this increase stems from the opening of a very popular Applebee's that occurred around the same time. Taking out this effect, the author finds no impact of the smoking ban on bar or restaurant sales. The likely explanation is that the city's smoking ban exempts stand-alone bars, any business that receives more than 60% of its revenue from alcohol sales, and in fact exempts seven establishments by name. At the time the ban was implemented, 70% of restaurants in Maryville were already smoke free.

Adams and Cotti (2007) used nationwide, county-level data from the Quarterly Census of Employment and Wages from 2001-2004 to

investigate the impact of a smoking ban on bar and restaurant employment. The authors find that in counties with an average smoking prevalence, bars see a 7.1% reduction in employment while restaurants have no statistically significant change in employment.

Alamar and Glantz ("AG," 2004) find that a smoking ban increases the sales price, or value of a restaurant when it is sold. Using a dataset of 608 restaurants across the United States spanning 1991-2002, the authors find that restaurants covered by a smoking ban are worth an average of 16% more than restaurants that are not. The authors operationalize a restaurant's value as the ratio of its price when it sold to its gross establishment sales, or *P/S*. In other words, a smoking ban is associated with a 16% higher *P/S* for a restaurant. They do conduct an analysis for bars and find that a smoking ban increases bar values as well. However, their sample includes only 78 bars and just 5 of them are covered by a smoking ban. As a result, the authors state that their results regarding bars "should only be considered preliminary" (p. 524).

Our paper extends AG's in several respects. First, they conduct their main analysis excluding bars whereas our dataset includes data on 131 bars. Second, AG does not employ a before-and-after study to investigate how restaurant sales prices change following a smoking ban being implemented. Instead, what the authors find is that, ceteris paribus, P/S is larger for restaurants covered by a smoking ban. It could be that a smoking ban forced less profitable restaurants out-of-business. Or, smoking bans may be endogenous in that they are only implemented in areas with profitable restaurants or where few people smoke anyway, and thus are unlikely to result in financial hardship. In contrast, we utilize a difference-in-difference methodology, which allows us to see the differential effect before and after a policy change for the treatment group relative to the control group. In this case, we can see the ceteris paribus valuation of restaurants (our treatment group) before and after 2003, and see how that compares to the change in bar valuations (our control group) over the same time.[2]

Finally, AG divide sales price and seller's discretionary earnings (or *SDE*, which is roughly pre-tax profit, which is used as a control variable in their regression) by total restaurant sales to control for differences in restaurant sizes.[3] However, it cannot be determined if the positive and statistically significant estimated coefficient on the smoking ban dummy variable in their regression means that *P/S* increased because *P* increased or *S* decreased. This is problematic because the former and latter have

opposite implications for the effect a smoking ban has on a restaurant's value.[4] We instead include a quadratic term for *SDE* as a control variable. This allows *SDE* to have a diminishing impact on the sales price of a bar or restaurant, should *P* not increase in a linear fashion with *SDE*.

III. Data

Data for the sales price of 1,015 bars and restaurants in the state of Florida spanning the time period 1999-2011 were purchased from the Biz Comps database.[5] Biz Comps provides the sales prices of businesses across various SIC codes. The database is used by the real estate industry for the purposes of establishing "comparables" in real estate transactions.[6] This is also the source of data employed by AG.

We downloaded sales data for businesses with SIC code 5812 ("Eating Places") and SIC code 5813 ("Drinking Places") from the Biz Comps database. In addition to the sales data, the Biz Comps database also contains data on seller's discretionary earnings (SDE). SDE is defined by Bizcomps as a business' net profit before taxes and any compensation to the business owner is paid, plus amortization, depreciation, interest, and other non-cash and non-business related expenses. The SDE provided by BizComps assumes one owner.[7] Businesses with SIC code 5813 were classified as bars while businesses with SIC code 5812 were classified as restaurants in our data set. We classified individual restaurants as being either a family restaurant, an ethnic restaurant, a take-out restaurant, fast food, or coffee shop based on the name of the restaurant provided by Biz Comps. Given they have limited (if any) indoor seating, take-out restaurants were dropped from the analysis. In order to control for business cycle conditions that might impact the bar or restaurant's sales price, we also obtained data on the average weekly wage and unemployment rate during the month that the bar or restaurant was sold. We converted all prices to real terms using the consumer price index so that all prices are in constant December, 2011 dollars.

