Using Area Characteristics to Model Nonresponse in the Current Employment Statistics Survey

John Dixon[1]

Abstract

Previous research has found a relationship between characteristics of an establishment, such as firm size, and nonresponse. To build on this, I incorporated information about the establishment's geographic area in models to explore response patterns in the Current Employment Statistics Survey (CES). Area information is known to have an impact on employment levels; for example, education level of the local population may limit employment which may lead to establishments being less likely to respond to the CES. Using information from the Census planning database, I added characteristics about the establishment's area, such as age, education, unemployment rate, to other information known about the establishment from the Quarterly Census of Employment and Wages (QCEW). I assigned a code to each establishment to indicate what cultural area they belonged to based on the American Nations model (Woodward, 2011). Building a model with area, establishment and cultural characteristics, I explored patterns in nonresponse and late responding.

Key Words: Area characteristics, establishment characteristics, regional culture, nonresponse

1. Introduction

The Current Employment Statistics Survey (CES) collects employment, hours, and earnings monthly from a current sample based on approximately 651,000 businesses and government agencies. The survey tracks the net gains and losses in jobs in various sectors of the economy. Late reporting in the CES occurs when an establishment doesn't provide data for the survey in time for the publication of the initial estimates. This can lead to bias if the estimates including the late reporters would differ from the estimates without them. Although the first estimates do not contain the late reports, they are included in subsequent estimates. The difference between

[1]Bureau of Labor Statistics, 2 Massachusetts Ave, NE, DC, 20212 dixon.john@bls.gov

the first estimates and the later estimates are called revisions. Large revisions are of concern to economists when they change the interpretation of labor trends in the economy. Nonresponse occurs when an establishment fails to respond to the survey at all. Nonresponse can also lead to bias in the estimates if the nonresponders are different from the responders, but nonresponse does not affect revisions since the data are never reported. CES estimates are adjusted for the missing reports prior to publication.

This paper considers the possible relationships that area characteristics for establishments have on late responders and nonresponders to the CES. Nonresponders and late responders are combined for this paper. Using information from the Census planning database, I added characteristics about the establishment's area, such as age, education, unemployment rate, to other information known about the establishment from the Quarterly Census of Employment and Wages (QCEW). An additional model using regions of the U.S. base on cultural areas from the American Nations model (Woodward, 2011). Woodward used history and political characteristics to identify regions with distinct cultures. For detailed descriptions of regions see Appendix A.

Building models with both area, establishment characteristics, and cultural regions, I explored patterns in nonresponse and late responding. Logistic regression is used to estimate the relationship between the size of firm, area demographic characteristics, regional cultural characteristics and nonresponse. Results are presented overall and by industry. These results could be helpful in understanding the differences between responders and nonresponders.

2. Data

The data used in this paper are from the 2010-2014 CES (n=400,000), with establishment characteristics from the Quarterly Census of Employment and Wages (QCEW). The QCEW serves as both the sampling frame and as the source of benchmark employment for the CES. For this study the establishment size is taken from the QCEW, and the response/nonresponse indicator is taken from the CES. Only establishments selected for the CES are included in the study.

I then merged the CES data, with QCEW establishment size with the Census planning database to pull in characteristics of households in the area around the establishment. The physical address of the establishment (from the QCEW), was used to match up with the Census planning database. The areas in the Census Planning Database are based on metropolitan statistical area and county. From the Census planning database I used the number in each demographic group (for example the number of Hispanics), but in logistic models, they may be interpreted as proportions when the total population is included in the model. This may relate to employee characteristics needed by the establishment (Total population for area, Age groupings for area, Hispanic population, Race (White), College educated, Unemployment, Household size, and Housing units). The characteristics of the potential employee pool may effect employees who may effect response.

A limitation is that the area demographic characteristics are related to the establishments' physical address, which may or may not correspond to the location of the respondent (e.g., a multi-unit company may send all surveys to their headquarters in a different part of the country).

To add additional information about the establishment's area, I added the cultural regions Woodward described in a historical/political context (American Nations, 2011). Figure 1 shows the areas of different historical and political cultures as defined in American Nations.

The idea is that cultural differences may contribute to differences in responding to the CES. For example, the "Tidewater" region, which included New Orleans may have a different response to government surveys than the "Far West" region, due to their history and political climate. The American Nations study is an anthropological typology of the United States based on historical and political differences. The cultural categories were merged with the CES data based on county, giving each establishment a cultural area assignment. This study will explore whether establishments within different areas have different response rates.

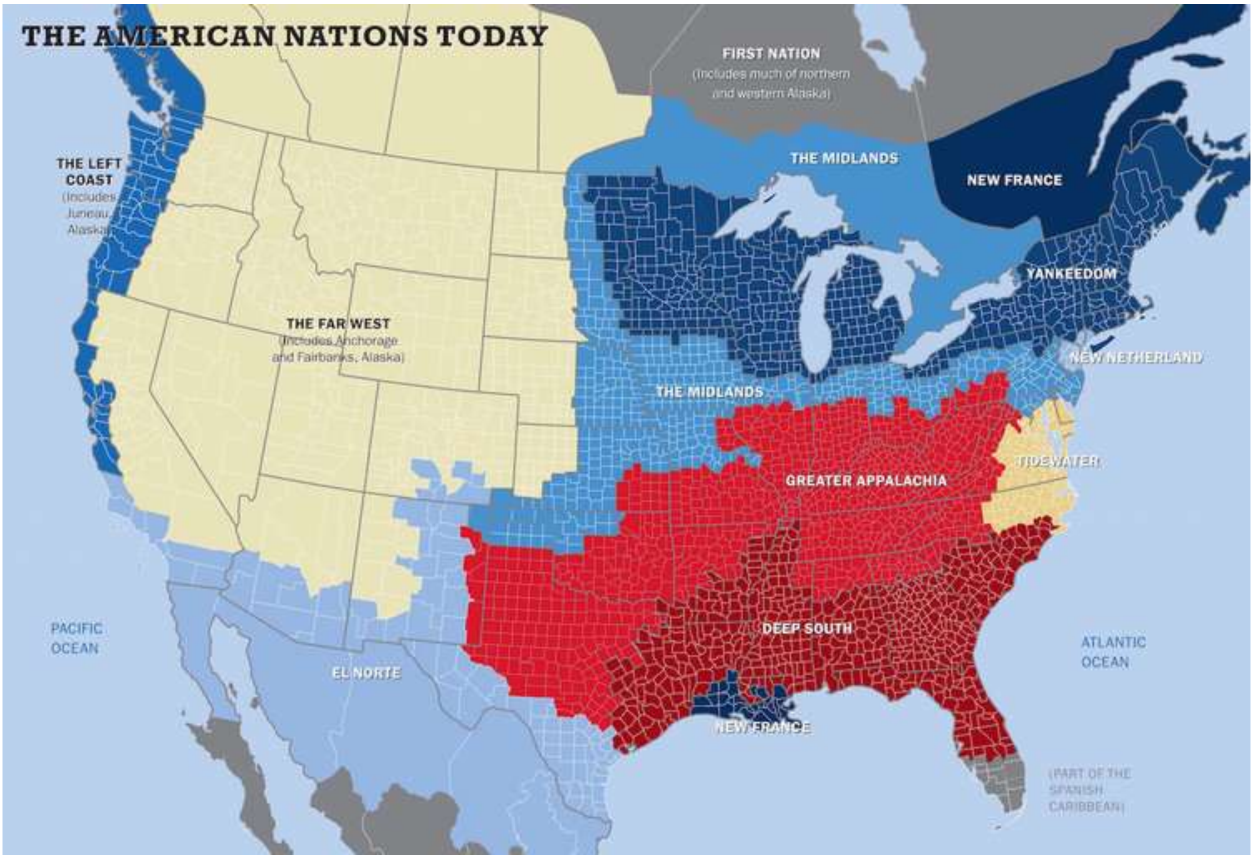

Figure 1: Cultural differences between regions.

3. Previous Research

Groen and colleagues (2013) found little difference in nonresponse rates over size of firm except for the largest size groups, which had higher nonresponse. Huff and Gershunskaya (2009) found nonresponse bias varied by year and industry, but the nonresponse bias was small. Other studies found that the largest firms had a higher late reporting rate (Copeland, 2003 &2007; Robertson 2013). I haven't found any studies which included area characteristics in an analysis of nonresponse.

4. Methods

Four models were used, each with CES response/nonresponse as the dependent variable. A main effects model, where the predictors of nonresponse are NAICS category, Establishment size, and

Area demographic characteristics (described above). The second model added interactions between the area characteristics and establishment size to the first model. The third model added interactions with NAICS categories and area characteristics to the predictors in the second model. This produced a very large model. When I attempted to add the American Nations regional categories there were collinearity problems, so a fourth model was created with only the NAICS codes, the American Nations region categories, and their interactions.

