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“The Federal Empowerment Zone and Enterprise Community
Program: Outcome on Labor Income”

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Abstract

In 1993, the Clinton Government introduced an economic development program to assist inner cities and rural communities. The Empowerment Zone and Enterprise Community (EZ/EC) program aims to increase business investment and employment in selected areas by offering geographically targeted benefits. While a number of studies have examined the effects of this type of development tool on business activity, few have explored how these zones have impacted on individuals. This report examines the effect of the Federal EZ/EC program on the average labor income of residents. The county-level data set considers the period 1993–2000. The estimation results show that the policy features of Round I urban and rural EZ and urban EC had a short-term positive effect on the welfare proxy. Five years following the introduction of the Round I policies, the zone effects from the Round II urban EZ were relatively constant through the period 1998–2000. Therefore, the analysis reveals that the federal EZ/EC program does not have a significant impact on resident's welfare.

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Introduction

The Federal Empowerment Zones and Enterprise Communities (EZ/EC) program is a geographically targeted, economic development tool which, by its incentive structure, indicates a clear choice by the policymakers to attenuate the visible signs of poverty at the regional level. Hence, the policy allegedly targets the areas where the marginal dollar invested will have the most influence on the poverty rate. One of the main objectives of this centralized program, that of achieving sustained growth in job creation, directly concerns the workers. Consequently, the primary analytic objective of this M.Sc. report is to examine the potential effect of this spatially targeted economic revitalization policy on the average labor income of residents.

The remainder of the M.Sc. report proceeds as follows: the next section describes the economic and social context in which the Federal program has been implemented. Afterwards, a review of the studies which are relevant to the topic will be presented. The next section provides a theoretical analysis by presenting the econometric methodology, the regression models and the hypothesis which supports these models. The policy analysis extends to the first and second rounds of funding and considers the urban as well as rural EZ/EC. Section three presents the estimation results. This section will allow for an examination of the hypothesis stated in the previous section and will provide an answer to the main problematic.

Section I. Spatially Targeted Policy

The Urban Jobs and Enterprise Zones Act was first introduced in the U.S. House of Representatives in 1980 (Rubin, 1990) following the publication of the very influential book "The Job Generation Process" in 1979 by Birch (Greene, 1982). The main reasons behind support from the left and right, in particular from congressmen Kemp (R-N.Y.) and Garcia (D-N.Y.), was the credibility conferred by policymakers to the book's claim which stated that small firms created the vast majority of jobs (Peters and Fishers, 2002). This statement quickly became a mantra for enterprise zone supporters because the program seemed to fit directly the goal of promoting new business formation.

Nearly a decade later, the only federal legislation enacted so far is that in Title VII of the Housing and Community Development Act which "[...] provided no tax benefits but instead focused on existing federal program [...]"¹. The legislation did not fail because of lacking support from the executive branch and the congress, but rather from strong opposition from federal departments such as the Treasury. (Peters and Fishers, 2002). The position was based upon the belief that the tax code should be as neutral as possible because special tax treatment could potentially distort the market and therefore misallocate public resources.

The absence of federal legislation in the early eighties gave rise to states initiative with the implementation of the state Enterprise Zone Programs (EZP). The fundamental

¹ Marilyn Rubin, Urban Enterprise Zones: Do they Work? Evidence from New Jersey, Journal of Public Budgeting and Finance, Winter 1990, page 4.

concept behind the state programs was to combine economic development incentives with community level participation. By using the right tools, depressed cities could reestablish reliance on the private sector through the creation of community-based partnerships with private and public organizations, and therefore eventually attract investors. The use of geographically targeted incentives encouraged economic revitalization at two levels: by removing Government burden on economic local activity, and by orienting the program's objectives toward specific issues such as poverty and education as opposed to targeting a host of economic and social problems. Over time the EZP became a model for the Government in spurring local economic growth by ensuring customized assistance to businesses and local authorities. As of 1995, 34 states continued to maintain the zone programs.²

The Empowerment Zone and Enterprise Community Act was enacted a decade later, in 1993, under the Clinton administration and Democratic-controlled Congress. The EZ/EC program is administered through two federal departments, the Housing and Urban Development (HUD) for urban EZ/EC and the U.S. Department of Agriculture (USDA) for rural EZ/EC. The Taxpayer Relief Act of 1997 enacted the second round of funding into law. Its mission, inspired primarily by the State programs, was to encourage long-term, self-sustained development in local communities. It differs from other examples of Federal development programs such as Model Cities³ in that it not only recognizes the

² Peter S. Fisher, and Alan H. Peters, 'State Enterprise Zone Programs: Have they Worked?' W.E. Upjohn Institute for Employment Research, Chapter I, 2002.

³ The 1966 Model Cities program's awarded financial assistance to the impoverished communities chosen strategically. These cities would eventually serve as examples to local authorities from other communities. The purposes of the program, according to legislative preamble, were "to provide assistance to enable cities to implement new proposals to rebuild and revitalize large slums; to expand housing, job an income

importance of community-level participation and initiatives in the realization of the economic potential of public-private partnerships and small firms, but it also contains a module which focuses on microfinance.

The EZ/EC program uses explicit criteria for determining whether a community is eligible to specifically target their economic development efforts. The Federal program established a competitive designation process for conferring EZ/EC status in which applicants must meet economic distress criteria. **Table 1** in the appendix provides a review of the eligibility criteria for rural and urban Empowerment Zones.

The selection process also includes a strategic plan containing four key principles: strategic vision for change, participation of different community organisms, economic opportunity and sustainable community development.⁴ In the 2000 HUD Executive Summary⁵, the New York Urban Round I EZ reported, for the city of Bronx, that its vision for change and goal of sustainable community development involved replacing manufacturing and retail jobs – industries which experienced significant decline in U.S. and international market shares⁶ – with health care and social service industries. Community-based partnership is realized with the implementation of job training

opportunities; to reduce dependence on welfare payments [...]”Over time the program extended its coverage to more cities, even though appropriations did not increase accordingly (Boyle & Eisinger, 2001). The purposes of the program, according to legislative preamble, were “to provide assistance to enable cities to implement new proposals to rebuild and revitalize large slums; to expand housing, job an income opportunities; to reduce dependence on welfare payments [...]”

⁴ Catalogue of Federal Domestic Assistance : Omnibus Budget Reconciliation Act of 1993, Title XIII, Public Law 103-66, Sections 952-954 and Tax Payer Relief Act of 1997, Public Law 105-34.

⁵ Office of Community Planning and Development, HUD, New York Empowerment Zone, 2002 Annual Report.

⁶ Office of Community Planning and Development, HUD, New York Empowerment Zone, 2002 Annual Report, page 2.

program such as the Bronx Overall Economic Development Corporation for sectors such as accounting and computer repair. Finally, economic opportunity is described through the strategy of “ [...] providing low cost financing to companies in exchange for their own investments in the EZ and their creation of jobs for Bronx EZ residents.”⁷.

⁷ Office of Community Planning and Development, HUD, New York Empowerment Zone, 2002 Annual Report, page 5.

Previous Research

Since the State Enterprise Zone program (EZIP) was first implemented in 1981 and the Federal EC/EZ legislation was sanctioned more than a decade later, most of the existing literature evaluated the State programs. Scholars have extensively studied the causal links between zone participation and job creation, economic growth, investments, etc. in State programs.

In the case of California's EZIP, O'Keefe (2003) focused her analysis on whether Enterprise Zone participation induced variation in employment numbers. She incorporated in her evaluation short-term and long-term analyses for a more valid investigation of the potential impact of Enterprise Zone policies. O'Keefe used the Propensity Score Matching Model, inspired by the difference-in-difference technique, to isolate employment variations caused by the Enterprise Zone policy from other factors. The propensity score, derived from a logistic regression, is based on the conditional probability of designation of an area. This probability is estimated as a function of census tracts characteristics such as employment, vacancy rates, race, median household income, etc. Changes in employment numbers in zone tracts were then compared to figures from non-zone tracts with the closest score. Evidence from the fixed effect regression suggested that zone designation boosted employment 3% faster than for non-zone areas. This effect tended to persist over the first six years of the implementation of the program.

Bostic and Prohofski (2002) also examined the California EZP, but they focused on earning outcomes of Enterprise Zone participation. Their investigation was restricted to employees whose hiring conformed to the Enterprise Zone hiring credit criteria for the period 1993–1997. Sources included tax returns filed by both workers and private firms at the California Department of Trade and Commerce and the California Franchise Tax Board. In order to ascertain the direct impact of Enterprise Zone participation on wages, Bostic and Prohofski also used the difference-in-difference technique. Study found that workers at the lower end of the wage distribution benefited the most from Enterprise Zone policy. In effect, for years 1995 and 1997, in all four control groups, growth estimates for twenty-fifth percentile wages were greater than seventy-fifth percentile wages.

Bogart and Boarnet (1996) focused their study on the change in employment figures in New Jersey since the enactment of Enterprise Zone legislation in 1982. The panel study consisted of a sample of 28 municipalities that qualified for the program's criteria (but did not necessarily obtain a zone status). In this case, estimations from the difference-in-difference regression established that firms did not respond to state and local incentives. Bogart and Boarnet considered two possible explanations to support their econometric estimations: either the EZP caused a shift in employment from zones to non-zones, or the program changed the sectoral composition of employment. Data limitation did not permit the verification of the first hypothesis. In order to test the second hypothesis, the authors considered employment changes in six industries – manufacturing, retail, service, finance, insurance and real estate – and the evidence did not confirm this hypothesis.

Rubin (1990) compared benefits to costs of running the New Jersey EZP for an assessment of the economic viability of such a program. Benefits were measured by a survey sent to firms which qualified and participated to the EZP; the annual forgone fiscal revenues measured the costs. Contrary to Bogart and Boarnet's (1996) results, Rubin's paper on New Jersey's EZP yielded positive findings: for all 976 private firms considered, the gains resulting from Enterprise Zone participation exceeded costs. Rubin, however, cautioned against the shortcomings of this case study. It was difficult to assess accurately to what extent these findings overstated the benefits due to the phenomenon of dislocation of economic activity, and costs were understated by the exclusion of transfer payment reductions. Furthermore, as noted by Sridhar (2001), the technique of collecting data using a survey may introduce a bias in estimations – employers had considerable incentive to overestimate the impact of the Enterprise Zone subsidies on their labor force, output, and sales so as not to lose funding.