Table 1 presents summary statistics for all of the bars and restaurants in the data set. Summary statistics include the mean, standard deviation, minimum, and maximum values for all variables in the data set. An establishment sold for an average of just under $200 thousand with an average SDE of $126 thousand. "Income" (which is the average weekly

wage) is, on average, $808.52 while the average income growth rate, defined as the year-to-year percentage change in income, is 3.3%. In the data set, 13%, or 131 out of 1015, of the observations are bars as defined by the SIC code. In terms of restaurants, 21% are fast food restaurants while 30% are family restaurants. Note from the table that bar and restaurant transactions are fairly evenly spaced throughout the data set, given that the data spans 1999-2011. Twenty-five percent of the transactions took place prior to 2003, 51.7% of transactions took place after 2003, while 10% of transactions took place in 2003. Thus, the sale of these businesses are not clumped together before or after the smoking ban in 2003.

TABLE 1–Summary Statistics

Variable	Mean	Standard Deviation	Min	Max
Price (thousands of $)	$199.99	$168.67	$10.27	$1,457.10
SDE (thousands of $)	$126.89	$269.29	-$16.60	$6,915.79
Income	$808.52	$34.88	$661.72	$903.38
Income growth rate	3.30%	2.89%	-15.02%	11.53%
Unemployment rate	5.47%	2.14%	3.30%	11.40%
Bar	0.13	0.34	0	1
Fast Food	0.21	0.41	0	1
Family	0.30	0.46	0	1
Percentage of transactions				
Before 2003	25%			
In 2003	10%			
After 2003	51.7%			
Observations	1015			

IV. Econometric Model

As discussed in the previous section, the data set we utilize spans 1999-2011 and contains the sales price of bars and restaurants for the State of Florida for when these businesses changed hands. The smoking ban in Florida took effect in 2003 and provided an exemption for bars. These two characteristics of Florida's smoking ban allows us to employ a difference-in-difference framework in testing whether a smoking ban increases or decreases a bar or restaurant's value. Difference-in-difference estimation allows us to see the differential effect before and after a policy change for both treatment and control groups. In this case, we can see the ceteris paribus valuation of restaurants (our treatment group) before and after 2003, and see how that compares to the change in bar valuations (our control group) over the same time.

Define *ban* as a dummy variable equal to unity if the year is 2003 or beyond, and zero otherwise. Define *bar* as a dummy variable equal to unity if an observation in the data set is a bar (SIC 5813 classified business), and zero otherwise. Define *P* as the sale price of the bar or restaurant. The difference-in-difference estimation would then estimate the following equation for the state of Florida:

$$P = \beta_0 + \delta_0 ban + \delta_1 ban \times bar + \beta_1 bar + \beta_2 SDE + \beta_3 SDE^2 + \beta_4 avweeklywage + \beta_5 avweeklywagegrowthrate + \beta_6 umemployment + \beta_7 fastfood + \beta_8 family + \beta_9 time + u \quad (1)$$

The parameter of interest in equation (1) is δ_1, which is the difference-in-difference parameter that measures the impact of the smoking ban on bars relative to restaurants, following the policy change. Since bars are exempt from Florida's smoking ban, the AG result would predict $\delta_1<0$. That is, if a smoking ban increases a bar or restaurant's value, the fact that bars are exempt from the smoking ban should cause their value to decrease. On the other hand, if a smoking ban reduces a bar or restaurant's value, perhaps because the business can no longer cater to its smoking customers, then we would expect $\delta_1>0$. In other words, being exempt from a smoking ban would increase the bar's value.

Economic control variables in equation (1) include *averageweeklywage*, which is the average weekly wage in Florida during the month the bar or restaurant was sold, *avweeklywagegrowthrate* which

is the year-to-year growth rate of the average weekly wage, *unemployment*, which is the unemployment rate in Florida during the month the bar or restaurant was sold. A person's average weekly wage likely determines how much he or she can afford to go out to dine or drink in a given week. Likewise, a higher unemployment rate should lead to fewer people going out to eat or drink, which would depress bar or restaurant values. Following AG, for restaurants in the data set, *fastfood*, is a dummy variable taking the value of unity if the restaurant is a fast food restaurant, *family* is a dummy variable taking the value of unity if the establishment is a family restaurant. The dummy variable *time* consists of yearly dummy variables for all observations in the data set.

Similar to Graham (1997), it is apparent that there is an issue with equation (1) in that SDE and the other economic control variables are linearly correlated. A smoking ban is alleged to increase a bar or restaurant's value in-part because the impact it has on the bar or restaurant's profit. As argued by AG, additional customers attracted by the smoke-free policy result in additional revenues and hence profit for the bar or restaurant, and thus a higher sale price when the business is sold. If this is the case, then it would not make sense to estimate equation (1) as written. The estimated coefficient on the smoking ban dummy variable in equation (1) would be interpreted as the partial effect of a smoking ban on a bar or restaurant's sales price, holding profit (or *SDE*) constant. This is inconsistent with how a smoking ban is hypothesized to increase a bar or restaurant's value.