4. Results

All four models had low relationships for nonresponse. The first model which only included main effects had an R-square of .0882. The second model which added interactions between demographics had an R-square of .0884. The third model, which included interactions with industries had an R-square of .0974. Since those three models expand on the interactions based on the first model, the improvements in fit were very small. The fourth model, which had the cultural regions and interactions with industries had an R-square of .0815. Although the relationships were small, there were some interesting findings when looking at demographics based on area characteristics and regions based on regional culture. For all models, the strongest effect by far was for industry size. That was consistent with previous research.

Listings for the estimates of the various models (SAS PROC LOGISTIC) can be found in the Appendix B (for area based demographics) and Appendix C (for regions based on culture). For the main effects model (columns 3-5 in Appendix B), there was an increased likelihood of nonresponse for: increasing establishment size, a higher number of young (15-24) people, a higher number of Hispanic people, a higher number of college-educated people, a higher number of unemployed people, larger household size, and more housing units. Lower likelihood of nonresponse was found for; higher population density, a higher number of middle-age (25-44) people, a higher number of older (45-64) people, and a higher number of White people.

For the second model (shown in columns 6-8 in Appendix B), interactions between main effects were found between establishment size and several area characteristics. The increased likelihood of nonresponse for larger establishments turns negative when there are more young and middle-aged persons in the area relative to older persons, as well as more housing units. The increased likelihood of nonresponse for larger establishments was moderated when more Hispanics, Whites, college educated, unemployed, or larger household sizes were in the area, but the coefficient remained positive.

	White	College	18-	25-	45-	Hisp.	Unemp	HH	Housing
Agriculture					+				
Mining					+				
Utilities	+			+		-			
Construction	+	+		-		+			
Food Manuf.	+			+					
Wood/Mineral	+								
Metal Manuf.	+		-						
Wholesale	+	+							-
Retail	-	-		-	+	-	+	-	
Transport.		-							-
Information	+	+	+	+		+	-	-	
Finance	+				+		-	-	
Real Estate	+		-			+			-
Professional	+		-	-				+	
Management		+							
Administ.	+	-	-						
Education	-	+				-	-		
Health		+		-					-
Arts									
Accomodat.	+	+	-		-	+			-
Other	+	+		-				+	

Figure 2; NAICS interactions with area characteristics.

The third model (columns 9-11 in Appendix B) found many interactions between NAICS industry codes and area characteristics. The model didn't show any clear patterns. Figure 2 shows a graphical summary of the interactions, with red indicating an increased likelihood of nonresponse, and green indicating a decreased likelihood of nonresponse. We can see that areas with high proportions of Whites are generally more likely to have nonresponse across many industries while areas with more Homeowners were less likely to have nonresponse.

There weren't any clear patterns by industry and area demographic characteristics, the effects of the interaction varied across the levels of the variables   For example, I can see that being in Agriculture and Mining increased the likelihood of nonresponse with more older people in the area, but there were no other demographics that had an effect on these industries. I don't understand the dynamics that would produce this effect for this industry but not other industries. Similarly, the Utilities industry had an increased the likelihood of nonresponse in areas with more Whites, middle-aged people, but a decreased likelihood in areas with more Hispanics.

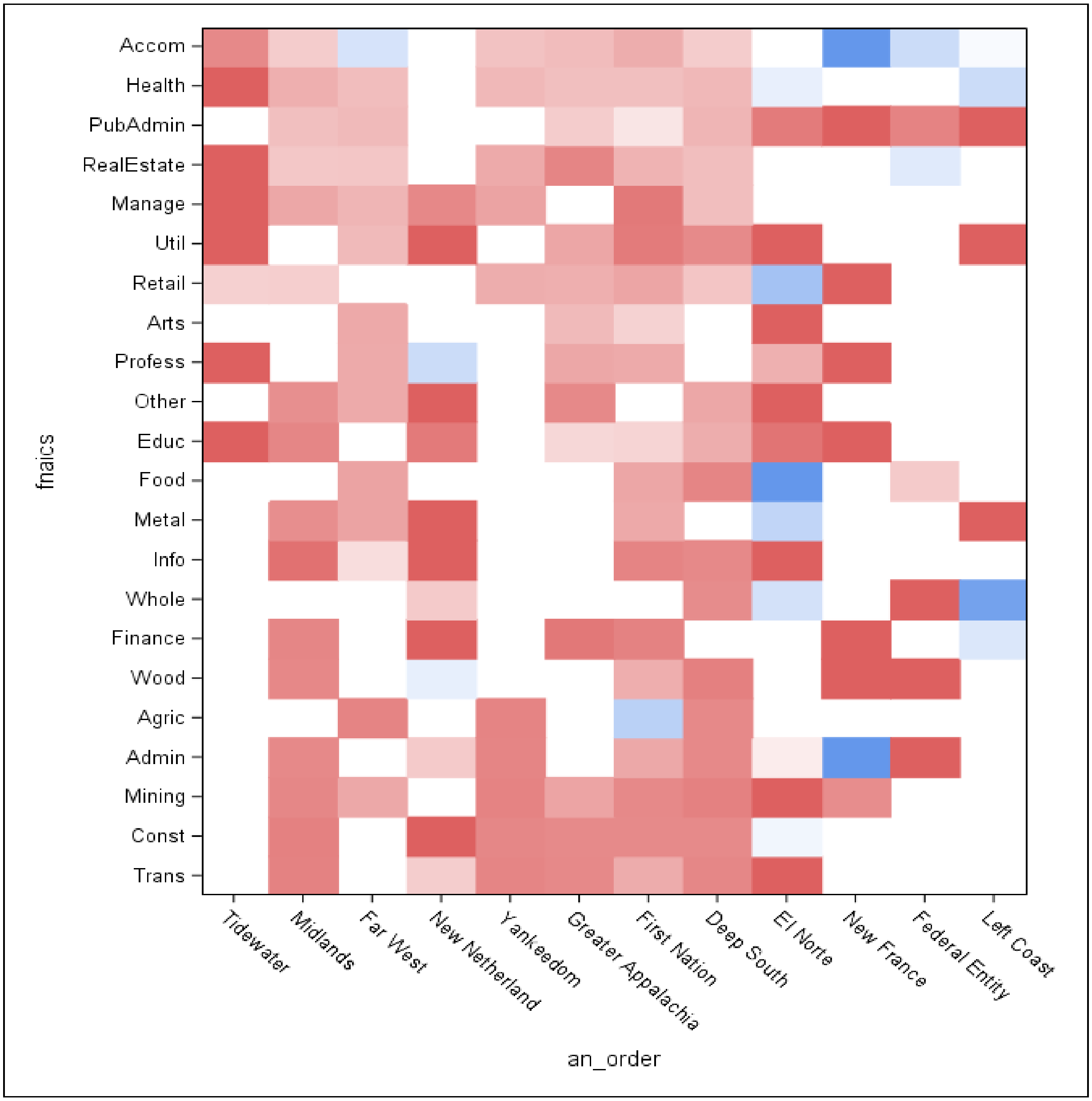

Figure 3: NAICS industry code by American Nations regions.

Figure 3 shows the results from the fourth model which related to the interaction between NAICS industry codes with the American Nations cultural regions. The model fit was very similar to model 3 with an R-square of .0815, although it didn't contain interactions with demographics. The cultural regions didn't add much beyond what the demographics did. The red color indicates higher nonresponse, the blue lower nonresponse. Not all of the industries could be tested for interactions with the areas due to the sparsity of data (not all industries were distributed in all areas). The white areas are nonsignificant, or have too little data. The larger number of red cells compared to Figure 1 is likely due to differences in cell sizes across the cultural regions relative to the industries. For example, Retail has a mix of red and blue in Figure 1, but is mostly red in Figure 3. That's an effect of the variability of nonresponse being better predicted in the area demographic characteristics compared to the regional cultural characteristics. The fourth model, shown in Appendix C, had difficult to interpret results and didn't fit as well as the demographic areas models. We hypothesized a relationship between culture and response, but the low model fit and inconsistent results suggest that is not the case.

The cultural regions with an increased likelihood of nonresponse were; El Norte, Far West, and Left Coast. The areas with a decreased likelihood of nonresponse were; Greater Appalachia, New Netherland, and Tidewater. Agriculture had a decrease in First Nation. Arts had an increase in Deep South, Far West, First Nation, and Greater Appalachia. While El Norte had an overall high odds of nonresponse, it also had the most varied nonresponse over industries, with low nonresponse in Food and Retail. Accommodation and Wholesale also interacted by cultural region. The cultures of the Western US had higher nonresponse, but the interactions with industries were inconsistent (Far West was lower for Accommodation, El Norte was lower for Food, and the Left coast was lower for Wholesale.

Tidewater, New Netherland, and Greater Appalachia would seem to have very different cultures (New York and Nashville?), but the nonresponse pattern was similar. Similarly, the Deep South and Yankeedom had a very similar interaction patterns with industries, which I find no obvious explanation for.

The inconsistent results by cultural region and area demographics, as well as low model fit, suggest that these factors are not promising predictors of CES response. While we might expect similar regions (e.g., New France and Tidewater) to have similar response patterns, these results suggest that is not the case. There are other factors driving response independent of cultural region.