Sridhar (2001) attempted to find an answer to the key policy question: are Enterprise Zones efficient? He performed a benefit-cost analysis of Ohio EZP for the period 1982–1995. He computed a measure of benefits, defined as actual wages minus reservation wage, as well as a measure of costs that is described as the property tax abatements provided to private firms. Main policy recommendations arising from this profitability analysis are as follows:

- First, in order to maximize net benefits from employment, local government must invest proprietarily in high-paying jobs in high

unemployment zones, since jobs created in these areas are situated in a lower reservation wage area.

➤ Second, instituting a ceiling on the amount of abatement to be given to a single firm would lower the cost factor, given that low-paying jobs in low unemployment areas are relatively less profitable.

These findings are well founded in the case of Ohio's EZP. However, lessons learned from the flaws or successes of Ohio's Enterprise Zone might not be relevant to other EZP.

The heterogeneity of the policies amongst states highlighted the necessity to compare the effectiveness of diverse EZP. Bondonio and Engberg's (2000) main objective was to assess whether the EZP of five states⁸ implemented the right policies to encourage job growth. The use of zip code level data, whose boundaries did not necessarily match Enterprise Zone boundaries, allowed for an analysis of the potential employment effect within the community and its immediate surroundings. The econometric method used consisted of a two-step technique which allowed for an adequate control for the monetary generosity of the incentives using the Hypothetical Firm approach, and also compared employment growth before and after zone designation by using the propensity score approach. This second step enabled the correction of the selection bias problem resulting from the non-random assignment of zones, by adding to the employment regression the computed propensity score of each zip area. The Hypothetical Firm approach estimated

⁸ Bondonio and Engberg (2000) used policy outcome data from five states: California, Kentucky, New York, Pennsylvania and Virginia.

the value of fiscal and monetary incentives from a firm's point of view. In essence, this method is based on the internal rate of return, a measure used by firms to evaluate the profitability of an investment opportunity. The panel study showed that Enterprise Zone participation in five states had no direct impact on local employment outcomes.

Greenbaum and Engberg (2004) studied the impact of Enterprise Zone subsidized business outcomes of urban manufacturing establishments in six states⁹. In an approach that is quite similar to that of O'Keefe's (2003), they employed a difference-in-difference estimation technique using the propensity score approach. They did find evidence linking job creation to zone participation relative to the control group; however, this trend was in new manufacturing establishments. Declining employment figures among ongoing establishments offset this upward tendency. They concluded that Enterprise Zone policy lead to a churning of the economic activity, and accordingly had no direct impact on job creation.

In order to generate an unbiased estimate of the net impact of different policy features on new, vanishing and existing establishments, Bondonio (2003) used a technique similar to Bondonio and Engberg (2000). Results from the 11 states¹⁰ analysis are coherent with the conclusions of Greenbaum and Engberg (1998). Enterprise Zone policies had a positive impact on employment statistics, sales, and capital expenditures involving new and

⁹ Greenbaum and Engberg (2004) used policy outcome data from six states: California, Florida, New Jersey, New York, Pennsylvania and Virginia.

¹⁰ Bondonio and Engberg (2000) used policy outcome data from eleven states: California, Connecticut, Washington D.C., Florida, Indiana, Kentucky, Maryland, New Jersey, New York, Pennsylvania and Virginia

existing establishments. But these policies were also tied to an acceleration of the rate-loss of employment, sales, and capital expenditures involving vanishing establishments.

Few scholars have examined the evidence available on the impact of the Federal EZ/EC policies on local economies. In order to ascertain whether political interference had an impact on the designation process, Greenbaum and Bondonio (2003) and Wallace (1999) had interest in the characteristics of the areas that have received EZ/EC status.

In the case of the Federal EZ/EC program, the studies on this theme verified the hypothesis of political interference in the designation process; very few studies have focused on the problematic of an economic nature. Therefore, this paper contributes to the body of knowledge on EZ/EC program by orienting the policy debate towards an economic analysis of the potential impact of EZ/EC policies on the average labor income of residents

TABLE 2. Summary of Previous Econometric Studies

	O'Keefe (2003)	Bostic & Prohofski (2002)	Bogart & Boarnet (1996)	Bondonio & Engberg (2000)	Greenbaum & Engberg (2004)	Bondonio (2003)
Program	Enterprise Zone	Enterprise Zone	Enterprise Zone	Enterprise Zone	Enterprise Zone	Enterprise Zone
Period	1985-1998	1993-1997	1982-1990	1983-1987	1984-1993	1982-1992
State(s) / Countries	CA	CA	NJ	CA KY, NY PA and VA	CA, FL, NJ, NY, PA and VA.	CA, CT, WA, DC, FL, IN, KY, MD NJ, NY, PA and VA.
Entities	Census Tracts	Firm level data	Municipalities	US Postal Zip code level data	US Postal Zip code level data	US Postal Zip code level data
Dependent Variable	Number of Employees per firm	Wages	Employment	Employment	Employment	Employment Shipments Capital payroll
Dep. Variables	Income Unemployment Vacancy rate Median Rent House Value % Occupied Poverty % public assistance % Urban Population Race Employment structure	Base wage Children Filing status Enterprise Zone Participant	7 binary variables	Race Population (25+) Unemployment Income Poverty rate Population density Employment (t-1)	Pop. Density Income Poverty rate Unemployment Education Race Housing value Rent occupancy employment density workers value added value shipment expenditures capital and energy intensity	New- establishment Outcomes Existing – Establishment Outcomes vanishing – Establishment Outcomes
Results	Zone designation boosted in the short term employment 3% faster than for non-zone areas.	Workers at the lower end of the wage distribution benefited the most from Enterprise Zone policy	Firms did not respond to state and local incentives.	Enterprise Zone participation in five states had no direct impact on local employment outcomes.	Zones have a positive effect on the outcomes of manufacturing establishments.	Enterprise Zone policies had a positive impact on employment statistics, sales, and capital expenditures involving new and existing establishments.

Section II. Theoretical Analysis

Following the review of the literature, the contributions of some of these studies will constitute a model of reference for the main analysis of this paper. The choice of the dependent variable, net earnings per capita, is relevant for the reason that this M. Sc. report analyzes the potential effect of these centralized policies on the worker's wealth. The studies published by Bondonio and Engberg (2000) and Bondonio (2003) highlighted the importance to control for the monetary value of the incentives awarded to EZ/EC because it might be responsible for a marginal increase (or decrease) of the observed policy impact on the county's average labor income of residents. However, HUD and USDA cannot provide the value of the tax incentives in a given EZ/EC. Moreover, the Internal Revenue Service (IRS) cannot track the data because taxes are filed by address of tax payer which is not necessarily the same address as the business activity. At present they do not provide EZ/EC specific estimates of any incentives. All the IRS can generate is a national estimate of wage credit utilization on an annual basis.

The monetary grants were attributed on the basis of "Empowerment Zone" (EZ) or "Enterprise Community" (EC) classification (HUD and USDA had Round I EC and EZ competition; HUD had only a Round II EZ competition whereas USDA had both EZ and EC competition).

For instance, the urban EZ designated during the round I of funding received federal funds which totalled \$100 million, accompanied with possibilities of removal of the

constraints of government regulation and taxation. The Round I urban EC received a \$3 million grant. The rural EZ and EC from the Round II received Federal grants of \$40 million and \$2.97 million respectively.¹¹ The attribution of these funds, for Round I and Round II EZ/EC, expressed a commitment from the Federal government for a period of ten years. The incentives packages across these different labels (EZ or EC) are relatively homogeneous. The regression model includes label binary variables in order to capture label-specific policy effect on the regressand. Furthermore, these binary variables were categorized accordingly to whether the county contained a zone nominated by the HUD or USDA and whether the zone was selected during the first or second round of funding.

TABLE 3. Tax Incentive Matrix for Urban and Rural EZs and ECs

Type of Benefit		Label		
		Round I EZ	I EC	Round II EZ
Wage Credits	EZ Employment Wage Credit	X		X
	Work Opportunity Credit	X	X	X
	Welfare to Work Wage Credit	X	X	X
	Indian Employment Tax Credit	X	X	X
Deductions	Increased Section 179 Deduction	X		X
	Environmental Cleanup Cost Deduction	X	X	X
	Depreciation of Property Used on Indian Reservations	X	X	X
Bond Financing	EZ Facility Bonds	X	X	X
	Qualified Zone Academy Bonds	X	X	X
Capital Gains	Nonrecognition of Gain on Sale of EZ Assets	X		X
	Partial Exclusion of Gain on Sale of Empowerment Zone Stock	X		X
Other Incentives	New Markets Tax Credits	X	X	X
	Low Income Housing Tax Credits	X	X	X

Source : Tax Incentive Guide for Businesses for Year 2003, HUD

¹¹ Catalogue of Federal Domestic Assistance : Omnibus Budget Reconciliation Act of 1993, Title XIII, Public Law 103-66, Sections 952-954 and Tax Payer Relief Act of 1997, Public Law 105-34.

The anticipated impact of these policy feature variables is based on the notion that firms are sensitive to tax consequences in making investment decisions and that geographically targeted tax incentive should increase output in the selected regions (Papke, 1993; Greenbaum & Engber, 2004). However, studies yield ambiguous results regarding the effects of the EZ/EC program on income and wages. The partial Equilibrium model used by Papke (1993) in the context of the States' EZP show that subsidies to labor increase wages, while capital subsidies decrease wages at low product demand elasticities and low labor supply elasticities. For programs such as the EZ/EC program and Enterprise Zone, which involve both labor and capital subsidies, equal labor and capital subsidies decrease wages if product demand is inelastic but increase wages at higher elasticities.

Variables that represent employment figure in seven two-digit SIC industries were included to examine whether the industrial structure of a county's economy has an impact on the average labor income of residents. Exogenous factors, such as an increased intensity in the competition on international markets, eroded the main comparative advantages of the American manufacturing industry (Bivens, 2003). With all factors remaining the same, the labor demand curve will shift to the left considering the relative decline in manufacturing output. Hence, an increase in the percentage of "manufacturing workers/ total county labor force" is believed to have a negative impact on the dependent variable.

