

# **THE PHILADELPHIA METROPOLITAN CASE STUDY**

to

The William Penn Foundation and  
The Center on Urban and Metropolitan Policy  
The Brookings Institution

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March 1, 2000  
Working Paper #328

The Zell/Lurie Real Estate Center at Wharton  
University of Pennsylvania

## THE PHILADELPHIA METROPOLITAN CASE STUDY

This report presents the data and associated findings for the first of the two objectives of The Brookings Institution's Metropolitan Initiative: (1) the identification and analysis of the socioeconomic trends, development and land use patterns, and intergovernmental flows of the Philadelphia MSA; (2) documentation and analysis of the impact of transportation and infrastructure spending in the Philadelphia Metropolitan area.

### Data and General Characteristics

A large data set has been amassed for the 334 MCDs in the Philadelphia MSA. These data have been used to analyze the population growth, tax burden, and poverty patterns of the region described in the next three subsections. Past research on metropolitan areas has centered on inter-large city analysis (why are some large cities doing better than others?) and intrametropolitan analysis (comparisons of city and suburban patterns). This analysis focuses on the details of the suburban patterns of poverty, growth, fiscal pressures, and State and federal aid.

The full data set for the 334 MCDs in the Philadelphia MSA is described in Attachments 1, 2, 3, and 4. Attachment 1 is a list of all variables in the data set, with their source, descriptions and units

of analysis. Attachment 2 is the list of data sources. Attachment 3 lays out the descriptive statistics for each of these variables for the Pennsylvania segment of the MSA, and Attachment 4 for the New Jersey segment of the MSA.

Most of the analysis in the subsequent sections has centered on the Pennsylvania portion of the Philadelphia MSA, because very important recent data on state intergovernmental flows were not available for New Jersey.

Lest there be any doubt that central cities have totally different socioeconomic characteristics than their suburbs, Attachment 5 extracts some salient data from Attachments 3 and 4. Poverty rates are five to six times higher in the central cities, unemployment rates are two to three times higher, housing is substantially older, crime rates are seven to ten times higher, and education levels are substantially lower. Population changes are negative in the city, yet strongly positive in the suburbs. Federal and state aid to cities are much larger than to the suburbs. However, recent analysis by Pack, Voith, Gyourko and Summers demonstrates that they are not so large that cities are not left with substantial poverty service costs that need to be met from their own local revenue sources. The playing field for cities has not been made level with other local governments.

### Population

There are several major characteristics of interest in tracking the population dynamics of the Philadelphia MSA suburbs. Attachment 6 arrays the 236 MCDs into size quintiles. (Philadelphia is

shown for comparison.) Between 1980 and 1990, the largest suburbs grew the most, but in the next six years - 1990 to 1996 - they grew the least. It is the middle-sized municipalities that are growing most rapidly. The smallest quintile of suburbs had the lowest household income and the highest poverty rates, but apart from that, there was little variation among the other quintiles. Nonresidential developed land use was proportionately and consistently greater in the larger suburbs, as one might expect. But the proportion of land devoted to multi-family residential use had a much less consistent pattern. Municipalities with an average population of roughly five to ten thousand had double the proportion of the other size municipalities- - except, of course, Philadelphia.

The map of the region (Attachment 7) shows the geography of the population dynamics in a striking fashion. Most of the growth is in the towns further out from the center city of Philadelphia. Many nearby suburbs are growing slowly, or declining. The regression analysis (Attachment 8) brings insight into some of the major factors associated with the wide variation in population growth rates among the suburbs. On average, the characteristics of the higher growth suburbs are that they have higher median income, they tax themselves relatively more, they are further away from Philadelphia, they were relatively small, and their housing stock is relatively new. Not in these equations, but undoubtedly a significant factor in enabling these characteristics to emerge, is the greatly expanded suburban transportation network. A measurement of the specific location effects of this expansion would probably reduce the unexplained variation in population growth across the suburbs, though the positive effect of distance from the center city is almost certainly a reflection of the enabling effect of a stronger transportation network.

In sum, in the Philadelphia suburbs, population is expanding where the population is more

affluent, is better educated, is employed in heavy industry, has access to more single-family dwellings, and where the community is relatively small.

### Land Use Patterns

We have compiled detailed data on land use patterns in 1970 and 1990 for each of the MCDs in the Philadelphia MSA. Our analysis has focused on three aspects: the dynamics of land-use changes in relation to population size in the MCDs, the determinants of non-residential land use development in the MCDs, and the existing evidence on the growth potential under existing zoning ordinances.

The proportionate usage of land for residential, nonresidential developed, and multifamily housing is shown on Attachment 9. The percentages of land-use in 1970 and 1990, and the changes over that 20-year period are arrayed in relation to population quintiles. (Philadelphia data are shown for comparison purposes.) Residential land use, as one would expect, is larger in the suburban MCDs with higher population. There is no clear pattern to the growth in proportions. Nonresidential developed land proportions are also higher in the more populated suburban MCDs, and here the rate of growth is sharply higher in the most populated ones. Together, these data indicate an increased use of land for development, rather than for recreation, agriculture, and protection of wooded and vacant land - - with the greatest pressures coming from the most populated suburban MCDs. In the four suburban counties in Pennsylvania, over 185 acres was added to residential and non-residential development between 1970 and 1990; and over 200 acres less was devoted to agriculture, recreation, vacant, and wooded land. It is also of interest to note that the highest proportion of land allocated to

multi-family use, and the biggest growth in this proportion has been in the MCDs with an average population of 9,500 (the fourth quintile) - - not in the largest or smallest quintiles. And declines in the proportions of land in multi-family usage took place in the smallest 20% of MCDs averaging 1400 persons, and in the 20% averaging 5,000.

The proportions of land-use developed for nonresidential use gives some indication of the role of commercial/industrial/business activities in an MCD. The magnitude of these activities, described in the next section, is clearly relevant to the distribution of some intergovernmental flows. It is of interest, therefore, to gain insight into the characteristics of communities with higher proportions of land devoted to nonresidential development. The regressions presented in Attachment 10 indicate that the proportions are higher in MCDs that have older housing, that have a higher proportion of land already in that usage, that are closer to the center city, that have higher local taxes per capita, that have a higher proportion of their labor force employed in durable manufacturing and that receive more per capita state aid. Nonresidential land use, then, is encouraged by fewer disamenities of poverty, by what is probably the more permissive zoning in areas with older infrastructure, and by the stimulus of intergovernmental assistance and local expenditures in the provision of public services.

One of the most interesting questions relevant to land use development is the extent to which communities have development plans that hit against zoning walls. The Delaware Valley Planning Commission completed a study of five high growth corridors, covering 19 MCDs in the Philadelphia MSA - - Route 295 in Burlington County, N.J., Route 322 in Chester County, Pa., Route 322 in Delaware County, Pa., Route 322 in Gloucester County, N.J., and Route 130 in Mercer County, N.J. They analyzed how much development could take place under existing zoning regulations

in these major corridors, and translated their conclusions into population and employment potential. They concluded that, over the next 20 years, the corridors could handle from 8% to 117% more people than forecast, and from 160% to 1900% more employees than forecast. This build-out is not what is forecast, but the magnitudes suggest that there is considerable latitude for serious consideration of land-use policies.

If the combined effects of market forces and the political process are not producing the amount of open space in a township that the majority of citizens want, then it is up to the voters to make their will known to have policies such as conservation easements, purchase of development rights, and mandatory cluster development ordinances considered. Similarly, if traffic congestion is in excess of what is “wanted”, given the tradeoffs, then traffic impact fees are a possible tool. If they are concerned about rapidly mounting demands on public services and infrastructure because of rapid growth, then timed-growth ordinances and capital improvement programs may be appropriate policies.

In sum, rapid development of land is occurring in the Philadelphia MSA suburban communities. Both residential and nonresidential development is most rapid in the bigger communities, and the more affluent ones, and is boosted by the receipt of intergovernmental aid. But, at least in the areas of the major highway corridors, this growth is not hitting the current zoning imitations. Individual communities have choices to make as they experience growth, depending on the priorities of the community.

### Poverty

All suburbs are not affluent. There is a suburb with a poverty rate of 0.54%, but there is a

suburb with a 26.6% poverty rate - - about 6 percentage points higher than Philadelphia.

Some characteristics of the Philadelphia suburbs in Pennsylvania are shown in the Attachment 11 quintile table. The highest rates, the fifth quintile, average 10.7%, almost half of Philadelphia's. As one would predict, the MCDs with the lowest poverty rates had the most rapid rates of population growth, the highest household income, and the lowest unemployment rates. They were also communities with the lowest percentages of non-residential developed and multi-family land uses.

The geographic dispersion of the poverty is shown on the map of Attachment 12. The City of Philadelphia dominates the map, with Chester and a few other isolated areas also showing high poverty rates. An examination of the simple relationship between poverty rates and other characteristics (shown in the second column of Attachment 13) clearly documents that higher poverty rates coexist with a higher proportion of multi-family dwellings, a higher proportion of land in non-residential developed usage, a higher proportion of blacks, higher density, more violent crime, lower income, lower rates of population growth, and older housing. There are no simple cause and effect implications to the coinciding of these characteristics - - poorer people may be attracted to areas where housing prices are lower because the stock is older and more dense, for example. In fact, it is the strength and persistence of the interrelationships among these characteristics that makes simple interventions to any one of them unsuccessful, and points to the preference for relying on a strong macro-economy supplemented by policies designed to enable market forces to operate on a playing field that equalizes the fiscal burdens of poverty concentrations.

Studies of America's large cities uniformly find that cities with higher rates of poverty have lower rates of growth and are characterized by a relatively poorly educated labor force and more



crime. A very interesting aspect of the analysis of the Philadelphia suburbs is that the directional association among the characteristics of communities with varying rates of poverty are the same as those characterizing the comparisons among large cities.

A question of great interest, addressed in the next section, is the extent to which federal and state intergovernmental flows are directed to these suburban communities in accordance with their poverty rates and consequent tax pressures. To what extent are intergovernmental flows redistributive? To what extent do they level the playing field?

### Fiscal Patterns

Much has been written documenting the fact that America's large cities bear significant redistributive burdens. They use substantial portions of their own tax bases to provide services for the poor: Janet Rothenberg Pack estimates that, for large cities (over 300,000), with average poverty rates of 20%, direct poverty expenditures are \$36 per capita if they are structured as a city, \$277 per capita if they are a city-county government. She estimates that, for every additional percentage point in a city's poverty rate, there is an additional \$27.74 per capita in indirect poverty expenditures. A high poverty city with a 25% poverty rate would be spending \$166 more per capita on these indirect costs than a city with the average 19% poverty rate. Estimates for the City of Philadelphia (by Summers and Jakubowski) are that over 7% of own-source revenues go to direct poverty services, over 3% go to the indirect poverty costs of the police department (Gyourko), and almost half of the School District's own-source revenues go to educating poor children. It is clear that a material fraction of the poverty

costs in large cities is borne from their own-source revenues. Intergovernmental aid does not fully compensate them for the added costs of the poverty in their jurisdictions. They are forced to engage in redistributive functions.

Does this also describe the situation for suburban jurisdictions? Some of the basic groundwork for this discussion is laid out in the regressions results of Attachment 14. The most important result in this empirical effort to examine the factors associated with higher tax effort (local taxes per capita as a percentage of per capita income) of MCDs is the fact that communities with higher rates of poverty pay more taxes relative to their income. This is suggestive that they, like the large cities with high poverty, have a need - - because of the poverty population - - to provide extra services from their local tax dollars. Further, the results suggest that intergovernmental flows are distributed in ways that do not offset the extra costs of additional poverty. Unless one accepted the notion that as per capita income declines communities become increasingly inefficient in their public expenditures, the reality appears to be that federal flows are larger to poorer communities, but do not increase enough to prevent increased tax burdens for poorer cities. And state flows are not significantly larger. We have examined the patterns of these flows in considerable detail.

State Intergovernmental Flows in the Pennsylvania Suburbs of the Philadelphia MSA. The scatter diagram in Attachment 15 tells the story clearly. The per capita allocation of non-highway state funds to the suburban MCDs bears no discernible relationship to their poverty rates in this simple comparison. There is no evidence of redistributive efforts, even when highway allocations (which are very lumpy) are omitted. The regression results in the next two Attachments, 16 and 17, take many

more factors into consideration, and support these conclusions with more precision. Poverty is simply not a factor in the Commonwealth's allocation of funds to the suburban MCDs.

In addition to exploring the relationship between state intergovernmental flows to the suburban MCDs and a range of socioeconomic factors, their relationship to three political characteristics has been examined. Are the flows influenced by the share of the statewide votes cast for the governor in the last gubernatorial election? Are they influenced by the margin of victory that elected the governor in the last election? Are they influenced by the voter participation rate in the MCD? The fundamental political question raised is: have the voter choices in an MCD been associated with the allocation of discretionary flows of state funds? (These measures were based on an article in Growth and Change by Henry J. Raimondo, April 1983.)

The econometric analysis of state revenue flows, with and without highway grants, reveals several relationships. The size of the MCD is a factor in the per capita flows - - larger MCDs get more (equation 1). Alternatively, and, therefore, with no implication of political pressure, MCDs with a higher share of the Statewide vote for the incumbent governor (equation 4) get more. MCDs with a higher proportion of nonresidential developed land receive more funds, as do those who tax themselves more heavily. But, even when tax effort measures are factored out (equation 3) because they are closely correlated with poverty rates, there is no evidence that the level of poverty is a factor in determining state flows to the Philadelphia MSA MCDs.

