Using the American Community Survey (ACS) Multi-Year Estimates in State Programs: Empire Zones in Rockland County, NY

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The American Community Survey is the latest in a long list of Census Bureau innovations keeping pace with changing technology and methods. The process of reengineering the 2010 Census has led to the integration of a number of longstanding but disparate programs. While the Bureau doesn't often use the 3-legged stool analogy, it is a useful representation of the components of the data collection process moving into the first Census of the 21st century.

The 2010 Census will be a short-form headcount consistent with the Constitutional requirements and needs of the voting rights act. New to the process is the elimination of the long form sample questionnaire and introduction of the American Community Survey (ACS). The ACS is the largest ongoing survey operation ever undertaken by the Census Bureau and clearly the largest effort of its kind. The Census Bureau surveys 250,000 households every month aggregating these monthly samples to approximate the sample drawn in the traditional long form Census. The Census Bureau's population estimates program is more than 30 years old but only recently has taken on a new level of importance as controls for the American Community Survey. These three components—the Decennial Short-Form Only Census, the American Community Survey, and the Population Estimates Program—now make up the foundation of Census operations for 2010 and into the next decade.

However, this level of innovation isn't without its growing pains. While the ACS is intended to replace the long form data, there are ongoing questions and concerns about sample size, the quality of sample estimates, the quality of population controls, and the interpretation of results from a pooled sample versus a point in time survey. The Census Bureau as well as data users and policy makers need to be able to answer these questions and better understand how this new data source will be used in real world applications.

Objective

The objective of this paper is to evaluate the use of American Community Survey results in legislative threshold based state programs. Federal and state legislation and regulations require the use of census data for the determination of eligibility, formula funding, identification of need, and performance evaluation. Traditional long form census data have been used for many of these programs, explicitly and implicitly. In order for the American Community Survey to replace the long-form data it must stand up to the various uses to which census long form data have traditionally been applied.

Language plays an important part in such legislation as program authors don't always refer to census data with technical accuracy. Terms such as "the most recent census data", "current poverty level", "distressed census tracts" are used in program language.[i] Such use opens the door to a variety of interpretations as to the most appropriate data to be used. This research attempts to evaluate the impact of ACS results on a specific economic development program in the State of New York. However, it should be viewed as an

alert to state legislatures and Congress to review existing statutes and reevaluate the appropriateness of their language in a world of American Community Survey data.

New York's Empire Zones Program

One of New York's prime economic development tools is the Empire Zones program. Its authorizing legislation was passed in 1986 with the intent of targeting pockets of economic distress. Qualifying areas (census tracts) were eligible for various economic incentives to encourage business development and job growth. An inherent inconsistency in the program's application was the intent to spur commercial development in areas where eligibility was defined based on residential characteristics. In order to broaden its application, once a tract was determined to be eligible, the actual zone could be defined using any portion of the eligible tract and extensions into contiguous tracts. In this way, the zone could encompass areas available for commercial development while also improving the economic climate for residents of the distressed zone.

Economic distress in the original legislation was defined based on small area characteristics at the census tract level, namely high levels of poverty and unemployment in census tracts of at least 2,000 population. The final criteria were the result of exhaustive testing of census socio-economic characteristics reported in the 1980 Census. Specifically, in order to pass the eligibility test, a census tract must have had a population of 2,000 or more, a personal poverty rate of 20.0 percent or more, and an unemployment rate 1.25 times the statewide unemployment rate as reported in the census. These data elements were extracted from 1980 Summary Tape File 3 for all tracts in the state and the test of eligibility was run. Once the determination was made, these eligible tracts maintained their status until the next decennial census.

Summary Tape File 3 is based upon long form data and is subject to sampling error. Census provides the required information upon which the margin of error can be computed however, such allowance is rarely, if ever, written into enabling legislation. The thresholds defined in the language are fixed therefore a tract with a poverty rate of 20.01 percent qualifies while a tract with 19.99 percent does not. Certainly, on a statistical basis, these computed poverty rates are not statistically different yet there was no provision for challenging the determination, though there are provisions for use of alternative data under different sections of law. The end result is that while communities could challenge the eligibility test on the basis of statistical reliability, awareness of that possibility was not widely known.

The decennial census long form data were the only source providing characteristics data at the tract level. Eligibility testing was done once every ten years. The American Community Survey changes the playing field. Rather than waiting for ten years to revise eligibility status, the ACS will provide census tract characteristics on an annual basis beginning in 2010. What's more, it was easy to ignore the sampling variability in long form data as statements on the quality of data and sampling error were relegated to

appendices in printed volumes and rarely read by data users. However, the ACS data products are quite clear in presentation of survey estimates and the accompanying margin of error. We can no longer ignore sampling error and it will impact the interpretation of data and its application in formula grant and threshold eligibility tests.

Rockland County

Rockland County, New York was an original test county in the early development of the American Community Survey and therefore has one, three, and five-year sample estimates available. Rockland County also has a couple of qualifying census tracts based on the 2000 Census data. Figure 1 is a map of the county showing the two qualifying tracts in yellow. The surrounding contiguous tracts are filled in green and together show the geographic scope of the potential zone. The actual zone (the red areas on the map) has an acreage limit but within that limit, the zone can extend throughout the eligible and contiguous tracts. Portions of the final zone extend beyond the eligible and contiguous area because subsequent changes in legislation allowed for broader definition of developable property.

Table 1 presents the 2000 census data used in the eligibility test. This shows the reported characteristics used in the Empire Zone program and other similar New York economic development programs. There are 58 census tracts in Rockland County and based on the 2000 Census long form data, only two (107.03 and 123) met the threshold criteria. When a 90 percent confidence interval is applied to the 2000 data, a third tract (107.02) becomes eligible. The challenge with new American Community Survey data will be the annual evaluation of eligibility and the potential for movement in and out of eligible status. Tables 2, 3, and 4 present the ACS data for tract eligibility for three overlapping five year periods, 1999-2003, 2000-2004, and 2001-2005. For the period 1999-2003 no tracts qualify using the ACS point estimates for poverty and unemployment rates, but two tracts qualify using the upper bounds of the 90 percent confidence intervals. Tract 107.03 stays eligible and Tract 121.04 becomes eligible, while Tract 123 loses its eligibility. Based on the ACS point estimates for tracts for the period 2000-2004, displayed in Table 3, the two tracts (Tracts 107.03 and 123) that were eligible in Census 2000 are ineligible, and Tract 121.04 remains eligible. Using the upper bounds of the confidence intervals for the estimates, there are five eligible tracts, one (Tract 107.3) of the tracts eligible in Census 2000, the one (Tract 121.04) eligible in ACS 1999-2003, and three additional tracts (Tracts 107.01, 121.03, and 122.01). Finally, based on the ACS point estimates for 2001-2005, two (Tracts 107.03 and 121.04) are eligible. With the upper bounds of the estimates, there are eight (Tracts 107.01, 107.03, 113.01, 121.01, 121.02, 121.04, 122.01, and 122.02) eligible tracts.

American Community Survey NOT a Replacement for Census Long-Form

When the Census Bureau first introduced the American Community Survey it was described as "replacing the Census Long-Form." More recently the Census Bureau has been more careful in describing the ACS and has not characterized it as a replacement. Yet users who relied on Census Long-Form data will now be turning to the ACS estimates to fulfill their needs. In the case of applications such as New York State's Empire Zones Program, simply using the annual releases of ACS Multi-Year Estimates for tracts in the same manner that Census Long-Form had been used previously, would lead to an unstable situation, with tracts moving into and out of eligibility each year in a confusing manner. Figures 2 and 3 summarize the variation in point estimates and confidence intervals for the two tracts that originally qualified based on data from Census 2000. Tract 107.03 becomes ineligible based on the multi-year point estimates of unemployment for the periods 1999-2003 and 2000-2004. If the upper bounds are used the tract remains consistently eligible for each period. Figure 3, displaying the estimates and confidence intervals for Tract 123, shows that the tract loses eligibility as the ACS estimates for persons in poverty are significantly lower than the Census 2000 for the periods 1999-2003 and 2000-2004. The point estimate for poverty is still below the eligibility threshold for the period 2001-2005, but the upper bound of the confidence interval exceeds the threshold.

The variation in estimates of the poverty and unemployment rates is partly a result of random variation resulting from sampling error, partly due to real change in the economic well-being of the tract residents, and partly due to changes in survey procedures between the Census 2000 long-form and the ACS. The ACS multi-year estimates for 1999-2003 overlap the Census 2000 and ideally the two should yield consistent estimates. The observed differences are largely due to sampling variability and changes in survey methodology. Figure 4 is a scattergram of poverty rates for the census tracts of Rockland County with the x-axis representing values from the Census 2000 and the y-axis representing values from the ACS MYE for 1999-2003. The poverty rates tend to concentrate in the lower range of the distribution for both data sources, and therefore we have used a logarithmic transformation to bring in the tracts with extremely high poverty rates and to more closely approximate a normal distribution. This has been done to enhance the visual display of poverty rates.

