THE DEVELOPMENT AND ECONOMIC IMPACTS TO THE STATE OF TEXAS

FROM THE CONSTRUCTION OF INTERSTATE 69

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Regional population growth and increasing trade with Mexico are creating severe traffic congestion along Interstate 35 and at the Laredo bridge crossings. The construction of a new Interstate Highway 69 has been offered as one solution to this problem. This analysis examines the economic impacts of building Interstate 69 and its potential impact on job creation in the counties along its projected path.

Using the IMPLAN input-output modeling system, construction of Interstate 69 will support $4.2 billion in economic activity in the counties through which it will pass. More importantly, based on an analysis of Interstate 27 in west Texas, it can be projected that Interstate 69 will spur a 2% gain in regional employment above any usual economic growth.

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CHAPTER 1

INTRODUCTION

The Problems Facing Transportation in Texas and Possible Solutions

Population growth in Texas, especially along Interstate 35, and increasing trade growth with Mexico and Central America, will make Interstate 35 and the Laredo bridge crossings nearly impassible in the coming years. This problem threatens to constrict the trade that has become a mainstay of the Texas economy. One solution being proposed to address traffic congestion at the Laredo crossings and along Interstate 35 is the construction of a new highway designated Interstate 69. It is suggested that this highway is needed not only to alleviate the transportation strains that currently plague the state but also to further develop the state's and the nation's opportunities for international trade and commerce. The construction of Interstate 69, which has already begun on a limited basis, will bring both immediate and long-term benefits to the state. This paper examines economic development opportunities that could be enjoyed by Texas counties along the proposed highway. In addition, an analysis of the economic impacts of the highway's construction is estimated.

NAFTA Strains on the Texas Transportation Infrastructure

Implementation of the North American Free Trade Agreement (NAFTA) began on January 1, 1994; this important agreement will gradually remove most trade and investing barriers among the United States (US), Canada, and Mexico. The economy of

Texas has benefited greatly since the initial implementation of NAFTA. However, increasing truck and passenger vehicle traffic supported by economic growth has strained the existing transportation infrastructure. This infrastructure is critically stressed chiefly at the Laredo bridge crossings and along Interstate 35 from San Antonio to the Dallas/Fort Worth (DFW) Metroplex.

Laredo Bridge Issues and Freight Crossings

Because of its location and industrial mix, the City of Laredo has benefited from the NAFTA agreement more than most Texas cities. The City of Laredo, partially as a result of the boom in its economy in the 1990s but mostly due to its proximity to Mexico, has been growing at a rapid rate. In 2000, the population of Laredo stood at 176,576, while the just-across-the-border Mexican city of Nuevo Laredo boasted a population of 550,000. According to the Laredo Chamber of Commerce, Laredo was the second fastest growing city in the US and the fastest growing city in Texas during the 1990s for comparably sized communities. Due to the combined populace of roughly 725,000, the bridges between the two Laredos carry an impressive amount of commuter traffic and freight.

Adding to traffic passing between these growing urban centers is the role of Laredo as a key transit point for US-Mexico trade. The bulk of the truck freight between the US and Mexico passes through Laredo via Interstate 35. In monetary terms, Texas truck freight has been growing steadily as a result of increased trade between the NAFTA partners. As illustrated by Table 1, between 1996 and 2000 the value of freight transported on trucks in the trade corridor increased by $17.6 million, an 86% gain.

Table 1

Truck Trade Between Texas and Mexico, 1996-2000

Year	($ Million)
1996	$20.5
1997	$23.4
1998	$27.5
1999	$31.9
2000	$38.1

Source: US Department of Transportation, Bureau of Transportation Statistics,

Transborder Surface Freight Database. From

http://www.bts.gov/cgi-bin/tbsf/by_state_to_mexstate_new.pl

This extraordinary increase manifests itself in fleets of tractor-trailers waiting for hours to cross the existing Laredo bridges. By volume, the Laredo bridge shoulders an increasing share of the freight traffic load between Texas and Mexico. (See Tables 2 and 3.)