Federal Intergovernmental Flows in the Pennsylvania Suburbs of the Philadelphia MSA. A great amount of time was spent putting together a uniquely detailed data set on the distribution of

federal dollars. With invaluable advice from our colleagues at the University of Illinois at Chicago, we calculated a very disaggregated data set of federal flows to each MCD, separating out redistributive and nonredistributive flows. The methodology for these calculations is described in Attachment 18. The data for the entire Philadelphia MSA, by county, is shown on Attachment 19. (It should be noted that county level funds categorized as undistributed in the basic data set were allocated on the basis of MCD characteristics - - see Attachment 18, #8 - - that might bias the allocation in favor of the redistributive characteristics.) There are two categories of redistributive funds - - Redistributive, those going directly to people (such as food stamps and Medicaid), and Spatially-Related Redistributive, those going to a municipality with high poverty (such as assistance in housing and crime control). The category labeled Other Spatially Related Programs lists flows that are not intended to be redistributive.

Federal redistributive revenues are, indeed, allocated redistributively! In contrast to the scatter-diagram relating Commonwealth aid to poverty levels, the dollar amounts of per capita federal redistributive funding intended to help poor people (directly) and poor communities (spatially) are closely related to the amount of poverty in the MCD. (See Attachment 20.) It is interesting to dissect the factors, including poverty, that appear to be major determinants of these federal flows.

The direct redistributive flows (see the regression on Attachment 21) are overwhelmingly determined by poverty. Population density and the proportion of land area in business are highly correlated. Either measure of the intensity of land use is associated with a higher level of federal redistributive funds to people. The proportion of developed non-residential land use is also highly correlated with tax effort. Both characteristics accompany larger federal redistributive flows. And, the

slower growth areas received more direct funds per capita. The fact that density measures and slower growth measures result in additional funds to the poor people in a community suggests that there is explicit recognition in the allocation formulas that, among suburban MCDs, the economic dynamics of the community and the concentration of poverty give rise to greater public service needs. Another way of describing this is to say that there is explicit recognition of the higher tax effort borne by poorer communities - - shown by the significant tax effort effects when the percentage of nonresidential land is omitted. There is no clear evidence that higher percentage of voters for Clinton were associated more per capita direct redistributive aid.

The relationship of federal spatially related redistributive funds (Attachment 22) show some similar patterns - - more to the poorer and denser areas with high tax effort. Not only is there no evidence that relatively slow population growth is a factor in these flows, but, to the contrary, the further the MCDs are from the center city (correlated with high population growth) the greater the spatially related flows. The finding that these flows are higher in MCDs with lower voter turnout is a restatement of the very high correlation between general voter participation rates and levels of poverty and density.

Other federal funds are negatively related to poverty. (See the scatter diagram on Attachment 23 and the regression results on Attachment 24.) Federal nonredistributive flows in the suburbs are directed more to MCDs that are smaller, that have slower population growth, that put forth more tax effort, and that are more densely developed. Once the size of the population is factored in, there is some evidence that MCDs that had a larger share of the state vote for Clinton in 1992 received more federal per capita nonredistributive grants. These nonredistributive funds are much larger than the redistributive funds, so that the net effect, the total per capita federal revenues, are not associated with

poverty rates in the suburban communities. This is strikingly apparent in the scatterdiagram of Attachment 25.

### Conclusions

The major conclusions from this analysis of the analysis of the socioeconomic, land use, and fiscal data for the suburban Pennsylvania MCDs of the Philadelphia MSA are these:

- The communities experiencing population expansion are the ones where the population is more affluent, is employed in heavy industry, resides in relatively more single-family dwellings, and where the population is relatively small.

- The land use data confirms (1) the increased absorption of land for development, with the greatest pressures coming from the most populated of the suburban MCDs; (2) the biggest suburban growth in multi-family usage in communities averaging 9500 in population (not the largest of the non-central city MCDs); and (3) the increased nonresidential land use development in municipalities characterized by less poverty, older infrastructure (as measured by housing age), and more intergovernmental aid. (The links here may be indirect. Nonresidential land use may be attracted to such areas by lower land prices; communities with these characteristics may court this type of development and may not zone it out.) But, in the areas of the major highway corridors, the growth has not hit current zoning limitations.

- The characteristics associated with higher poverty are clear - - higher population density, more violent crime, lower rates of population growth, older housing, lower average

income, higher proportions of blacks, higher proportions of multi-family dwellings, and higher proportions of nonresidential developed land.

- Poor communities exert higher tax effort. Their local tax burden relative to their income is higher than in more affluent communities - - suggesting that intergovernmental flows do not fully offset the public services burdens of the poor.

- State funding in Pennsylvania does not contribute to leveling the playing field among the Philadelphia suburbs. There is no discernible relationship between state funding and poverty rates.

- Federal redistributive flows are clearly redistributive. But the federal nonredistributive expenditures are very large, and are allocated on the basis of factors that result in flows that more than offset the redistributive flows.

- Neither state nor federal redistributive flows show patterns that could be clearly linked to political pressures. The measures of political pressure are closely related to factors such as population size and density, which are elements of the distribution formulas. Only in the case of federal nonredistributive grants is there some suggestion that they were larger in MCDs that contributed to a larger share of the state vote for Clinton in 1992.

### Policy Implications

This analysis leads to the conclusion that the differences in poverty levels across suburban

communities are associated with differences in other socioeconomic characteristics very similar to the patterns across large cities. And, we find, as considerable research has shown for the large cities, that federal and state intergovernmental aid does not offset the variations in the costs of providing services for the poor.

The major policy path for addressing this is in the revision of state and federal aid allocation formulas. State aid is clearly not directed toward the poorer areas in relation to their poverty proportions, federal distributive aid is, but the much larger part of the federal aid that is not redistributive more than offsets this. Unless there is clear evidence that there are sufficient differences in the efficiency with which suburban MCDs deploy the intergovernmental flows, the analysis in this paper points strongly to the need for substantial revision in the criteria for Commonwealth aid, and for the introduction of redistributive components to the Federal large block grants. Measures of government expenditure efficiency should be part of the revised distribution formulas. Both cities and poorer suburbs will benefit.

A second policy area of interest relates to land use policy. The evidence in the Philadelphia suburbs points to the substantial amounts of land that can be developed, within the existing zoning regulations, suggesting a period ahead where there is considerable latitude for serious consideration of land-use policies.

The federal government should give serious attention to expenditure-neutral revisions, including measures of government efficiency, of its large block grants in order to introduce a redistributive element. The Commonwealth should examine its local aid formulas, with the objectives of incorporating government efficiency measures and correcting its current absence of redistributive results. And local



governments have a period ahead where they can significantly affect their pattern of development.

## Attachment 1

## LIST OF VARIABLES FOR 334 PHILADELPHIA MSA SUBURBAN DISTRICTS, VARIOUS YEARS\*

Variable name	Source <sup>1</sup>	Description	Unit of Analysis
ADJMILL	5	Adjusted mill rate in MCD, 1996 (PA)	Dollars/Total population 1996
AREALAND	2	Land area of MCD (PA, NJ)	Square miles
CRIME96	9,10	Number of Violent Crimes Reported in MCD per 1000 persons, 1996. (PA, NJ)	Violent Crimes /1000 persons 1996
DISTCC	12	Distance of MCD from Center City Philadelphia (PA, NJ)	Miles
FEDNRED9	11	Per capita federal non-redistributional spending in MCD, 1994-96 average. (TFEDPC9-FTREDPC9) (PA, NJ).	Dollars/Total population 1996
FHIPC96	1	Per capita federal highway grants, 1996 (PA)	Dollars/Total population 1996
FOSRPC8	11	Per capita federal other spatially-related spending in MCD, 1987-89 average. (PA, NJ)	Dollars/Total population 1990
FOSRPC9	11	Per capita federal other spatially-related spending in MCD, 1994-96 average. (PA, NJ)	Dollars/Total population 1996
FOTHPC8	11	Per capita federal other spending in MCD, 1987-89 average. (PA, NJ)	Dollars/Total population 1990
FOTHPC9	11	Per capita federal other spending in MCD, 1994-96 average. (PA, NJ)	Dollars/Total population 1996
FREDPC8	11	Per capita direct federal redistributional spending in MCD, 1987-89 average. (PA, NJ)	Dollars/Total population 1990
FREDPC9	11	Per capita direct federal redistributional spending in MCD, 1994-96 average. (PA, NJ)	Dollars/Total population 1996
FRETPC8	11	Per capita federal retirement spending in MCD, 1987-89 average. (PA, NJ)	Dollars/Total population 1990
FRETPC9	11	Per capita federal retirement spending in MCD, 1994-96 average. (PA, NJ)	Dollars/Total population 1996
FREVGf96	1	Total federal intergovernmental revenue, general fund, in MCD, 1996 (PA) <sup>2</sup>	Dollars
FREVOF96	1	Total federal intergovernmental revenue, other fund, in MCD, 1996 (PA) <sup>3</sup>	Dollars
FRVHPC96	1	Per capita total federal intergovernmental revenue without highway funds in MCD, (TFRVPC96-FHPC96) 1996 (PA)	Dollars/Total population 1996
FSRRPC8	11	Per capita federal spatially-related redistributional spending in MCD, 1987-89 average. (PA, NJ)	Dollars/Total population 1990
FSRRPC9	11	Per capita federal spatially-related redistributional spending in MCD, 1994-96 average. (PA, NJ)	Dollars/Total population 1996
FTREDPC9	11	Per capita federal total redistributional spending in MCD, 1994-96 average. (FREDPC9+FSRRPC9) (PA, NJ)	Dollars/Total population 1996
GRVHPC96	1	Per capita total state and federal intergovernmental revenue without highway grants (FRVHPC96+SRVHPC96), in MCD, 1996 (PA)	Dollars/Total population 1996
HHMEDIN9	4	Median household income in MCD, 1989 (PA, NJ)	Dollars
HMEDVAL9	4	Median value of owner-occupied housing units in MCD, 1990 (PA, NJ)	Dollars
HMEDYR9	4	Median year structure built in MCD, 1990 (PA, NJ)	Year

<sup>1</sup> These numbers refer to full source descriptions in Attachment 2.

<sup>2</sup> Federal General Funds includes funds from: highway capital grants, other capital grants, urban development grants, state payments in lieu of taxes, national forest products payments, and other federal revenue

<sup>3</sup> Federal Other Funds includes funds from the special revenue fund, enterprise funds, special assessment fund, and the capital project fund.

LABFOR9	4	Total labor force in MCD, 1990 (PA, NJ)	Persons
LCLIN92	14	Total votes cast in MCD for Clinton in 1992 election. (PA)	Votes
LEXPPC96	5	Per capita local expenditures in MCD, 1996 (PA)	Dollars/Total population 1996
LGOV94	13	Total votes cast in MCD for all gubernatorial candidates in 1994 election. (PA)	Votes
LMARGC	14	MCD margin of victory/loss for Pres. Clinton in 1992. (PA) (LCLIN92-LOTHC92)/(LPRES92)*100	Percent
LMARGR	13	MCD margin of victory/loss for Gov. Ridge in 1994 (PA) (LRIDG94-LOTHG94)/(LGOV94)*100	Percent
LOTHC92	14	Total votes cast in MCD for other presidential candidates in 1992 election. (PA)	Votes
LOTHR94	13	Total votes cast in MCD for other gubernatorial candidates in 1994 election. (PA)	Votes
LPRES92	14	Total votes cast in MCD for all presidential candidates in 1992 election. (PA)	Votes
LREGV92	14	Number of registered voters in MCD in Nov. 1992. (PA)	Registered Voters
LREGV94	13	Number of registered voters in MCD in Nov. 1994. (PA)	Registered Voters
LREVPC85	8	Per capita revenue from local sources, 1985 (PA, NJ)	Dollars/Total Population 1985
LREVPC96	5	Per capita revenue from local sources, 1996 (PA)	Dollars/Total population 1996
LRIDG94	13	Total votes cast in MCD for Gov. Ridge in 1994 election. (PA)	Votes
LTAXPC85	8	Taxes from local sources per capita, 1985 (PA, NJ)	Dollars/Total population 1985
LTAXPC96	5	Taxes from local sources per capita, 1996 (PA)	Dollars/Total population 1996
LVOTACT2	14	Voting participation in 1992 presidential election in MCD. (PA) (LPRES92/LREGV92)*100	Percent
LVOTACT4	13	Voting participation in 1994 gubernatorial election in MCD. (PA) (LGOV94/LREGV94)*100	Percent
MKTVPC96	5	Market value of housing per capita, 1996 (PA)	Dollars/Total population 1996
P20POV9	4	Percent of census tracts in MCD with >= 20% of the population in poverty, 1990 (PA, NJ)	Census Tracts
P40POV9	4	Percent of tracts in MCD with >= 40% of the population in poverty, 1990 (PA, NJ)	Census Tracts
PCHD9096	2,4,6	Percent change in population density of MCD, 1990-1996 (PA, NJ)	(1996 population density/1990 population density)*100
PCHE9096	4,7	Percent change in residence based employment in MCD, 1990-1996 (PA, NJ)	(1996 employment/1990 employment)*100
PCHNR79	2	Percent change in non-residential developed land in MCD, 1970-1990 (PA, NJ)	Square miles
PCHP89	3,4	Percent change in MCD total population, 1980 to 1990 (PA, NJ)	(1990 population/1980 population)*100
PCHP9096	4, 6	Percent change in MCD total population, 1990 to 1996 (PA, NJ)	(1996 population /1990 population)*100
PCHRES79	2	Percent change in residential land use in MCD, 1970-1990 (PA, NJ)	(1990 residential land use/1970 residential land use)*100
PCINC89	4	Per capita income in 1989 (PA, NJ)	Dollars
PERBA9	4	Percent of respondents 25 years old and older in MCD with a Bachelor's degree, 1990 (PA, NJ)	Percent
PERBL9	4	Percent black persons in MCD, 1990 (PA, NJ)	(Total black persons/Total population)*100
PERBLT59	4	Percent of owner-occupied housing units built before 1950, 1990 (PA, NJ)	(Housing units built before 1950/Total Housing units 1990)*100
PERCLND9	4	Percent of respondents 25 years old and older in	Percent