The poverty rate for Rockland County was 9.5 percent in Census 2000 and fell a significant amount to 7.6 percent as reported in ACS MYE 1999-2003. We attribute a difference this large to differences in the methodology between the two surveys. In Figure 4 it is apparent that most of the tracts with high poverty rates in Census 2000 have lower rates in the ACS MYE 1999-2003. A few tracts have extreme differences between Census 2000 and ACS MYE 1999-2003, as shown in Figure 4. The poverty rate for Tract 114.01 fell from 6.3 percent to 0.9 percent, while for Tract 116.02 the poverty rate rose from 2.4 percent to 9.4

percent. In both cases the differences were statistically significant, although highly unlikely. Differences in unemployment rates between Census 2000 and ACS MYE 1999-2003 are displayed in Figure 5. A similar pattern exists. There is a tendency for high values of unemployment rates in Census 2000 to be lower in ACS MYE 1999-2003, and for low values to be higher. There are also extreme differences greater than can be attributed to sampling error.

Comparing ACS estimates to Census Long-Form estimates is likely to yield some differences that cannot be explained as a result of random variation or changes in conditions. However comparing differences between ACS estimates for different periods should minimize differences due to methodological reasons and be the result of random variation and actual change in the underlying characteristics. In Figures 6 and 7 we have compared poverty and unemployment rates between ACS Multi-Year Estimates for 1999-2003 and 2001-2005. The differences appear to be more in keeping with the random variation that can be attributed to sampling error. However with three years of sample responses in common, the variation should be slight.

Using ACS Estimates as a Substitute for Census Long-Form

A number of the cautions and recommendations that can be made about using ACS estimates for allocating funds and determining eligibility apply to Census Long-Form data as well. What users may perceive as differences between estimates from the Census Long-Form and ACS are because they ignored sampling error in the Census Long-Form data. When data are produced once a decade, it was easier to just rely on the point estimates and not examine the statistical significance of differences between geographic areas or the same area at two points in time. As we pointed out earlier, when the threshold for eligibility was a value of 20 percent, program administrators were able to declare those with values of 19.9 percent to be ineligible and those with values of 20.1 percent to be eligible—totally ignoring that the difference between the two is statistically insignificant and due simply to random variation. In other words, the “luck of the draw.” The Census Bureau and the federal statistical community issued user guides and informational materials but in reality the bulk of users ignored their message. One of the most useful guides we have found to the use of federal statistics gathered from sample surveys was published in 1978—long before the ACS was even thought of. It is the *Report on Statistics for Allocation of Funds*, which is Statistical Policy Working Paper 1 by the Federal Committee on Statistical Methodology (1978). Perhaps the most important advice in the paper was the call for “provisions be made for an active, continuous interface between legislative program drafters and the statistical community” (page vi).

In order to minimize the effects of data errors, which inevitably occur in sample surveys, it is necessary for those drafting and interpreting legislative programs to recognize that point estimates from sample surveys

are not precise pinpoints but rather somewhat variable and best interpreted with ranges in mind. The following are possible ways to best take account of this variability:

- Multi-Year Averages. To gather data from multiple years in order to increase sample sizes and reduce sampling variability. The small area estimates for tracts and other areas of less than 20,000 population are only available as five-year period estimates. For larger areas, it may be prudent to avoid the temptation to use the 1-year estimates and instead base decisions on 3-year or 5-year period estimates.
- Hold Harmless Provisions. Programs that are meant to attract investment and take several years or more to yield results, should grant eligibility for some appropriate fixed interval. To declare an area eligible one year and then ineligible the following year, largely due to sampling variability rather than an underlying condition of need, would not be an appropriate use of the estimates.
- Combine Smaller Geographic Areas. In the report by Salvo and Lobo (2007) on ACS Multi-Year Estimates, they demonstrate how combining tract level data into larger geographic areas greatly improves the reliability of the estimates and their stability over time. While not all areas, especially rural less populous ones, have the luxury of combining multiple tracts into larger area for eligibility purposes (Voss, 2007), it does not reduce the need to think of eligibility based on characteristics of a larger area. For example, a program targeted for neighborhoods in need, can base eligibility on the characteristics of counties or Public Use Microdata Areas. Then use data—sample survey and administrative records—to locate the program in the appropriate neighborhoods.
- Supplement ACS Estimates with Administrative Records. The ACS Multi-Year reports by Swanson and Hough (2007) and Gage (2007) demonstrate how important administrative records can be to supplement the ACS estimates and to smooth out the fluctuations inherent in sample survey estimates.
- Evaluate Change Between Estimates From Non Overlapping Samples. The National Research Council (2007) panel on the usability of data from the American Community Survey advises against using estimates with overlapping samples when analyzing trends. For small area estimates this means allowing a five-year interval between re-assessing eligibility. Following this advice in combination with allowing a range based on the upper and lower bounds around a point estimate would bring needed stability to the determination of program eligibility.

References

Federal Committee on Statistical Methodology (1978a). *Report on Statistics for Allocation of Funds*. (Statistical Policy Working Paper 1, NTIS PB86-211521/AS.) Washington, DC: U.S. Department of Commerce.

Gage, Linda (2007). *Multiple ACS Estimates: Pick a Number, Any Number!* 2007 Census Bureau ACS Multi-Year Studies Meeting, US Census Bureau. November 15.

National Research Council (2007), Using the American Community Survey: Benefits and Challenges. Panel on the Functionality and Usability of Data from the American Community Survey, Constance F. Citro and Graham Kalton, Editors. Committee on National Statistics, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

Salvo, Joseph, Peter Lobo, Adam Willett, and Joel Alvarez (2007). *Evaluating A.C.S. Multi-Year Estimates: For Sub-County Areas in the Bronx.* 2007 Census Bureau ACS Multi-Year Studies Meeting, US Census Bureau, November 15.

Swanson, David and George Hough (2007). *An Evaluation of Persons Per Household (PPH) Data Generated by the American Community Survey: The Demographic Perspective.* 2007 Census Bureau ACS Multi-Year Studies Meeting, US Census Bureau, November 15.

Voss, Paul and David Long (2007). *The ACS: Quality & Utility of Multi-Year Estimates Data for Small Governmental Units.* 2007 Census Bureau ACS Multi-Year Studies Meeting, US Census Bureau, November 15.

[i] An example of specific state legislation using such terms is blah-blah-blah which is the law laying out eligibility criteria for New York State's Empire Zones, geographic areas granted a variety of State tax incentives with the intent to stimulate economic growth.