The same is true regarding the economic control variables in equation (1). The impact of economic variables such as the average weekly wage and unemployment rate will fall on a bar or restaurant's profit, as these economic control variables determine how often people go out to eat or drink, which then impacts the bar or restaurant's price when it is sold. For instance, higher weekly wage would induce people to go out to eat or drink more, which would increase a bar or restaurant's profit, which would then increase a bar or restaurant's price when it is sold. In equation (1), the interpretation of estimated coefficients on the economic control variables would be the partial effect of these variables on a bar or restaurant's sales price, holding profit (or SDE) constant. For example, the estimated coefficient on the average weekly wage would be the partial effect of the average weekly wage on a bar or restaurant's sales price, holding profit constant. This is inconsistent with how the average weekly wage would impact a bar or restaurant's sales price.

Following Graham (1997), we employ the following procedure to correct for this issue. First, we regress *SDE* on all the other control variables in equation (1):

$$SDE = \beta_0 + \beta_1 ban + \beta_2 bar + \beta_3 ban \times bar + \beta_4 avweeklywage + \beta_5 avweeklywagegrowthrate + \beta_6 umemployment + \beta_7 fastfood + \beta_8 family + \beta_9 time + u \quad (2)$$

Second, we gather the residuals from equation (2), defined as *SDEresid*. *SDEresid* are thus the bar or restaurant's profit not explained by the average weekly wage (or growth rate of), the unemployment rate, whether (in the case of restaurants) the restaurant is a fast food or family restaurant, or the passage of time. We then replace *SDE* and SDE^2 with *SDEresid* and $SDEresid^2$ in equation (1):

$$P = \beta_0 + \delta_0 ban + \delta_1 ban \times bar + \beta_1 bar + \beta_2 SDEresid + \beta_3 SDEresid^2 + \beta_4 avweeklywage + \beta_5 avweeklywagegrowthrate + \beta_6 umemployment + \beta_7 fastfood + \beta_8 family + \beta_9 time + u \quad (3)$$

The estimated coefficient on, say, the average weekly wage no longer has the interpretation of being the partial effect of the average weekly wage on the sale price of the bar or restaurant, holding profit (*SDE*) constant. The variable *SDEresid* is orthogonal to these other variables as a consequence of equation (2). That is, the interpretation of *SDEresid* is the bar or restaurant's profit not explained by whether or not the bar or restaurant is covered by a smoking ban, the average weekly wage rate and unemployment rate, and so forth.

V. Results

Table 2 presents the results of our difference-in-difference estimation given by equation (3). The difference-in-difference parameter, which is the estimated coefficient on *banxbar*, suggests that bars saw an average increase of $149 thousand in their sales price following the implementation of the smoking ban, relative to restaurants. The smoking ban resulted in a $76 thousand reduction in overall business value (as coefficient on the "ban" dummy variable is 75.65 and significant at the 1% level). Thus bars saw, on average, a $73 thousand increase in value following the smoking ban being enacted. Prior to the smoking ban, there

was no statistically significant difference in the sales price of bars compared to restaurants (the estimated coefficient on the *bar* dummy variable is insignificant).

TABLE 2–Difference-in-Difference Results

Variable	Coefficient
ban	-75.65** (18.01)
banxbar	149.02** (25.69)
bar	32.89 (18.02)
SDEresid	1.26** (0.2604)
$SDEresid^2$	-0.000203** (0.0000364)
weekly wage	0.426** (0.129)
weekly wage growth rate	-1.76 (1.47)
unemployment	-22.96** (3.56)
fast food	-8.51 (10.44)
family	14.76 (10.71)
time	17.95** (3.83)
constant	-71.20 (92.86)
R^2 = 0.4949 **N = 1,015**	

Notes: "**" denotes statistically significant at the 1% level, "*" denotes statistically significant at the 5% level. Heteroscedasticity robust standard errors in parenthesis.

Given that the smoking ban implemented in 2003 applied to only restaurants and not bars, these results are suggestive that smoking bans harm, rather than help, businesses covered by them. These results are similar to those in Pakko (2008a and 2008b) who finds that a smoking ban is associated with decreased sales tax revenue, stemming from a loss of sales revenues at businesses covered by a smoking ban. Though Pakko (2008a and 2008b) looks at sales revenue rather than the sales price of a business, it seems likely that lower sales revenue will translate into a lower sales price when the business is sold.