		MCD with some college but no college degree, 1990 (PA, NJ)	
PERDUR9	4	Percent of all workers employed in durable manufacturing in MCD, 1990 (PA, NJ)	Percent
PEREMP9	4	Percent of workforce in MCD employed (excluding armed forces), 1990 (PA, NJ)	
PERHSND9	4	Percent of respondents 25 years old and older in MCD with some high school but no high school diploma, 1990 (PA, NJ)	Percent
PERMULT7	2	Percent of land in MCD dedicated to multifamily use in 1970, (PA, NJ)	(Square miles zoned multifamily/Total land area)*100
PERMULT9	2	Percent of land in MCD dedicated to multifamily use in 1990 (PA, NJ)	(Square miles zoned multifamily/Total land area)*100
PERNDUR9	4	Percent of all workers employed in non-durable manufacturing in MCD, 1990 (PA, NJ)	Percent
PERNONR7	2	Percent non-residential developed land in MCD, 1970 (PA, NJ)	(Non-residential land usage 1970/Total land area)*100
PERNONR9	2	Percent non-residential developed land in MCD, 1990 (PA, NJ)	(Non-residential land usage 1990/Total land area)*100
PERPOV9	4	Percent of people with household income levels below poverty in 1989 (PA, NJ)	(Persons with income below poverty/Total population)*100
PERUNEM9	4	Percent of workforce in MCD employed (excluding armed forces), 1990 (PA, NJ)	(Unemployed persons/ Total Labor Force)*100
PERWH9	4	1990 Percent white persons in MCD (PA, NJ)	(Total white persons/Total population)*100
POPDEN90	2,4	Population density, 1990 (PA, NJ)	Total population 1990 in thousands/Total area
POPDEN96	2,6	Population density, 1996 (PA, NJ)	Total population 1996 in thousands/Total area
PRUNEM96	7	Percent Unemployed in MCD excluding those in the armed forces, 1996 (PA, NJ)	Unemployed Workers/Labor force
SHIPC96	1	Per capita state highway grants, 1996 (PA)	Dollars/Total population 1996
SRGF96	1	1996 total state intergovernmental revenue, general fund (PA) <sup>4</sup>	Dollars
SRIDG94	13	Total number of votes for Ridge in the Commonwealth in 1994 (PA).	Total Votes 1994
SROF96	1	1996 total state intergovernmental revenue, other fund (PA) <sup>5</sup>	Dollars
SRVHPC96	1	1996 per capita total state intergovernmental revenue without highway grants (PA)	Dollars/Total population 1996
SSHAREC	14	MCD Share of the Commonwealth vote for Pres. Clinton in 1992. (PA)	Percent
SSHARER	13	MCD Share of the Commonwealth vote for Ridge in 1994. (PA) (LRIDG94/SRIDG94)*100	Percent
TAXEFF9	5,4	1996 per capita local taxes dived by 1989 per capita income (multiplied by 100 to get percentage) (PA)	(Tax Dollars 1996/Per Capita Income 1989)*100
TCRV96	5	1996 total county grants (PA)	Dollars
TCRVPC96	5	1996 per capita county grants (PA)	Dollars/Total population 1996
TFEDPC8	11	Per capita total federal spending in MCD, 1987-89 average. (PA, NJ)	Dollars/Total population 1990

<sup>4</sup> State General Funds includes funds from highway capital grants, other capital grants, urban development capital grants, state payments in lieu of taxes, alcohol-beverage and license fees, other revenue and public utility realty tax distributions.

<sup>5</sup> State other funds includes funds from the special revenue fund, enterprise fund, special assessment fund, liquid fuels tax, and turn back of roads maintenance payment from state.

		(FRETPC8+FREDPC8+FSRRPC8+FOSRPC8+FOTHPC8)	
TFEDPC9	11	Per capita total federal spending in MCD, 1994-96 average. (PA, NJ) (FRETPC9+FREDPC9+FSRRPC9+FOSRPC9+FOTHPC9)	Dollars/Total population 1996
TFREV96	1	1996 total federal intergovernmental revenue (PA)	Dollars
TFRVPC96	1	1996 per capita total federal intergov. revenue (PA)	Dollars/Total population 1996
TGREV96	1	1996 total state and federal intergovernmental revenue (PA)	Total State + Total Federal Intergovernmental Revenue 1996
TGRVPC96	1	Per capita total state and federal intergovernmental revenue, 1996 (PA)	Dollars/Total population 1996
TOTEMP9	4	Total employed in MCD, 1990 (PA, NJ)	Persons
TOTEMP96	7	Total employed in MCD, 1996 (PA, NJ)	Persons
TOTPOP8	3	Total population in MCD, 1980 (PA, NJ)	Persons/1000
TOTPOP9	4	Total population in MCD in 1990 (PA, NJ)	Persons/1000
TOTPOP96	6	Total population of MCD in 1996 (PA, NJ)	Persons/1000
TSREV96	1	1996 total state intergovernmental revenue (PA)	Dollars
TSRVPC96	1	1996 per capita total state intergovernmental revenue (PA)	Dollars/Total population 1996

\* Excluded communities: Tavistock Borough (population 33); Pine Valley Borough (population 21), Eddystone Borough (population 2,435); Telford Borough, Bucks County (population 1,729).

## SOURCE SHEET

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7. Bureau of Research and Statistics, Pennsylvania Department of Labor and Industry. 1996. *\*Note: data computed using the census-share methodology that assumes a MCD's economic health has moved in the same proportion as the rest of the county between 1990 and 1996.*
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9. Pennsylvania State Police Bureau of Research and Development, Uniform Crime Report, 1996.
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11. Consolidated Federal Funds Report, CD-ROM, Washington, D.C., U.S. Department of Commerce, Bureau of the Census, 1987-1996.
12. Distance Data, Dr. Richard Voith, Department of Research, Federal Reserve Bank of Philadelphia, 1999.
13. Commonwealth of Pennsylvania, Department of State, Bureau of Commissions, Elections and Legislation, 1994 General Election Data. Variables were suggested by: Raimondo, Henry J. "The Political Economy of State Intergovernmental Grants" Growth and Change, April 1983, pp. 17-22.
14. Commonwealth of Pennsylvania, Department of State, Bureau of Commissions, Elections and Legislation, 1992 General Election Data. Variables were suggested by: Raimondo, Henry J. "The Political Economy of State Intergovernmental Grants" Growth and Change, April 1983, pp. 17-22.

**Descriptive Statistics: Selected Data for 236 Suburban Philadelphia MSA MCDs  
in Pennsylvania, and Philadelphia: 1985, 1990, and 1996**

VARIABLE	N	Minimum	Maximum	Mean	Std. Deviation	Philadelphia
ADJMILL	*235	0.00	8.90	1.70	1.60	11.35
AREALAND	236	0.07	33.37	8.78	7.92	140.20
CRIME96	236	0.00	50.57	2.12	4.11	15.27
DISTCC	236	5.22	56.83	30.18	12.48	N/A
FEDNRED9	236	885.89	24,578.01	3,366.52	2,310.59	6,133.86
FHIPC96	*235	0.00	61.02	0.74	4.28	0.00
FOSRPC8	236	-0.11	1,222.89	72.86	112.57	116.88
FOSRPC9	236	-54.81	118.50	55.81	26.11	211.58
FOTHPC8	236	360.28	16,810.05	1,003.12	1,565.80	2,281.82
FOTHPC9	236	253.72	21,576.68	970.51	2,074.94	2,435.76
FREDPC8	236	5.60	606.17	56.23	63.38	286.75
FREDPC9	236	24.49	1,485.99	277.20	244.71	1,193.62
FRETPC8	236	315.97	2,959.21	1,464.70	513.54	2,205.14
FRETPC9	236	393.26	5,336.56	2,340.21	877.96	3,486.52
FREVG96	*235	0.00	162,792.00	12,711.93	28,087.16	140,760,990.00
FREVOF96	*235	0.00	1,630,526.00	29,564.73	186,138.86	454,740.00
FRVHPC96	*235	0.00	59.60	2.39	7.99	95.55
FSRRPC8	236	1.45	252.69	18.03	27.27	91.51
FSRRPC9	236	7.84	1,491.93	125.49	163.66	685.59
FTREDPC9	236	32.33	2,977.92	402.68	380.67	1,879.21
GRVHPC96	*235	0.00	201.12	18.12	21.34	235.56
HHMEDIN9	236	20,864.00	102,989.00	43,487.58	12,043.69	24,603.00
HMEDVAL9	236	37,800.00	349,500.00	143,351.27	52,470.75	48,400.00
HMEDYR9	236	1,939.00	1,986.00	1,960.02	12.61	1,939.00
LABFOR9	236	208.00	42,558.00	4,859.53	6,132.51	721,621.00
LCLIN92	235	63.00	18,814.00	1,699.40	2,638.47	433,695.00
LEXPPC96	*235	83.03	1,414.70	399.31	204.43	2,573.27
LGOV94	236	68.00	27,130.00	2,927.36	3,979.08	404,424.00
LMARGC	236	-61.79	33.94	-22.29	15.65	26.45
LMARGR	236	-52.55	44.21	3.69	15.12	-0.50
LOTHC92	236	42.00	23,281.00	2,504.08	3,167.78	202,452.00
LOTHR94	236	41.00	14,210.00	1,453.19	2,112.49	303,831.00
LPRES92	236	120.00	38,577.00	4,210.69	5,687.45	636,147.00
LREGV92	236	150.00	45,528.00	4,952.19	6,711.39	874,342.00
LREGV94	236	146.00	44,527.00	4,892.77	6,514.58	799,470.00
LREVPC85	236	33.83	749.01	189.12	122.02	765.51
LREVPC96	*235	64.40	2,424.67	395.73	254.24	2,001.75
LRIDG94	236	27.00	13,867.00	1,474.17	1,918.52	100,593.00
LTAXPC85	236	20.64	370.16	97.79	48.97	690.06
LTAXPC96	*235	35.85	927.67	197.23	107.03	1,170.07
LVOTACT2	236	58.42	95.13	84.95	4.76	72.76
LVOTACT4	236	36.92	72.99	59.71	5.38	50.59
MKTVPC96	*235	19,521.00	157,609.00	62,732.05	27,603.25	19,144.00
P20POV9	236	0.00	100.00	2.11	12.21	41.90
P40POV9	236	0.00	15.00	0.06	0.98	14.60
PCHD9096	236	-6.84	61.39	7.30	11.49	-6.79