Table 2

Truck Crossings to Texas from Mexico, 1990-2000 (thousands)

	Laredo, Texas	Total State	Laredo as % of State Total
1990	313.6	725.7	43.22%
1991	303.3	674.8	44.96%

(*table continues*)

Table 2 (continued)

	Laredo, Texas	Total State	Laredo as % of State Total
1992	213.4	453.5	47.07%
1993	252.1	509.4	49.48%
1994	366.7	659.9	55.58%
1995	428.7	739.9	57.94%
1996	575.8	923.8	62.33%
1997	576.6	959.3	60.11%
1998	650.9	1,047.9	62.11%
1999	1,486.5	2,291.9	64.86%
2000	1,493.7	2,383.4	62.64%

Source: US Customs Service, Inspection & Control Division, Laredo Texas. From

http://www.tamiu.edu/coba/bti/bridge/trucks/tknthyr.htm

Table 3

Truck Crossings to Mexico from Texas, 1990-2000 (thousands)

	Laredo, Texas	Total State	Laredo as % of State Total
1990	261.1	553.6	47.15%
1991	346.5	669.8	51.73%
1992	457.4	805.7	56.77%
1993	478.5	974.0	49.12%
1994	548.4	1,102.5	49.74%

(*table continues*)

Table 3 (continued)

	Laredo, Texas	Total State	Laredo as % of State Total
1995	422.9	909.2	46.51%
1996	516.7	1,063.6	48.59%
1997	650.8	1,268.2	51.32%
1998	1,188.5	1,942.0	61.20%
1999	1,306.6	2,093.4	62.42%
2000	1,409.3	2,257.1	62.44%

Source: US Customs Service, Inspection & Control Division, Laredo Texas. From

http://www.tamiu.edu/coba/bti/bridge/trucks/tknthyr.htm

As suggested earlier, population increases in Laredo and Nuevo Laredo spur increased passenger vehicle crossings. Tables 4 and 5 illustrate this increasing load.

Table 4

Vehicle Crossings to Texas from Mexico, 1990-2000 (million)

	Laredo, Texas	Total State	Laredo as % of State Total
1990	5.9	23.4	25.2%
1991	6.6	27.4	24.1%
1992	7.4	30.2	24.5%
1993	6.9	30.9	22.3%
1994	7.4	32.2	23.0%
1995	7.0	31.7	22.1%

(*table continues*)

Table 4 (continued)

	Laredo, Texas	Total State	Laredo as % of State Total
1996	7.1	32.9	21.6%
1997	7.0	33.9	20.6%
1998	7.7	34.9	22.1%
1999	8.4	37.2	22.6%
2000	8.0	41.5	19.3%

Source: US Customs Service, Inspection & Control Division, Laredo, Texas. From

http://www.tamiu.edu/coba/bti/bridge/trucks/tknthyr.htm

Table 5

Vehicle Crossings to Mexico from Texas, 1990-2000 (million)

	Laredo, Texas	Total State	Laredo as % of State Total
1990	6.7	24.6	27.2%
1991	6.9	26.3	26.2%
1992	7.7	28.2	27.3%
1993	7.3	29.9	24.4%
1994	7.3	31.0	23.5%
1995	6.7	29.0	23.1%
1996	7.7	31.7	24.3%
1997	8.0	32.9	24.3%
1998	8.3	35.5	23.4%

(*table continues*)

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Table 5 (continued)

	Laredo, Texas	Total State	Laredo as % of State Total
1999	8.7	37.8	23.0%
2000	8.3	37.8	22.0%

Source: US Customs Service, Inspection & Control Division, Laredo, Texas. From

http://www.tamiu.edu/coba/bti/bridge/trucks/tknthyr.htm

Combined vehicle and truck north and southbound crossings for 2000 were 9,493,073

and 9,709,336, respectively. This increase in volume over fixed infrastructure increases

congestion leading to longer travel times and worsening air quality. In addition, it

increases shipping costs due to the necessity of paying drivers to wait in traffic. The still

unimplemented NAFTA provision to allow international freight transport into the US by

foreign trucking companies without Customs delays will eventually mean greatly reduced

crossing times. However, the total volume of truck and passenger vehicles crossing the

border at Laredo will likely increase.