A "non-white" variable was introduced in the models to capture the potential effect of a county's ethnic composition on the dependent variable. The anticipated effect of this

variable is negative based on the hypothesis of the salary bias due to discrimination (Neumark, 1998).

The educational factor is believed to have a positive influence on the explained variable. Economic theory suggests that labor income will rise as educational attainment heightens (Deschenes, 2001)

An economic performance indicator, the unemployment rate, was considered as an explanatory variable. It is expected that a higher unemployment rate would imply a relatively lower average labor income level. **Table 4** in the appendix details the variable's sources accompanied with descriptive statistics.

Description of the Data

Economic and demographic indicators were obtained for the database from various federal agencies (Bureau of Labor Statistics, US Census Bureau, Bureau of Economic Analysis, etc.) The USDA and the HUD provided information regarding designation dates, EZ/EC boundaries, and designation criteria. Information concerning the unemployment rate was provided by the Bureau of Labor Statistic's Local Area Unemployment data set. The wages data came from the Bureau of Economic Analysis's Regional Economic Account data set. Educational indicators made reference to the highest-level of schooling completed, and were calculated using a linear trend based on the 1990 and 2000 Censuses data gained from the US Census Bureau. The estimations are valid under the plausible assumption that the education variables followed a linear trend during 1990 and 2000. This estimation technique was also useful for the variable "non-white". Employment numbers, which consist of total part-time and full-time workers for seven two-digit SIC code industry, were collected from the Bureau of Economic Analysis's Regional Economic Account data set. Employment figures for specific industries were not available due to confidentiality. The missing data was estimated by a linear trend or, in some cases, the technique of a moving average was used. In the case where the data did not permit the use of either one of the two estimation techniques, the county was left out of the analysis. In total, the database consists of a sample of 3011 counties. The number and selected counties remain invariable throughout the regressions. Furthermore, out of the 52 states considered in the sample, 29 states took into account the complete listing of counties. **Table 5** in the appendix presents the

list of omitted counties accompanied with the proportion of “omitted counties / total counties in the state”. The results shown in the **Table 6a** and **Table 6b** support the proposition that, on average, the counties that have been attributed EZ/EC status during the first and second round of funding had higher level of income. The results may seem counterintuitive due to the fact that the level of income is an indicator used by the authorities at the HUD and USDA to target economically distressed zones (see **Table 1**). A hypothesis that would be consistent with the results is that the secretary’s considerations¹² for zone attribution were the result of top-down presidential pressure. Therefore, presidential favouritism, whether to gain political support or to reward supporters, guided the selection of EC/EZ zones¹³.

¹² Secretary at the HUD and USDA were both granted statutory authority by the Executive Office of the President to respectively designate urban and rural EC/EZ.

¹³ See Pierre Martin, François Vaillancourt and Linda Lee, " The Political and Economic Determinants of the Federal Empowerment Zones and Enterprise Communities Designation Process", forthcoming in "Notes and Analysis on the USA" Working Paper Series, Chair in American Political and Economic Studies, University of Montreal, 2005.

Table 6a. Round 1 EZ/EC and "No-EZ/EC" Comparison for year 1993

Mean Value	Rural EZ	No Rural EZ	Urban EZ	No Urban EZ	Rural EC	No Rural EC	Urban EC	No Urban EC
Net Earnings per Capita	10703,623	9810,591	18122,793	17669,975	9586,507	9832,699	16200,436	14924,965
Unemployment rate	6,260	11,767	6,285	7,283	10,323	10,425	5,259	6,301
%No Schooling + No college completed ¹⁴	55,919	41,371	50,720	41,450	48,646	47,104	49,303	34,497
%High School Diploma	28,893	37,545	30,697	37,515	35,025	34,103	30,999	37,587
%Undergraduate Diploma	7,246	10,211	11,321	10,186	7,796	10,071	10,410	15,115
%Graduate Diploma	3,822	4,939	2,155	4,923	4,080	4,255	2,525	4,887
%Associate Degree	4,120	5,934	5,107	5,926	4,533	4,467	6,763	7,914
% non-white	33,640	16,203	43,026	16,35	38,938	37,859	27,871	16,252
% Agriculture	4,786	3,014	1,360	1,016	2,740	2,965	1,986	1,579
% Construction	5,284	4,615	5,284	3,604	4,365	4,843	5,286	4,834
% Manufacturing	9,468	9,789	14,822	9,846	14,063	13,433	14,839	12,769
% Transport	4,234	3,993	4,233	4,275	4,315	4,372	5,028	4,222
% Finance	4,571	3,462	10,085	8,554	4,167	3,876	8,459	7,514
% Services	18,259	14,730	27,236	29,714	17,387	20,331	21,272	19,943
% Government	7,046	13,746	7,660	17,059	16,876	18,742	14,519	17,088
%Mining + Wholesale and retail trade	46,352	46,651	29,320	25,932	36,087	31,238	28,611	32,051

¹⁴ U.S Census Bureau Classification: The category « High School Diploma » excludes the group « No College Degree Completed ».

Table 6b. Round 1 EZ/EC and "No-EZ/EC" Comparison for year 1997

Mean Value	Rural EZ	No Rural EZ	Urban EZ	No Urban EZ	Rural EC	No Rural EC	Urban EC	No Urban EC
Net Earnings per Capita	12122,506	11680,377	20179,007	19088,093	12144,915	11832,699	18038,823	17087,437
Unemployment rate	5,602	7,025	5,629	6,917	5,547	6,323	4,390	5,648
%No High School and College completed ¹⁵	55,493	42,202	39,851	32,277	49,104	42,150	45,321	38,322
%High School Diploma	28,346	36,151	33,876	36,124	34,103	36,145	29,108	36,201
%Undergraduate Diploma	7,847	10,592	18,541	20,569	8,071	10,623	9,739	10,497
%Graduate Diploma	4,233	5,233	2,693	5,216	4,255	5,245	8,294	9,177
%Associate Degree	4,081	5,822	5,039	5,814	4,467	5,837	7,538	5,803
% non-white	35,278	16,985	24,791	17,134	38,859	16,801	28,997	17,034
% Agriculture	3,015	2,633	1,360	1,016	2,940	3,014	1,586	0,979
% Construction	5,284	4,563	5,284	3,604	4,365	5,297	4,834	5,286
% Manufacturing	19,257	14,789	14,822	9,846	15,433	14,801	12,769	14,839
% Transport	4,002	4,234	4,275	4,233	4,315	4,231	5,028	4,222
% Finance	4,569	3,793	10,085	8,554	4,167	4,572	8,459	4,514
% Services	21,755	19,873	37,236	31,714	20,331	21,770	31,272	31,620
% Government	17,048	18,333	17,059	14,894	18,742	17,024	14,519	17,088
%Mining + Wholesale and Retail Trade	25,07	31,782	9,879	26,139	29,707	29,291	21,533	21,452

¹⁵ U.S Census Bureau Classification: The category « High School Diploma » excludes the group « No College Degree Completed ».

Econometric Models

To estimate the impact on the labor income variable, the analysis is implemented using four regressions. The first specification is a panel analysis of the period 1993–1997. The estimation results will allow an examination of the effects of the Round I policies. The third specification consists of a panel analysis of the period 1998–2000; the estimations will allow for an analysis of the potential effects of the Round II policies considering the presence of the previously implemented Round I policies.

$$\begin{aligned} \text{NET EARNINGS PER CAPITA}_{it} = & \beta_0 + \beta_1 \text{UNEMPLOYMENT}_{it} + \beta_2 \text{NONWHITE}_{it} \\ & + \beta_3 \text{SIC INDUSTRIES}_{it} + \beta_4 \text{YEAR}_{it} + \beta_5 \text{EZ/EC}_{it} + \beta_6 (\text{YEAR}_{it} * \text{EZ/EC}_{it}) + \\ & \beta_7 \text{EDUCATIONAL ATTAINMENT}_{it} + u_{it} \end{aligned}$$

The second and fourth equations exploit cross-sectional data structure, for years 1997 and 2000 respectively, to ascertain whether the policy had an impact on the labor income variable.

$$\begin{aligned} \text{NET EARNINGS PER CAPITA}_{it} = & \beta_0 + \beta_1 \text{UNEMPLOYMENT}_{it} + \beta_2 \text{NONWHITE}_{it} + \\ & \beta_3 \text{SIC INDUSTRIES}_{it} + \beta_4 \text{EZ/EC}_{it} + \beta_5 \text{EDUCATIONAL ATTAINMENT}_{it} + u_{it} \end{aligned}$$

Econometric Methodology

For the econometric analysis of longitudinal data, the assumption of first order serial correlation (within panels) and heteroscedasticity will be confirmed using the AR(1) and Breusch-Pagan tests respectively. Therefore, the econometric models I and III will be estimated using the Feasible Generalized Least Squares (FGLS), and the second and fourth models will use the inference techniques of the heteroscedasticity-robust Ordinary Least Squares (OLS).

The Breusch-Pagan test for heteroscedasticity assumes that the errors follow a normal distribution. From an OLS regression we obtain an estimation of the residuals. A second regression of the squared residuals on the explanatory variables will allow for an F-test.

The null hypothesis for homoscedasticity is:

$$H_0: \alpha_1 = \dots = \alpha_k = 0$$

In this case, the null hypothesis was rejected.

The asymptotic test for first order serial correlation is twofold: first, through an OLS regression, the residuals are estimated; second, the estimated coefficients « ρ » are obtained through the OLS regression of the residuals at time t on residuals at time $t - 1$. Due to the panel structure of the data, this same test was performed on each of the 3011 panels.

The null hypothesis that the errors are serially uncorrelated is:

$$H_0: \rho_1 = \dots = \rho_{3011} = 0$$

In this case, the null hypothesis was rejected.