## Attachment 3

PCHE9096	236	-4.55	9.41	6.69	2.72	-8.23
PCHNR79	236	-69.62	230.34	52.51	57.81	8.45
PCHP89	236	-26.84	824.62	19.84	66.72	-6.08
PCHP9096	236	-6.84	61.39	7.30	11.49	-6.79
PCHRES79	236	-59.00	535.00	40.74	62.60	0.00
PCINC89	236	9,115.00	41,707.00	18,610.53	5,983.57	12,091.00
PERBA9	236	0.00	37.79	16.79	8.42	8.91
PERBL9	236	0.00	65.75	5.04	10.14	39.89
PERBLT59	236	3.02	88.72	33.59	20.10	65.15
PERCLND9	236	8.39	28.40	15.59	2.96	12.34
PERDUR9	236	2.17	25.53	12.29	4.68	6.78
PEREMP9	236	1.51	45.91	13.26	8.11	80.11
PERHSND9	236	2.05	31.73	12.19	5.74	24.39
PERMULT7	236	0.00	35.77	4.58	6.94	22.28
PERMULT9	236	0.00	88.35	5.53	11.47	25.82
PERNDUR9	236	3.21	21.66	9.01	2.68	7.03
PERNONR7	236	1.71	71.43	16.14	12.84	44.09
PERNONR9	236	1.41	62.90	20.75	13.28	47.82
PERPOV9	236	0.54	26.61	4.68	4.01	19.76
PERUNEM9	236	0.39	12.46	3.56	1.76	9.70
PERWH9	236	31.76	100.00	93.03	10.91	53.54
POPDEN90	236	0.05	13.46	2.50	2.89	11.31
POPDEN96	236	0.05	13.10	2.53	2.82	10.54
PRUNEM96	236	0.40	14.70	4.45	2.37	7.00
SHIPC96	*235	0.00	123.40	1.30	8.85	14.49
SRGF96	*235	0.00	3,271,912.00	151,382.35	291,942.15	220,208,557.00
SROF96	*235	0.00	2,873,460.00	56,940.59	245,476.60	8,145,755.00
SRVHPC96	*235	0.00	150.09	15.74	18.04	140.01
SSHAREC	236	0.00	0.84	0.08	0.12	19.37
SSHARER	236	0.00	0.85	0.09	0.12	6.18
TAXEFF9	*235	0.10	7.00	1.12	0.70	9.70
TCRV96	*235	0.00	24,826,298.00	153,352.05	1,625,951.45	174,353,605.00
TCRVPC96	*235	0.00	2,434.43	15.70	159.32	117.97
TFEDPC8	236	867.05	18,758.70	2,614.95	1,730.84	4,982.09
TFEDPC9	236	958.37	25,099.39	3,769.21	2,403.50	8,013.07
TFREV96	*235	0.00	1,630,526.00	42,292.64	190,994.76	141,215,730.00
TFRVPC96	*235	0.00	61.02	3.27	9.08	95.55
TGREV96	*235	1,250.00	4,347,049.00	250,190.74	530,675.18	369,570,042.00
TGRVPC96	*235	0.58	201.12	20.93	25.05	250.05
TOTEMP9	236	205.00	40,516.00	4,682.47	5,881.53	651,621.00
TOTEMP96	236	217.00	39,000.00	4,880.86	5,845.33	598,000.00
TOTPOP8	236	0.50	84.05	8.27	11.49	1,688.21
TOTPOP9	236	0.44	81.18	9.06	11.49	1,585.58
TOTPOP96	236	0.43	79.42	9.50	11.54	1,478.00
TSREV96	*235	0.00	3,491,324.00	207,898.10	415,546.85	228,354,312.00
TSRVPC96	*235	0.00	152.36	17.66	21.70	154.50
Valid N (listwise)	235					

\* No fiscal data available for Chester City, Delaware County.



**Descriptive Statistics: Selected Data for 98 Suburban Philadelphia MSA MCDs  
in New Jersey, and Camden: 1985, 1990, and 1996**

VARIABLE	N	Minimum	Maximum	Mean	Std. Deviation	Camden
AREALAND	98	0.17	104.63	14.32	20.47	10.52
CRIME96	98	0.00	13.20	2.90	2.56	31.40
DISTCC	98	7.42	49.64	20.27	9.20	5.26
FEDNRED9	98	1,608.41	9,882.51	4,171.02	1,640.68	3,319.03
FOSRPC8	98	5.76	595.48	100.84	112.16	286.27
FOSRPC9	98	42.84	150.19	81.81	35.31	280.09
FOTHPC8	98	92.84	8,333.56	1,678.57	1,810.31	3,466.54
FOTHPC9	98	151.29	4,638.20	1,496.80	1,299.48	1,388.72
FREDPC8	98	7.24	423.19	59.06	65.64	349.25
FREDPC9	98	53.98	1,492.29	369.57	260.46	2,367.70
FRETPC8	98	34.56	4,284.29	1,624.95	669.16	1,118.57
FRETPC9	98	67.06	6,969.68	2,592.42	1,097.04	1,790.39
FSRRPC8	98	3.14	228.85	36.19	36.41	215.74
FSRRPC9	98	13.39	750.05	109.32	112.60	953.39
FTREDPC9	98	69.05	1,740.30	478.89	347.49	3,321.09
HHMEDIN9	98	22,080.00	61,109.00	39,027.30	8,429.30	17,386.00
HMEDVAL9	98	31,600.00	199,700.00	109,982.65	31,844.86	31,100.00
HMEDYR9	98	1939.00	1983.00	1958.49	13.05	1945.00
LABFOR9	98	288.00	36,990.00	5,570.88	6,356.72	32,642.00
LREVPC85	98	32.98	802.93	238.20	93.54	405.23
LTAXPC85	98	-0.01	204.30	83.78	48.99	227.53
P20POV9	98	0.00	100.00	1.28	10.39	85.70
P40POV9	98	0.00	0.00	0.00	0.00	47.60
PCHD9096	98	-14.19	369.93	6.60	37.93	-3.03
PCHE9096	98	0.30	5.76	3.00	2.12	0.33
PCHNR79	98	-89.10	172.46	38.59	56.91	-21.62
PCHP89	98	-71.99	971.38	20.86	104.44	3.04
PCHP9096	98	-14.15	46.28	2.87	7.96	-3.03
PCHRES79	98	-41.00	419.00	45.00	81.76	56.00
PCINC89	98	8,571.00	30,643.00	15,985.29	3,760.86	7,276.00
PERBA9	98	1.16	31.45	13.11	6.29	4.80
PERBL9	98	0.00	98.17	10.37	14.36	56.32
PERBLT59	98	1.59	99.61	34.90	23.77	58.94
PERCLND9	98	8.49	32.93	16.48	3.85	12.36
PERDUR9	98	0.26	16.04	9.02	2.84	10.74
PEREMP9	98	2.03	34.11	14.06	6.78	39.79
PERHSND9	98	3.41	32.48	14.84	5.26	30.30
PERMUL7	98	0.00	52.41	2.66	6.10	18.34
PERMUL9	98	0.00	62.06	3.36	8.03	34.99

## Attachment 4

PERNDUR9	98	0.43	16.05	7.11	2.88	9.12
PERNONR7	98	0.84	90.88	17.03	14.04	43.99
PERNONR9	98	0.28	43.65	19.94	11.39	34.48
PERPOV9	98	0.94	20.77	5.54	3.55	34.96
PERUNEM9	98	1.66	10.50	4.82	1.91	16.35
PERWH9	98	0.88	100.00	87.33	15.04	19.03
POPDEN9	98	0.02	11.02	2.39	2.14	8.32
POPDEN96	98	0.02	11.64	2.48	2.28	8.07
TFEDPC8	98	1,045.99	10,591.29	3,499.61	1,936.19	5,430.20
TFEDPC9	98	1,786.50	10,218.87	4,649.91	1,698.98	6,640.12
TOTEMP9	98	264.00	35,817.00	5,321.87	6,103.73	27,306.00
TOTEMP96	98	274.00	35,936.00	5,467.84	6,226.65	27,396.00
TOTPOP8	98	0.60	68.79	9.68	10.35	84.91
TOTPOP9	98	0.57	69.36	10.62	11.63	87.49
TOTPOP96	98	0.61	68.98	10.99	12.13	84.84
Valid N (listwise)	98					

## Attachment 5

**SELECTED CHARACTERISTICS: CENTRAL CITY vs. SUBURBS  
IN THE PHILADELPHIA MSA**

	<i>Pennsylvania</i>		<i>New Jersey</i>	
	<u>Philadelphia</u>	<u>Suburban Mean</u>	<u>Camden</u>	<u>Suburban Mean</u>
Total Population, 1996 (000s)	1478.0	9.5	84.8	11.0
Total Employment, 1996 (000s)	598.0	4.9	27.4	5.5
Percent Poverty, 1990	19.8	4.7	35.0	5.5
Percent Unemployed, 1990	9.7	3.6	16.4	4.8
Population Density, 1996	10.5	2.5	8.1	2.5
Population Change, 1990-96 (%)	-6.8	7.3	-3.0	2.9
Household Median Income, 1990 (\$ 000s)	24.6	43.5	17.4	39.0
Median Year Housing Built, 1990	1939	1960	1945	1958
Local Tax Revenue Per Capita, 1996 (\$)	2001.8	395.7	n.a.	n.a.
Total Federal Revenue Per Capita, 1994-96 avg. (\$ 000s)	8.0	3.8	6.6	4.6
Non-Highway State Revenue Per Capita, 1996 (\$)	140.0	15.7	n.a.	n.a.
Violent Crime Rate, 1996 (per 1000)	15.3	2.1	31.4	2.9
Percent without High School Diploma, 1990	24.4	12.2	30.3	14.8
Percent Black, 1990	39.9	5.0	56.3	10.4

**PHILADELPHIA MSA, 236 PA MCDs: 1990 POPULATION QUINTILES OF  
SUBURBS AND PHILADELPHIA RE SELECTED CHARACTERISTICS**

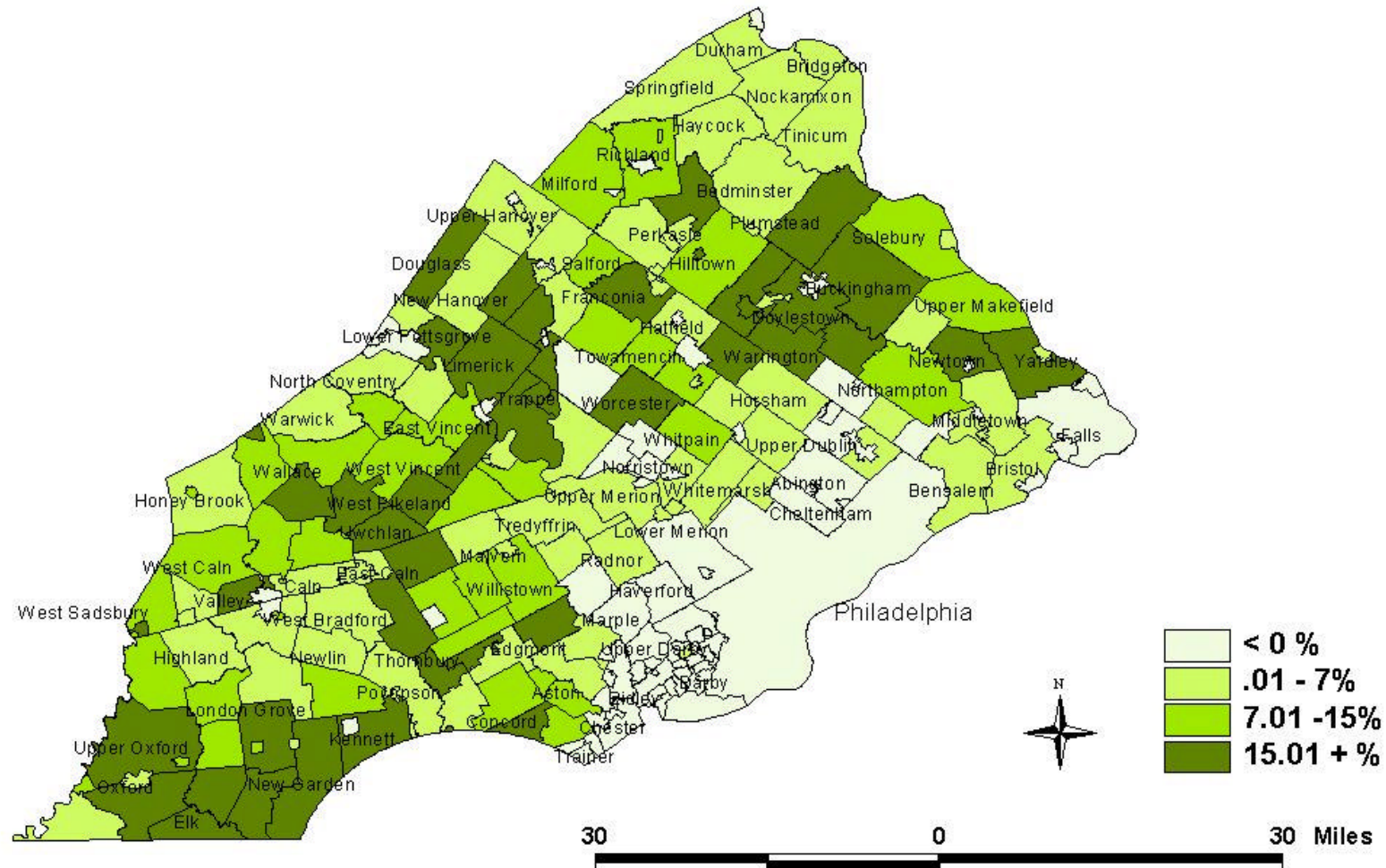
<b>Quintiles</b>	<b>(1) Mean 1990 Total Population</b>	<b>(2) 1980-90 Mean Change in Pop. (%)</b>	<b>(3) 1990-96 Mean Change in Pop (%)</b>	<b>(4) Mean Household Income (\$)</b>
1	1,391	7.55	7.05	39,735
2	2,896	20.80	8.81	44,707
3	5,120	19.56	10.43	43,943
4	9,418	14.54	6.83	42,983
5	26,660	37.02	3.40	46,149
Philadelphia	1,585,577	-6.08	-6.79	24,603

<b>Quintiles</b>	<b>(5) Mean 1990 Poverty Rate (%)</b>	<b>(6) Mean Unemp. Rate (%)</b>	<b>(7) Mean % Non-Res. Developed Land, 1990</b>	<b>(8) Mean % Multi- Fam. Use in 1990</b>
1	6.04	3.8	16.67	2.35
2	4.35	3.6	19.08	5.74
3	4.36	3.4	17.61	3.50
4	4.59	3.7	22.24	10.42
5	4.01	3.4	28.21	5.72
Philadelphia	19.76	9.7	47.82	25.82

Source: See Variable List and Source Sheet

## 1990-96 Percent Change in Population: MCDs in Pennsylvania Counties of the Philadelphia MSA



# Attachment 8

## Relationship of the Percent Change in Population, 1990-96, to Selected Variables: Pennsylvania Suburbs of the Philadelphia MSA

	1	2
Intercept	-711.42**	-742.02**
	-5.35	-5.89
% Poverty, 1990	-0.02	
	-0.09	
Tax Effort	2.87**	2.79**
	2.84	2.82
% Multi-Family Land Use, 1990	0.02	
	0.25	
% Change in Population, 1980-90	0.01	
	0.85	
% Attended High School but No-Diploma 1990	-0.07	
	-0.37	
Total Population, 1990	-0.12*	-0.11*
	-1.96	-1.94
Distance to Center City Philadelphia	0.22**	0.20**
	3.19	3.49
Household Median Income 1990	0.19*	0.20**
	2.12	3.05
Median Year Housing Built, 1990	0.36**	0.37**
	5.24	5.72
Adj. R sq.	0.334	0.343
N	235	235
F	14.018	25.384

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.