Texas Population Growth Impacts on Interstate 35

Interstate 35 is a major American transportation artery that spans almost the entire

nation running from Laredo, Texas, to Duluth, Minnesota. Commonly referred to as the

NAFTA highway, Interstate 35 intersects the following fourteen major Interstate

highways: 94, 90, 80, 70, 335, 135, 40, 44, 635, 30, 20, 45, 10, and 37. Travelers on

Interstate 35 are currently experiencing major congestion points in Texas at San Antonio,

San Marcus, Austin, and the DFW Metroplex. Through the DFW Metroplex, Interstate

35 splits into Interstate 35-West that passes through Fort Worth and Interstate 35-East that passes through Dallas. The divergence and convergence of Interstate 35 occur north of Hillsboro and in Denton. This split helps to partially segregate the commuter and freight traffic, easing some of the congestion. However, during morning and evening rush hours both portions of Interstate 35 experience high traffic congestion.

Population Characteristics and Trends along Interstate 35

A large portion of this traffic burden is from the phenomenal growth in the Texas population. In 2000, Texas population stood at 20,851,820, with the vast majority of people living either along the Interstate 35 corridor or to the east of it. Fast growing metropolitan areas add considerably to the traffic congestion along Interstate 35; however, their natural traffic additions are magnified by NAFTA related commerce as noted earlier. As illustrated by Table 6, Texas cities along Interstate 35 are projected to continue exceptional population growth throughout the next half century.

Table 6

Population Projections for Cities along Interstate 35

City	2000 Census	2020 Projected	2040 Projected	2050 Projected	% Change 2000-2020	% Change 2020-2050
Lytle	2,698	3,542	4,214	4,535	31.3%	28.0%
Belton	16,789	23,236	28,188	29,593	38.4%	27.4%
Temple	58,447	80,584	97,394	102,060	37.9%	26.7%
San Antonio	1,137,369	1,621,857	2,125,314	2,394,753	42.6%	47.7%
Hillsboro	7,234	7,822	8,596	9,009	8.1%	15.2%

(*table continues*)

Table 6 (continued)

City	2000 Census	2020 Projected	2040 Projected	2050 Projected	% Change 2000-2020	% Change 2020-2050
New Braunfels	38,404	65,417	96,081	110,577	70.3%	69.0%
Gainesville	15,644	18,358	21,031	22,388	17.3%	22.0%
Carrollton	104,592	125,603	130,062	130,062	20.1%	3.6%
Dallas	1,075,618	1,150,479	1,239,219	1,289,096	7.0%	12.0%
De Soto	37,550	57,243	73,881	82,923	52.4%	44.9%
Farmers Branch	27,195	30,835	36,074	39,629	13.4%	28.5%
Lancaster	24,487	30,606	31,993	31,993	25.0%	4.5%
Argyle	2,226	11,935	16,550	18,492	436.2%	54.9%
Corinth	11,500	25,000	29,000	30,632	117.4%	22.5%
Denton	79,500	162,800	248,700	298,700	104.8%	83.5%
Lake Dallas	6,272	9,500	10,789	11,544	51.5%	21.5%
Lewisville	77,831	140,000	165,181	173,630	79.9%	24.0%
North Lake	600	10,000	30,000	40,000	1,566.7%	300.0%
Waxahachie	22,454	31,330	40,477	45,041	39.5%	120.4%
San Marcos	37,604	65,172	110,797	143,619	73.3%	120.4%
Cotulla	4,178	5,096	5,537	5,768	22.0%	13.2%
Waco	119,455	143,723	180,403	192,621	20.3%	34.0%
Fort Worth	496,622	580,375	632,480	671,067	16.9%	15.6%
Austin	647,698	973,832	1,265,549	1,391,968	50.4%	42.9%