Table 1. Census 2000 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		286,753		9.8	9.5	9.2	3.8	3.7	3.6
Census Tract 101.01		4,908		3.6	2.4	1.1	3.6	2.8	2.1
Census Tract 101.02		4,707		5.0	3.4	1.8	3.9	3.1	2.3
Census Tract 102		4,629		7.1	5.5	3.9	4.2	3.6	3.0
Census Tract 105.01		4,807		6.4	4.9	3.4	4.8	4.2	3.5
Census Tract 105.02		6,536		10.0	8.0	6.0	3.3	2.7	2.1
Census Tract 105.03		2,052		4.7	2.9	1.1	3.9	3.1	2.2
Census Tract 106.01		3,888		7.2	5.1	3.0	7.7	6.5	5.4
Census Tract 106.02		6,411		16.4	13.9	11.4	4.8	3.9	3.1
Census Tract 107.01		3,537		16.2	12.8	9.3	4.8	3.8	2.7
Census Tract 107.02		3,703		20.5	16.9	13.2	10.2	8.7	7.1
Census Tract 107.03		**2,787**		**26.2**	**21.6**	**17.0**	**11.6**	**9.6**	**7.6**
Census Tract 108.01		4,274		3.9	2.7	1.5	1.6	1.2	0.8
Census Tract 108.02		5,662		1.9	1.2	0.5	2.2	1.8	1.4
Census Tract 108.03		5,736		5.7	4.2	2.6	2.7	2.1	1.5
Census Tract 108.04		4,104		3.9	2.5	1.0	5.0	4.1	3.2
Census Tract 109.01		4,794		1.9	1.0	0.2	3.6	2.8	2.1
Census Tract 109.02		4,001		7.7	5.6	3.4	4.3	3.5	2.7
Census Tract 110		1,863		5.4	3.4	1.4	6.3	5.1	4.0
Census Tract 111.01		6,066		4.0	2.7	1.4	3.6	2.9	2.3
Census Tract 111.02		5,723		6.2	4.5	2.9	4.0	3.3	2.6
Census Tract 112		6,386		2.7	1.8	0.8	1.9	1.5	1.0
Census Tract 113.01		5,351		17.9	15.0	12.1	9.6	8.4	7.3
Census Tract 113.02		5,248		6.1	4.4	2.7	3.6	2.9	2.2
Census Tract 113.03		5,339		4.3	2.9	1.6	4.8	4.0	3.2
Census Tract 114.01		4,221		8.5	6.3	4.1	3.4	2.6	1.9
Census Tract 114.02		7,872		3.7	2.7	1.6	3.5	2.9	2.4
Census Tract 114.03		5,442		1.5	0.8	0.1	2.9	2.3	1.7
Census Tract 115.01		6,929		7.0	5.4	3.8	5.7	4.9	4.0
Census Tract 115.02		6,727		7.3	5.6	3.9	3.4	2.8	2.1
Census Tract 115.03		5,246		69.2	67.7	66.3	2.9	2.6	2.3
Census Tract 115.04		6,958		9.9	7.9	6.0	5.5	4.7	3.9
Census Tract 116.01		3,172		7.0	4.7	2.5	3.1	2.3	1.5
Census Tract 116.02		4,838		3.7	2.4	1.1	1.4	0.9	0.4
Census Tract 116.03		5,202		6.5	4.8	3.0	2.9	2.3	1.6
Census Tract 117		3,117		4.4	3.0	1.5	5.7	4.8	3.9
Census Tract 118		784		20.9	14.8	8.7	2.2	1.2	0.2
Census Tract 119		7,157		9.0	7.2	5.4	3.8	3.2	2.6
Census Tract 120		3,849		4.1	2.9	1.6	3.8	3.2	2.6
Census Tract 121.01		5,149		23.1	20.4	17.7	4.0	3.3	2.6
Census Tract 121.02		4,998		57.7	55.1	52.4	3.8	3.2	2.6
Census Tract 121.03		4,783		33.2	30.0	26.9	2.1	1.5	1.0

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Rockland County		286,753		9.8	9.5	9.2	3.8	3.7	3.6
Census Tract 121.04		5,730		34.1	30.5	26.9	6.7	5.5	4.3
Census Tract 122.01		4,974		38.1	34.2	30.2	4.9	3.9	2.8
Census Tract 122.02		5,691		10.8	8.6	6.4	10.1	9.0	7.8
Census Tract 123		**4,386**		**26.9**	**23.1**	**19.3**	**10.4**	**9.1**	**7.8**
Census Tract 124		9,207		14.2	12.2	10.2	6.1	5.4	4.7
Census Tract 125.01		4,669		1.6	0.8	0.0	4.0	3.2	2.4
Census Tract 125.02		5,339		6.0	4.3	2.7	6.5	5.6	4.7
Census Tract 126		6,165		5.5	4.0	2.5	2.6	2.0	1.5
Census Tract 127		4,158		7.3	5.6	3.9	3.6	3.0	2.4
Census Tract 128		6,591		1.3	0.7	0.1	2.2	1.7	1.3
Census Tract 130.01		2,802		5.3	3.1	0.9	2.5	1.6	0.8
Census Tract 130.02		4,986		6.0	4.3	2.5	5.7	4.7	3.8
Census Tract 130.03		2,381		7.0	4.9	2.8	5.9	4.8	3.8
Census Tract 131		6,081		8.2	6.3	4.5	2.9	2.3	1.8
Census Tract 132		3,473		11.9	8.9	5.8	5.2	4.3	3.3
Census Tract 133		2,607		11.7	9.0	6.3	5.4	4.6	3.7
Census Tract 134		8,557		6.2	4.8	3.4	4.2	3.6	2.9

Source: US Census Bureau, Census 2000, Summary File 3.
Calculations of Upper and Lower Bounds by the authors.

Table 2. American Community Survey
Multi-Year Estimates 1999-2003 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		281,293		8.2	7.6	7.0	4.5	4.2	3.9
Census Tract 101.01	5,496	5,164	4,832	12.4	6.3	0.2	5.1	3.6	2.1
Census Tract 101.02	5,016	4,760	4,504	3.7	2.2	0.7	3.7	2.4	1.1
Census Tract 102	4,929	4,643	4,357	6.5	4.2	1.9	4.3	3.0	1.7
Census Tract 105.01	5,029	4,757	4,485	3.3	1.9	0.5	6.2	3.9	1.6
Census Tract 105.02	7,881	7,430	6,979	5.8	4.3	2.8	4.4	3.0	1.6
Census Tract 105.03	2,321	2,095	1,869	11.2	6.7	2.2	13.1	8.7	4.3
Census Tract 106.01	4,161	3,878	3,595	8.3	5.1	1.9	6.3	4.1	1.9
Census Tract 106.02	6,638	6,239	5,840	17.8	12.7	7.6	5.6	3.8	2.0
Census Tract 107.01	3,621	3,279	2,937	12.3	7.7	3.1	11.8	7.7	3.6
Census Tract 107.02	4,245	3,814	3,383	14.3	10.2	6.1	6.6	3.8	1.0
Census Tract 107.03	3,324	2,899	2,474	32.7	23.2	13.7	10.9	6.7	2.5
Census Tract 108.01	4,348	4,126	3,904	6.3	2.9	0.0	4.8	3.3	1.8
Census Tract 108.02	5,783	5,450	5,117	1.2	0.6	0.0	6.9	5.0	3.1
Census Tract 108.03	6,301	6,000	5,699	6.6	4.4	2.2	4.7	3.2	1.7
Census Tract 108.04	4,088	3,847	3,606	7.6	4.4	1.2	4.6	3.0	1.4
Census Tract 109.01	5,150	4,897	4,644	5.2	2.6	0.0	5.9	4.0	2.1
Census Tract 109.02	4,327	4,075	3,823	5.1	2.4	0.0	5.7	3.8	1.9
Census Tract 110	1,897	1,816	1,735	6.0	3.7	1.4	4.8	3.2	1.6
Census Tract 111.01	6,736	6,409	6,082	3.9	2.2	0.5	8.1	4.9	1.7
Census Tract 111.02	5,957	5,562	5,167	9.3	5.8	2.3	5.9	4.2	2.5
Census Tract 112	6,424	6,051	5,678	3.1	1.7	0.3	3.8	2.4	1.0
Census Tract 113.01	5,465	5,110	4,755	7.5	3.9	0.3	9.0	5.9	2.8
Census Tract 113.02	5,093	4,796	4,499	2.9	1.8	0.7	2.8	1.6	0.4
Census Tract 113.03	5,493	5,200	4,907	5.7	3.7	1.7	4.5	2.5	0.5
Census Tract 114.01	4,413	4,164	3,915	1.8	0.9	0.0	6.2	3.9	1.6
Census Tract 114.02	8,059	7,733	7,407	4.8	2.3	0.0	4.4	3.0	1.6
Census Tract 114.03	5,496	5,264	5,032	2.9	1.7	0.5	7.8	5.7	3.6
Census Tract 115.01	7,785	7,291	6,797	11.1	5.9	0.7	4.8	3.2	1.6
Census Tract 115.02	6,889	6,526	6,163	2.4	1.5	0.6	4.6	3.2	1.8
Census Tract 115.03	5,719	5,238	4,757	70.4	62.6	54.8	6.4	3.8	1.2
Census Tract 115.04	7,360	6,926	6,492	6.7	4.5	2.3	6.6	4.6	2.6
Census Tract 116.01	3,261	3,009	2,757	2.7	1.1	0.0	5.6	3.4	1.2
Census Tract 116.02	4,668	4,397	4,126	13.5	9.4	5.3	6.1	3.8	1.5
Census Tract 116.03	5,196	4,927	4,658	4.1	2.3	0.5	5.4	3.4	1.4
Census Tract 117	3,506	3,246	2,986	10.2	6.6	3.0	6.7	4.6	2.5
Census Tract 118	679	549	419	22.8	13.1	3.4	17.3	9.2	1.1
Census Tract 119	7,757	7,291	6,825	6.4	4.1	1.8	4.6	2.9	1.2
Census Tract 120	4,254	4,013	3,772	3.1	1.9	0.7	5.2	3.4	1.6
Census Tract 121.01	5,960	5,350	4,740	22.0	14.5	7.0	6.7	4.1	1.5
Census Tract 121.02	5,387	4,903	4,419	59.1	48.7	38.3	7.9	4.6	1.3
Census Tract 121.03	4,967	4,566	4,165	20.7	15.3	9.9	8.1	4.1	0.1