5. Summary and Limitations

Nonresponse showed very complex patterns of interactions with area demographic characteristics and industries, most of which were difficult to interpret in models 1 through 3. Establishment size was the strongest effect with larger establishments less likely to respond, which is consistent with previous studies. This effect is moderated by most of the area demographics. For example; population size interacts with establishment size with higher population being related to relatively higher likelihood for larger establishments to respond. There aren't consistent patterns associated with interactions between area demographics and industries. The area demographic characteristics don't describe the establishments or respondents, but only the environment around them, which may limit this study. Additionally, the physical address used in this study may not be where the decision to respond was made. For example, the physical address may be for the manufacturing plant, but the administrative office could be in a very different place.

Cultural differences based on areas showed small effects but tied very different cultural areas to similar nonresponse patterns. The interactions with industry (model 4) differed greatly. The political and historical cultural patterns may not change the reasons for nonresponse for an establishment, there could be stronger factors (e.g., a company policy of not doing surveys) driving nonresponse. Culture seems to have more effect on household surveys (Dixon, 2018). However, the business climate (the policies of a business, and how responsive the business administration is to the many information requests they receive from all levels of government and business associations) may have more of an overriding effect on establishments than the cultural climate in a given region. In previous studies (Fox et al., 2003), the reasons for nonresponse varied widely; staffing issues, corporate policy, accounting timing, and cost. These different reasons may depend on the area demographic characteristics and cultural environment. Company policy concerns may mean something different in the Far West than in Yankeedom. Cooperation on the East coast regions are generally higher, which may relate to the history associated with the Federal government, with closer ties on the East coast relative to the Left Coast and Far West.

6. Future research

Future research could be done to understand the patterns that seem difficult to explain. Other researchers (Fox et al., 2003) interviewed respondents and nonrespondents and identified reasons behind response behavior. No recent studies have pursued those reasons for nonresponse. Their qualitative research approach could be applied to the interaction effects found here to provide insight into the differences by region that were found.

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Appendix A; Cultural regions.

A summary of the regions was given by Reid Wilson in the Washington Post;

Which of the 11 American nations do you live in?

By Reid Wilson
November 8, 2013

Yankeedom: Founded by Puritans, residents in Northeastern states and the industrial Midwest tend to be more comfortable with government regulation. They value education and the common good more than other regions.

New Netherland: The Netherlands was the most sophisticated society in the Western world when New York was founded, Woodard writes, so it's no wonder that the region has been a hub of global commerce. It's also the region most accepting of historically persecuted populations.

The Midlands: Stretching from Quaker territory west through Iowa and into more populated areas of the Midwest, the Midlands are "pluralistic and organized around the middle class." Government intrusion is unwelcome, and ethnic and ideological purity isn't a priority.

Tidewater: The coastal regions in the English colonies of Virginia, North Carolina, Maryland and Delaware tend to respect authority and value tradition. Once the most powerful American nation, it began to decline during Westward expansion.

Greater Appalachia: Extending from West Virginia through the Great Smoky Mountains and into Northwest Texas, the descendants of Irish, English and Scottish settlers value individual liberty. Residents are "intensely suspicious of lowland aristocrats and Yankee social engineers."

Deep South: Dixie still traces its roots to the caste system established by masters who tried to duplicate West Indies-style slave society, Woodard writes. The Old South values states' rights and local control and fights the expansion of federal powers.

El Norte: Southwest Texas and the border region is the oldest, and most linguistically different, nation in the Americas. Hard work and self-sufficiency are prized values.

The Left Coast: A hybrid, Woodard says, of Appalachian independence and Yankee utopianism loosely defined by the Pacific Ocean on one side and coastal mountain ranges like the Cascades and the Sierra Nevadas on the other. The independence and innovation required of early explorers continues to manifest in places like Silicon Valley and the tech companies around Seattle.

The Far West: The Great Plains and the Mountain West were built by industry, made necessary by harsh, sometimes inhospitable climates. Far Westerners are intensely libertarian and deeply distrustful of big institutions, whether they are railroads and monopolies or the federal government.

New France: Former French colonies in and around New Orleans and Quebec tend toward consensus and egalitarian, “among the most liberal on the continent, with unusually tolerant attitudes toward gays and people of all races and a ready acceptance of government involvement in the economy,” Woodard writes.

First Nation: The few First Nation peoples left — Native Americans who never gave up their land to white settlers — are mainly in the harshly Arctic north of Canada and Alaska. They have sovereignty over their lands, but their population is only around 300,000.

Appendix B: First three models (Main effects and interactions with area demographic characteristics)

Parameter	DF	Model 1; Main effects without Naics2 Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Model 2: Main effect with Naics Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Model 3: Naics2 interactions Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.1733(.00703)	27861.7819	<.0001	-1.8737(0.826)	5.1348	0.0235	-2.1689(0.8286)	6.851	0.0089
Agric	1				-0.3041(0.8324)	0.1334	0.7149	-0.0690(0.8896)	0.006	0.9382
Mining	1				-0.4781(0.8291)	0.3325	0.5642	0.0197(0.8484)	0.0005	0.9815
Util	1				-0.2450(0.8274)	0.0877	0.7671	0.2526(0.8333)	0.0919	0.7618
Const	1				-0.4245(0.8270)	0.2635	0.6077	-0.1907(0.8294)	0.0529	0.8182
Food	1				-0.3418(0.8275)	0.1706	0.6796	-0.2864(0.8339)	0.1179	0.7313
Wood	1				-0.5683(0.8274)	0.4719	0.4921	-0.5482(0.8324)	0.4337	0.5102
Metal	1				-0.3645(0.8271)	0.1942	0.6594	-0.0828(0.8308)	0.0099	0.9206
Whole	1				-0.2572(0.8270)	0.0967	0.7558	0.1137(0.8296)	0.0188	0.891
Retail	1				0.0700(0.8268)	0.0072	0.9326	0.3930(0.8287)	0.2249	0.6353
Retail	1				-0.4797(0.8269)	0.3365	0.5618	0.2085(0.8289)	0.0633	0.8014
Trans 1	1				-0.6200(0.8272)	0.5618	0.4535	-0.1892(0.8308)	0.0519	0.8198
Trans 2	1				-1.2236(0.8274)	2.1867	0.1392	-0.7373(0.8331)	0.7831	0.3762
Info	1				-0.8394(0.8270)	1.0303	0.3101	-0.6086(0.8298)	0.5379	0.4633
Finance	1				-0.9121(0.8269)	1.2166	0.27	-0.6557(0.8290)	0.6256	0.429
RealEstate	1				0.1040(0.8270)	0.0158	0.8999	0.3380(0.8296)	0.166	0.6837
Profess	1				-0.0830(0.8269)	0.0101	0.9201	0.2211(0.8291)	0.0711	0.7897
Manage	1				-0.2996(0.8274)	0.1311	0.7173	-0.2477(0.8326)	0.0885	0.7661
Admin	1				-0.7078(0.8270)	0.7325	0.3921	-0.3589(0.8297)	0.1871	0.6653
Educ	1				-0.4892(0.8270)	0.3499	0.5542	-0.1505(0.8300)	0.0329	0.8561
Health	1				0.0915(0.8269)	0.0122	0.9119	0.3329(0.8288)	0.1613	0.6879
Arts	1				-0.1062(0.8272)	0.0165	0.8978	0.0895(0.8306)	0.0116	0.9142
Accom	1				0.5120(0.8269)	0.3834	0.5358	0.8399(0.8287)	1.0271	0.3108
Other	1				-0.0655(0.8270)	0.0063	0.9368	-0.0297(0.8297)	0.0013	0.9714
PubAdmin	1				0.2424(0.8269)	0.0859	0.7694	0.4041(0.8281)	0.2381	0.6256
Size	1				0.1581(0.00131)	14511.821	<.0001	0.1556(0.00341)	2085.343	<.0001
Tot_Population_2	1	-.00003(.000014)	3.1761	0.0747	-.00012(0.000013)	82.0581	<.000	-0.00004(.000037)	1.4702	0.2253
nbmk_uisi*Tot_Popula	1							-0.00002(5.564E-6)	8.8691	0.0029
Pop_18_24_2010	1	.000049(.000013)	14.6344	0.0001	.000101(0.000013)	58.6833	<.0001	.000186(.000047)	15.9347	<.0001
nbmk_uisi*Pop_18_24	1							-3.02E-6(5.71E-6)	0.2799	0.5968
Pop_18_24*Agric	1							0.000732(0.00118)	0.3872	0.5338
Pop_18_24*Mining	1							-0.00005(.000381)	0.0144	0.9044
Pop_18_24*Util	1							-.00020(0.000108)	3.3668	0.0665

[1]Bureau of Labor Statistics, 2 Massachusetts Ave, NE, DC, 20212 dixon.john@bls.gov