(table continues)

Table 6 (continued)

City	2000 Census	2020 Projected	2040 Projected	2050 Projected	% Change 2000-2020	% Change 2020-2050
Pflugerville	12,968	21,327	28,922	32,263	64.5%	51.3%
Laredo	188,525	328,439	450,652	473,958	74.2%	44.3%
Round Rock	58,844	140,826	189,851	197,694	139.3%	40.4%
TOTAL	4,312,304	5,864,937	7,296,935	7,973,615	36.0%	35.9%

Source: Texas Water Development Board: 2002 State Water Plan, Population

Projections by County/City. From

http://www.twdb.state.tx.us/data/popwaterdemand/countypopulation.htm

As shown in Table 6, between 2000 and 2020, the population of these cities is projected

to increase by 1,552,633 or 36%. In the long-term, the Interstate 35 population from

2020 to 2050 is projected to grow by an additional 2,108,678 or 35.9%. Combined,

current population projections show these cities gaining 3,661,311 new residents, an

84.9% increase from 2000 to 2050. The general growth trend in the cities located at what

are currently the major congestion points on Interstate 35 reflect some of the highest

growth rates. Between 2000 and 2020, San Antonio is projected to grow by 42.6%, San

Marcos is projected to grow by 73.3%, and Austin is projected to grow by 50.4%.

<center>Interstate 69</center>

     If built, Interstate 69 will run roughly 1,000 miles through Texas and will have

three branches through south Texas, providing interstate roadway conditions with direct

access to Mexico. This direct interstate access should act to relieve the overburden on

Interstate 35 and to reduce the bridge congestion at Laredo. The westernmost branch, which will most likely be numbered simply as I-69, will follow US 59 east from Laredo. The central branch, which will most likely be numbered I-69C, will follow US 281 from McAllen. The easternmost branch will follow US 77 from Brownsville and will likely be numbered I-69E. Interstate 69C will converge with the main branch of Interstate 69 at the town of George West in Live Oak County. From there Interstate 69 will run to the city of Victoria located in Victoria County where it will converge with Interstate 69E. From Victoria, Interstate 69 will follow US 59 to the Houston area where it will continue on a yet to be determined route. North of Houston, Interstate 69 will follow a new 40-mile long S-curve that will skirt around the cities of Lufkin and Nacogdoches. Northeast of Nacogdoches in the town of Tenaha, Interstate 69 will follow US 84 to Shreveport, Louisiana. An additional option is to construct a northern branch along US 59 from Tenaha to Texarkana where it would intersect with the to-be-extended Interstate 49. After leaving Texas, Interstate 69 will pass through Louisiana, Arkansas, Mississippi, Tennessee, Kentucky, Indiana, and Michigan on its way to Canada.

Population Characteristics and Trends along Interstate 69

The population growth forecast for Texas in the coming decades will mean longer commutes, transportation time delays, and higher costs associated with shipping. These problems will be lessened for the people living in the cities that Interstate 69 passes through. Table 7 illustrates the rapid growth that is predicted to occur over the next half century for the cities along Interstate 69.