**PHILADELPHIA MSA, 236 PA MCDs: 1970-90 DYNAMICS  
OF LAND USE RE POPULATION QUINTILES**

	(1)	(2)	(3)	(4)*	(5)
	Mean	Mean	Mean	Mean	Mean
Quintiles	1990 Total Population	% in Res. Use 1970	% in Res. Use 1990	% Change in % Res. Use 1970-90	% Non-Res. Developed Land in 1970
1	1,391	19.08	22.94	20.20	14.03
2	2,896	22.01	26.14	18.78	15.29
3	5,120	20.38	23.43	14.99	13.53
4	9,418	27.30	32.96	20.76	18.45
5	26,660	31.63	37.46	18.45	19.42
Philadelphia	1,585,577	30.29	31.62	4.38	44.09

	(6)	(7)**	(8)	(9)	(10)***
	Mean	Mean % Chg.	Mean	Mean	Mean
Quintiles	% Non-Res. Developed Land in 1990	In % Non- Res. Dev. Land 1970-90	% Multi-Fam. Use in 1970	% Multi-Fam. Use in 1990	% Chg in % Multi-Fam. Use 1970-90
1	16.67	18.79	3.06	2.35	-23.24
2	19.08	24.78	4.77	5.74	20.16
3	17.61	30.21	3.98	3.50	-12.18
4	22.24	20.56	6.76	10.42	54.13
5	28.21	45.25	4.34	5.72	31.92
Philadelphia	47.82	8.46	22.28	25.82	15.90

\* [(Col. 4 - Col. 3) / Col. 3] x 100.

\*\* [(Col. 7 - Col. 6) / Col. 6] x 100.

\*\*\* [(Col. 10 - Col. 9) / Col. 9] x 100.

Source: See Variable List and Source Sheet

# Attachment 10

## Relationship of the Percent Non-Residential Developed Land Use in 1990 to Selected Variables: Pennsylvania Suburbs of Philadelphia MSA

Intercept	6.72**
	2.88
Total Population, 1980	0.06
	1.52
% Non-Res. Developed Land, 1990	0.90**
	13.83
% of Housing Built Before 1950, in 1990	-0.08**
	-2.71
Distance to Center City	-0.10
	-1.94
Total Federal Revenue Per Capita, 1987-89	0.0004
	1.29
Total State Non-Highway Revenue, 1996	0.05*
	2.04
Local Taxes Per Capita, 1985	0.02
	1.92
% Poverty, 1990	-0.18
	-1.35
% Employed in Durable Manufacturing, 1990	0.20*
	1.99
Population Density, 1990	-0.27
	-0.98
Adj. R sq.	0.779
N	236
F	83.414

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.



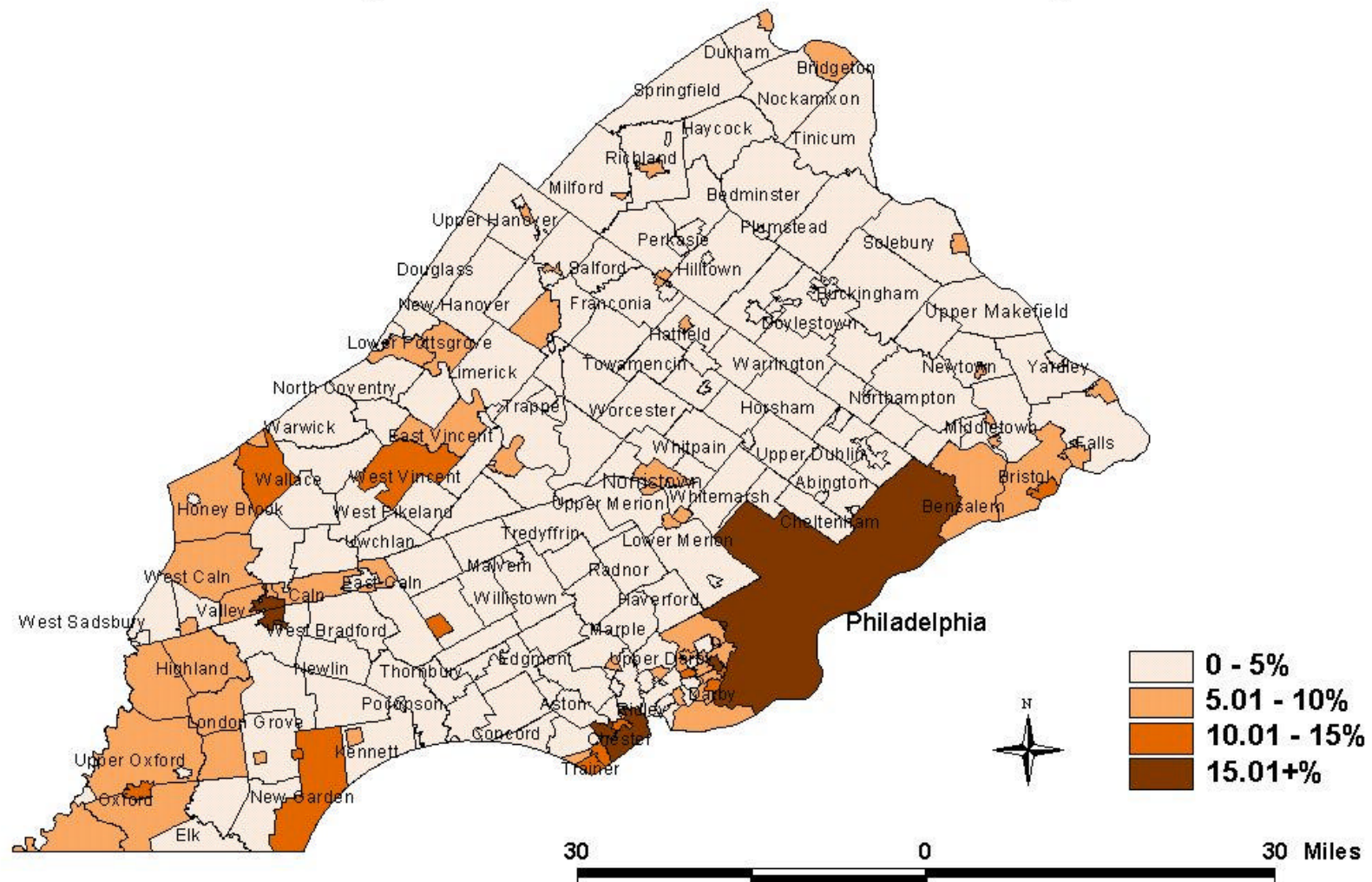
**PHILADELPHIA MSA, 236 PA MCDs: 1990 POVERTY QUINTILES OF SUBURBS  
AND PHILADELPHIA RE SELECTED CHARACTERISTICS**

<b>Quintiles</b>	<b>(1) Mean 1990 Poverty Rate (%)</b>	<b>(2) Mean 1980 Poverty Rate (%)</b>	<b>(3) 1990-96 Mean Change in Population (%)</b>	<b>(4) Mean Household Income, 1990(\$)</b>
1	1.40	3.57	12.77	54,624
2	2.43	4.05	8.26	48,578
3	3.67	4.86	7.43	44,425
4	5.23	6.61	6.45	37,618
5	10.71	10.22	1.48	31,957
Philadelphia	19.76	20.17	-6.79	24,603

<b>Quintiles</b>	<b>(5) Mean Unemp. Rate, 1990 (%)</b>	<b>(6) Mean % Non-Res. Developed Land, 1990</b>	<b>(7) Mean % Multi- Fam. Use in 1990</b>	<b>(8) Mean % Res. Land in Multi-Fam. Use, 1990</b>
1	2.6	14.36	1.59	6.17
2	3.0	19.08	2.57	7.81
3	3.1	21.41	3.36	8.35
4	4.1	21.24	6.91	14.32
5	5.1	27.78	13.30	36.72
Philadelphia	9.7	47.82	25.82	81.93

Source: See [Variable List](#) and [Source Sheet](#)

## 1990 Percent in Poverty: MCDs in Pennsylvania Counties of the Philadelphia MSA



Correlation Matrix: Selected Variables for the Pennsylvania Suburbs of the Philadelphia MSA

		CRIME96	PERPOV9	PERNONR7	PERNONR9	PERMUL9	PERHSND9	PERDUR9	PERBL9	POPDEN90	TAXEFF9	SRVHPC96	TFEDPC9	TOTPOP9
CRIME96	Pearson Corr.	1.000	.488**	.382**	.256**	.423**	.312**	-0.057	.457**	.358**	.384**	.154*	.160*	.179**
	Sig. (2-tailed)	.	0.000	0.000	0.000	0.000	0.000	0.385	0.000	0.000	0.000	0.018	0.014	0.006
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERPOV9	Pearson Corr.	.488**	1.000	.470**	.293**	.401**	.660**	0.035	.574**	.386**	.349**	0.001	.234**	-0.010
	Sig. (2-tailed)	0.000	.	0.000	0.000	0.000	0.000	0.594	0.000	0.000	0.000	0.992	0.000	0.876
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERNONR7	Pearson Corr.	.382**	.470**	1.000	.854**	.554**	.433**	-0.066	.287**	.759**	.542**	.133*	.525**	.186**
	Sig. (2-tailed)	0.000	0.000	.	0.000	0.000	0.000	0.315	0.000	0.000	0.000	0.042	0.000	0.004
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERNONR9	Pearson Corr.	.256**	.293**	.854**	1.000	.302**	.287**	-0.045	.179**	.598**	.537**	.236**	.497**	.277**
	Sig. (2-tailed)	0.000	0.000	0.000	.	0.000	0.000	0.495	0.006	0.000	0.000	0.000	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERMUL9	Pearson Corr.	.423**	.401**	.554**	.302**	1.000	.315**	-.162*	.322**	.744**	.246**	-0.046	.144*	0.107
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	.	0.000	0.012	0.000	0.000	0.000	0.484	0.027	0.101
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERHSND9	Pearson Corr.	.312**	.660**	.433**	.287**	.315**	1.000	.411**	.351**	.281**	.326**	-0.033	.269**	-0.094
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	.	0.000	0.000	0.000	0.000	0.617	0.000	0.151
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERDUR9	Pearson Corr.	-0.057	0.035	-0.066	-0.045	-.162*	.411**	1.000	-0.098	-.204**	0.032	0.028	-0.063	-.219**
	Sig. (2-tailed)	0.385	0.594	0.315	0.495	0.012	0.000	.	0.134	0.002	0.623	0.667	0.335	0.001
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
PERBL9	Pearson Corr.	.457**	.574**	.287**	.179**	.322**	.351**	-0.098	1.000	.226**	.235**	-0.001	0.095	0.114
	Sig. (2-tailed)	0.000	0.000	0.000	0.006	0.000	0.000	0.134	.	0.000	0.000	0.986	0.146	0.081
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
POPDEN90	Pearson Corr.	.358**	.386**	.759**	.598**	.744**	.281**	-.204**	.226**	1.000	.251**	0.029	.252**	.186**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	.	0.000	0.663	0.000	0.004
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
TAXEFF9	Pearson Corr.	.384**	.349**	.542**	.537**	.246**	.326**	0.032	.235**	.251**	1.000	.228**	.634**	0.055
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.623	0.000	0.000	.	0.000	0.000	0.400
	N	235	235	235	235	235	235	235	235	235	235	235	235	235
SRVHPC96	Pearson Corr.	.154*	0.001	.133*	.236**	-0.046	-0.033	0.028	-0.001	0.029	.228**	1.000	.154*	.251**
	Sig. (2-tailed)	0.018	0.992	0.042	0.000	0.484	0.617	0.667	0.986	0.663	0.000	.	0.018	0.000
	N	235	235	235	235	235	235	235	235	235	235	235	235	235
TFEDPC9	Pearson Corr.	.160*	.234**	.525**	.497**	.144*	.269**	-0.063	0.095	.252**	.634**	.154*	1.000	-0.002
	Sig. (2-tailed)	0.014	0.000	0.000	0.000	0.027	0.000	0.335	0.146	0.000	0.000	0.018	.	0.973
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
TOTPOP9	Pearson Corr.	.179**	-0.010	.186**	.277**	0.107	-0.094	-.219**	0.114	.186**	0.055	.251**	-0.002	1.000
	Sig. (2-tailed)	0.006	0.876	0.004	0.000	0.101	0.151	0.001	0.081	0.004	0.400	0.000	0.973	.
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
TOTPOP96	Pearson Corr.	.162*	-0.034	.156*	.252**	0.087	-0.120	-.213**	0.096	.156*	0.049	.250**	-0.026	.997**
	Sig. (2-tailed)	0.012	0.599	0.017	0.000	0.182	0.065	0.001	0.140	0.017	0.453	0.000	0.687	0.000
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
HHMEDIN9	Pearson Corr.	-.329**	-.600**	-.559**	-.402**	-.378**	-.771**	-.303**	-.280**	-.478**	-.355**	-0.009	-.338**	0.058
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.893	0.000	0.379
	N	236	236	236	236	236	236	236	236	236	235	235	236	236