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		Model 1; Main effects without Naics2			Model 2: Main effect with Naics			Model 3: Naics2 interactions		
Parameter	DF	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
Pop_18_24*ConstConst	1							-.00008(0.000058)	1.6932	0.1932
Pop_18_24*Food	1							-.00012(0.000148)	0.6457	0.4216
Pop_18_24*Wood	1							-.00026(0.000128)	4.2381	0.0395
Pop_18_24*Metal	1							-.00033(0.000083)	15.302	<.0001
Pop_18_24*Whole	1							.000013(0.000066)	0.0402	0.8411
Pop_18_24*Retail	1							-.00009(0.000038)	5.7377	0.0166
Pop_18_24*Retail	1							-.00009(0.000048)	3.2692	0.0706
Pop_18_24*Trans	1							-.00011(0.000102)	1.1291	0.288
Pop_18_24*Trans	1							.000034(0.000087)	0.1551	0.6937
Pop_18_24*Info	1							.000193(0.000054)	12.5567	0.0004
Pop_18_24*Finance	1							.000025(0.000045)	0.3039	0.5815
Pop_18_24*RealEstate	1							-.00024(0.000055)	18.5434	<.0001
Pop_18_24*Profess	1							-.00018(0.000047)	14.2096	0.0002
Pop_18_24*Manage	1							-.00033(0.000141)	5.3624	0.0206
Pop_18_24*Admin	1							-.00020(0.000061)	10.6916	0.0011
Pop_18_24*Educ	1							.000337(0.000046)	53.8128	<.0001
Pop_18_24*Health	1							-.00001(0.000039)	0.0724	0.7879
Pop_18_24*Arts	1							.000148(0.000062)	5.6076	0.0179
Pop_18_24*Accom	1							-.00011(0.000037)	9.092	0.0026
Pop_18_24*Other	1							-.00003(0.000060)	0.2382	0.6255
Pop_18_24*PubAdmin	0							0(.)	.	.
Pop_25_44_2010	1	-.00009(0.000011)	79.0508	<.0001	.000030(0.000011)	7.4044	0.0065	.000316(0.000050)	40.5518	<.0001
Size*Pop_25_44_	1							-0.00003(4.994E-6)	41.3021	<.0001
Pop_25_44*Agric	1							-.00102(0.000491)	4.3229	0.0376
Pop_25_44*Mining	1							-.00023(0.000350)	0.4465	0.504
Pop_25_44*Util	1							.000707(0.000131)	29.2005	<.0001
Pop_25_44*Const	1							-.00035(0.000066)	27.5959	<.0001
Pop_25_44*Food	1							.000489(0.000122)	16.1734	<.0001
Pop_25_44*Wood	1							.000084(0.000129)	0.427	0.5135
Pop_25_44*Metal	1							-.00017(0.000099)	2.7993	0.0943
Pop_25_44*Whole	1							8.762E-7(.000075)	0.0001	0.9907
Pop_25_44*Retail	1							-.00013(0.000048)	7.5537	0.006
Pop_25_44*Retail	1							.000119(0.000062)	3.7017	0.0544
Pop_25_44*Trans	1							.000105(0.000093)	1.2595	0.2617
Pop_25_44*Trans	1							-.00011(0.000129)	0.7955	0.3724
Pop_25_44*Info	1							.000223(0.000072)	9.7005	0.0018
Pop_25_44*Finance	1							.000111(0.000055)	4.0434	0.0443

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		Model 1; Main effects without Naics2			Model 2: Main effect with Naics			Model 3: Naics2 interactions		
Parameter	DF	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
Pop_25_44*RealEstate	1							-.00008(0.000070)	1.2687	0.26
Pop_25_44*Profess	1							-.00024(0.000061)	14.7953	0.0001
Pop_25_44*Manage	1							-.00018(0.000121)	2.2662	0.1322
Pop_25_44*Admin	1							.000135(0.000073)	3.4419	0.0636
Pop_25_44*Educ	1							.000071(0.000081)	0.767	0.3812
Pop_25_44*Health	1							-.00021(0.000053)	15.8671	<.0001
Pop_25_44*Arts	1							-.00016(0.000085)	3.5446	0.0597
Pop_25_44*Accom	1							-.00012(0.000049)	5.7471	0.0165
Pop_25_44*Other	1							-.00063(0.000075)	70.2247	<.0001
Pop_25_44*PubAdmin	0							0(.)	.	.
Pop_45_64_2010	1	-.00005(0.000018)	7.832	0.0051	.000125(0.000019)	42.5237	<.0001	.000264(0.000082)	10.336	0.0013
Size*Pop_45_64_	1							-.00003(8.406E-6)	12.433	0.0004
Pop_45_64*Agric	1							0.00183(0.000696)	6.9301	0.0085
Pop_45_64*Mining	1							0.00106(0.000408)	6.805	0.0091
Pop_45_64*Util	1							-.00036(0.000201)	3.1724	0.0749
Pop_45_64*Const	1							-.00007(0.000106)	0.4301	0.5119
Pop_45_64*Food	1							.000305(0.000172)	3.1576	0.0756
Pop_45_64*Wood	1							.000047(0.000197)	0.0577	0.8101
Pop_45_64*Metal	1							7.567E-6(.000149)	0.0026	0.9595
Pop_45_64*Whole	1							-.00005(0.000117)	0.2174	0.6411
Pop_45_64*Retail	1							6.81E-6(0.000076)	0.008	0.9289
Pop_45_64*Retail	1							.000506(0.000091)	30.8199	<.0001
Pop_45_64*Trans	1							.000113(0.000142)	0.6332	0.4262
Pop_45_64*Trans	1							.000024(0.000204)	0.0133	0.9081
Pop_45_64*Info	1							.000197(0.000119)	2.741	0.0978
Pop_45_64*Finance	1							.000238(0.000092)	6.7741	0.0092
Pop_45_64*RealEstate	1							.000088(0.000112)	0.6158	0.4326
Pop_45_64*Profess	1							-.00020(0.000095)	4.4674	0.0345
Pop_45_64*Manage	1							.000267(0.000206)	1.6869	0.194
Pop_45_64*Admin	1							.000142(0.000113)	1.5728	0.2098
Pop_45_64*Educ	1							.000115(0.000122)	0.8925	0.3448
Pop_45_64*Health	1							.000116(0.000084)	1.9102	0.1669
Pop_45_64*Arts	1							.000297(0.000148)	4.0507	0.0442
Pop_45_64*Accom	1							-.00023(0.000079)	8.1797	0.0042
Pop_45_64*Other	1							-.00025(0.000121)	4.2696	0.0388
Pop_45_64*PubAdmin	0							0(.)	.	.
Hispanic_2010	1	.000062(4.895E-6)	160.2697	<.0001	.000059(4.344E-6)	183.4802	<.0001	-.00017(0.000026)	43.1775	<.0001

Appendix B: First three models (Main effects and interactions with area demographic characteristics)

		Model 1; Main effects without Naics2			Model 2: Main effect with Naics			Model 3: Naics2 interactions		
Parameter	DF	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
Size*Hispanic_C	1							.000030(2.109E-6)	198.1315	<.0001
Hispanic_*Agric	1							.000436(0.000234)	3.4643	0.0627
Hispanic_*Mining	1							-.00035(0.000265)	1.7758	0.1827
Hispanic_*Util	1							-.00060(0.000112)	28.7317	<.0001
Hispanic_*Const	1							.000145(0.000034)	17.6031	<.0001
Hispanic_*Food	1							.000023(0.000057)	0.1628	0.6866
Hispanic_*Wood	1							.000026(0.000055)	0.2214	0.638
Hispanic_*Metal	1							.000096(0.000048)	3.9976	0.0456
Hispanic_*Whole	1							.000067(0.000036)	3.4276	0.0641
Hispanic_*Retail	1							.000073(0.000026)	7.9375	0.0048
Hispanic_*Retail	1							-.00012(0.000029)	16.2871	<.0001
Hispanic_*Trans	1							-.00003(0.000044)	0.4561	0.4994
Hispanic_*Trans	1							-.00012(0.000062)	3.522	0.0606
Hispanic_*Info	1							.000123(0.000036)	11.6849	0.0006
Hispanic_*Finance	1							.000030(0.000032)	0.8754	0.3495
Hispanic_*RealEstate	1							.000191(0.000035)	29.1918	<.0001
Hispanic_*Profess	1							-.00003(0.000036)	0.6542	0.4186
Hispanic_*Manage	1							.000118(0.000069)	2.9278	0.0871
Hispanic_*Admin	1							-.00008(0.000037)	4.0831	0.0433
Hispanic_*Educ	1							-.00025(0.000047)	28.6974	<.0001
Hispanic_*Health	1							-.00007(0.000028)	6.3396	0.0118
Hispanic_*Arts	1							-.00002(0.000056)	0.1953	0.6585
Hispanic_*Accom	1							.000244(0.000027)	79.326	<.0001
Hispanic_*Other	1							.000085(0.000039)	4.6659	0.0308
Hispanic_*PubAdmin	0							0(.)	.	.
NH_White_alone_2	1	-.00007(3.177E-6)	453.2161	<.0001	-.00005(3.181E-6)	239.0056	<.0001	-.00014(0.000018)	64.3164	<.0001
Size*NH_White_a	1							7.171E-6(1.516E-6)	22.38	<.0001
NH_White_alon*Agric	1							7.592E-6(.000131)	0.0034	0.9537
NH_White_alon*Mining	1							-5.08E-6(.000113)	0.002	0.9641
NH_White_alon*Util	1							.000333(0.000046)	52.7932	<.0001
NH_White_alon*Const	1							.000107(0.000024)	20.132	<.0001
NH_White_alon*Food	1							.000149(0.000043)	12.0546	0.0005
NH_White_alon*Wood	1							.000150(0.000042)	12.7544	0.0004
NH_White_alon*Metal	1							.000084(0.000030)	7.9004	0.0049
NH_White_alon*Whole	1							.000149(0.000026)	33.7101	<.0001
NH_White_alon*Retail	1							.000018(0.000018)	1.0179	0.313
NH_White_alon*Retail	1							-.00010(0.000019)	28.1575	<.0001