Table 7

Population Projections for Cities along Interstate 69

City	2000 Census	2020 Projected	2040 Projected	2050 Projected	% Change 2000-2020	% Change 2020-2050
Lufkin	36,684	53,452	77,883	94,013	45.7%	76.0%
Beeville	15,577	19,906	23,311	25,138	27.8%	26.0%
Falfurrias	6,341	7,264	7,448	7,564	14.6%	4.0%
Harlingen	59,661	79,739	98,869	104,330	33.7%	31.0%
San Benito	24,483	32,721	40,570	42,811	33.6%	31.0%
Brownsville	147,305	201,684	253,728	269,049	36.9%	33.0%
Richmond	15,235	25,857	41,559	51,359	69.7%	99.0%
Rosenburg	31,939	47,204	71,124	87,109	47.8%	85.0%
Goliad	2,140	2,368	2,461	2,636	10.7%	11.0%
Houston	1,862,548	2,458,688	2,945,025	3,244,734	32.0%	32.0%
Edinburg	45,024	67,744	95,139	110,159	50.5%	63.0%
McAllen	116,891	139,070	178,632	206,280	19.0%	48.0%
Pharr	45,960	77,929	114,631	134,800	69.6%	73.0%
Hidalgo	6,131	10,348	15,198	17,865	68.8%	73.0%
Edna	6,711	6,886	6,908	6,919	2.6%	0.0%
Alice	22,123	24,910	24,982	24,860	12.6%	0.0%
Kingsville	31,150	40,702	47,017	50,027	30.7%	23.0%
Cleveland	8,728	12,221	14,792	15,358	40.0%	26.0%

(table continues)

Table 7 (continued)

City	2000 Census	2020 Projected	2040 Projected	2050 Projected	% Change 2000-2020	% Change 2020-2050
George West	2,872	3,204	3,400	3,499	11.6%	9.0%
Nacogdoches	36,709	50,274	68,851	80,574	37.0%	60.0%
Livingston	7,964	9,881	12,095	12,969	24.1%	31.0%
Refugio	3,330	3,717	3,737	3,732	11.6%	0.0%
Sinton	6,183	7,810	9,299	10,146	26.3%	30.0%
Victoria	61,305	73,496	85,168	91,560	19.9%	25.0%
Laredo	188,525	328,469	450,652	473,958	74.2%	44.0%
El Campo	10,851	11,961	13,100	13,744	10.2%	15.0%
Wharton	10,851	11,961	13,100	13,744	10.2%	15.0%
Raymondville	10,774	13,181	14,459	15,009	22.3%	14.0%
TOTAL	2,823,995	3,822,647	4,733,138	5,213,946	35.4%	36.0%

Source: Texas Water Development Board: 2002 State Water Plan, Population

Projections by County/City. From

http://www.twdb.state.tx.us/data/popwaterdemand/countypopulation.htm

Between 2001 and 2010 the urban population along Interstate 69 is projected to add

445,785 people – increasing 16% from 2,823,995 to 3,269,750. The long-term local

population to be served by Interstate 69 as of 2050 is projected to be 5,213,946. This

figure represents a fifty-year increase of 2,389,951 people or an 84.6% growth rate in the

area. The geography of Interstate 69 dictates that south Texas, especially the lower Rio

Grande valley region (one of the fastest growing regions of state), will receive a large

portion of the benefits and value from this project. The main south Texas cities that will

benefit from Interstate 69 are Laredo, McAllen, Pharr, Brownsville, and Harlingen. From

2000 to 2020, the projected growth rates for these cities range from 19.0% in Laredo up

to 69.6% in Pharr.

<div align="center">Implications of the Study</div>

This study examines the expected development and economic impacts from the

development of Interstate 69. This study, using county economic data, project-specific

county expense data, and other aggregate measures, will gauge the potential total

economic and development impacts on affected Texas counties from the construction of

Interstate 69. The information provided by this analysis will further the public choice

discourse in evaluating the relative merits of infrastructure solutions to congestion along

Interstate 35.

CHAPTER 2

LITERATURE REVIEW

Economic and development impact studies on the effects of major transportation

investments have been undertaken in the past; however, most have been part of a specific

project's cost-benefit analysis portion of its overall project evaluation. Thus the prime

component of this literature review will focus on previous works done in transportation

project evaluation.