The presence of first degree serial correlation and heteroscedasticity will impact the standard errors and efficiency of estimators. The correction method used is the FGLS. The estimation of the model using the OLS method will yield an estimation of the residuals. A second regression of the logarithm of the squared residuals on the independent variables will allow for an estimate of the fitted values (\hat{g}). The estimates of h_{it} : $\hat{h}_{it} = \exp(\hat{g})$ will allow for an estimate of the transformed equation by the Prais-Winsten method.

$$\hat{h}_{it}^{-1/2} Y_{it} = \beta_0 \hat{h}_{it}^{-1/2} + \beta_1 \hat{h}_{it}^{-1/2} x_{it1} + \beta_2 \hat{h}_{it}^{-1/2} x_{it2} + \dots + \beta_k \hat{h}_{it}^{-1/2} x_{itk} + \text{error}_{it}$$

In order to avoid the multicollinearity problem,¹⁶ the variables “Wholesale and Retail trade” and “no high school diploma” were excluded from the regressions. The category “employment in mining industry” was also excluded as an explanatory variable on the grounds of unavailability of data. The base year for the model I is 1997 whereas the base year for model III is 2000.

¹⁶ A perfect linear relationship among the explanatory variables is equivalent to saying that at least one vector in the matrix can be written as a linear combination of the others. Therefore, mathematical operations cannot be performed on an equation where the rank of the matrix of variables on the left side of the equation differs from the rank of the matrix of variables on the right side of the equation.

The econometric problems of heteroscedasticity and serial correlation have no bearing on the unbiasedness or consistency of OLS estimators; as mentioned earlier; these problems will affect the efficiency of estimators. For that reason, an OLS regression using heteroscedasticity-robust standard errors was also performed and presented in **Table 11** in the appendix. The empirical analysis will only consider the FGLS estimates.

Section III. Results from the Population Regression Model

Estimations Results from Model I

The impact estimates of the Round I policies illustrated outcomes where the unemployment rate is found to negatively affect the labor income variable. The complete account of the FGLS estimation results are presented in **Table 11** in the appendix. The coefficients of the educational variables “high school diploma”, “professional degree”, “undergraduate diploma” and “graduate diploma” are significant at the 0.05 level, and their sign is positive. Considering an equivalent variation in the percentage of graduates, the marginal effect of the variable “undergraduate diploma” exercises a positive impact where the amplitude is greater than the variable “graduate diploma”.

The variables representing employment in sectors such as agriculture, manufacturing, construction, transport, finance, services and government are significant at the 0.05 level. The coefficient of these variables yielded a positive sign, with the exception of the “government” variable. Accordingly, a marginal increase in workers in the manufacturing industry will positively affect the labor income variable. The coefficient of the variable “government” is negative, implying that public servants’ wages are on average relatively lower. The impact estimates indicate that for an equivalent variation in the percentage of workers in the manufacturing and service industries, this last variable will positively affect the dependent variable to a lesser extent than the “manufacturing” variable.

A joint hypothesis test was performed on the year binary variables, and results show that the null hypothesis was rejected, implying that there indeed is a “year fixed effect”.

The coefficient of the “non-white” variable is significant at the 0.05 level and its sign is negative. Accordingly, an increase in the relative measure of “non-whites” at the county level will have a negative impact on the labor income variable. Therefore, the discrimination hypothesis cannot be excluded.

The policy feature variables show various impact estimates. For example, there is a positive causality link between the incentive structure of the Round I urban EZ and the labor income variable. The same conclusion applies for the “urban EC” variable. The zone effect from rural EZ had a negative impact on the labor income variable. The variable “Round I rural EC” was not significant at the 0.05 level.

The interaction terms between the year and EZ/EC variables allow for an analysis of the evolution of the marginal effects of the Round I EZ/EC policies. Estimation for the urban EZ reveals that for years 1993 and 1994, the impact of these policies on labor income outcome was null. During subsequent years, two trends characterized the policy effect: for year 1995 the impact on the labor income variable was positive and this outcome became negative then afterwards. The urban EC interaction term estimation outcome was that one year subsequent to introduction of the Federal program, the policy’s effect on the dependent variable was negative. However, this effect dissipated during subsequent

years. Consequently only the policy feature specific to the urban EZ had a positive transitory effect on the labor income variable.

TABLE 7. Estimation Results of Interaction Variables (Model I)

DÉPENDANT VARIABLE: NET EARNINGS PER CAPITA				
1993-1997				
(Round I EZ/EC)				
Round 1 rural EZ * 1993	226,1378 (126,5944)		Round 1 rural EC * 1993	-369,7184 (1651,114)
Round 1 rural EZ * 1994	195,5295 (126,5991)		Round 1 rural EC * 1994	-297,763 (1651,113)
Round 1 rural EZ * 1995	180,5207 (122,1871)		Round 1 rural EC * 1995	-198,7745 (1651,112)
Round 1 rural EZ * 1996	-8,0477 (126,5585)		Round rural 1 EC * 1996	-158,2072 (1651,1)
Round 1 urban EZ * 1993	26,8272 (60,2073)		Round 1 urban EC * 1993	-337,3303* (115,9772)
Round 1 urban EZ * 1994	28,8655 (92,8939)		Round 1 urban EC * 1994	-322,2073* (95,1372)
Round 1 urban EZ * 1995	200,8631* (95,3836)		Round 1 urban EC * 1995	11,3236 (115,9783)
Round 1 urban EZ * 1996	-59,0199* (95,3883)		Round 1 urban EC * 1996	21,4866 (115,9814)
* 5% Critical values / Two-tailed test Standard Deviation are in parenthesis				

Estimations Results from Model II

The model II, which exploits cross-sectional data structure, illustrates policy outcomes of the EZ/EG program for the year 1997. This model allows for an analysis of the Round I EZ/EC effect a year prior to the introduction of the Round II EZ/EC. The impact estimates of the industrial structure, unemployment rate and educational variables are consistent with results from the econometric model I. The zone effect from the rural EZ had a negative impact on the labor income variable whereas the variable "Round I urban EC" coefficient was positive. Estimation results for the policy feature variables were coherent with the model I, with the exception of the variable "urban EZ" which was statistically significant in model I but had no effect on the explained variable for year 1997.

TABLE 8. Estimation Results of Policy Feature Variables (Model II)

DÉPENDANT VARIABLE: NET EARNINGS PER CAPITA	
1997 (Round I EZ/EC)	
Round 1 rural EZ	-1047.324* (422.8056)
Round 1 urban EZ	4715.859 (3548.028)
Round 1 rural EC	-34.065 (261.2858)
Round 1 urban EC	800.4661* (404.7585)
■ 5% Critical values / Two-tailed test	
Standard Deviation are in parenthesis	

Estimations Results from Model III

The model III's analysis extends to the period 1998–2000. It allows for an examination of the policy effect of Rounds I and II upon counties. Impact estimates of the industrial structure, unemployment rate and educational variables are consistent with results from the previous econometric models.

A Fisher test was performed on the year binary variables and results show that the null hypothesis was rejected, implying that there is a “year fixed effect”.

The binary variables representing indicators of policy features specific to each program label show estimation results where the variables “rural EC” and “rural EZ” from the first and second rounds of funding are significant at the 0.05 level. However, the coefficient of the variable “Round I rural EC” is positive and the coefficient of the variable “Round II rural EZ” is negative. Hence, with the introduction of the Round II policies in 1998, the policy effect of Round I rural EC remained positive.

Impact estimates derived from the interaction variables showed that the incentive structure of the Round I rural EZ had a positive impact on the average labor income indicator for the year 1998. This effect dissipated during the subsequent year. Estimation of interaction variable's coefficient for Round I urban EC reveals that for year 1998, its impact on the regressand was negative. Once more, the effect became null for year 1999.

Therefore, following the introduction of the Round II policies, the marginal impact of the previous round's rural EZ remained negative, however, the marginal effect of the rural EC variable became positive.

Table 9. Estimation Results of Interaction Variables (Model III)

DEPENDANT VARIABLE: NET EARNINGS PER CAPITA	
1998-2000 (Round I and II EZ/EC)	
Round 1 rural EZ * 1998	401,3272* (160,292)
Round 1 rural EZ * 1999	174,8425 (160,2568)
Round 1 urban EZ * 1998	-314,3491 (2288,308)
Round urban 1 EZ * 1999	-309,2023 (2288,3)
Round 1 rural EC * 1998	169,0712 (113,0114)
Round 1 rural EC * 1999	-212,6622 (112,9688)
Round 1 urban EC * 1998	-282,5714* (114,4065)
Round 1 urban EC * 1999	-290,207 (214,406)
Round 2 rural EZ * 1998	-0,1677* (0,0424)
Round 2 rural EZ * 1999	-0,1689* (0,042)
Round 2 urban EZ * 1998	0,257* (0,0588)
Round 2 urban EZ * 1999	0,2511* (0,0587)
Round 2 rural EC * 1998	-448,1935 (448,8938)
Round 2 rural EC * 1999	-905,8163* (448,93)
* 5% Critical values / Two-tailed test Standard Deviation are in parenthesis	

This econometric model also allowed for an analysis of the potential impact of the introduction of the Round II EZ/EC five years following the Round I EZ/EC was implemented. The estimation results for the interaction term show that the policy effect from Round II rural EZ had a negative impact on the labor income variable, whose amplitude was relatively constant throughout the period 1998–1999. Similar conclusions arise from the Round II urban EZ experience; however the marginal effect of this last zone label was positive. Consequently, the Round II urban EZ was the only variable to yield a positive impact estimation which remained constant throughout the period of interest.

Estimations Results from Model IV

The model IV, which exploits cross-sectional data structure, illustrates policy outcome of the EZ/EC program for the year 2000. The impact estimates of the industrial structure, unemployment rate and educational variables are consistent with results from the econometric models I, II and III. The policy feature variable estimation results indicated that the “Round I rural EZ” variable is significant at the 0.05 level and its coefficient is positive. The remaining categories of EZ/EC from Rounds I and II did not have a policy impact on the labor income variable.

TABLE 10. Estimation Results of Policy Feature Variables (Model IV)

DÉPENDANT VARIABLE: NET EARNINGS PER CAPITA	
2000 (Round I and II EZ/EC)	
Round 1 rural EZ	1315,667* (402,0765)
Round 1 urban EZ	4611,283 (4178,707)
Round 1 rural EC	-325,2052 (372,9757)
Round 1 urban EC	769,7861 (526,7537)
Round 2 rural EZ	-23,8484 (504,8638)
Round 2 urban EZ	459,8274 (743,9969)
Round 2 rural EC	-603,8731 (360,3614)
* 5% Critical values / Two-tailed test Standard Deviation are in parenthesis	

Moreover, a regression exploiting cross-sectional data structure for year 2000 was performed using “median earnings” as the explained variable, in order to compare estimation results from Model IV which defines “average earnings” as the dependent variable. Econometric estimations are such as the EZ/EC policy did not impact the median earnings indicator. **Table 12** in the appendix presents the estimated coefficients.