Appendix B: First three models (Main effects and interactions with area demographic characteristics)

		Model 1; Main effects without Naics2			Model 2: Main effect with Naics			Model 3: Naics2 interactions		
Parameter	DF	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
NH_White_alon*Trans	1							.000030(0.000034)	0.8093	0.3683
NH_White_alon*Trans	1							.000073(0.000041)	3.1032	0.0781
NH_White_alon*Info	1							.000112(0.000027)	16.9143	<.0001
NH_White_alon*Finance	1							.000164(0.000023)	52.3085	<.0001
NH_White_alon*RealEst	1							.000221(0.000027)	69.4653	<.0001
NH_White_alon*Profess	1							.000064(0.000024)	6.9783	0.0083
NH_White_alon*Manage	1							-.00005(0.000046)	0.9643	0.3261
NH_White_alon*Admin	1							.000088(0.000027)	10.721	0.0011
NH_White_alon*Educ	1							-.00017(0.000028)	37.2062	<.0001
NH_White_alon*Health	1							.000024(0.000019)	1.5767	0.2092
NH_White_alon*Arts	1							8.992E-6(.000036)	0.064	0.8003
NH_White_alon*Accom	1							.000130(0.000019)	47.7942	<.0001
NH_White_alon*Other	1							.000125(0.000026)	22.3702	<.0001
NH_White_alon*PubAdm	0							0(.)	.	.
College_08_12	1	.000093(4.891E-6)	363.0336	<.0001	0.000110(5.01E-6)	480.8817	<.0001	-.00032(0.000027)	139.2105	<.0001
Size*College	1							.000055(2.307E-6)	567.4787	<.0001
College_0*Agric	1							.000241(0.000308)	0.609	0.4352
College_0*Mining	1							.000122(0.000163)	0.5664	0.4517
College_0*Util	1							-.00015(0.000079)	3.7222	0.0537
College_0*Const	1							.000206(0.000037)	30.2692	<.0001
College_0*Food	1							.000060(0.000073)	0.6846	0.408
College_0*Wood	1							.000066(0.000070)	0.8821	0.3476
College_0*Metal	1							-.00007(0.000054)	1.5138	0.2186
College_0*Whole	1							.000215(0.000041)	27.4859	<.0001
College_0*Retail	1							8.54E-6(.000028)	0.0921	0.7615
College_0*Retail	1							-000037(0.000036)	110.264	<.0001
College_0*Trans	1							.000142(0.000059)	5.8453	0.0156
College_0*Trans	1							-.00028(0.000079)	12.3661	0.0004
College_0*Info	1							.000154(0.000040)	14.8832	0.0001
College_0*Finance	1							-.00003(0.000032)	1.0103	0.3148
College_0*RealEst	1							.000051(0.000038)	1.7915	0.1807
College_0*Profess	1							-.00004(0.000035)	1.5216	0.2174
College_0*Manage	1							.000244(0.000058)	17.6504	<.0001
College_0*Admin	1							-.00011(0.000041)	6.9717	0.0083
College_0*Educ	1							.000118(0.000041)	8.1958	0.0042
College_0*Health	1							.000103(0.000030)	12.0426	0.0005
College_0*Arts	1							.000092(0.000046)	3.9601	0.0466

Appendix B: First three models (Main effects and interactions with area demographic characteristics)

Parameter	DF	Model 1; Main effects without Naics2 Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Model 2: Main effect with Naics Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Model 3: Naics2 interactions Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
College_0*Accom	1							.000441(0.000028)	240.5865	<.0001
College_0*Other	1							.000128(0.000039)	11.0021	0.0009
College_0*PubAdm	0							0(.)	.	.
Civ_unemp_16plus	1	.000284(.000029)	96.3742	<.0001	.000231(0.000029)	61.6824	<.0001	-.00036(0.000161)	4.9185	0.0266
Size*Civ_unemp_	1							.000108(0.000014)	58.5618	<.0001
Civ_unemp_16p*Agric	1							-0.00131(0.00133)	0.9787	0.3225
Civ_unemp_16p*Mining	1							-.00018(0.000917)	0.0381	0.8452
Civ_unemp_16p*Util	1							.000041(0.000415)	0.0096	0.9218
Civ_unemp_16p*Const	1							.000023(0.000218)	0.0109	0.917
Civ_unemp_16p*Food	1							-.00007(0.000435)	0.0281	0.867
Civ_unemp_16p*Wood	1							.000405(0.000355)	1.3013	0.254
Civ_unemp_16p*Metal	1							-.00007(0.000287)	0.0665	0.7965
Civ_unemp_16p*Whole	1							-.00005(0.000239)	0.0392	0.8431
Civ_unemp_16p*Retail	1							-.00021(0.000163)	1.5794	0.2089
Civ_unemp_16p*Retail	1							.000823(0.000182)	20.3768	<.0001
Civ_unemp_16p*Trans	1							-.00012(0.000325)	0.1378	0.7105
Civ_unemp_16p*Trans	1							-.00069(0.000377)	3.3207	0.0684
Civ_unemp_16p*Info	1							-.00090(0.000240)	13.9368	0.0002
Civ_unemp_16p*Finance	1							-.00075(0.000200)	14.0721	0.0002
Civ_unemp_16p*RealEst	1							-.00017(0.000231)	0.5135	0.4736
Civ_unemp_16p*Profess	1							.000204(0.000217)	0.8849	0.3469
Civ_unemp_16p*Manage	1							.000484(0.000399)	1.4673	0.2258
Civ_unemp_16p*Admin	1							-.00021(0.000240)	0.7999	0.3711
Civ_unemp_16p*Educ	1							-.00088(0.000263)	11.1865	0.0008
Civ_unemp_16p*Health	1							-.00021(0.000177)	1.4421	0.2298
Civ_unemp_16p*Arts	1							-.00031(0.000329)	0.907	0.3409
Civ_unemp_16p*Accom	1							-.00015(0.000170)	0.747	0.3874
Civ_unemp_16p*Other	1							-.00024(0.000241)	0.9496	0.3298
Civ_unemp_16p*PubAdm	0							0(.)	.	.
Tot_Prns_in_HHD_	1	.000047(9.653E-6)	24.1697	<.0001	.000059(9.969E-6)	34.6005	<.0001	.000016(0.000034)	0.2173	0.6411
Size*Tot_Prns_i	1							.000013(4.289E-6)	9.6961	0.0018
Tot_Prns_in_H*Agric	1							-.00002(0.000242)	0.0092	0.9237
Tot_Prns_in_H*Mining	1							-.00023(0.000177)	1.7515	0.1857
Tot_Prns_in_H*Util	1							-.00023(0.000074)	9.5159	0.002
Tot_Prns_in_H*Const	1							-.00001(0.000041)	0.061	0.8049
Tot_Prns_in_H*Food	1							-.00020(0.000064)	9.3215	0.0023
Tot_Prns_in_H*Wood	1							2.102E-6(.000082)	0.0006	0.9797

Appendix B: First three models (Main effects and interactions with area demographic characteristics)