The process of project evaluation is a comprehensive approach designed to

identify and address the outcomes of undertaking an action versus the outcome of failing

to undertake that action. Small (1999) stated, "the process of project evaluation when

performed skillfully identifies key consequences of a proposed project and provides

quantitative information about such concerns" (p. 138). To this end, the project must be

examined for its comprehensiveness, externalities caused, and latent effects. Regarding

the previous mention of comprehensiveness, externalities, and latent effect, Strotz (1965)

noted:

> Perhaps a given Highway improvement not only expands capacity to handle peak
>
> traffic flows, but also speeds off peak travel, reduces accidents, and imposes noise
>
> on residential neighborhoods. Perhaps the required capital expenditures occur in
>
> complex time patterns and the safety effects depend on future but uncertain
>
> demographic shifts. (p. 127)

The above excerpt illustrates a cross-section of the scope of issues that must be examined in a project evaluation that specifically relates to transportation improvements.

The application of project evaluation to transportation projects such as Interstate 69 is quite clear due to the nature of transportation policy decision-making; meaning, just as all large private investments must be quantified, so too must a large public investment in infrastructure. Meyer and Straszheim (1971) argue that in transportation planning "project evaluation and pricing should be viewed as parts of a single integrated procedure" (p. 232).

Part of the quantification process in a project evaluation, and thus part of a project's economic impact, is the cost-benefit analysis. An appropriate cost-benefit analysis quantifies the effects from an action or inaction in their monetary value received or forfeited. The ultimate value of a cost-benefit analysis is largely based on the willingness of the affected party to endure the cost associated with the project. The willingness of payment is determined by the individual's/party's assigned value of the utility received from the determinant action. Many studies view cost and benefits in terms of their economic utility. This is made clear by Small (1999):

> Transportation is closely tied to a host of other markets through their dependence on the physical presence of people or goods. Better transportation to a particular location can dramatically affect the price of housing, retail goods, or land at that location and may decrease the wages offered to workers there. The post-project changes create benefits and cost that are measured as changes in consumers and producers surpluses in associated markets. (p. 146)

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In terms of economic impacts, a cost-benefit analysis can render an extensive understanding of the likely outcomes, both positive and negative, that might result from the undertaking of a transportation project.

The economic impact resulting from roadway construction largely depends on the measurement of the project's benefits; however, these benefits are difficult to gauge, measure, and quantify. In the traditional transportation project, the main benefits considered are travel-time savings (meaning the reduction from pre-project travel-time to post-project travel-time) and job creation. Using travel-time savings is a viable measure of the usefulness of a project, especially in terms of freight transport. And, the job creation impact will largely be made in the travel service industries. The relationship between roadway construction and job creation is illustrated by Mohring (1976):

> Highway cost and maintenance cost are largely a factor of usage. This usage in terms of vehicle and passenger volume creates a need for travel services, i.e. gasoline, lodging, food, etc. Therefore, increased usage of a roadway creates increased demand for travel services meaning increased employment in the travel services industries. (p. 16)

CHAPTER 3

RESEARCH METHODS

This study examining the construction of Interstate 69 relies on several analytical procedures to test and predict both the development impact and the economic impact from this project.

Development Impacts

This study utilizes an interrupted time series model to test for the development impact in job creation to the counties affected by Interstate 27 in west Texas after its completion in 1992. Employment gains in the test group are compared to a control group of counties paralleling Interstate 27 along US Highway 385. (See Table 8 for the list of counties in each group.) The control group counties were chosen due their economic similarities to the test group counties prior to construction of Interstate 27 reflecting the same regional job creation opportunities as the test group. Utilizing this method the study compares the observed job creation development impact from Interstate 27 to that which can be expected to occur as a result of the construction of Interstate 69.

Table 8

Test and Control Group Counties

Test Group	Control Group
Potter	Oldham
Randal	Castro
Swisher	Lamb
Hale	Hockley
Lubbock	Def Smith

The model used for this analysis can be represented as:

J69………………J91 J92 <u>X</u> J93 J94…..………..J00

Where: J = Total Jobs (non-farm) in by year.
                X= Interruption, completion of Interstate 27 in 1992
                (modeled as a dummy variable).