Table 2. American Community Survey
Multi-Year Estimates 1999-2003 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		281,293		8.2	7.6	7.0	4.5	4.2	3.9
Census Tract 121.04	5,742	5,284	4,826	31.7	24.8	17.9	11.7	6.6	1.5
Census Tract 122.01	5,565	5,064	4,563	35.2	25.4	15.6	8.1	5.3	2.5
Census Tract 122.02	6,405	5,936	5,467	11.4	7.9	4.4	7.6	4.8	2.0
Census Tract 123	4,247	3,722	3,197	16.3	11.6	6.9	16.6	9.4	2.2
Census Tract 124	9,851	9,160	8,469	16.0	11.2	6.4	11.3	8.4	5.5
Census Tract 125.01	4,425	4,219	4,013	5.3	2.9	0.5	5.2	2.9	0.6
Census Tract 125.02	5,362	5,129	4,896	4.7	3.0	1.3	5.6	3.7	1.8
Census Tract 126	6,654	6,265	5,876	5.8	2.9	0.0	3.1	1.8	0.5
Census Tract 127	4,495	4,156	3,817	9.5	5.4	1.3	9.9	7.3	4.7
Census Tract 128	6,598	6,303	6,008	1.1	0.7	0.3	6.4	4.1	1.8
Census Tract 130.01	2,318	2,155	1,992	9.4	4.5	0.0	9.4	5.6	1.8
Census Tract 130.02	4,709	4,408	4,107	3.5	2.2	0.9	7.2	4.7	2.2
Census Tract 130.03	2,664	2,503	2,342	3.6	2.2	0.8	4.3	2.4	0.5
Census Tract 131	6,892	6,380	5,868	9.7	7.3	4.9	8.4	5.7	3.0
Census Tract 132	3,256	3,084	2,912	6.1	3.7	1.3	6.5	4.0	1.5
Census Tract 133	2,828	2,617	2,406	7.9	4.5	1.1	5.3	3.0	0.7
Census Tract 134	7,563	7,218	6,873	4.7	3.0	1.3	4.8	3.2	1.6

Source: US Census Bureau, American Community Survey, Multi-Year Estimates 1999-2003.

Table 3. American Community Survey
Multi-Year Estimates 2000-2004 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		283,202		9.1	8.5	7.9	4.9	4.5	4.1
Census Tract 101.01	5,436	5,140	4,844	8.2	4.1	0.0	6.4	4.3	2.2
Census Tract 101.02	4,987	4,716	4,445	6.6	3.2	0.0	6.0	3.7	1.4
Census Tract 102	4,883	4,599	4,315	5.8	3.7	1.6	5.2	3.6	2.0
Census Tract 105.01	5,154	4,845	4,536	9.4	4.7	0.0	6.4	4.3	2.2
Census Tract 105.02	7,885	7,447	7,009	5.0	3.6	2.2	3.1	2.0	0.9
Census Tract 105.03	2,675	2,309	1,943	10.8	6.5	2.2	11.9	8.1	4.3
Census Tract 106.01	4,020	3,663	3,306	6.0	3.9	1.8	7.1	4.3	1.5
Census Tract 106.02	6,754	6,275	5,796	17.3	12.5	7.7	6.5	4.7	2.9
Census Tract 107.01	3,789	3,457	3,125	20.7	12.6	4.5	11.5	7.5	3.5
Census Tract 107.02	4,116	3,679	3,242	17.1	12.4	7.7	8.5	5.0	1.5
Census Tract 107.03	3,302	2,857	2,412	28.9	21.3	13.7	13.3	8.2	3.1
Census Tract 108.01	4,481	4,256	4,031	7.2	3.5	0.0	5.3	3.5	1.7
Census Tract 108.02	5,821	5,501	5,181	1.1	0.6	0.1	7.3	5.2	3.1
Census Tract 108.03	6,090	5,803	5,516	5.9	4.0	2.1	4.3	3.0	1.7
Census Tract 108.04	4,316	4,049	3,782	8.1	4.8	1.5	5.2	3.3	1.4
Census Tract 109.01	4,960	4,750	4,540	3.9	2.1	0.3	6.0	3.9	1.8
Census Tract 109.02	4,199	3,975	3,751	3.5	1.5	0.0	5.1	3.3	1.5
Census Tract 110	2,008	1,888	1,768	7.1	4.5	1.9	4.0	2.5	1.0
Census Tract 111.01	6,449	6,112	5,775	3.9	2.2	0.5	9.5	5.8	2.1
Census Tract 111.02	6,017	5,690	5,363	12.9	8.3	3.7	4.8	3.0	1.2
Census Tract 112	6,684	6,277	5,870	4.6	2.4	0.2	4.1	2.4	0.7
Census Tract 113.01	6,087	5,597	5,107	17.0	10.0	3.0	8.3	5.5	2.7
Census Tract 113.02	5,074	4,683	4,292	2.6	1.5	0.4	2.0	1.0	0.0
Census Tract 113.03	5,534	5,155	4,776	5.6	3.5	1.4	4.8	2.7	0.6
Census Tract 114.01	4,398	4,127	3,856	3.4	1.6	0.0	5.5	3.4	1.3
Census Tract 114.02	8,255	7,883	7,511	2.2	1.3	0.4	4.4	3.1	1.8
Census Tract 114.03	5,522	5,218	4,914	3.6	2.1	0.6	6.7	4.4	2.1
Census Tract 115.01	7,829	7,373	6,917	16.9	9.8	2.7	5.9	4.0	2.1
Census Tract 115.02	6,683	6,257	5,831	2.6	1.5	0.4	5.4	3.6	1.8
Census Tract 115.03	5,984	5,471	4,958	71.4	62.2	53.0	6.1	3.8	1.5
Census Tract 115.04	7,021	6,573	6,125	6.3	4.7	3.1	7.3	4.8	2.3
Census Tract 116.01	3,492	3,204	2,916	3.3	1.3	0.0	5.3	3.4	1.5
Census Tract 116.02	5,169	4,851	4,533	14.9	10.1	5.3	6.3	4.1	1.9
Census Tract 116.03	5,360	5,103	4,846	4.1	2.1	0.1	6.1	4.0	1.9
Census Tract 117	3,440	3,201	2,962	9.3	5.9	2.5	8.0	5.5	3.0
Census Tract 118	762	612	462	19.9	11.8	3.7	16.9	9.6	2.3
Census Tract 119	7,516	7,047	6,578	6.6	4.3	2.0	5.2	3.3	1.4
Census Tract 120	4,305	4,072	3,839	2.9	1.7	0.5	4.4	2.6	0.8
Census Tract 121.01	6,006	5,508	5,010	24.3	16.4	8.5	8.3	5.6	2.9
Census Tract 121.02	5,526	4,994	4,462	63.2	52.4	41.6	7.6	4.7	1.8
Census Tract 121.03	5,113	4,624	4,135	21.6	15.0	8.4	9.4	4.7	0.0

Table 3. American Community Survey
Multi-Year Estimates 2000-2004 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		283,202		9.1	8.5	7.9	4.9	4.5	4.1
Census Tract 121.04	6,142	5,388	4,634	47.6	36.6	25.6	17.1	10.7	4.3
Census Tract 122.01	5,852	5,397	4,942	34.9	26.1	17.3	9.5	6.0	2.5
Census Tract 122.02	6,682	6,022	5,362	14.9	10.0	5.1	12.0	7.9	3.8
Census Tract 123	4,444	3,945	3,446	18.1	11.6	5.1	12.5	7.5	2.5
Census Tract 124	9,924	9,317	8,710	16.6	11.5	6.4	12.9	9.6	6.3
Census Tract 125.01	4,398	4,153	3,908	5.5	2.7	0.0	5.9	3.6	1.3
Census Tract 125.02	5,482	5,179	4,876	4.2	2.6	1.0	5.5	3.9	2.3
Census Tract 126	7,079	6,523	5,967	8.6	4.9	1.2	4.5	2.7	0.9
Census Tract 127	4,449	4,093	3,737	10.6	6.4	2.2	9.7	6.6	3.5
Census Tract 128	6,692	6,396	6,100	0.9	0.5	0.1	6.4	4.2	2.0
Census Tract 130.01	2,286	2,134	1,982	9.5	4.6	0.0	11.0	6.8	2.6
Census Tract 130.02	4,578	4,300	4,022	7.4	4.5	1.6	9.3	6.3	3.3
Census Tract 130.03	2,562	2,356	2,150	3.8	2.1	0.4	4.6	2.6	0.6
Census Tract 131	6,687	6,207	5,727	7.9	5.9	3.9	8.0	5.3	2.6
Census Tract 132	3,000	2,770	2,540	8.5	5.5	2.5	5.2	3.2	1.2
Census Tract 133	2,931	2,697	2,463	18.0	9.6	1.2	7.2	4.0	0.8
Census Tract 134	7,832	7,484	7,136	3.7	2.4	1.1	5.8	3.9	2.0

Source: US Census Bureau, American Community Survey, Multi-Year Estimates 2000-2004.