		Model 1; Main effects without Naics2			Model 2: Main effect with Naics			Model 3: Naics2 interactions		
Parameter	DF	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
Tot_Prns_in_H*Metal	1							-.00009(0.000063)	2.0867	0.1486
Tot_Prns_in_H*Whole	1							-.00006(0.000044)	1.8801	0.1703
Tot_Prns_in_H*Retail	1							.000030(0.000029)	1.1188	0.2902
Tot_Prns_in_H*Retail	1							-.00017(0.000036)	23.0601	<.0001
Tot_Prns_in_H*Trans	1							.000022(0.000056)	0.1571	0.6919
Tot_Prns_in_H*Trans	1							.000135(0.000083)	2.6363	0.1044
Tot_Prns_in_H*Info	1							-.00020(0.000044)	20.0197	<.0001
Tot_Prns_in_H*Finance	1							-.00016(0.000035)	20.5537	<.0001
Tot_Prns_in_H*RealEstate	1							-.00008(0.000043)	3.1831	0.0744
Tot_Prns_in_H*Profess	1							.000140(0.000036)	15.3091	<.0001
Tot_Prns_in_H*Manage	1							.000080(0.000081)	0.9698	0.3247
Tot_Prns_in_H*Admin	1							-.00005(0.000043)	1.4139	0.2344
Tot_Prns_in_H*Educ	1							.000119(0.000048)	6.1822	0.0129
Tot_Prns_in_H*Health	1							.000096(0.000032)	8.8944	0.0029
Tot_Prns_in_H*Arts	1							-.00013(0.000054)	6.0384	0.014
Tot_Prns_in_H*Accom	1							-.00004(0.000029)	1.7709	0.1833
Tot_Prns_in_H*Other	1							.0001930.000048)	16.2135	<.0001
Tot_Prns_in_H*PubAdm	0							0(.)	.	.
Tot_Housing_Units_CE	1	.000042(5.605E-6)	55.083	<.0001	-.00003(5.909E-6)	22.5185	<.0001	.000155(0.000031)	24.5625	<.0001
Size*Tot_Housin	1							-.00001(2.761E-6)	17.6095	<.0001
Tot_Housing_U*Agric	1							-.00080(0.000321)	6.2125	0.0127
Tot_Housing_U*Mining	1							-.00022(0.000223)	0.9381	0.3328
Tot_Housing_U*Util	1							-.00022(0.000101)	4.5943	0.0321
Tot_Housing_U*Const	1							-.00004(0.000042)	0.943	0.3315
Tot_Housing_U*Food	1							-.00022(0.000102)	4.7902	0.0286
Tot_Housing_U*Wood	1							-.00027(0.000096)	8.1784	0.0042
Tot_Housing_U*Metal	1							.000199(0.000076)	6.8462	0.0089
Tot_Housing_U*Whole	1							-.00027(0.000054)	24.0969	<.0001
Tot_Housing_U*Retail	1							-.00007(0.000032)	4.9743	0.0257
Tot_Housing_U*Retail	1							-.00001(0.000038)	0.0876	0.7672
Tot_Housing_U*Trans	1							-.00038(0.000082)	21.8458	<.0001
Tot_Housing_U*Trans	1							-.00028(0.000105)	6.8798	0.0087
Tot_Housing_U*Info	1							-.00010(0.000048)	4.015	0.0451
Tot_Housing_U*Finance	1							-.00006(0.000037)	2.8727	0.0901
Tot_Housing_U*RealEst	1							-.00019(0.000045)	17.5707	<.0001
Tot_Housing_U*Profess	1							-.00009(0.000041)	4.9358	0.0263
Tot_Housing_U*Manage	1							-.00022(0.000079)	7.8543	0.0051

Appendix B: First three models (Main effects and interactions with area demographic characteristics)

		Model 1; Main effects without Naics2			Model 2: Main effect with Naics			Model 3: Naics2 interactions		
Parameter	DF	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq	Standard Estimate(Error)	Wald Chi-Square	Pr > ChiSq
Tot_Housing_U*Admin	1							-.00011(0.000051)	4.7617	0.0291
Tot_Housing_U*Educ	1							-.00017(0.000054)	9.7615	0.0018
Tot_Housing_U*Health	1							-.00021(0.000036)	35.7178	<.0001
Tot_Housing_U*Arts	1							.000129(0.000050)	6.5721	0.0104
Tot_Housing_U*Accom	1							-.00024(0.000032)	56.3287	<.0001
Tot_Housing_U*Other	1							-.00005(0.000045)	1.3805	0.24
Tot_Housing_U*PubAdm	0							0(.)	.	.

Appendix C: American Nations model

Parameter	DF	Estimate(StdErr)	Chi-Square	Pr>ChiSq
Intercept	1	-2.0895(0.8320)	6.3068	0.0120
Agric	1	-0.0746(0.8873)	0.0071	0.9330
Mining	1	0.0522(0.8477)	0.0038	0.9509
Util	1	0.3140(0.8330)	0.1421	0.7062
Const	1	-0.1770(0.8291)	0.0456	0.8309
Food	1	-0.2635(0.8336)	0.0999	0.7520
Wood	1	-0.5754(0.8320)	0.4783	0.4892
Metal	1	-0.0423(0.8305)	0.0026	0.9594
Whole	1	0.1546(0.8292)	0.0347	0.8521
Retail	1	0.4323(0.8283)	0.2724	0.6018
Retail	1	0.2776(0.8286)	0.1122	0.7376
Trans	1	-0.1695(0.8304)	0.0416	0.8383
Trans	1	-0.6816(0.8328)	0.6700	0.4131
Info	1	-0.5633(0.8294)	0.4614	0.4970
Finance	1	-0.6026(0.8286)	0.5289	0.4671
RealEstate	1	0.3934(0.8293)	0.2251	0.6352
Profess	1	0.2806(0.8287)	0.1147	0.7349
Manage	1	-0.1850(0.8323)	0.0494	0.8241
Admin	1	-0.3111(0.8293)	0.1407	0.7076
Educ	1	-0.1341(0.8296)	0.0261	0.8716
Health	1	0.4070(0.8284)	0.2414	0.6232
Arts	1	0.1252(0.8302)	0.0227	0.8802
Accom	1	0.8516(0.8283)	1.0569	0.3039
Other	1	0.0220(0.8293)	0.0007	0.9788
PubAdmin	1	0.4546(0.8277)	0.3016	0.5829
AN_TITLE_Deep_South	1	-0.1648(0.0798)	4.2709	0.0388
AN_TITLE_El_Norte	1	1.4989(0.0953)	247.5338	<.0001
AN_TITLE_Far_West	1	0.2656(0.0800)	11.0188	0.0009
AN_TITLE_Federal_Entity	1	0.1761(0.2997)	0.3452	0.5568
AN_TITLE_First_Nation	1	0.1858(0.0819)	5.1428	0.0233
AN_TITLE_Greater_Appalac	1	-0.2712(0.0799)	11.5107	0.0007
AN_TITLE_Greater_Polynes	1	0.4027(0.5039)	0.6386	0.4242
AN_TITLE_Left_Coast	1	0.8562(0.1986)	18.5856	<.0001
AN_TITLE_Midlands	1	-0.0846(0.0799)	1.1205	0.2898
AN_TITLE_New_France	1	0.1614(0.4291)	0.1415	0.7068
AN_TITLE_New_Netherland	1	-0.4855(0.1700)	8.1585	0.0043
AN_TITLE_Spanish_Caribb	1	-0.4643(0.6388)	0.5283	0.4673
AN_TITLE_Tidewater	1	-1.8624(0.3161)	34.7121	<.0001
Size	1	0.1568(0.00344)	2080.2831	<.0001
Tot_Population_2	1	0.000040(0.000037)	1.1805	0.2773
Size*Tot_Popula	1	-0.00002(5.591E-6)	19.8526	<.0001
Pop_18_24_2010	1	0.000115(0.000047)	6.0028	0.0143
Size*Pop_18_24_	1	4.933E-6(5.719E-6)	0.7440	0.3884
Pop_18_24*Agric	1	0.000896(0.00118)	0.5721	0.4494
Pop_18_24*Mining	1	-0.00004(0.000387)	0.0109	0.9168
Pop_18_24*Util	1	-0.00021(0.000110)	3.8184	0.0507
Pop_18_24*Const	1	-0.00007(0.000058)	1.6007	0.2058
Pop_18_24*Food	1	-0.00015(0.000148)	1.0768	0.2994
Pop_18_24*Wood	1	-0.00025(0.000129)	3.7288	0.0535
Pop_18_24*Metal	1	-0.00033(0.000084)	15.2615	<.0001
Pop_18_24*Whole	1	0.000036(0.000066)	0.3008	0.5834
Pop_18_24*Retail	1	-0.00011(0.000038)	8.1494	0.0043