		CRIME96	PERPOV9	PERNONR7	PERNONR9	PERMUL9	PERHSND9	PERDUR9	PERBL9	POPDEN90	TAXEFF9	SRVHPC96	TFEDPC9	TOTPOP9
PCHP9096	Pearson Corr.	-.187**	-.269**	-.491**	-.493**	-.304**	-.277**	0.111	-.220**	-.464**	-.132*	-0.027	-.358**	-.173**
	Sig. (2-tailed)	0.004	0.000	0.000	0.000	0.000	0.000	0.089	0.001	0.000	0.044	0.684	0.000	0.008
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
HMEDYR9	Pearson Corr.	-.263**	-.480**	-.679**	-.544**	-.410**	-.499**	0.052	-.232**	-.614**	-.405**	-0.075	-.463**	-0.008
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.426	0.000	0.000	0.000	0.251	0.000	0.898
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
FTREDPC9	Pearson Corr.	.590**	.898**	.554**	.408**	.430**	.589**	-0.016	.565**	.467**	.396**	0.028	.319**	0.049
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.810	0.000	0.000	0.000	0.667	0.000	0.458
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
FSRRPC9	Pearson Corr.	.630**	.675**	.456**	.338**	.364**	.448**	-0.036	.489**	.392**	.335**	0.004	.260**	0.087
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.580	0.000	0.000	0.000	0.948	0.000	0.182
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
FREDPC9	Pearson Corr.	.497**	.945**	.557**	.409**	.425**	.617**	0.000	.552**	.464**	.386**	0.039	.321**	0.017
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.997	0.000	0.000	0.000	0.551	0.000	0.794
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
DISTCC	Pearson Corr.	-.161*	-0.028	-.519**	-.539**	-.449**	.155*	.431**	-0.082	-.591**	-.249**	-.138*	-.228**	-.389**
	Sig. (2-tailed)	0.013	0.667	0.000	0.000	0.000	0.017	0.000	0.208	0.000	0.000	0.035	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
SSHARER	Pearson Corr.	-0.012	-.148*	0.063	.190**	0.001	-.255**	-.273**	-0.038	0.087	-0.006	.235**	-0.041	.942**
	Sig. (2-tailed)	0.858	0.023	0.333	0.003	0.984	0.000	0.000	0.564	0.182	0.923	0.000	0.529	0.000
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
LMARGR	Pearson Corr.	-.358**	-.395**	-.500**	-.416**	-.421**	-.353**	0.015	-.515**	-.493**	-.263**	-.139*	-.250**	-.214**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.000	0.000	0.000	0.033	0.000	0.001
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
LVOTACT4	Pearson Corr.	-.391**	-.529**	-.439**	-.316**	-.378**	-.465**	-.168**	-.471**	-.322**	-.339**	-0.029	-.168**	-0.057
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.655	0.010	0.382
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
SSHAREC	Pearson Corr.	.169**	-0.008	.199**	.286**	0.108	-.134*	-.293**	0.119	.204**	0.050	.231**	0.045	.946**
	Sig. (2-tailed)	0.009	0.898	0.002	0.000	0.097	0.039	0.000	0.069	0.002	0.446	0.000	0.493	0.000
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
LMARGC	Pearson Corr.	.397**	.508**	.630**	.560**	.442**	.302**	-.201**	.574**	.544**	.311**	0.124	.312**	.301**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.057	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	235	235	236	236
LVOTACT2	Pearson Corr.	-.319**	-.445**	-.385**	-.316**	-.326**	-.307**	0.101	-.456**	-.312**	-.245**	0.024	-.193**	-0.057
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.121	0.000	0.000	0.000	0.710	0.003	0.381
	N	236	236	236	236	236	236	236	236	236	235	235	236	236

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Source: See [Variable List](#) and [Source Sheet](#)

		TOTPOP96	HHMEDIN9	PCHP9096	HMEDYR9	FTREDPC9	FSRRPC9	FREDPC9	DISTCC	SSHARER	LMARGR	LVOTACTR	SSHAREC	LMARGC	LVOTACTC
CRIME96	Pearson Corr.	.162*	-.329**	-.187**	-.263**	.590**	.630**	.497**	-.161*	-0.012	-.358**	-.391**	.169**	.397**	-.319**
	Sig. (2-tailed)	0.012	0.000	0.004	0.000	0.000	0.000	0.000	0.013	0.858	0.000	0.000	0.009	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERPOV9	Pearson Corr.	-0.034	-.600**	-.269**	-.480**	.898**	.675**	.945**	-0.028	-.148*	-.395**	-.529**	-0.008	.508**	-.445**
	Sig. (2-tailed)	0.599	0.000	0.000	0.000	0.000	0.000	0.000	0.667	0.023	0.000	0.000	0.898	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERNONR7	Pearson Corr.	.156*	-.559**	-.491**	-.679**	.554**	.456**	.557**	-.519**	0.063	-.500**	-.439**	.199**	.630**	-.385**
	Sig. (2-tailed)	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	0.000	0.000	0.002	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERNONR9	Pearson Corr.	.252**	-.402**	-.493**	-.544**	.408**	.338**	.409**	-.539**	.190**	-.416**	-.316**	.286**	.560**	-.316**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERMUL9	Pearson Corr.	0.087	-.378**	-.304**	-.410**	.430**	.364**	.425**	-.449**	0.001	-.421**	-.378**	0.108	.442**	-.326**
	Sig. (2-tailed)	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.984	0.000	0.000	0.097	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERHSND9	Pearson Corr.	-0.120	-.771**	-.277**	-.499**	.589**	.448**	.617**	.155*	-.255**	-.353**	-.465**	-.134*	.302**	-.307**
	Sig. (2-tailed)	0.065	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.000	0.000	0.039	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERDUR9	Pearson Corr.	-.213**	-.303**	0.111	0.052	-0.016	-0.036	0.000	.431**	-.273**	0.015	-.168**	-.293**	-.201**	0.101
	Sig. (2-tailed)	0.001	0.000	0.089	0.426	0.810	0.580	0.997	0.000	0.000	0.821	0.010	0.000	0.002	0.121
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
PERBL9	Pearson Corr.	0.096	-.280**	-.220**	-.232**	.565**	.489**	.552**	-0.082	-0.038	-.515**	-.471**	0.119	.574**	-.456**
	Sig. (2-tailed)	0.140	0.000	0.001	0.000	0.000	0.000	0.000	0.208	0.564	0.000	0.000	0.069	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
POPDEN90	Pearson Corr.	.156*	-.478**	-.464**	-.614**	.467**	.392**	.464**	-.591**	0.087	-.493**	-.322**	.204**	.544**	-.312**
	Sig. (2-tailed)	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.182	0.000	0.000	0.002	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
TAXEFF9	Pearson Corr.	0.049	-.355**	-.132*	-.405**	.396**	.335**	.386**	-.249**	-0.006	-.263**	-.339**	0.050	.311**	-.245**
	Sig. (2-tailed)	0.453	0.000	0.044	0.000	0.000	0.000	0.000	0.000	0.923	0.000	0.000	0.446	0.000	0.000
	N	235	235	235	235	235	235	235	235	235	235	235	235	235	235
SRVHPC96	Pearson Corr.	.250**	-0.009	-0.027	-0.075	0.028	0.004	0.039	-.138*	.235**	-.139*	-0.029	.231**	0.124	0.024
	Sig. (2-tailed)	0.000	0.893	0.684	0.251	0.667	0.948	0.551	0.035	0.000	0.033	0.655	0.000	0.057	0.710
	N	235	235	235	235	235	235	235	235	235	235	235	235	235	235
TFEDPC9	Pearson Corr.	-0.026	-.338**	-.358**	-.463**	.319**	.260**	.321**	-.228**	-0.041	-.250**	-.168**	0.045	.312**	-.193**
	Sig. (2-tailed)	0.687	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.529	0.000	0.010	0.493	0.000	0.003
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
TOTPOP9	Pearson Corr.	.997**	0.058	-.173**	-0.008	0.049	0.087	0.017	-.389**	.942**	-.214**	-0.057	.946**	.301**	-0.057
	Sig. (2-tailed)	0.000	0.379	0.008	0.898	0.458	0.182	0.794	0.000	0.000	0.001	0.382	0.000	0.000	0.381
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
TOTPOP96	Pearson Corr.	1.000	0.089	-0.112	0.034	0.021	0.064	-0.011	-.378**	.948**	-.186**	-0.050	.939**	.276**	-0.035
	Sig. (2-tailed)	.	0.174	0.085	0.606	0.754	0.326	0.866	0.000	0.000	0.004	0.446	0.000	0.000	0.593
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
HHMEDIN9	Pearson Corr.	0.089	1.000	.382**	.601**	-.596**	-.471**	-.612**	-0.029	.222**	.486**	.491**	0.083	-.386**	.308**
	Sig. (2-tailed)	0.174	.	0.000	0.000	0.000	0.000	0.000	0.660	0.001	0.000	0.000	0.204	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236

		TOTPOP96	HHMEDIN9	PCHP9096	HMEDYR9	FTREDPC9	FSRRPC9	FREDPC9	DISTCC	SSHARER	LMARGR	LVOTACTR	SSHAREC	LMARGC	LVOTACTC
PCHP9096	Pearson Corr.	-0.112	.382**	1.000	.522**	-.354**	-.275**	-.366**	.313**	-0.085	.385**	.197**	-.189**	-.470**	.301**
	Sig. (2-tailed)	0.085	0.000	.	0.000	0.000	0.000	0.000	0.000	0.191	0.000	0.002	0.004	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
HMEDYR9	Pearson Corr.	0.034	.601**	.522**	1.000	-.513**	-.374**	-.548**	.249**	0.085	.455**	.220**	-0.074	-.528**	.249**
	Sig. (2-tailed)	0.606	0.000	0.000	.	0.000	0.000	0.000	0.000	0.193	0.000	0.001	0.255	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
FTREDPC9	Pearson Corr.	0.021	-.596**	-.354**	-.513**	1.000	.897**	.955**	-0.114	-0.112	-.430**	-.519**	0.052	.553**	-.466**
	Sig. (2-tailed)	0.754	0.000	0.000	0.000	.	0.000	0.000	0.081	0.087	0.000	0.000	0.429	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
FSRRPC9	Pearson Corr.	0.064	-.471**	-.275**	-.374**	.897**	1.000	.727**	-0.103	-0.068	-.360**	-.418**	0.083	.440**	-.413**
	Sig. (2-tailed)	0.326	0.000	0.000	0.000	0.000	.	0.000	0.114	0.296	0.000	0.000	0.204	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
FREDPC9	Pearson Corr.	-0.011	-.612**	-.366**	-.548**	.955**	.727**	1.000	-0.108	-.128*	-.428**	-.528**	0.025	.566**	-.449**
	Sig. (2-tailed)	0.866	0.000	0.000	0.000	0.000	0.000	.	0.098	0.049	0.000	0.000	0.704	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
DISTCC	Pearson Corr.	-.378**	-0.029	.313**	.249**	-0.114	-0.103	-0.108	1.000	-.394**	.196**	0.002	-.414**	-.370**	.193**
	Sig. (2-tailed)	0.000	0.660	0.000	0.000	0.081	0.114	0.098	.	0.000	0.003	0.974	0.000	0.000	0.003
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
SSHARER	Pearson Corr.	.948**	.222**	-0.085	0.085	-0.112	-0.068	-.128*	-.394**	1.000	-0.041	0.116	.907**	.161*	0.049
	Sig. (2-tailed)	0.000	0.001	0.191	0.193	0.087	0.296	0.049	0.000	.	0.532	0.075	0.000	0.013	0.452
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
LMARGR	Pearson Corr.	-.186**	.486**	.385**	.455**	-.430**	-.360**	-.428**	.196**	-0.041	1.000	.426**	-.273**	-.807**	.338**
	Sig. (2-tailed)	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.532	.	0.000	0.000	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
LVOTACTR	Pearson Corr.	-0.050	.491**	.197**	.220**	-.519**	-.418**	-.528**	0.002	0.116	.426**	1.000	-0.009	-.504**	.375**
	Sig. (2-tailed)	0.446	0.000	0.002	0.001	0.000	0.000	0.000	0.974	0.075	0.000	.	0.894	0.000	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
SSHAREC	Pearson Corr.	.939**	0.083	-.189**	-0.074	0.052	0.083	0.025	-.414**	.907**	-.273**	-0.009	1.000	.380**	-0.054
	Sig. (2-tailed)	0.000	0.204	0.004	0.255	0.429	0.204	0.704	0.000	0.000	0.000	0.894	.	0.000	0.408
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
LMARGC	Pearson Corr.	.276**	-.386**	-.470**	-.528**	.553**	.440**	.566**	-.370**	.161*	-.807**	-.504**	.380**	1.000	-.485**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	.	0.000
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236
LVOTACTC	Pearson Corr.	-0.035	.308**	.301**	.249**	-.466**	-.413**	-.449**	.193**	0.049	.338**	.375**	-0.054	-.485**	1.000
	Sig. (2-tailed)	0.593	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.452	0.000	0.000	0.408	0.000	.
	N	236	236	236	236	236	236	236	236	236	236	236	236	236	236