Table 4. American Community Survey
Multi-Year Estimates 2001-2005 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		283,202		9.1	8.5	7.9	4.9	4.5	4.1
Census Tract 101.01	5,597	5,286	4,975	7.0	3.7	0.4	6.9	4.8	2.7
Census Tract 101.02	5,044	4,780	4,516	6.9	3.2	0.0	5.5	3.2	0.9
Census Tract 102	4,915	4,594	4,273	9.7	6.5	3.3	5.1	3.5	1.9
Census Tract 105.01	5,453	5,038	4,623	6.6	3.2	0.0	5.4	3.7	2.0
Census Tract 105.02	7,432	6,961	6,490	5.2	3.6	2.0	4.4	2.9	1.4
Census Tract 105.03	2,606	2,264	1,922	10.8	6.1	1.4	11.2	7.8	4.4
Census Tract 106.01	4,062	3,734	3,406	6.1	3.6	1.1	4.9	2.9	0.9
Census Tract 106.02	6,648	6,068	5,488	15.7	10.6	5.5	6.8	4.9	3.0
Census Tract 107.01	3,451	3,094	2,737	27.7	17.7	7.7	9.9	6.4	2.9
Census Tract 107.02	4,045	3,609	3,173	17.0	11.6	6.2	9.6	6.0	2.4
Census Tract 107.03	3,182	2,710	2,238	30.8	20.9	11.0	16.0	9.8	3.6
Census Tract 108.01	4,687	4,453	4,219	8.0	3.8	0.0	6.6	4.6	2.6
Census Tract 108.02	5,709	5,435	5,161	6.1	2.9	0.0	7.5	5.4	3.3
Census Tract 108.03	5,892	5,551	5,210	6.0	4.2	2.4	4.1	2.7	1.3
Census Tract 108.04	4,230	4,010	3,790	8.9	5.2	1.5	5.1	3.1	1.1
Census Tract 109.01	5,154	4,910	4,666	4.2	2.1	0.0	4.8	3.2	1.6
Census Tract 109.02	4,217	3,995	3,773	4.4	2.4	0.4	5.7	3.6	1.5
Census Tract 110	1,946	1,832	1,718	7.0	4.5	2.0	4.4	3.1	1.8
Census Tract 111.01	6,156	5,860	5,564	5.2	2.9	0.6	9.0	5.4	1.8
Census Tract 111.02	5,651	5,312	4,973	12.1	7.2	2.3	6.1	4.0	1.9
Census Tract 112	6,987	6,526	6,065	4.4	2.2	0.0	4.0	2.3	0.6
Census Tract 113.01	6,263	5,725	5,187	21.7	11.0	0.3	12.1	8.2	4.3
Census Tract 113.02	5,457	5,096	4,735	10.9	5.7	0.5	1.3	0.6	0.0
Census Tract 113.03	5,832	5,337	4,842	5.3	3.1	0.9	4.3	2.4	0.5
Census Tract 114.01	4,583	4,288	3,993	3.0	1.4	0.0	4.7	2.7	0.7
Census Tract 114.02	8,134	7,747	7,360	2.1	1.2	0.3	4.4	2.7	1.0
Census Tract 114.03	6,075	5,673	5,271	5.9	3.5	1.1	5.0	3.3	1.6
Census Tract 115.01	7,935	7,488	7,041	18.0	9.4	0.8	7.4	5.0	2.6
Census Tract 115.02	6,875	6,438	6,001	2.0	1.0	0.0	5.8	3.9	2.0
Census Tract 115.03	6,097	5,529	4,961	77.0	68.0	59.0	7.8	4.4	1.0
Census Tract 115.04	7,499	6,988	6,477	5.3	3.7	2.1	9.5	6.4	3.3
Census Tract 116.01	3,311	3,076	2,841	4.3	2.0	0.0	5.5	3.3	1.1
Census Tract 116.02	5,304	4,994	4,684	12.1	7.7	3.3	8.3	5.9	3.5
Census Tract 116.03	5,267	5,049	4,831	5.3	2.8	0.3	7.1	4.7	2.3
Census Tract 117	3,353	3,151	2,949	5.2	3.4	1.6	8.6	5.6	2.6
Census Tract 118	955	795	635	26.5	16.0	5.5	17.4	11.9	6.4
Census Tract 119	7,463	6,931	6,399	4.7	2.8	0.9	6.5	4.3	2.1
Census Tract 120	4,206	3,995	3,784	5.8	3.0	0.2	8.4	5.3	2.2
Census Tract 121.01	6,324	5,711	5,098	28.6	20.0	11.4	10.6	6.9	3.2
Census Tract 121.02	5,372	4,857	4,342	66.9	55.2	43.5	9.2	5.3	1.4
Census Tract 121.03	5,213	4,611	4,009	18.0	11.9	5.8	6.5	3.0	0.0

Table 4. American Community Survey
Multi-Year Estimates 2001-2005 for Tracts in Rockland County, NY

Area Name	Total Population			Poverty			Unemployment		
	Upper	Number	Lower	Upper	Rate	Lower	Upper	Rate	Lower
Rockland County		283,202		9.1	8.5	7.9	4.9	4.5	4.1
Census Tract 121.04	6,252	5,663	5,074	47.2	38.1	29.0	15.1	9.4	3.7
Census Tract 122.01	5,622	5,136	4,650	40.4	31.1	21.8	9.3	5.8	2.3
Census Tract 122.02	6,731	6,057	5,383	22.8	16.3	9.8	10.9	7.2	3.5
Census Tract 123	4,448	3,873	3,298	24.0	17.9	11.8	8.7	5.7	2.7
Census Tract 124	10,123	9,410	8,697	15.5	11.0	6.5	11.6	8.1	4.6
Census Tract 125.01	4,826	4,526	4,226	10.9	5.6	0.3	5.6	3.1	0.6
Census Tract 125.02	5,225	5,010	4,795	10.0	5.7	1.4	5.9	4.0	2.1
Census Tract 126	6,951	6,376	5,801	6.0	3.2	0.4	5.2	3.2	1.2
Census Tract 127	4,237	3,953	3,669	10.4	6.5	2.6	11.6	8.0	4.4
Census Tract 128	6,950	6,581	6,212	0.7	0.3	0.0	5.9	3.8	1.7
Census Tract 130.01	2,437	2,246	2,055	8.2	4.0	0.0	11.8	6.7	1.6
Census Tract 130.02	4,882	4,514	4,146	7.3	4.6	1.9	8.4	5.6	2.8
Census Tract 130.03	2,304	2,060	1,816	4.6	2.5	0.4	4.4	2.4	0.4
Census Tract 131	6,449	5,990	5,531	10.1	6.9	3.7	7.6	5.2	2.8
Census Tract 132	2,929	2,703	2,477	6.1	3.5	0.9	6.5	4.2	1.9
Census Tract 133	3,127	2,832	2,537	19.4	9.8	0.2	5.4	3.0	0.6
Census Tract 134	8,024	7,656	7,288	7.2	4.5	1.8	6.8	4.3	1.8

Source: US Census Bureau, American Community Survey, Multi-Year Estimates 2001-2005.