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Pop_18_24*Retail	1	-0.00009(0.000048)	3.3956	0.0654
Pop_18_24*Trans	1	-0.00013(0.000103)	1.6171	0.2035
Pop_18_24*Trans	1	3.99E-6(0.000088)	0.0020	0.9639
Pop_18_24*Info	1	0.000176(0.000055)	10.4692	0.0012
Pop_18_24*Finance	1	5.911E-6(0.000045)	0.0171	0.8960
Pop_18_24*RealEstate	1	-0.00023(0.000055)	17.2142	<.0001
Pop_18_24*Profess	1	-0.00017(0.000047)	13.6657	0.0002
Pop_18_24*Manage	1	-0.00029(0.000140)	4.3828	0.0363
Pop_18_24*Admin	1	-0.00018(0.000061)	9.0417	0.0026
Pop_18_24*Educ	1	0.000368(0.000046)	64.0025	<.0001
Pop_18_24*Health	1	-0.00001(0.000039)	0.0892	0.7652
Pop_18_24*Arts	1	0.000147(0.000063)	5.5116	0.0189
Pop_18_24*Accom	1	-0.00012(0.000037)	9.9692	0.0016
Pop_18_24*Other	1	-0.00005(0.000060)	0.6689	0.4134
Pop_18_24*PubAdm	0	0(.)	.	.
Pop_25_44_2010	1	0.000218(0.000050)	19.1955	<.0001
Size*Pop_25_44_	1	-0.00002(4.991E-6)	15.2469	<.0001
Pop_25_44*Agric	1	-0.00088(0.000482)	3.3608	0.0668
Pop_25_44*Mining	1	-0.00029(0.000353)	0.6796	0.4097
Pop_25_44*Util	1	0.000731(0.000131)	31.1608	<.0001
Pop_25_44*Const	1	-0.00039(0.000066)	34.2422	<.0001
Pop_25_44*Food	1	0.000396(0.000122)	10.5679	0.0012
Pop_25_44*Wood	1	-6.08E-6(0.000128)	0.0022	0.9622
Pop_25_44*Metal	1	-0.00023(0.000100)	5.3893	0.0203
Pop_25_44*Whole	1	-0.00006(0.000075)	0.7032	0.4017
Pop_25_44*Retail	1	-0.00015(0.000048)	10.4594	0.0012
Pop_25_44*Retail	1	0.000084(0.000062)	1.8654	0.1720
Pop_25_44*Trans	1	0.000068(0.000094)	0.5206	0.4706
Pop_25_44*Trans	1	-0.00010(0.000128)	0.6467	0.4213
Pop_25_44*Info	1	0.000199(0.000072)	7.7179	0.0055
Pop_25_44*Finance	1	0.000080(0.000055)	2.0977	0.1475
Pop_25_44*RealEst	1	-0.00013(0.000069)	3.4925	0.0616
Pop_25_44*Profess	1	-0.00028(0.000062)	20.1722	<.0001
Pop_25_44*Manage	1	-0.00026(0.000121)	4.4855	0.0342
Pop_25_44*Admin	1	0.000075(0.000073)	1.0610	0.3030
Pop_25_44*Educ	1	0.000162(0.000079)	4.1685	0.0412
Pop_25_44*Health	1	-0.00023(0.000053)	19.6246	<.0001
Pop_25_44*Arts	1	-0.00019(0.000085)	4.7849	0.0287
Pop_25_44*Accom	1	-0.00018(0.000049)	13.5762	0.0002
Pop_25_44*Other	1	-0.00066(0.000075)	76.9477	<.0001
Pop_25_44*PubAdmin	0	0(.)	.	.
Pop_45_64_2010	1	0.000118(0.000082)	2.0530	0.1519
Size*Pop_45_64_	1	-0.00001(8.356E-6)	1.6549	0.1983
Pop_45_64*Agric	1	0.00159(0.000668)	5.6980	0.0170
Pop_45_64*Mining	1	0.00107(0.000412)	6.6921	0.0097
Pop_45_64*Util	1	-0.00029(0.000202)	2.1375	0.1437
Pop_45_64*Const	1	-0.00005(0.000105)	0.1882	0.6645
Pop_45_64*Food	1	0.000084(0.000172)	0.2384	0.6254
Pop_45_64*Wood	1	0.000107(0.000197)	0.2973	0.5856
Pop_45_64*Metal	1	0.000056(0.000149)	0.1385	0.7097
Pop_45_64*Whole	1	-0.00011(0.000116)	0.8224	0.3645
Pop_45_64*Retail	1	0.000039(0.000076)	0.2609	0.6095
Pop_45_64*Retail	1	0.000507(0.000091)	30.9846	<.0001
Pop_45_64*Trans	1	0.000111(0.000141)	0.6171	0.4321
Pop_45_64*Trans	1	0.000074(0.000203)	0.1330	0.7154
Pop_45_64*Info	1	0.000161(0.000119)	1.8503	0.1737
Pop_45_64*Finance	1	0.000192(0.000091)	4.4130	0.0357

Pop_45_64*RealEstate	1	0.000084(0.000112)	0.5661	0.4518
Pop_45_64*Profess	1	-0.00025(0.000095)	6.9187	0.0085
Pop_45_64*Manage	1	0.000177(0.000205)	0.7421	0.3890
Pop_45_64*Admin	1	0.000088(0.000113)	0.6010	0.4382
Pop_45_64*Educ	1	0.000338(0.000120)	8.0055	0.0047
Pop_45_64*Health	1	0.000122(0.000084)	2.0995	0.1473
Pop_45_64*Arts	1	0.000234(0.000147)	2.5317	0.1116
Pop_45_64*Accom	1	-0.00027(0.000080)	11.6947	0.0006
Pop_45_64*Other	1	-0.00028(0.000120)	5.4523	0.0195
Pop_45_64*PubAdmin	0	0(.)	.	.
Hispanic_2010	1	-0.00016(0.000026)	37.8548	<.0001
Size*Hispanic_C	1	0.000026(2.124E-6)	144.8342	<.0001
Hispanic_*Agric	1	0.000193(0.000234)	0.6833	0.4084
Hispanic_*Mining	1	-0.00035(0.000274)	1.6251	0.2024
Hispanic_*Util	1	-0.00069(0.000115)	35.7936	<.0001
Hispanic_*Const	1	0.000145(0.000035)	17.6876	<.0001
Hispanic_*Food	1	-8.59E-6(0.000057)	0.0226	0.8804
Hispanic_*Wood	1	4.524E-6(0.000055)	0.0067	0.9350
Hispanic_*Metal	1	0.000080(0.000048)	2.7697	0.0961
Hispanic_*Whole	1	0.000064(0.000036)	3.0848	0.0790
Hispanic_*Retail	1	0.000071(0.000026)	7.4441	0.0064
Hispanic_*Retail	1	-0.00011(0.000029)	13.8391	0.0002
Hispanic_*Trans	1	-0.00002(0.000044)	0.1961	0.6579
Hispanic_*Trans	1	-0.00014(0.000062)	4.9325	0.0264
Hispanic_*Info	1	0.000142(0.000036)	15.4514	<.0001
Hispanic_*Finance	1	0.000045(0.000032)	1.9670	0.1608
Hispanic_*RealEstate	1	0.000194(0.000035)	30.1554	<.0001
Hispanic_*Profess	1	-0.00003(0.000036)	0.5345	0.4647
Hispanic_*Manage	1	0.000133(0.000069)	3.7271	0.0535
Hispanic_*Admin	1	-0.00007(0.000037)	3.9045	0.0482
Hispanic_*Educ	1	-0.00029(0.000047)	38.1159	<.0001
Hispanic_*Health	1	-0.00006(0.000028)	4.0285	0.0447
Hispanic_*Arts	1	-0.00002(0.000056)	0.0881	0.7666
Hispanic_*Accom	1	0.000240(0.000027)	76.2848	<.0001
Hispanic_*Other	1	0.000078(0.000039)	3.9456	0.0470
Hispanic_*PubAdmin	0	0(.)	.	.
NH_White_alone_2	1	-0.00014(0.000018)	58.5815	<.0001
Size*NH_White_a	1	6.421E-6(1.53E-6)	17.6032	<.0001
NH_White_alon*Agric	1	-0.00007(0.000130)	0.2599	0.6102
NH_White_alon*Mining	1	0.000055(0.000113)	0.2359	0.6272
NH_White_alon*Util	1	0.000327(0.000045)	51.7695	<.0001
NH_White_alon*Const	1	0.000099(0.000024)	17.0278	<.0001
NH_White_alon*Food	1	0.000173(0.000043)	16.1497	<.0001
NH_White_alon*Wood	1	0.000106(0.000042)	6.4478	0.0111
NH_White_alon*Metal	1	0.000079(0.000030)	6.9138	0.0086
NH_White_alon*Whole	1	0.000141(0.000026)	30.0691	<.0001
NH_White_alon*Retail	1	0.000010(0.000018)	0.3442	0.5574
NH_White_alon*Retail	1	-0.00011(0.000019)	31.0096	<.0001
NH_White_alon*Trans	1	0.000021(0.000034)	0.3683	0.5439
NH_White_alon*Trans	1	0.000058(0.000041)	1.9579	0.1617
NH_White_alon*Info	1	0.000099(0.000027)	13.1200	0.0003
NH_White_alon*Finance	1	0.000168(0.000023)	54.3351	<.0001
NH_White_alon*RealEstate	1	0.000205(0.000027)	59.5709	<.0001
NH_White_alon*Profess	1	0.000055(0.000024)	5.0685	0.0244
NH_White_alon*Manage	1	-0.00005(0.000046)	1.1265	0.2885
NH_White_alon*Admin	1	0.000081(0.000027)	8.9970	0.0027
NH_White_alon*Educ	1	-0.00018(0.000027)	40.6770	<.0001