The results of equation (3) also suggest that a $1 thousand rise in SDE increases a bar or restaurant's sales price by $1.26 thousand, though this effect diminishes as the estimated coefficient on the square of SDE is negative and significant at the 1% level. A 1 percentage point increase in the unemployment rate reduces a bar or restaurant's value by approximately $23 thousand. The coefficient on the time trend variable ("time") suggests that each additional year results an increase of bar or restaurant values by about $18 thousand, holding all other variables in equation (3) constant.

These results stand in contrast to those found by AG. Their results suggest that a smoking ban increases the value of restaurants and bars (albeit with a very small sample size in the case of the latter). Our difference-in-difference estimation suggests that a smoking ban negatively impacts a restaurant's sales price. This can be seen from the negative and statistically significant estimated coefficient on the ban dummy variable (*ban*) as well as the positive and statistically significant difference-in-difference parameter. If a smoking ban increased a restaurant's sales price, then we would expect a positive coefficient on *ban* (that is, a smoking ban would be associated with an across-the-board increase in bar and restaurant values) and a negative coefficient on *banxbar* (being exempt from a smoking ban harms bars).

Our results are in line with studies that find that bars and restaurants are able to accommodate both smoking and nonsmoking customers privately absent a smoking ban. Dunham and Marlow (2000a and 2000b) find that consumer characteristics such as the percentage of smokers in the adult population and whether or not an business is a bar impact the size of the nonsmoking section in the bar or restaurant. Dunham and Marlow (2004) finds that the quantity of smoking and nonsmoking seats are related to the demographics of the consumers they serve. For instance, bars and restaurants catering to a white collar clientele and to

families with children tend to allocate a greater proportion of their seats to nonsmokers while bars and restaurants that hold liquor licenses allocate some of their seats to nonsmokers. Likewise, Biehl and Douglas (2011) find bars and restaurants take numerous steps to keep smokers away from nonsmokers, such as restricting smoking to a separate room away from nonsmokers.

These results, along with the results of the current paper, suggest that a segment of the population that goes to bars and restaurants has a taste for being able to smoke indoors, and bars and restaurants suffer if they are unable to cater towards this segment of the market. The rise in the value of bars in Florida that are exempt from the smoking ban suggests that an exemption from the ban gives these bars increased market power over this particular market segment, which gets reflected in a higher sale price.

It is true that on one hand, this differential effect would be absent if smoking was banned in both bars and restaurants as bars no longer act as substitutes for restaurants for smokers. On the other hand, other substitutes might become available. These might include simply eating or drinking at home or in bars which elect to pay fines rather than abide by the ban. Marlow (2010) found widespread noncompliance by bars after Ohio's smoking ban was implemented in 2007, as Ohio's smoking ban provided no exemption for any business open to the public. If a bar's customers are less likely to turn it in for noncompliance with the smoking ban than a restaurant's, a bar might simply flaunt the law and the differential effect might still be present.

VI. Conclusion

This paper utilized a dataset consisting of sales prices of bars and restaurants to investigate whether a smoking ban impacts a bar or restaurants valuation and in what direction. We find that a smoking ban reduces the value of bars and restaurants, as those that are covered by a smoking ban see their value fall by $75 thousand on average (Table 2). Yet, those that are exempt from smoking bans see their value increase by nearly $73 thousand, on average. This is consistent with the idea that a segment of the public has preferences towards indoor smoking and places suffer a loss of value when they cannot cater to this market segment.

Previous studies in the literature have found similar results. Boyes and Marlow (1996) found that smokers were much less likely to be

supportive of a smoking ban than nonsmokers. Pakko (2008a and 2008b) found a decrease in sales tax revenues in restaurants in Columbia, Missouri and racinos in Deleware after these businesses were covered by a smoking ban. Adams and Cotti (2007) found a statistically significant decrease in employment in bars after these businesses are covered by smoking bans.

It is important to note that this paper does not address the normative question as to whether or not smoking bans are good public policy. When conducting cost-benefit public policy analysis, it is important to correctly specify the costs and benefits of the policy. This paper reinforces the emerging consensus in the smoking ban literature that the impact of smoking bans on bars and restaurants should fall on the cost side of the ledger.

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Endnotes

1. See, http://www.no-smoke.org/pdf/WRBLawsMap.pdf
2. See Ashenfelter and Card (1985) for one of the first uses of difference-in-difference methodology
3. See page 522 of Alamar and Glantz (2004)
4. See Henderson (2007) for a detailed critique of the AG methodology.
5. See, http://www.bvmarketdata.com/defaulttextonly.asp?f=BIZCOMPS%20-%20Main%20Street%20Business%20Private%20Transactions
6. The database contains the state the business was located in when it was sold, but not more specific locational data such as city or zip code.
7. See, http://bizcomps.com/definitons/