Figure 1. Empire Development Zones for Rockland County, NY

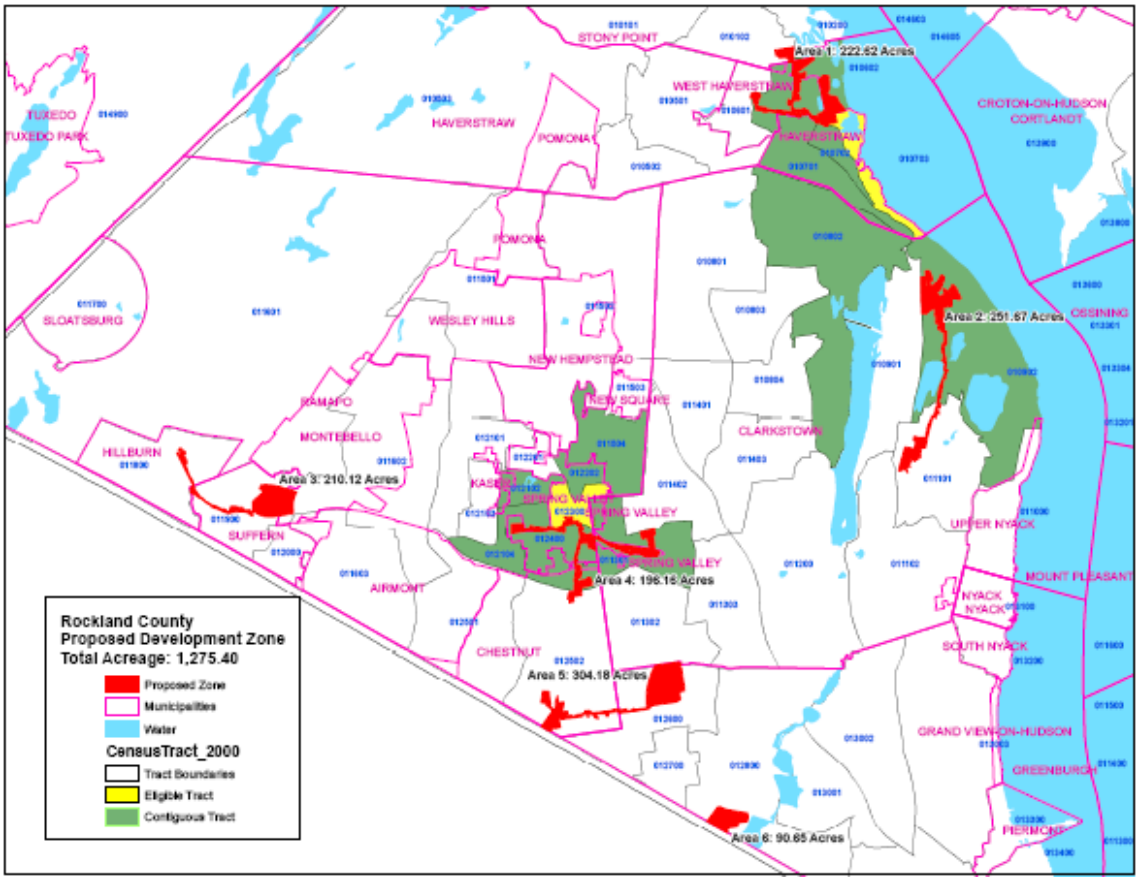

Figure 2. Empire Zones Program for Rockland County, NY: Tract 107.03

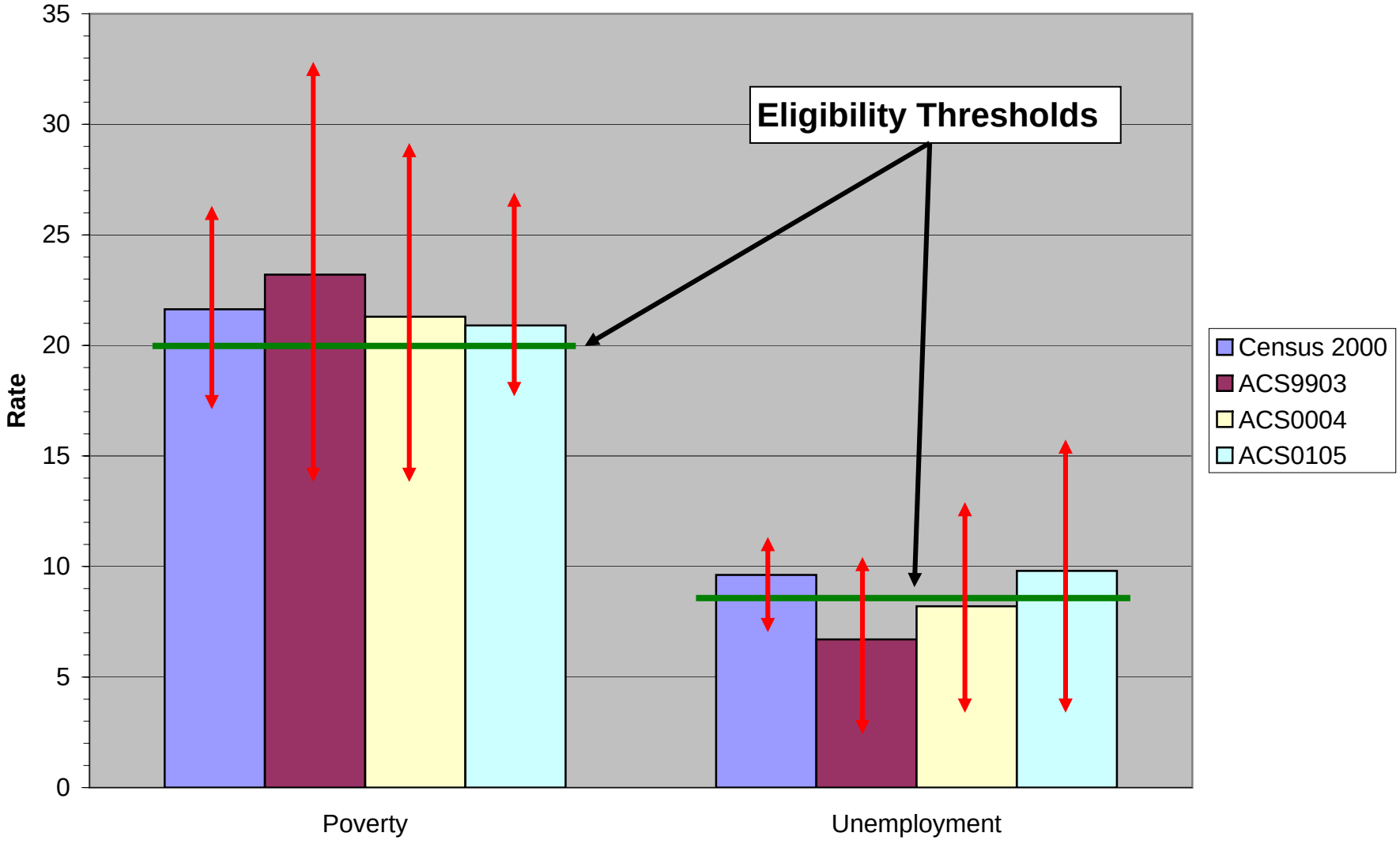

Figure 3. Empire Zones Program for Rockland County, NY: Tract 123

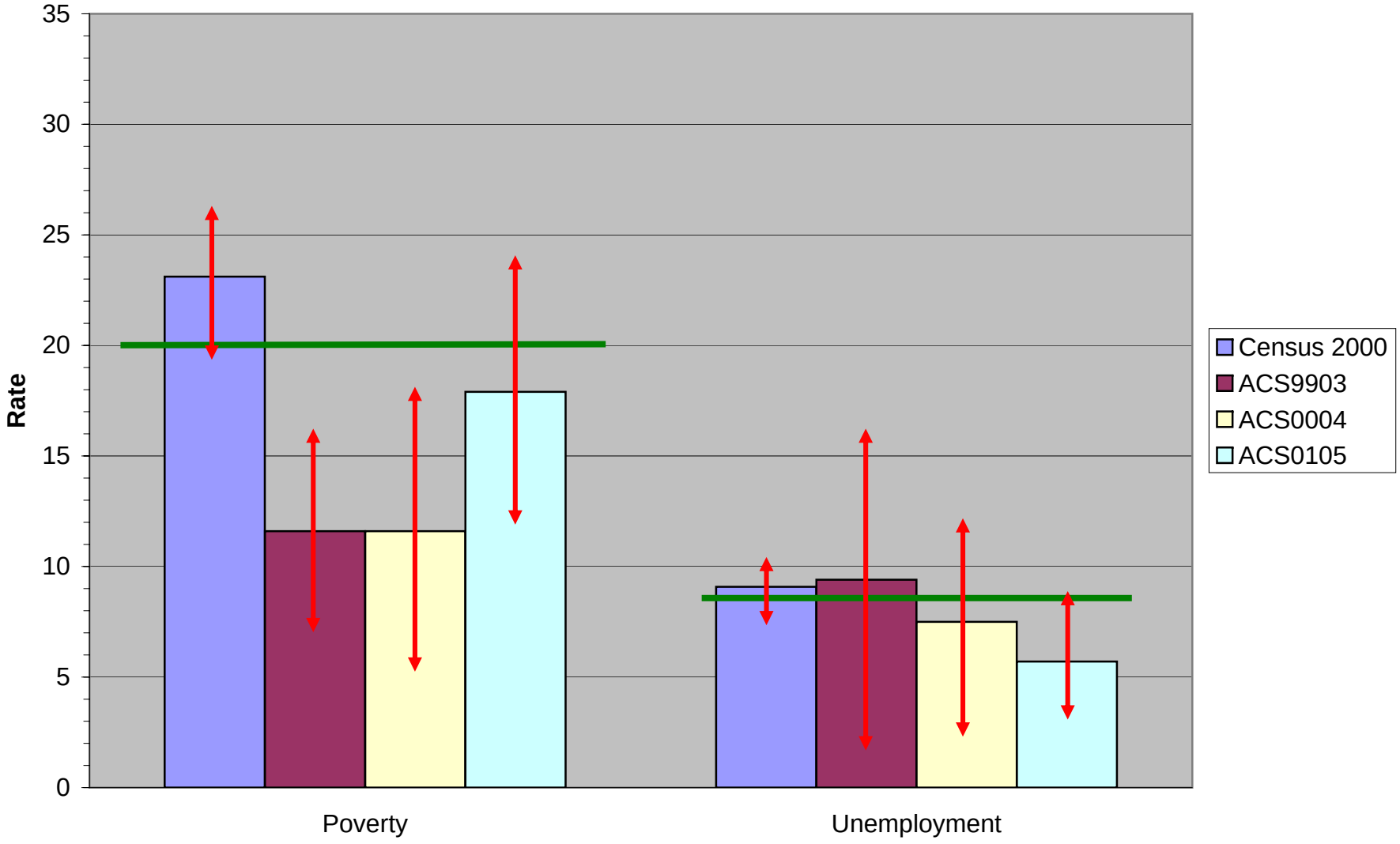