NH_White_alon*Health	1	0.000011(0.000019)	0.3250	0.5686
NH_White_alon*Arts	1	0.000014(0.000036)	0.1600	0.6892
NH_White_alon*Accom	1	0.000129(0.000019)	46.8037	<.0001
NH_White_alon*Other	1	0.000115(0.000026)	18.7260	<.0001
NH_White_alon*PubAdm	0	0(.)	.	.
College_08_12	1	-0.00029(0.000028)	113.9979	<.0001
Size*College	1	0.000048(2.315E-6)	427.4291	<.0001
College_O*Agric	1	0.000253(0.000304)	0.6923	0.4054
College_O*Mining	1	0.000148(0.000163)	0.8248	0.3638
College_O*Util	1	-0.00016(0.000080)	4.0801	0.0434
College_O*Const	1	0.000219(0.000037)	34.1438	<.0001
College_O*Food	1	0.000040(0.000073)	0.2951	0.5870
College_O*Wood	1	0.000123(0.000070)	3.0607	0.0802
College_O*Metal	1	-0.00009(0.000054)	2.9538	0.0857
College_O*Whole	1	0.000239(0.000041)	33.8671	<.0001
College_O*Retail	1	0.000030(0.000028)	1.0945	0.2955
College_O*Retail	1	-0.00036(0.000036)	101.3050	<.0001
College_O*Trans	1	0.000178(0.000059)	9.0050	0.0027
College_O*Trans	1	-0.00023(0.000079)	8.3275	0.0039
College_O*Info	1	0.000193(0.000040)	23.1787	<.0001
College_O*Finance	1	-6.96E-6(0.000032)	0.0467	0.8289
College_O*RealEst	1	0.000076(0.000038)	3.8718	0.0491
College_O*Profess	1	-0.00001(0.000035)	0.0980	0.7542
College_O*Manage	1	0.000284(0.000058)	23.8277	<.0001
College_O*Admin	1	-0.00009(0.000041)	4.7451	0.0294
College_O*Educ	1	0.000082(0.000041)	4.0050	0.0454
College_O*Health	1	0.000135(0.000030)	20.3221	<.0001
College_O*Arts	1	0.000132(0.000046)	8.0928	0.0044
College_O*Accom	1	0.000464(0.000029)	265.1096	<.0001
College_O*Other	1	0.000149(0.000039)	14.9654	0.0001
College_O*PubAdmin	0	0(.)	.	.
Civ_unemp_16plus	1	-0.00043(0.000162)	6.9013	0.0086
Size*Civ_unemp	1	0.000101(0.000014)	50.8933	<.0001
Civ_unemp_16p*Agric	1	-0.00181(0.00133)	1.8472	0.1741
Civ_unemp_16p*Mining	1	0.000139(0.000918)	0.0231	0.8793
Civ_unemp_16p*Util	1	0.000255(0.000415)	0.3769	0.5393
Civ_unemp_16p*Const	1	0.000231(0.000218)	1.1214	0.2896
Civ_unemp_16p*Food	1	0.000363(0.000433)	0.7014	0.4023
Civ_unemp_16p*Wood	1	0.000510(0.000355)	2.0663	0.1506
Civ_unemp_16p*Metal	1	0.000097(0.000287)	0.1135	0.7362
Civ_unemp_16p*Whole	1	0.000118(0.000240)	0.2432	0.6219
Civ_unemp_16p*Retail	1	8.179E-6(0.000164)	0.0025	0.9601
Civ_unemp_16p*Retail	1	0.000946(0.000183)	26.8247	<.0001
Civ_unemp_16p*Trans	1	0.000082(0.000325)	0.0638	0.8006
Civ_unemp_16p*Trans	1	-0.00038(0.000376)	1.0270	0.3109
Civ_unemp_16p*Info	1	-0.00082(0.000241)	11.5949	0.0007
Civ_unemp_16p*Finance	1	-0.00065(0.000200)	10.5086	0.0012
Civ_unemp_16p*RealEst	1	-0.00007(0.000232)	0.0876	0.7673
Civ_unemp_16p*Profess	1	0.000279(0.000217)	1.6436	0.1998
Civ_unemp_16p*Manage	1	0.000620(0.000401)	2.3926	0.1219
Civ_unemp_16p*Admin	1	-0.00010(0.000240)	0.1799	0.6715
Civ_unemp_16p*Educ	1	-0.00100(0.000261)	14.8098	0.0001
Civ_unemp_16p*Health	1	-0.00015(0.000178)	0.7487	0.3869
Civ_unemp_16p*Arts	1	-0.00024(0.000329)	0.5365	0.4639
Civ_unemp_16p*Accom	1	-5.24E-6(0.000171)	0.0009	0.9755
Civ_unemp_16p*Other	1	-0.00010(0.000242)	0.1734	0.6771
Civ_unemp_16p*PubAdm	0	0(.)	.	.

Tot_Prns_in_HHD_	1	-6.9E-7(0.000034)	0.0004	0.9840
Size*Tot_Prns_i	1	0.000014(4.316E-6)	10.7413	0.0010
Tot_Prns_in_H*Agric	1	0.000056(0.000237)	0.0565	0.8121
Tot_Prns_in_H*Mining	1	-0.00024(0.000177)	1.9099	0.1670
Tot_Prns_in_H*Util	1	-0.00025(0.000074)	11.6446	0.0006
Tot_Prns_in_H*Const	1	-0.00001(0.000041)	0.1225	0.7264
Tot_Prns_in_H*Food	1	-0.00015(0.000064)	5.3526	0.0207
Tot_Prns_in_H*Wood	1	0.000034(0.000082)	0.1747	0.6759
Tot_Prns_in_H*Metal	1	-0.00007(0.000063)	1.3233	0.2500
Tot_Prns_in_H*Whole	1	-0.00003(0.000043)	0.3597	0.5487
Tot_Prns_in_H*Retail	1	0.000020(0.000029)	0.4782	0.4893
Tot_Prns_in_H*Retail	1	-0.00017(0.000036)	22.5472	<.0001
Tot_Prns_in_H*Trans	1	0.000022(0.000056)	0.1493	0.6992
Tot_Prns_in_H*Trans	1	0.000117(0.000083)	1.9824	0.1591
Tot_Prns_in_H*Info	1	-0.00018(0.000043)	16.5800	<.0001
Tot_Prns_in_H*Finance	1	-0.00015(0.000035)	17.9589	<.0001
Tot_Prns_in_H*RealEst	1	-0.00006(0.000043)	2.2089	0.1372
Tot_Prns_in_H*Profess	1	0.000164(0.000036)	20.9900	<.0001
Tot_Prns_in_H*Manage	1	0.000113(0.000081)	1.9476	0.1628
Tot_Prns_in_H*Admin	1	-0.00003(0.000043)	0.4552	0.4999
Tot_Prns_in_H*Educ	1	0.000083(0.000047)	3.1465	0.0761
Tot_Prns_in_H*Health	1	0.000100(0.000032)	9.8661	0.0017
Tot_Prns_in_H*Arts	1	-0.00011(0.000054)	3.9126	0.0479
Tot_Prns_in_H*Accom	1	-0.00003(0.000029)	0.7797	0.3772
Tot_Prns_in_H*Other	1	0.000211(0.000047)	19.7816	<.0001
Tot_Prns_in_H*PubAdm	0	0(.) .	.	
Tot_Housing_Units_CE	1	0.000139(0.000031)	19.5100	<.0001
Size*Tot_Housin	1	-7.44E-6(2.763E-6)	7.2426	0.0071
Tot_Housing_U*Agric	1	-0.00071(0.000314)	5.1644	0.0231
Tot_Housing_U*Mining	1	-0.00032(0.000225)	2.0610	0.1511
Tot_Housing_U*Util	1	-0.00021(0.000101)	4.3219	0.0376
Tot_Housing_U*Const	1	-0.00003(0.000042)	0.6571	0.4176
Tot_Housing_U*Food	1	-0.00021(0.000103)	4.2040	0.0403
Tot_Housing_U*Wood	1	-0.00027(0.000096)	7.7749	0.0053
Tot_Housing_U*Metal	1	0.000172(0.000076)	5.0681	0.0244
Tot_Housing_U*Whole	1	-0.00030(0.000054)	29.7468	<.0001
Tot_Housing_U*Retail	1	-0.00007(0.000032)	4.6930	0.0303
Tot_Housing_U*Retail	1	-0.00001(0.000038)	0.0859	0.7695
Tot_Housing_U*Trans	1	-0.00038(0.000082)	21.7305	<.0001
Tot_Housing_U*Trans	1	-0.00030(0.000105)	8.1675	0.0043
Tot_Housing_U*Info	1	-0.00012(0.000048)	5.7659	0.0163
Tot_Housing_U*Finance	1	-0.00008(0.000037)	4.1167	0.0425
Tot_Housing_U*RealEst	1	-0.00019(0.000045)	17.5946	<.0001
Tot_Housing_U*Profess	1	-0.00011(0.000041)	6.6885	0.0097
Tot_Housing_U*Manage	1	-0.00023(0.000079)	8.8283	0.0030
Tot_Housing_U*Admin	1	-0.00011(0.000051)	4.3249	0.0376
Tot_Housing_U*Educ	1	-0.00022(0.000054)	17.2163	<.0001
Tot_Housing_U*Health	1	-0.00022(0.000036)	39.5718	<.0001
Tot_Housing_U*Arts	1	0.000093(0.000051)	3.4135	0.0647
Tot_Housing_U*Accom	1	-0.00023(0.000032)	49.3979	<.0001
Tot_Housing_U*Other	1	-0.00006(0.000045)	1.7663	0.1838
Tot_Housing_U*PubAdm	0	0(.)	.	.