Evaluation of the Results

The model I which considers the time period starting from 1993–1997, allows for an analysis of the impact of Round I policies prior to the introduction of Round II policies. According to estimation results, the policy feature specific to Round I urban EZ positively affected the labor income variable. However, this effect is transitory.

The cross-sectional model for year 1997 show that the outcome of urban EC had a positive effect on the dependent variable

The model IV, whose period of interest is 1998–2000, reflects the policy impact analysis considering the Round I and Round II EZ/EC. The policy feature specific to the Round II urban EZ show that the amplitude of the positive effect was constant during the period of interest.

The estimation results from the cross-sectional model for year 2000 demonstrate that policy feature from the Round I rural EZ had a positive marginal impact on the explained variable.

Estimators for variables “unemployment rate”, “education” and “non-white” were consistent with theoretical hypothesis. The assumption concerning the sign of the marginal effect of the variable “manufacturing” was not confirmed by estimation outcome.

Section IV. Results from the Sample Regression Model

Empirical research on the State Enterprise Zone programs carried out their analysis using a subset of states. One problem arising from such evidence is that the validity of estimation results may be compromised by the heterogeneity of the states programs. As for the Federal EZ/EC program which is characterized by a relative homogeneity, an analysis exploiting county level data of six states will allow for a comparative evaluation of the results from the sample regression model with the results from the population regression model. The sample choice relies on a study published by Greenbaum and Engberg (2004) which investigates manufacturing establishment outcomes in the EZP of six states¹⁷. Economic and social control variables will remain the same as the explanatory variables from the population regression Model I¹⁸ and Model V¹⁹ which use data from 50 states. Therefore, results from the Sample Regression Model 1 (SRM (1)) will be compared to results from the Model I, the Population Regression Model 1 (PRM(1)). Likewise, results from the SRM(2) will be compared to results from Model V (PRM(2)). Econometric results are reported in **Table 13** of the appendix.

The model estimating the policy effect of Round I EZ/EC in six states yielded coefficient estimates such as the policy features of rural EZ and urban EC had a null marginal effect

¹⁷ Greenbaum and Engberg (2004) used policy outcome data from six states: California, Florida, New Jersey, New York, Pennsylvania and Virginia.

¹⁸ This model represents a panel analysis of the period 1993–1997. The estimation results will allow an examination of the impact of the Round I policies.

¹⁹ This model represents a panel analysis of the period 1998–2000. The estimation results will allow an examination of the impact of the Round I and Round II policies.

TABLE 14. Results of Policy Feature Variables from the Sample Regression Model 1

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA					
	SRM(1)	PRM(1)		SRM(1)	PRM(1)
Round 1 rural EZ	-827.5067 (482.6616)	-1159,866* (58,5675)	Round 1 rural EC * 1993	-1613.521 (2590.483)	-369,7184 (1651,114)
Round 1 urban EZ	3166.067* (631.635)	2401.4* (1167,737)	Round 1 rural EC * 1994	-813.2023 (2591.2096)	-297,763 (1651,113)
Round 1 rural EC	-195.2319 (421.167)	-15,2319 (34,4511)	Round 1 rural EC * 1995	-2071.07 (2590.072)	-198,7745 (1651,112)
Round 1 urban EC	56.54194. (571.1611)	744,5987* (47,3046)	Round rural 1 EC * 1996	929.027 (2590.102)	-158,2072 (1651,1)
Round 1 rural EZ * 1993	-1223.074 (1642.852)	226,1378 (126,5944)	Round 1 urban EC * 1993	-101.8239 (2508.657)	-337,3303* (115,9772)
Round 1 rural EZ * 1994	-1222.202 (1642.962)	195,5295 (126,5991)	Round 1 urban EC * 1994	237.745 (1345.512)	-322,2073* (95,1372)
Round 1 rural EZ * 1995	-1222.2067 (1642.2076)	180,5207 (122,1871)	Round 1 urban EC * 1995	203.7956 (1345.332)	11,3236 (115,9783)
Round 1 rural EZ * 1996	-1222.027 (1642.292)	-8,0477 (126,5585)	Round 1 urban EC * 1996	-47.1135 (1345.326)	21,4866 (115,9814)
* 5% Critical values / Two-tailed test Standard Deviation are in parenthesis SRM: Sample regression model PRM: Population regression model			Round 1 urban EZ * 1994	-827.5067 (482.6616)	26,8272 (60,2073)
			Round 1 urban EZ * 1995	3166.067* (631.635)	28,8655 (92,8939)
			Round 1 urban EZ * 1996	-195.2319 (421.167)	200,8631* (95,3836)
			Round 1 urban EZ * 1997	56.54194. (571.1611)	-59,0199* (95,3883)

on the labor income variable. Comparatively, these two variables were statistically significant at the 0,05 level in the PRM(1). Estimation for the “urban EZ” variable of the PRM(1) reveals that for years 1993 and 1994, the impact of these specific zone policies on labor income outcome was null. During subsequent years, two trends characterized the policy effect: for year 1995 the impact on the labor income variable was positive and this

outcome became negative then afterwards. Inversely, none of the interaction variables from the SRM(1) are statistically significant at the 0,05 level. Estimation results for the education variables of the SRM(1) implied that a marginal increase in the percentage of professional degree graduates will yield a negative effect on the dependent variable. An opposite interpretation of the education estimated coefficients applies to results from the PRM(1). The comparison of the sectorized employment variables of sample model with the population model reveals that the "government" variable is no longer statistically significant at the 0,05 level and the variable "service's" sign turned out to be negative. The "unemployment" and "non-white" variables remained statistically significant and their sign negative.

The SRM(2) which allows for an analysis of the policy effect of Round I and II yielded results such as, with the exception of the variable "Round I rural EZ", the EZ/EC policies did not impact the dependent variable. As for the PRM(2) estimates, the variables representing indicators of policy features specific to each program label show results where the variables "rural EC" and "rural EZ" from the first and second rounds of funding are significant at the 0.05 level. As for the interaction variables of the PRM(2) which allows for an analysis of the evolution of the marginal effect of Round I and II zones; the incentive structure of the Round I rural EZ is the only variable to have a positive impact on the average labor income indicator. However, this effect dissipated during the subsequent year. Moreover, estimation of interaction variable's coefficient for Round I urban EC reveals that for year 1998, its impact on the regressand was negative. The effect became null for year 1999. Conversely, interaction variables from the SRM

were not statistically significant at the 0,05 level with the exception of the "Round I rural EZ" variable whose impact was positive for years 1998 and 1999. The comparison of the education variables of SRM with PRM reveal estimation results such as the variables "graduate diploma" and "high school diploma" are no longer significant at the 0,05 level and the sign of the "professional degree" variable is negative. Therefore, an increase in the proportion of professional degree graduates will affect negatively average labor income of residents. Furthermore, the estimation results for the sectorized employment variables of the SRM show that an increase in the proportion of workers from the construction industry would have a positive effect on the average labor income variable. Results from the PRM yielded the opposite outcome.

The comparison of results from the SRM to the PRM results point to the conclusion where findings from the experience of a subset of states are difficult to generalize to other states.

TABLE 15. RESULTS OF POLICY FEATURE VARIABLES FROM THE SAMPLE**REGRESSION MODEL 2**

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA

	SRM	PRM		SRM	PRM
Round 1 rural EZ	3537.248* (965.6229)	-1449.624* (114,4416)	Round 1 rural EC * 1999	-222.8899 (1742.411)	169,0712 (113,0114)
Round 1 urban EZ	1357.5461 (1640.315)	1904,587 (1618,264)	Round 1 rural EC * 2000	-63.2513 (1742.305)	-212,6622 (112,9688)
Round 1 rural EC	-1103.57 (743.2254)	255.396* (80,7032)	Round 1 urban EC * 1999	223.521 (2127.523)	-282.5714* (114,4065)
Round 1 urban EC	-514.1552 (882.629)	1136.53* (83,8395)	Round 1 urban EC * 2000	290.1032 (2127.31)	-290,207 (214,406)
Round 2 rural EZ	2134.253 (1745.396)	-1889.234* (124,16)	Round 2 rural EZ * 1999	-427.9709 (4234.887)	-0.1677* (0,0424)
Round 2 urban EZ	1157.859 (1256.892)	1132,519 (1612,92)	Round 2 rural EZ * 2000	-239.0846 (4234.934)	-0.1689* (0,042)
Round 2 rural EC	-1340.186 (1035.939)	1008.5398* (80,8295)	Round 2 urban EZ * 1999	-1046.539 (2999.206)	0.257* (0,0588)
Round 1 rural EZ * 1999	4782.762* (1615.097)	401.3272* (160,292)	Round 2 urban EZ * 2000	-720.051 (2999.203)	0.2511* (0,0587)
Round 1 rural EZ * 2000	2102.2072* (1615.2075)	174,8425 (160,2568)	Round 2 rural EC * 1999	1129.228 (2452.621)	-0,2257 (0,0315)
Round urban 1 EZ * 1999	-399.8507 (2127.469)	-314,3491 (2288,308)	Round 2 rural EC * 2000	1097.088 (2452.613)	-0,2258 (0,031)
Round 1 urban EZ * 2000	-323.3717 (2127.35)	-309,2023 (2288,3)	* 5% Critical values / Two-tailed test Standard Deviation are in parenthesis		

Conclusion

The Federal Government, in response to deteriorating economic and social conditions in the inner cities and rural communities, established a program utilizing geographically targeted incentives. In this M.Sc. report, the impact of the EZ/EC policies on the average labor income of residents is examined using a panel analysis of county level data. Therefore, the data set considers a sample of 3011 counties through the period 1993–2000.

The econometric analysis is based on four distinct econometric models. The first model proceeds to a longitudinal panel analysis of the period 1993–1997. The third model also uses panel data for the period 1998–2000. The second and fourth models take advantage of cross-sectional data structure for years 1997 and 2000 respectively.