The testable hypotheses are:

Ho: Test Jobs $\leq$ Control Jobs

Ha: Test Jobs > Control Jobs

Where: Test Jobs = Total non-farm employment in the counties
                  along Interstate 27
                Control Jobs = Total non-farm employment in the counties
                  adjacent to Test Job counties.

Any systematic variances in the stochastic processes of the data series for the

control and test groups are controlled using an Autoregressive Integrated Moving

Average (ARIMA) procedure as described in Cook and Campbell (1979). The residuals

realized from the ARIMA model for the test group are used as the dependent variable and

the residuals from the control group are used as the independent variable in a regression

model to test for any impact of Interstate 27 on local job creation. The regression model

is:

$$y_{\text{Job Test}} = A + B_1 X_{\text{Job Control}} + B_2 X_{\text{Highway 27}} + e$$

Economic Impacts

The economic impact of Interstate 69 is predicted using IMPLANPro® version

2.0 Input-Output Modeling software developed by the Minnesota IMPLAN Group, Inc.,

(1999). This software shows the economic impact of an event by measuring how the

monetary capital from the event flows through the economy. Three kinds of economic

impacts are projected in the IMPLAN program. First is the direct impact of the event,

which accounts for the primary local impacts (i.e. local purchasing, local investment,

etc.). Second, the indirect impacts account for local economic activities at vendors

supported by the spending of road construction firms. The third impact is the induced

impact, which accounts for salary and wage disbursements into the local economy.

The IMPLAN analysis was conducted on the counties that lie along Interstate 69

using 1999 county economic data, with the specified sector as Roadway/Interstate

Construction. The monetary cost of Interstate 69 that was entered into the IMPLAN

model did not include right-of-way acquisition cost due to the likelihood that this portion

of cost will be a transfer payment to land owners with little impact on the local economy.

The 24 counties impacted by Interstate 69 are: Angelina, Bee, Bowie, Brooks, Cass,

Duval, Fort Bend, Goliad, Harris, Harrison, Hidalgo, Liberty, Live Oak, Marion,

McMullen, Montgomery, Nueces, Panola, Polk, San Jacinto, Starr, Victoria, Willicy, and

Zapata.

CHAPTER 4

RESEARCH FINDINGS

Development Impacts

The ARIMA model identified for the test group data is Regular (0,2,1),

representing no autoregressive parameters, one moving average parameter, and the data

series being differenced twice to achieve stationarity in the homogeneous sense. The

model is estimated using Number Cruncher Statistical Systems™ (NCSS) 2000 statistical

and data analysis system from Number Cruncher Statistical Systems (© J. Hintze,

Kaysville, UT, www.ncss.com). The model data is shown in Appendix A. This model's

parameter was within the bounds of stationarity, with significant *t*-values. The

Portmanteau test showed the model to be adequate. The autocorrelation of the residuals

showed no significant correlation.

Table 9

Model Estimation Section Test Group

Parameter Name	Parameter Estimate	Standard Error	*T*-Value	Prob Level
MA (1)	0.7318724	0.1250084	5.8546	<0.000001

Similarly, the ARIMA for the control group data is identified as Regular (1,0,0). The parameter is within the bounds of stationarity. The Portmanteau test showed the model to be adequate, and the autocorrelation of the residuals showed no significant correlation. (See Appendix B for more details.)

Table 10

Model Estimation Section Control Group

Parameter Name	Parameter Estimate	Standard Error	*T*-Value	Prob Level
AR (1)	1.000499	3.849955E-03	259.8730	<0.000001

A multiple regression analysis was accomplished using NCSS. The findings shown in Table 11 indicate that inclusion of the control group of counties did not have a statistically significant impact on the model's ability to account for variance in total employment in the test group. The presence of Interstate 27 does have a statistically significant impact on the employment in the counties through which Interstate 27 passes. (See Appendix C.) The regression residuals are homoskedastic, are not serially correlated, and are normally distributed. The regression coefficient of 4,463 represents an approximate 2% gain in employment that can be attributed to the opening of Interstate 27.