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Source: See [Variable List](#) and [Source Sheet](#)

Attachment 14

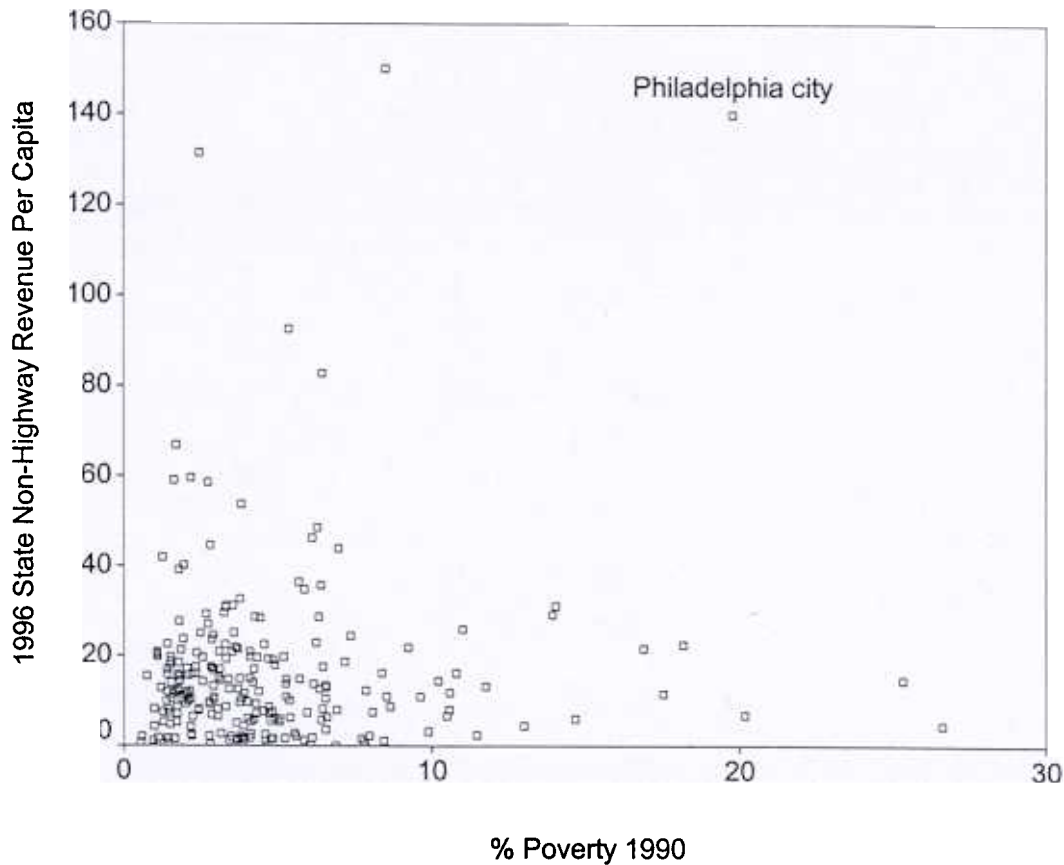
**Relationship of Tax Effort, 1996, to Selected Variables:  
Pennsylvania Suburbs of Philadelphia MSA**

	<b>1</b>	<b>2</b>
Intercept	0.42** 5.27	0.14 1.85
% Poverty	0.04** 4.19	0.04 4.03
Total Population 1996	-0.003 -0.80	0.0005 0.16
% Non-Res. Developed Land, 1990	0.03** 8.64	0.02** 4.46
Population Density, 1990	-0.04** -2.69	-0.03* -2.03
Total Non-Highway State Aid Per-Cap., 1996		0.003 1.78
Total Federal Funds Per Cap. 1994-96 Avg.		0.0001** 8.31
Adj. R sq.	0.341	0.500
N	235	235
F	31.27	39.94

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.

**Scatterdiagram of 1996 State Non-Highway  
Revenue Per Capita vs. Percent Poverty in 1990:  
Pennsylvania Portion of the Philadelphia MSA**



Note: Four MCDs were omitted because they were very distant outliers: West Conshohocken Borough (pop. 1,258), Marcus Hook Borough (pop. 2,545), Malvern Borough (pop. 2,944), and Ivyland Borough (pop. 498).



**Relationship of 1996 State Revenue Flows Per Capita (Excluding Highways)  
to Selected Variables: Pennsylvania Suburbs of Philadelphia MSA**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Intercept	5.48*	5.41*	7.23**	5.23*
	2.19	2.12	2.99	2.06
% Poverty, 1990	-0.18	-0.16	0.01	-0.13
	-0.53	-0.49	0.04	-0.39
Population Density, 1990	-0.90	-0.89	-1.08*	-0.87
	-1.77	-1.75	-2.15	-1.71
Total Population 1996	0.34**	0.28	0.32	
	3.27	0.80	0.91	
Tax Effort	4.21*	4.23*		4.32*
	2.13	2.13		2.18
% Non-Res. Developed Land, 1990	0.26*	0.26*	0.39**	0.27*
	2.13	2.12	3.62	2.18
Share of Statewide Vote for Ridge, 1994		5.69	0.29	31.48**
		0.17	0.01	3.18
Adj. R sq.	0.113	0.109	0.095	0.110
N	235	235	235	235
F	6.94	5.77	5.92	6.80

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.

**Relationship of 1996 State Revenue Flows Per Capita  
to Selected Variables: Pennsylvania Suburbs of Philadelphia MSA**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Intercept	7.54*	7.45*	8.17**	7.33*
	2.44	2.36	2.75	2.34
% Poverty, 1990	0.17	0.18	0.25	0.21
	0.41	0.43	0.62	0.50
Population Density, 1990	-1.23*	-1.23*	-1.31*	-1.21
	-1.97	-1.96	-2.11	-1.94
Total Population 1996	0.26*	0.19	0.21	
	2.06	0.45	0.49	
Tax Effort	1.64	1.67		1.73
	0.67	0.68		0.71
% Non-Res. Developed Land, 1990	0.39**	0.39**	0.44**	0.40**
	2.57	2.57	3.34	2.61
Share of Statewide Vote for Ridge, 1994		6.96	4.83	24.78*
		0.17	0.12	2.02
Adj. R sq.	0.061	0.057	0.059	0.060
N	235	235	235	235
F	4.02	3.34	3.93	3.98

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.

## METHODOLOGY USED TO ANALYZE DATA FROM THE CONSOLIDATED FEDERAL FUNDS REPORT (CFFR), 1987-96.

Thomas W. Lester – [tleste1@uic.edu](mailto:tleste1@uic.edu)

### Steps:

- 1) Obtained CFFR data CD.
- 2) Ran data extraction program (EXTRACT) contained on CFFR CD to extract the states and years of interest.
- 3) Obtained data for all the federal programs that went to all the townships in all the counties in the states of Pennsylvania for the following years: 1987, 1988, 1989, 1994, 1995, and 1996.
- 4) Data were transferred to Microsoft Excel where all the counties except those in the Philadelphia MSA 8-County region were deleted. An example of the data table is listed below. All of the fields included in the CFFR were extracted. They appear as columns in the table below.

NAME	PROG_ID	PROG_TITLE	OBJECT_ID	FUNDING_ID	AMOUNT	F_STATE	F_COUNTY	F_PLACE
Bedminster township	14.856	Example	DO		268020	42	017	04976
Bedminster township	83.100	Example	II		611000	42	017	04976
Bensalem township	14.218	Example	GG		603983	42	017	05616
Bensalem township	14.856	Example	DO		3153712	42	017	05616
Bensalem township	83.100	Example	II		15295474	42	017	05616

- 5) The data were sorted by the OBJECT\_ID field and the data with OBJECT\_ID codes DL, GL, and II, were removed. These data correspond to loans and insurance programs, not direct grants or expenditures. They were excluded because they do not represent a final use of resources.
- 6) Each row was coded with identifiers that would allow the data to be grouped according to 5 general categories. I. Retirement, II. Redistributive, III. Spatially Related Redistributive, IV. Other Spatially Related Programs, and V. Other Programs. Within each of these five categories there were several sub-categories. They are listed on the attached table. This method of classification was adapted from The Brookings Institution's Metropolitan Initiative Chicago Case Study. The Philadelphia data followed the Chicago study's grouping of the PROG\_ID codes within each category. For example, if the PROG\_ID code 14.856 was listed under the large category 'redistributive' and sub-category 'education,' we gave that row a code that corresponds with that category (3c). For PROG\_ID codes that were found in the data set of the Philadelphia region, but not in the Chicago data set, we classified the program based on the title of the program, and how similar programs were classified by the Chicago study. For a full list of how each program was categorized, refer to *Determination of Major Federal Funds Categories*, attached. This process was repeated for each year.
- 7) *Summing by MCD*: Next the data were transferred to Microsoft Access so that the amounts the each MCD received in each category could be summed easily. Totals for the 'county undistributed' and 'balance of county' codes, under each category, were created. For definitions of 'county undistributed' and 'balance of county' see the CFFR CD documentation.
- 8) *Allocation of Undistributed Funds*: The total amount of undistributed funds (both 'county undistributed' and 'balance of county') were allocated under each category to all the MCDs in each county. For retirement categories, funds were allocated to each MCD based on each MCD's share of the county's population age 65 and over. For redistributive and spatially related redistributive categories funds were allocated based on each MCD's share of the county's population with incomes below the 1990 federal poverty level. For other spatially related and other categories, funds were allocated based on each MCD's share of the county population. Allocation calculations were done on Microsoft Excel.
- 9) *Summing Direct and Allocated Amounts*: Next, the amount of funds that were directly allocated to each MCD were added to the amount the received through the allocation process. This was also done on Microsoft Excel. Thus for each MCD in the Philadelphia 8-county MSA an amount received for each subcategory was obtained. (Some MCDs did not receive funds directly at all, and most did not receive direct funds for some categories.)

10) *Creating Three-Year Per Capita Averages*: Finally, the mean federal funds flow for each MCD for the years 1987-1989 and 1994-1996, were calculated. To put these data on a per capita basis the 1987-1989 figure was divided by each MCD's 1990 total population, the 1994-1996 figure was divided by each MCD's 1996 total population.

Full Citation:

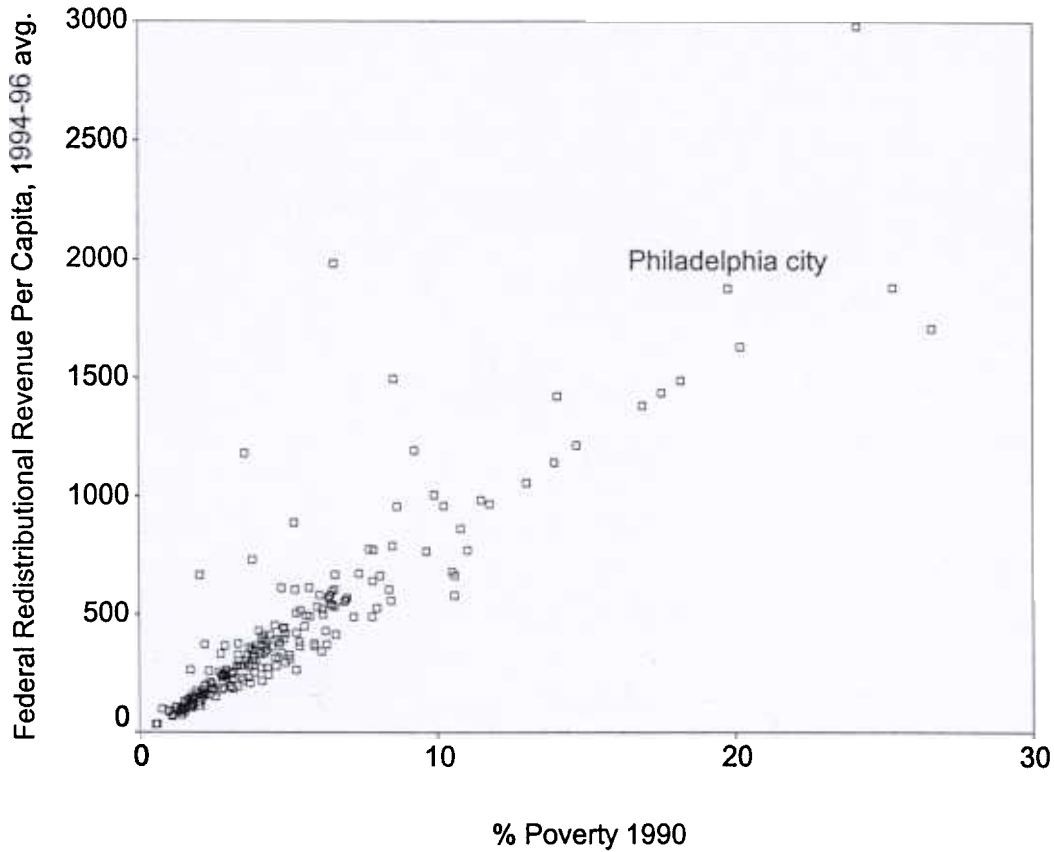
Consolidated Federal Funds Report, CD-ROM., Washington, D.C., U.S. Department of Commerce, Bureau of the Census, 1987-1996.