The results of this M.Sc report show that the policy features of Round I urban and rural EZ and urban EC had a short-term effect on the labor income variable. Five years following the introduction of the Round I policies, the zone effect from the Round II urban EZ was relatively constant through the period 1998–2000. Overall, the analysis reveals that the federal EZ/EC program does not have a significant impact on the average labor income indicator.

An examination involving the comparison of the estimation results supported by data from a subset of states with the estimation from the population of 50 states point to the

conclusion where the validity of estimation results from a sample could not be generalized to other states.

The labor income indicator is an informative indicator as specific EZ/EC policy focus on reducing regional disparities in order to allow for the economic integration of distressed communities. Knowing whether or not precise policy feature affect labor income may constitute relevant information to refine future geographically targeted incentive initiatives:

In 2004 the Federal fund attributed to the Round I EZ/EC was terminated. Continued research on this subject is called for, as established Round II EZ/EC continue to receive subsidies.

Table 1 **Review of Eligibility Requirements for Round II Urban and Rural Empowerment Zones**

Urban Zones

Nominated urban area may be eligible for designation if the area:

- (a) Has a maximum population which is the lesser of (1) 200,000 or (2) the greater of 50,000 or 10 percent of the population of the most populous city located within the nominated area;
- (b) Is one of pervasive poverty, unemployment and general distress;
- (c) Does not exceed twenty square miles in total land area;
- (d) Demonstrates a poverty rate which is not less than: (1) 20 percent in each census tract; (2) For at least 90 percent of the census tracts within the nominated urban area, the poverty rate must be not less than 25 percent; (3) Census tracts with no population are treated as having a poverty rate that meets the standards of (1) and (2) above; and (4) A census tract that has a population of less than 2,000 is treated as having a poverty rate that meets the requirements of (1) and (2) above if more than 75 percent of the tract is zoned for commercial or industrial use.
- (e) Has a continuous boundary, or consists of not more than six(6) noncontiguous parcels. A nominated urban area must not contain a noncontiguous parcel unless such parcel separately meets the criteria set forth in (1) and (2) above, except for sites that can be developed. The total area of the noncontiguous parcels must not exceed 2,000 acres.
- (f) Is located entirely within the jurisdiction of the unit or units of general local government making the nomination, and is located in no more than two contiguous States, and
- (g) Does not include any portion of a central business district, as this term is used in the most recent Census of Retail Trade, unless the poverty rate for each census tract in the district is not less than 35 percent.

Source: Catalogue of Federal Domestic Assistance (Omnibus Budget Reconciliation Act of 1993, Title XIII, Public Law 103-66, Sections 952-954; Tax Payer Relief Act of 1997, Public Law 105-34; Community Renewal Tax Relief Act of 2000, Public Law 106-554).

Rural zones

Pervasive poverty, unemployment

(a) *Pervasive poverty.* Conditions of poverty must be reasonably distributed throughout the entire nominated area. The degree of poverty shall be demonstrated by citing available statistics on low-income population, levels of public assistance, numbers of persons or families in poverty or similar data.

(b) *Unemployment.* The degree of unemployment shall be demonstrated by the provision of information on the number of persons unemployed, underemployed or discouraged workers, increase in unemployment rate, job loss, plant or military base closing, or other relevant unemployment indicators having a direct effect on the nominated area.

Area size and boundary requirements

A nominated area:

- (1) May not exceed one thousand square miles in total land area;
- (2) Must have one continuous boundary if located in more than one State or may consist of not more than three noncontiguous parcels if located in only one State;
- (3) If located in more than one State, must be located within no more than three contiguous States;
- (4) May not include any portion of a central business district (as such term is used for purposes of the most recent Census of Retail Trade) unless the poverty rate for each Census tract in such district is not less than 35 percent for an Empowerment Zone (30 percent in the case of an Enterprise Community);
- (5) Subject to paragraph (b)(4) of this section, may not include any portion of an area already included in an Empowerment Zone or Enterprise Community or included in an area otherwise nominated to be designated under this section; (b) Eligibility requirements specific to different rounds.
 - (i) A Census tract larger than 1,000 square miles shall be reduced to a 1,000 square mile area with a continuous boundary.
 - (ii) Land owned by the Federal, State or local government may (and in the event the Census tract exceeds 1,000 square miles, will) be excluded in determining the square mileage of a nominated area; and
 - (iii) Developable sites, in the aggregate not exceeding 2,000 acres, may (and in the event the Census tract exceeds 1,000 square miles, will) be excluded in determining the square mileage of the nominated area.

Source: Catalogue of Federal Regulation, Office of the Secretary, U.S. Department of Agriculture, (§ 25.1, § 25.2, § 25.3, § 25.4 § 25.5), 7 CFR Subtitle A (1-1-99 Edition).

Table 4 Variable Definitions and Descriptive Statistics

Variables	Definition	Sources	Min.	Max.	mean	St. dev.
Net Earnings per Capita	Estimates are in constant dollars (Adjusted for inflation by the Consumer Price Index (CPI) for wages (base year=1995))	Sources (Earnings): Bureau of Economic Analysis (BEA)- Regional Economic Accounts (REA) County Annual Series: CA30 Sources (CPI): OECD Database (CD ROM) Statistical Compendium 2003-2	113.666	55325.4	12135.48	3877.13
Unemployment Rate	Annual average	Bureau of Labour Statistics (Local Area Unemployment Statistics)	0.7%	37.9%	5.752%	3.067
Education						
High School	The variable consists of the relative measure of the educational attainment of the population (25years old and over) over the total county population 25 years old and over.	Sources (Education): Census 2000: SF-3 Table P-37 Census 1990: STF-3 Table P-059 Sources (Total Population): Census 2000 : SF-3 Table P-8 Census 1990: STF-1 Table P-013	3.555%	65.085 %	36.366%	6.433
Bachelor's Degree	The variable consists of the relative measure of the educational attainment of the population (25years old and over) over the total county population 25 years old and over.	Sources (Education): Census 2000: SF-3 Table P-37 Census 1990: STF-3 Table P-059 Sources (Total Population): Census 2000 : SF-3 Table P-8 Census 1990: STF-1 Table P-013	2.443%	42.683 %	10.508%	4.776
Graduate Diploma (Master's Degree and Doctorate Degree)	The variable consists of the relative measure of the educational attainment of the population (25years old and over) over the total county population 25 years old and over.	Sources (Education): Census 2000: SF-3 Table P-37 Census 1990: STF-3 Table P-059 Sources (Total Population): Census 2000 : SF-3 Table P-8 Census 1990: STF-1 Table P-013	0.725%	36.068 %	5.171%	2.986
Associate degree	The variable consists of the relative measure of the educational attainment of the population	Sources (Education): Census 2000: SF-3 Table P-37 Census 1990: STF-3 Table P-059	0,395%	21,328 %	2,089%	5,832

	(25years old and over) over the total county population 25 years old and over.	Sources (Total Population): Census 2000 : SF-3 Table P- 8 Census 1990: STF-1 Table P- 013				
SIC Industries						
Agriculture, Fishing, Related Activities and Other.	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	0%	42.114 %	3.014%	4.385
Construction	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	0%	58.586 %	5.278%	2.475
Manufacturing	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	0%	62.286 %	14.805%	10.481
Transportation and Public utilities	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	0%	46.139 %	4.238%	2.737
Government and Government enterprises	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	4.487%	91.677 %	17.057%	7.207

Services	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	0.376%	87.696 %	21.738%	6.873
Finance, Insurance and Real Estate	Total full time and part time employment. The variable consists of the relative measure of Total employment in a specific industry over the total county labour force.	Sources (Employment): BEA-REA County Annual Series : CA05 and CA25 (SIC) Sources (Total Labour Force): BEA-REA County Annual Series : CA25 and CA30 (SIC)	0%	19.188 %	4.564%	1.926%
Non White	The variable consist of the relative measure of county population estimated by race over total county population	Sources (Race and County Population) From 1993 to 1999 Census Bureau Population Estimates Table: CO-99-11 Source Race and County Population (For year 2000) Census Bureau Population Estimates Table: County Estimates by Demographic Characteristics.	100.000 %	0.441%	42.999%	19.458

Table 5 Omitted counties due to data constraint			Omitted counties / Total Counties in the State
Alaska	Denali Borough Skagway Hoonah Agoon Census Area	Yakutat City and Borough	3 / 27
California	Alpine		1 / 58
Colorado	Hinsdale	Mineral	2 / 63
Florida	Dade Hardee	Miami-Dade	3 / 68
Georgia	Taliaferro		1 / 158
Iowa	Delaware	Mitchell	2 / 99
Kentucky	Green Pendleton	Trimble	3 / 120
Louisiana	West Feliciana		1 / 64
Michigan	Ontonagon	Schoolcraft	2 / 83
Mississippi	Clairborne		1 / 82
Missouri	Andrew	Benton	2 / 114
Montana	Meagher Petroleum	Yellow Stone National Park	3 / 57
Nebraska	Arthur Banner Blaine Box Butte Boyd Cass Cedar	Chase Cherry Hayes Hooker Keyapaha Loup McPherson Sioux	15 / 92
Nevada	Story		1 / 16
New Mexico	Harding		1 / 33
North Carolina	Person	Vance	2 / 100
North Dakota	Oliver Sioux	Slope	3 / 53
South Carolina	Marlboro Oconee	Orangeburg	3 / 50
South Dakota	Buffalo Shannon	Ziebach	3 / 66
Texas	Crane	Loving	2 / 254
Utah	Piute		1 / 29

Virginia	Alleghany Albemarle Amelia Augusta Bedford Brunswick Campbell Caroll Dinuidie Fairfax Frederick Greensville Henry	Janes City Louisa Montgomery Pittsylvania Prince George Prince William Roanoke Rockingham Southampton Spotsylvania Washington Wise York	26 / 136
West Virginia	Calhoun Clay	Wirt	3 / 55