Figure 4. Poverty Rate for Rockland County, NY Tracts, Census 2000 and ACS 1999-2003

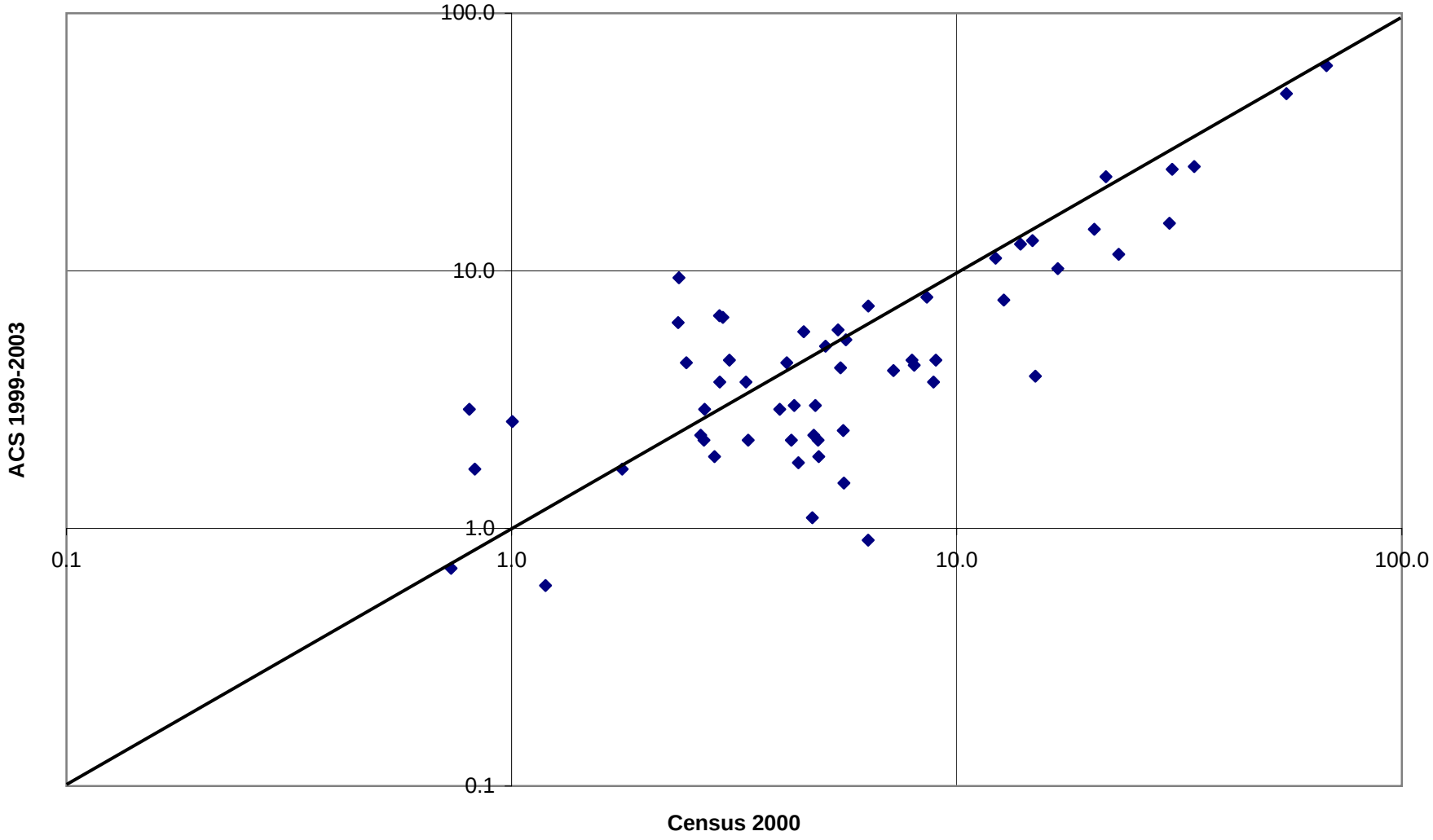

Figure 5. Unemployment Rate for Rockland County, NY Tracts, Census 2000 and ACS 1999-2003

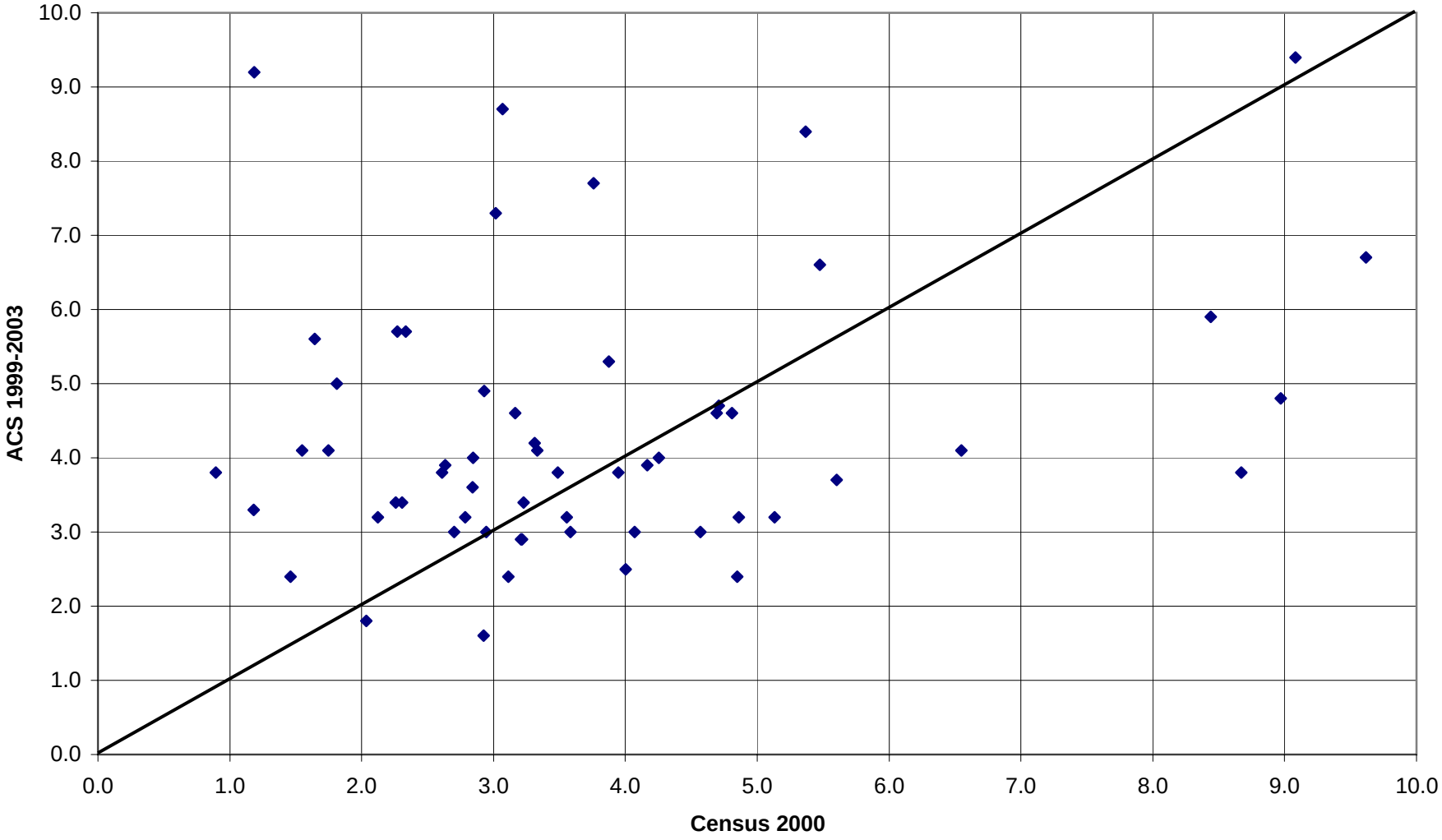

Figure 6. Poverty Rate for Rockland County, NY Tracts, ACS 1999-2003 and ACS 2001-2005