## Attachment 19

Per Capita Federal Funds Received in each County in the Philadelphia Metropolitan  
Area by Major Funding Category, 1994-96 average.

	Pennsylvania					New Jersey		
	Bucks	Chester	Delaware	Montgomery	Philadelphia	Burlington	Camden	Gloucester
<b>1. Retirement</b>								
a. Social Security and Other Retirement	\$ 1,386.52	1,223.15	1,856.01	1,812.62	1,888.63	1,441.18	1,580.39	1,330.43
b. Medicare and Related	647.30	557.97	1,037.55	873.64	1,504.16	578.21	800.28	621.29
c. Retirement for Veterans and Families	85.53	92.47	104.14	91.66	93.74	289.06	99.47	97.14
<b>Subtotal</b>	<b>2,119.35</b>	<b>1,873.59</b>	<b>2,997.70</b>	<b>2,777.93</b>	<b>3,486.52</b>	<b>2,308.46</b>	<b>2,480.14</b>	<b>2,048.85</b>
<b>2. Redistributonal</b>								
a. Food Stamps	26.96	24.55	58.71	24.82	240.09	31.45	110.64	41.44
b. Redistributonal Grants	44.26	57.47	91.82	39.48	318.16	59.98	157.84	81.52
c. Medical Assistance	152.83	130.97	219.72	143.58	481.59	0.00	0.00	0.00
d. Unemployment	0.00	1.30	0.05	0.00	0.10	0.00	0.00	0.00
e. Supplemental Security Income	17.13	18.21	31.33	18.53	153.61	202.60	382.21	217.34
f. Redistributonal to Veterans	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
<b>Subtotal</b>	<b>241.18</b>	<b>232.49</b>	<b>401.64</b>	<b>226.40</b>	<b>1,193.62</b>	<b>294.03</b>	<b>650.68</b>	<b>340.31</b>
<b>3. Spatially Related Redistributonal</b>								
a. Housing and Other Space Related Transfers	25.83	21.19	46.63	19.71	67.71	32.40	115.22	43.64
b. Housing and Community Development	34.74	27.04	98.80	36.08	254.12	31.96	118.37	55.86
c. Education	47.00	51.39	94.31	49.81	352.67	14.62	10.37	36.29
d. Health	0.11	0.13	1.94	0.14	11.09	0.00	2.85	0.00
<b>Subtotal</b>	<b>107.69</b>	<b>99.74</b>	<b>241.69</b>	<b>105.74</b>	<b>685.59</b>	<b>78.98</b>	<b>246.81</b>	<b>135.80</b>
<b>4. Other Spatially Related Programs</b>								
a. Highways and Related	40.19	87.79	41.95	24.77	57.59	23.33	25.77	13.77
b. Other Infrastructure	0.84	0.71	0.36	-0.11	138.14	10.80	20.56	6.05
c. Assistance for Disaster and Environment	5.37	1.40	1.69	3.41	4.68	15.36	40.28	117.72
d. Crime	2.17	2.69	3.07	1.88	11.17	0.08	0.78	0.31
<b>Subtotal</b>	<b>48.56</b>	<b>92.59</b>	<b>47.08</b>	<b>29.96</b>	<b>211.58</b>	<b>49.57</b>	<b>87.39</b>	<b>137.85</b>
<b>5. All Other</b>								
a. Transfers to Families and Veterans	1.75	6.46	2.20	1.90	3.16	12.96	10.03	7.37
b. Direct Business	0.61	1.52	0.10	0.31	1.19	6.78	0.80	1.84
c. Direct Payments-Post Office	3.89	8.52	4.25	4.49	12.31	1.93	3.06	17.73
d. Procurement - Defense	188.42	107.67	171.42	412.55	556.89	76.79	171.14	24.73
e. Procurement - Civilian	20.13	212.30	23.15	205.04	146.56	30.66	45.78	13.25
f. Procurement - Post Office	24.17	52.80	26.54	27.71	76.23	3.46	8.52	2.93
g. Salaries and Wages - Military and Defense	180.30	13.50	74.45	134.53	483.45	1,111.74	53.20	132.92
h. Salaries and Wages - Other Civilian	16.34	134.01	53.23	114.64	461.68	718.96	42.32	49.68
i. Salaries and Wages - Post Office	108.22	236.50	119.00	123.95	341.08	20.58	44.03	23.86
j. Research	0.86	11.95	10.05	13.07	294.30	537.81	47.65	14.82
k. Arts	0.29	0.34	0.10	0.04	1.83	0.00	0.02	0.01
l. Other Healths	0.03	0.45	1.52	0.98	38.77	301.18	37.30	11.60
m. Other grants	0.89	5.81	2.91	2.34	18.30	97.72	195.92	63.00
<b>Subtotal</b>	<b>545.90</b>	<b>791.82</b>	<b>488.94</b>	<b>1,041.54</b>	<b>2,435.76</b>	<b>2,920.57</b>	<b>659.76</b>	<b>363.73</b>
<b>Total</b>	<b>\$ 3,062.67</b>	<b>3,090.23</b>	<b>4,177.03</b>	<b>4,181.58</b>	<b>8,013.07</b>	<b>5,651.60</b>	<b>4,124.79</b>	<b>3,026.54</b>

**Scatterdiagram of 1994-96 Average Federal Redistributive  
Revenue Per Capita vs. Percent Poverty in 1990:  
Pennsylvania Portion of the Philadelphia MSA**



Note: Four MCDs were omitted because they were very distant outliers: West Conshohocken Bo (pop. 1,258), Marcus Hook Borough (pop. 2,545), Malvern Borough (pop. 2,944), and Ivyland Borough (pop. 498).

**Relationship of Federal Direct Redistributive  
Flows Per Capita, 1994-96 Avg. to Selected Variables:  
Pennsylvania Suburbs of Philadelphia MSA**

	<b>1</b>	<b>2</b>	<b>3</b>
Intercept	14.15 <i>0.69</i>	39.06* <i>2.05</i>	18.19 <i>0.90</i>
% Poverty, 1990	52.26** <i>34.53</i>	51.59** <i>33.85</i>	52.59** <i>35.29</i>
Population Density, 1990	2.69 <i>1.23</i>	5.21* <i>2.52</i>	
Total Population 1996	-0.69 <i>-1.56</i>	-0.49 <i>-1.11</i>	-0.69 <i>-1.57</i>
% Change in Population, 1990-96	-1.29** <i>-2.59</i>	-1.73** <i>-3.56</i>	-1.38** <i>-2.79</i>
% Non-Res. Developed Land, 1990	1.70** <i>3.03</i>		1.96** <i>3.77</i>
Tax Effort	2.79 <i>0.33</i>	15.87* <i>2.15</i>	1.44 <i>0.17</i>
Margin of Victory for Clinton, 1992	0.50 <i>1.16</i>	0.77 <i>1.81</i>	0.59 <i>1.40</i>
Adj. R sq.	0.906	0.903	0.906
N	235	235	235
F	323.67	363.08	376.52

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.

**Relationship of Federal Spatially Related  
Redistributional Flows Per Capita, 1994-96 Avg. to Selected Variables:  
Pennsylvania Suburbs of Philadelphia MSA**

Intercept	354.46*
	2.21
% Poverty, 1990	15.13**
	6.57
Population Density, 1990	10.21**
	3.04
Total Population 1996	0.15
	0.23
% Change in Population, 1990-96	-0.74
	-1.11
Tax Effort	21.30*
	2.00
Distance to Center City	1.50*
	1.98
Voter Participation in 1992 Election	-4.64*
	-2.55
Adj. R sq.	0.452
N	235
F	28.54

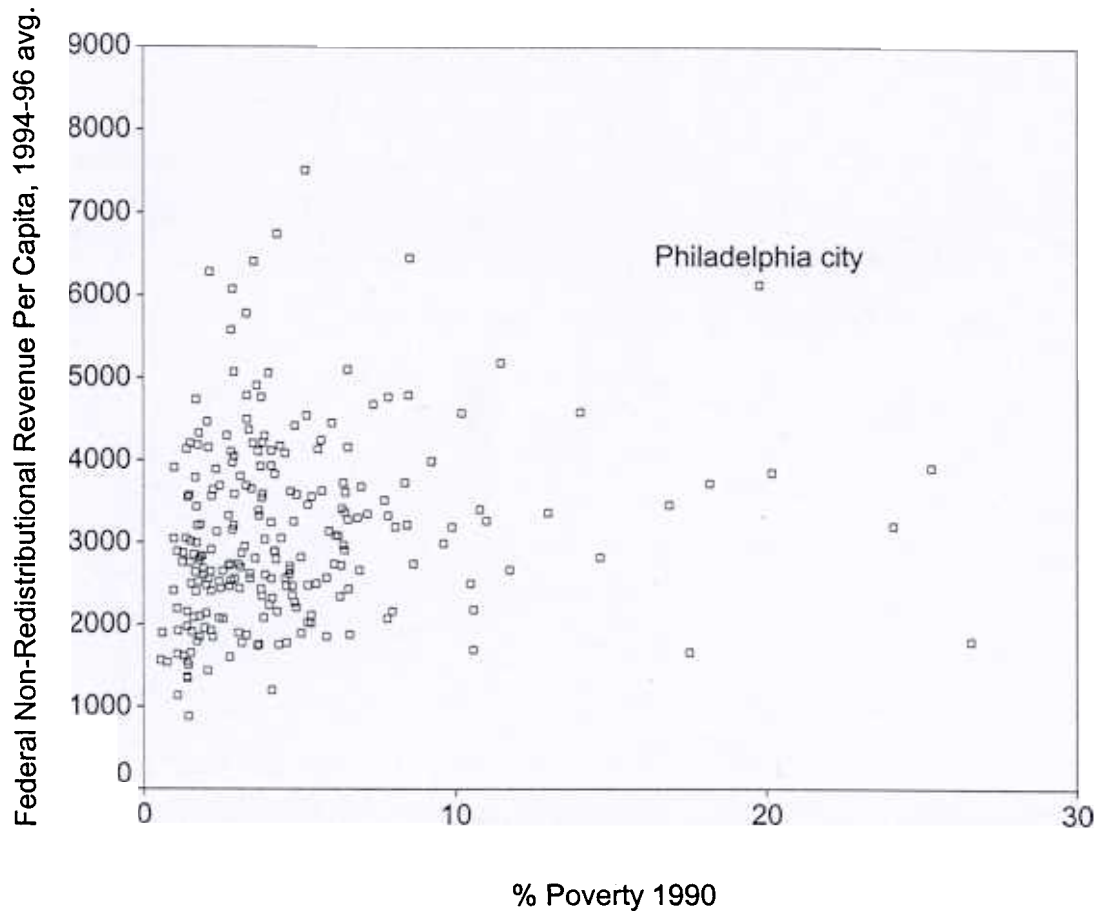
\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.



Attachment 23

**Scatterdiagram of 1994-96 Average Federal Nonredistributional  
Revenue Per Capita vs. Percent Poverty in 1990:  
Pennsylvania Portion of the Philadelphia MSA**



Note: Four MCDs were omitted because they were very distant outliers: West Conshohocken Borough (pop. 1,258), Marcus Hook Borough (pop. 2,545), Malvern Borough (pop. 2,944), and Ivyland Borough (pop. 498).

**Relationship of Federal Non-Redistributional  
Flows Per Capita, 1994-96 Avg., to Selected Variables:  
Pennsylvania Suburbs of the Philadelphia MSA**

	<b>1</b>	<b>2</b>	<b>3</b>
Intercept	-2,607.57 <i>-0.98</i>	-3,000.81 <i>-1.10</i>	-2,954.63 <i>-1.09</i>
% Poverty, 1990	-94.01** <i>-2.61</i>	-87.33* <i>-2.37</i>	-93.54** <i>-2.56</i>
Population Density, 1996	-62.49 <i>-1.20</i>	-55.88 <i>-1.05</i>	-54.87 <i>-1.04</i>
Total Population, 1996	-99.31** <i>-3.51</i>		-26.99** <i>-2.63</i>
% Change in Population, 1990-96	-50.46** <i>-4.31</i>	-57.33** <i>-4.84</i>	-56.11** <i>-4.80</i>
% Non-Res. Developed Land, 1990	25.50 <i>1.94</i>	23.50 <i>1.75</i>	26.69* <i>2.01</i>
Tax Effort	1996.05** <i>9.96</i>	1984.21** <i>9.66</i>	1975.55** <i>9.72</i>
Share of Statewide Vote for Clinton, 1992	7681.59** <i>2.74</i>	-1,512.21 <i>-1.47</i>	
Voter Participation in 1992 Election	53.14 <i>1.78</i>	55.61 <i>1.82</i>	56.24 <i>1.86</i>
Adj. R sq.	0.475	0.448	0.460
N	235	235	235
F	27.429	28.179	29.432

\* Coefficient is significant at the 5% level.

\*\* Coefficient is significant at the 1% level.