Table 11 Estimation Results

DÉPENDANT VARIABLE: NET EARNINGS PER CAPITA		MODEL I FGLS	MODEL I OLS	MODEL II "ROBUST OLS"	MODEL III OLS	MODEL III FGLS	MODEL IV "ROBUST OLS"
Adjusted R2		0,5927	0,5927	0,5827	0,6048	0,6048	0,6307
Number of panels		3011	3011		3011	3011	
Years		1993-1997 (Round I)	1993-1997 (Round I)	1997 (Round I)	1998-2000 (Round I and II)	1998-2000 (Round I and II)	2000 (Round I and II)
Sample size		15055	15055	3011	9033	9033	3011
Education variables	Unemployment rate	-205,4687* (2,4467)	-77,9549* (6,9181)	-171.9441* (19.1598)	-95,4037* (9,0486)	-226,0351* (2,5587)	-196,4451* (26,661)
	Non-white	-8,5877* (0,3960)	0,1171 (0,3960)	-14.3057* (2.9324)	-2,7382 (2,1404)	-11,0411* (0,4243)	-12,4211* (3,6744)
	High school diploma	58,2775* (1,2663)	42,0611* (7,3288)	94.7291* (9.6103)	35,6461* (10,0552)	60,2809* (1,2503)	60,9283* (11,5179)
	Professional diploma	158,8224* (3,5137)	129,7009* (20,4562)	158.0826* (27.6505)	180,6014* (25,5149)	192,4121* (3,3637)	205,9513* (32,2504)
	Undergraduate diploma	333,1453* (3,3743)	311,662* (16,5968)	350.2862* (28.2641)	327,0871* (19,3012)	361,5753* (2,9849)	376,8331* (28,9731)
	Graduate diploma	237,3433* (5,8878)	248,825* (24,4536)	229.2065* (48.8394)	248,7387* (27,6927)	248,7387* (4,8014)	293,1376* (50,9305)
Employment structure variables	Agriculture	32,5063* (1,6412)	46,6695* (9,8571)	41.9861* (12.7390)	43,7704* (11,4969)	41,0634* (1,9727)	41,8647* (15,8668)
	Construction	128,8668* (3,052)	112,7108* (17,3171)	115.3453* (23.4949)	101,734* (20,1227)	113,068* (3,5413)	117,4228* (30,4325)
	Manufacturing	79,5883* (0,8354)	75,8663* (5,1049)	76.5921* (6.2507)	77,2069* (5,9349)	81,6515* (0,8016)	91,2424* (6,6958)
	Transport	150,5715* (2,5995)	135,4597* (15,6531)	142.1909* (19.9233)	147,3861* (18,2179)	158,8167* (2,7558)	168,3689* (25,3842)
	Finance	299,9391* (5,7405)	298,1004* (30,3205)	306.1859* (53.1078)	369,7129* (35,5301)	352,9209* (4,9946)	407,8618* (62,6944)
	Service	9,3184* (1,3956)	2,1983 (7,9259)	3.5993 (11.6570)	0,5239 (9,2936)	16,6352* (1,2134)	26,9477* (12,3078)
Year binary variables	Government	-33,094* (1,3348)	-35,7487* (7,7427)	-37.2252* (10.4323)	-52,0786* (8,9368)	-39,0057* (1,3805)	-38,3202* (12,7443)
	1993	-259,8948* (14,9607)	2275,873* (475,7378)				
	1994	-439,0747* (14,8558)	2010,043* (473,6844)				
	1995	-198,7745* (14,8576)	2350,568* (471,9703)				
	1996	-283,2792* (14,0273)	2519,992* (469,9632)				

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		MODEL I FGLS	MODEL I OLS	MODEL II "ROBUST OLS"	MODEL III OLS	MODEL III FGLS	MODEL IV "ROBUST OLS"
	1997						
	1998				308,5082* (19,4568)	-8,6421* (13,7318)	
	1999				257,0047* (18,5961)	-8,2072* (11,2962)	
	2000						
Binary Zone variables	Round 1 rural EZ	-1159,866* (58,5675)	-1538,702* (518,592)	-1047.324* (422.8056)	-1505,185* (693,1854)	-1449,624* (114,4416)	1315,667* (402,0765)
	Round 1 urban EZ	2401,4* (1167,737)	-1628,285* (587,593)	4715.859 (3548.028)	5956,589* (1916,692)	1904,587 (1618,264)	4611,283 (4178,707)
	Round 1 rural EC	-15,2319 (34,4511)	872,2072* (299,2082)	-34.065 (261.2858)	-1937,004* (701,1284)	255,396* (80,7032)	-325,2052 (372,9757)
	Round 1 urban EC	744,5987* (47,3046)	988,5275* (390,9902)	800.4661* (404.7585)	-2228,208* (883,3224)	1136,53* (83,8395)	769,7861 (526,7537)
	Round 2 rural EZ				-1795,294* (693,1854)	-1889,234* (124,16)	-23,8484 (504,8638)
	Round 2 urban EZ				-701,8323 (654,3466)	1132,519 (1612,92)	459,8274 (743,9969)
	Round 2 rural EC				1008,5398 (990,16)	1008,5398* (80,8295)	-603,8731 (360,3614)
Interaction variables	Round 1 rural EZ * 1993	226,1378 (126,5944)	167,5135 (248,5128)				
	Round 1 rural EZ * 1994	195,5295 (126,5991)	214,8991 (248,4926)				
	Round 1 rural EZ * 1995	180,5207 (122,1871)	180,5207 (248,1871)				
	Round 1 rural EZ * 1996	-8,0477 (126,5585)	206,0993 (246,7532)				
	Round 1 rural EZ * 1997						
	Round 1 rural EZ * 1998				-163,027 (359,0272)	401,3272* (160,292)	
	Round 1 rural EZ * 1999				-283,9276 (357,8733)	174,8425 (160,2568)	
	Round 1 rural EZ * 2000						
Round 1 urban EZ * 1993	26,8272 (60,2073)	3666,292* (972,4028)					

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		MODEL I FGLS	MODEL I OLS	MODEL II "ROBUST OLS"	MODEL III OLS	MODEL III FGLS	MODEL IV "ROBUST OLS"
Round 1 urban EZ * 1994	28,8655 (92,8939)	3959,924* (972,5122)					
Round 1 urban EZ * 1995	200,8631* (95,3836)	4248,746* (972,6401)					
Round 1 urban EZ * 1996	-59,0199* (95,3883)	-4855,377* (975,7923)					
Round 1 urban EZ * 1997							
Round 1 urban EZ * 1998					-553,88 (958,8714)	-314,3491 (2288,308)	
Round urban 1 EZ * 1999					-302,2733 (358,2083)	-309,2023 (2288,3)	
Round 1 urban EZ * 2000							
Round 1 rural EC * 1993	-369,7184 (1651,114)	269,1408 (308,028)					
Round 1 rural EC * 1994	-297,763 (1651,113)	-214,7774 (304,0772)					
Round 1 rural EC * 1995	-198,7745 (1651,112)	-206,4609 (308,4645)					
Round rural 1 EC * 1996	-158,2072 (1651,1)	-385,3642 (308,1761)					
Round 1 rural EC * 1997							
Round 1 rural EC * 1998					-480,867 (351,2409)	169,0712 (113,0114)	
Round 1 rural EC * 1999					-579,9463 (346,4921)	-212,6622 (112,9688)	
Round 1 rural EC * 2000							
Round 1 urban EC * 1993	-337,3303* (115,9772)	-459,602* (154,8558)					
Round 1 urban EC * 1994	-322,2073* (95,1372)	-9,4268 (154,9877)					
Round 1 urban EC * 1995	11,3236 (115,9783)	-158,7372 (154,7293)					
Round 1 urban EC * 1996	21,4866 (115,9814)	-121,4866 (154,9814)					
Round 1 urban EC * 1997							

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		MODEL I FGLS	MODEL I OLS	MODEL II "ROBUST OLS"	MODEL III OLS	MODEL III FGLS	MODEL IV "ROBUST OLS"
	Round 1 urban EC * 1998				816,6013 (454,1454)	-282,5714* (114,4065)	
	Round 1 urban EC * 1999				-1220,246* (454,1587)	-290,207 (214,406)	
	Round 1 urban EC * 2000						
	Round 2 rural EZ * 1993						
	Round 2 rural EZ * 1994						
	Round 2 rural EZ * 1995						
	Round 2 rural EZ * 1996						
	Round 2 rural EZ * 1997						
	Round 2 rural EZ * 1998				- 920,2974* (310,933)	-0,1677* (0,0424)	
	Round 2 rural EZ * 1999				- 600,708 (312,8413)	-0,1689* (0,042)	
	Round 2 rural EZ * 2000						
	Round 2 urban EZ * 1993						
	Round 2 urban EZ * 1994						
	Round 2 urban EZ * 1995						
	Round 2 urban EZ * 1996						
	Round 2 urban EZ * 1997						
	Round 2 urban EZ * 1998				665,109 (723,6758)	0,257* (0,0588)	
	Round 2 urban EZ * 1999				330,5954 (723,6072)	0,2511* (0,0587)	
	Round 2 urban EZ * 2000						
	Round 2 urban EC * 1993						

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		MODEL I FGLS	MODEL I OLS	MODEL II "ROBUST OLS"	MODEL III OLS	MODEL III FGLS	MODEL IV "ROBUST OLS"
	Round 2 rural EC * 1993						
	Round 2 rural EC * 1994						
	Round 2 rural EC * 1995						
	Round 2 rural EC * 1996						
	Round 2 rural EC * 1997						
	Round 2 rural EC * 1998				-448,1935 (448,8938)	-0,2257 (0,0315)	
	Round 2 rural EC * 1999				-905,8163* (448,93)	-0,2258 (0,031)	
	Round 2 rural EC * 2000						
* 5% Critical values / Two-tailed test Standard Deviation are in parenthesis							