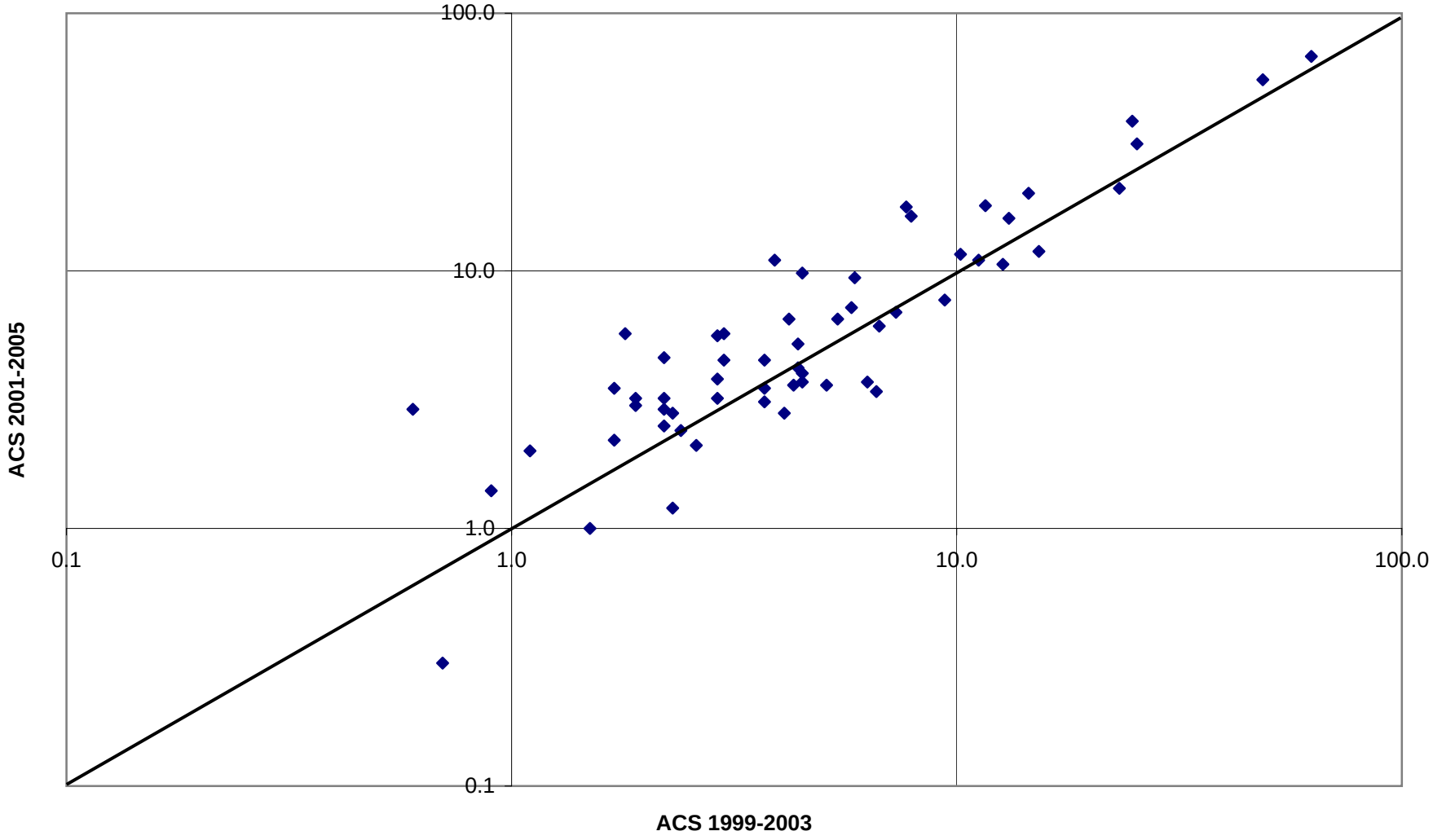
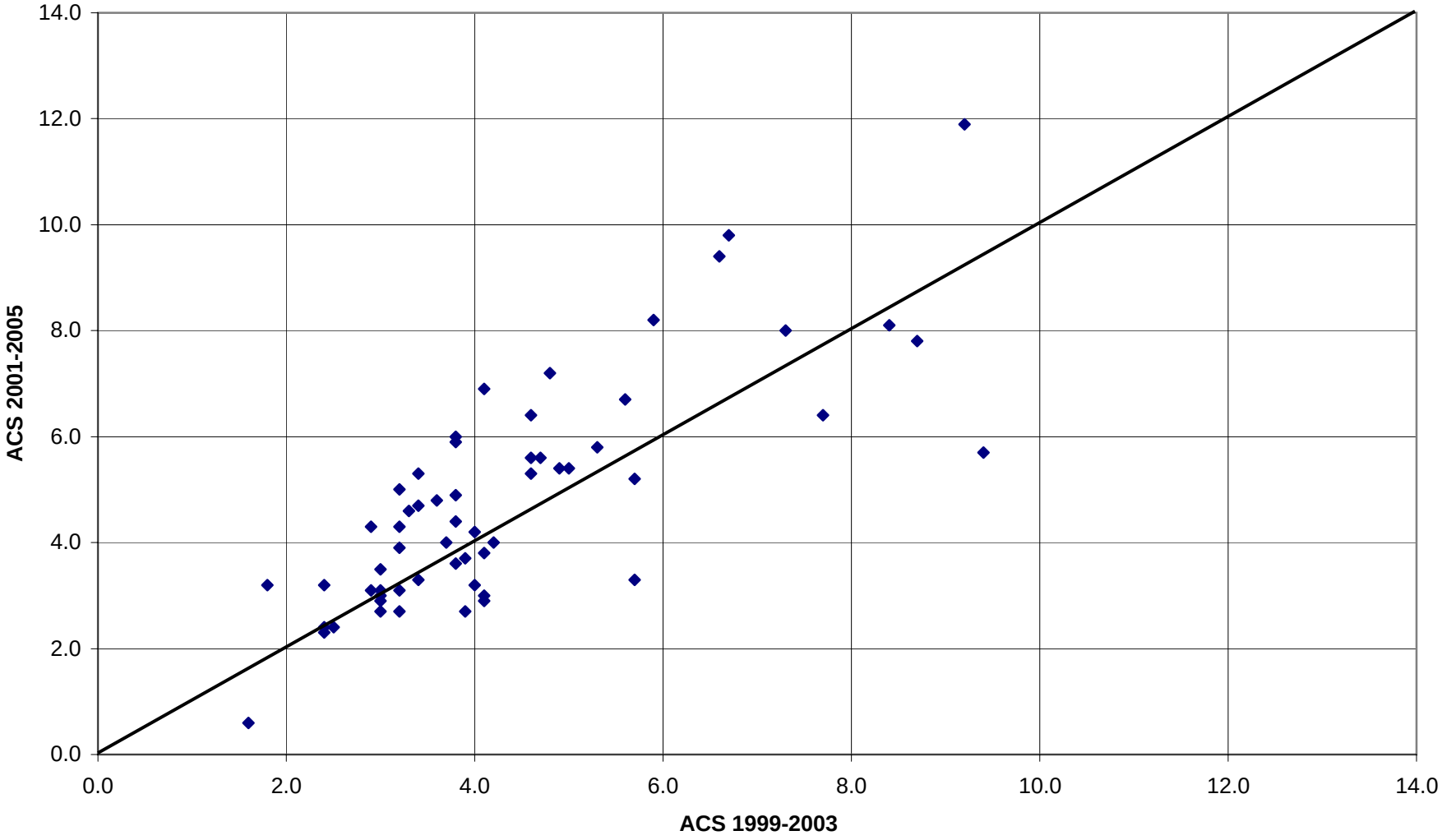
Figure 7. Unemployment Rate for Rockland County, NY Tracts, ACS 1999-2003 and ACS 2001-2005