TABLE 12 : REGRESSION RESULTS - DEPENDANT VARIABLE: MEDIAN EARNINGS IN 1999 DOLLARS

Adjusted R2	0,3977	
Years	2000 - Round I and II	
Sample size	3011	
Education variables	Unemployment rate	-21.7946 (30.7610)
	Non-white	-12.4304* (3.9388)
	High school diploma	68.9675* (13.7973)
	Professional diploma	202.2307* (33.6248)
	Undergraduate diploma	-54.1124* (27.5504)
	Graduate diploma	186.707* (40.3651)
SIC industries variables	Agriculture	-1.727 (15.3273)
	Construction	75.0828* (24.0633)
	Manufacturing	35.8646* (7.162)
	Transport	8.5976 (20.7475)
	Finance	105.1307* (44.8587)
	Service	50.384* (12.1973)
	Government	9.4966 (11.3364)
Binary Zorte variables	Round 1 rural EZ	-1.4128 (640.6353)
	Round 1 urban EZ	1972.522 (1741.867)
	Round 1 rural EC	-453.475 (351.6396)
	Round 1 urban EC	-737.7376 (564.6413)
	Round 2 rural EZ	728.1339 (1141.501)
	Round 2 urban EZ	-643.0868 (823.034)
	Round 2 rural EC	404.3938 (532.6683)
* 5% Critical values / Two-tailed test		

Table 13 Estimation Results from the Sample Regression Model

DEPENDANT VARIABLE: NET EARNINGS PER CAPITA		SRM(1)	SRM(2)
Log Likelihood		-15578.7	-9610.597
Number of panels		340	340
Years		1993-1997 (Round I)	1998-2000 (Round I and II)
Sample size		1700	1020
Education variables	Unemployment rate	-8.7794* (2.3883)	46.2212 (43.3904)
	Non-white	-15.2549* (5.6072)	-18.7082* (9.4726)
	High school diploma	54.4084* (14.2258)	20.4416 (25.6241)
	Professional diploma	-132.2173* (34.054)	-134.1387* (61.0536)
	Undergraduate diploma	753.1383* (32.2689)	934.7579* (52.2065)
	Graduate diploma	62.3262 (38.7779)	100.8345 (58.1118)
Employment structure variables	Agriculture	-5.9262 (11.3736)	-8.6789 (19.0853)
	Construction	-41.8343 (30.7597)	-120.5192* (52.0119)
	Manufacturing	72.3059* (12.0349)	77.6557* (20.8107)
	Transport	73.8406* (20.9731)	61.7678 (35.4416)
	Finance	314.1553* (39.2809)	368.8977* (67.7636)
	Service	-63.835* (13.704)	-87.4949* (23.5269)
	Government	3.0637 (13.5364)	-8.5176 (23.1737)
Year variables	binary 1993	-514.0108* (184.2027)	
	1994	-556.7054* (180.1131)	
	1995	-540.3483* (178.2888)	
	1996	-312.6608 (177.4508)	

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		SRM(1)	SRM(2)
	1997		
	1998		-896.229* (233.6652)
	1999		-424.9685 (230.3975)
	2000		
Binary Zone variables	Round 1 rural EZ	-827.5067 (482.6616)	3537.248* (965.6229)
	Round 1 urban EZ	3166.067* (631.635)	1357.5461 (1640.315)
	Round 1 rural EC	-195.2319 (421.167)	-1103.57 (743.2254)
	Round 1 urban EC	56.54194. (571.1611)	-514.1552 (882.629)
	Round 2 rural EZ		2134.253 (1745.396)
	Round 2 urban EZ		1157.859 (1256.892)
	Round 2 rural EC		-1340.186 (1035.939)
Interaction variables	Round 1 rural EZ * 1993	-1223.074 (1642.852)	
	Round 1 rural EZ * 1994	-1222.202 (1642.962)	
	Round 1 rural EZ * 1995	-1222.2067 (1642.2076)	
	Round 1 rural EZ * 1996	-1222.027 (1642.292)	
	Round 1 rural EZ * 1997		
	Round 1 rural EZ * 1998		4782.762* (1615.097)
	Round 1 rural EZ * 1999		2102.2072* (1615.2075)
	Round 1 rural EZ * 2000		
	Round 1 urban EZ * 1993	-1105.978 (629.926)	

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		SRM(1)	SRM(2)
	Round 1 urban EZ * 1994	-1005.2107 (628.2071)	
	Round 1 urban EZ * 1995	-909.2076 (629.027)	
	Round 1 urban EZ * 1996	-1120.1076 (629.926)	
	Round 1 urban EZ * 1997		
	Round 1 urban EZ * 1998		-399.8507 (2127.469)
	Round urban 1 EZ * 1999		-323.3717 (2127.35)
	Round 1 urban EZ * 2000		
	Round 1 rural EC * 1993	-1613.521 (2590.483)	
	Round 1 rural EC * 1994	-813.2023 (2591.2096)	
	Round 1 rural EC * 1995	-2071.07 (2590.072)	
	Round rural 1 EC * 1996	929.027 (2590.102)	
	Round 1 rural EC * 1997		
	Round 1 rural EC * 1998		-222.8899 (1742.411)
	Round 1 rural EC * 1999		-63.2513 (1742.305)
	Round 1 rural EC * 2000		
	Round 1 urban EC * 1993	-101.8239 (2508.657)	
	Round 1 urban EC * 1994	237.745 (1345.512)	
	Round 1 urban EC * 1995	203.7956 (1345.332)	
	Round 1 urban EC * 1996	-47.1135 (1345.326)	
	Round 1 urban EC * 1997		

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		SRM(1)	SRM(2)
	Round 1 urban EC * 1998		223.521 (2127.523)
	Round 1 urban EC * 1999		290.1032 (2127.31)
	Round 1 urban EC * 2000		
	Round 2 rural EZ * 1993		
	Round 2 rural EZ * 1994		
	Round 2 rural EZ * 1995		
	Round 2 rural EZ * 1996		
	Round 2 rural EZ * 1997		
	Round 2 rural EZ * 1998		-427.9709 (4234.887)
	Round 2 rural EZ * 1999		-239.0846 (4234.934)
	Round 2 rural EZ * 2000		
	Round 2 urban EZ * 1993		
	Round 2 urban EZ * 1994		
	Round 2 urban EZ * 1995		
	Round 2 urban EZ * 1996		
	Round 2 urban EZ * 1997		
	Round 2 urban EZ * 1998		-1046.539 (2999.206)
	Round 2 urban EZ * 1999		-720.051 (2999.203)
	Round 2 urban EZ * 2000		
	Round 2 urban EC * 1993		

DEPENDENT VARIABLE: NET EARNINGS PER CAPITA		SRM(1)	SRM(2)
	Round 2 rural EC * 1993		
	Round 2 rural EC * 1994		
	Round 2 rural EC * 1995		
	Round 2 rural EC * 1996		
	Round 2 rural EC * 1997		
	Round 2 rural EC * 1998		1129.228 (2452.621)
	Round 2 rural EC * 1999		1097.088 (2452.613)
	Round 2 rural EC * 2000		

References

Bivens, Josh. "Shifting Blame for Manufacturing Job Loss". Economic Policy Institute. Briefing Paper no. 149. 2003

Boarnet, Marlon G. and William T. Bogart. 1996. Enterprise Zones and Employment: Evidence from New Jersey. *Journal of Urban Economics* no 40.

Bondonio, Daniele. 2000. Evaluating Decentralized Policies: How to Compare the Performance of State and Local Economic Development Programs Across Different Regions. Pittsburgh: Heinz School of Public Policy and Management.

Bondonio, Daniele. 2003. Do Tax Incentives Affect Local Economic Growth? What Mean Impacts Miss in the Analysis of Enterprise Zone Policies. *Center for Economic Studies* (September).

Bondonio, Daniele and John Engberg. 2000. Enterprise Zones and Local Employment: Evidence from the States' Programs. *Regional Sciences and Economics*, Volume 30, Issue 5 (September).

Bondonio, Daniele and Robert T. Greenbaum. 2003. A Comparative Evaluation of Spatially Targeted Economic Revitalization Programs in the European Union and the United States. International Center for Economic Research. Working Paper no. 3.

Bostic, Raphael W. and Allen C. Prohofsky. 2002. Enterprise Zones and Individual Welfare; A Case Study of California. Federal Reserve Board of Governors (may).

Boyle, Robin and Peter Eisinger. 2001. The Evolution of a National Urban Program and the Failure of Local Implementation in Detroit, Michigan. EURA Conference, Copenhagen (may 17).

Deschenes, Olivier. 2001. Unobserved Ability, Comparative Advantage, and the Rising Return to Education in the United States 1979-2000. University of California, Santa Barbara. Working paper 12-01.

Engberg, John B. and Robert T. Greenbaum. 1998. The Impact of State Urban Enterprise Zones on Business Outcomes. *Center for Economic Studies* (December).

Engberg, John B. and Robert T. Greenbaum. 2003. The Impact of State Enterprise Zones on Urban Manufacturing Establishments. *Journal of Policy and Management*: Volume 23, no.2.

Fisher, Peter S. and Alan H. Peters. 2002. State Enterprise Zone Programs: Have they Worked? W.E. Upjohn Institute for Employment Research.

Greene, Richard. "Tracking Job Growth in Private Industry". Monthly Labor Review, Bureau of Labor Statistics. September 1982, Volume 105, No.9.

Greenbaum, T. Robert. 2000. Selecting the Right Site: Where do States Locate Place-Based Economic Development Programs? Ohio:School of Public Policy and Management.

O'Keefe, Suzanne. 2004. Job Creation in California's Enterprise Zones: A Comparison Using a Propensity Score Matching Model. Journal of Urban Economics, no. 55.

Papke, L.É., 1993. What do we Know about Enterprise Zones. In: Poterba, J.M., Editor, 1993. Tax Policy and the Economy. Volume 7, MIT Press, Cambridge, Massachusetts. pages 37-72.

Linda Lee. 2005. "The Political and Economic Determinants of the Federal Empowerment Zones and Enterprise Communities Designation Process", forthcoming in "Notes and Analysis on the USA" Working Paper Series, Chair in American Political and Economic Studies, University of Montréal.

Neumark, David. 1998. Labor Market Information and Wage Differentials by Race and Sex. National Bureau of Economic Research. Working Paper 6573.

Sridhar, Kala Seetharam. 2001. Benefits and Costs of Regional Development: Evidence from Ohio's Enterprise Zone Program. The Journal of Regional Analysis and Policy (February).

Rubin, Marilyn.1990.Urban Enterprise Zones: Do they Work? Evidence form New Jersey. Public Budgeting and Finance.

Wallace, Marc A. 1999. An Analysis of Presidential Preferences in the Distribution of Empowerment Zones and Enterprise Communities. Rider University.