Table 11

Multiple Regression Model

Variable	Regression Coefficient	Standard Error	*P*-Value
Intercept	-2534.7519	920.1678	0.0100
C5	4463.0838	1862.5770	0.0232
CntrlRes	2.4256	1.3867	0.908
"R^2 = 0.2655"			

Economic Impacts

The economic impact of Interstate 69 was forecast using IMPLAN economic impact software. The IMPLAN software forecast the project's direct, indirect, and induced impacts, as well as total impacts in terms of output, value added, employee compensation, proprietors' income, other property type income, indirect business taxes, and employment. This study will examine five of these impacts due to their overall relevance. The resulting forecasts are set out below in Tables 12, 13, 14, 15, and 16.

Table 12

Economic Output

Direct economic impact	$2,423,432,560
Indirect economic impact	$886,455,261
Induced economic impact	$918,961,858
Total economic impact 11	$4,228,849,682

Table 13

Value Added	
Direct economic impact	$924,719,424
Indirect economic impact	$494,641,738
Induced economic impact	$613,359,351
Total economic impact	$2,032,720,514

Table 14

Employee Compensation	
Direct economic impact	$609,987,840
Indirect economic impact	$280,605,984
Induced economic impact	$320,359,274
Total economic impact	$1,210,953,097

Table 15

Indirect Business Taxes	
Direct economic impact	$19,972,288
Indirect economic impact	$34,590,383
Induced economic impact	$58,066,753
Total economic impact	$111,629,423

Table 16

Employment/Job Creation

Direct economic impact	19,092
Indirect economic impact	8,416
Induced economic impact	11,600
Total economic impact	39,109

These forecasts illustrate the economic benefits to the counties along Interstate 69. In addition, the benefits to these counties will carry over to the state and national level.

CHAPTER 5

CONCLUSION

The results of this analysis allow for the inference that Interstate construction has a positive impact in job growth development in counties that lie along new roadways. The multiple regression analysis shows that the construction of Interstate 69 can be expected to generate job growth in the counties that lie along its path. In economic impact terms, the IMPLAN forecast presented in chapter 4 shows that the economies of the Interstate 69 counties will receive benefits as a result of the construction of Interstate 69. The total economic impact projected for the Interstate 69 counties is $4.2 billion, and the total projected temporary job creation is projected to be 39,109. This indicates that Interstate 69 will likely have an on-going positive influence on the south and east Texas counties through which it passes. Importantly, these construction and job creation benefits will be felt in several economically disadvantaged regions of south and east Texas.

The construction of Interstate 69 holds the prospect of opportunity for the people and economy of Texas. In terms of the overburden of the state's existing transportation infrastructure mentioned in chapter 1, this project could help to alleviate both current and future problems. Moreover, the larger benefits will likely be in reduced congestion and delay times at the border crossings and along Interstate 35. Further research would

estimate the impact that the proposed Interstate 69 will have on traffic congestion

allowing a more complete estimate of the highway's impacts on the Texas economy.

APPENDIX A

ARIMA REPORT, TEST GROUP

ARIMA Report

Minimization Phase Section

Itn No.	Error Sum of Squares	Lambda	MA(1)
0	7.531843E+08	0.1	0.1
1	5.428907E+08	0.1	0.5433413
2	5.160068E+08	0.04	0.7615956
3	5.152068E+08	0.016	0.7411379
4	5.15115E+08	0.0064	0.7339494
5	5.151075E+08	0.00256	0.7322256
6	5.151066E+08	0.001024	0.7318724

Normal convergence.

Model Description Section

Series	Test_Jobs
Model	Regular(0,2,1) Seasonal(No seasonal parameters)
Observations	32
Iterations	6
Pseudo R-Squared	99.003415
Residual Sum of Squares	5.151066E+08
Mean Square Error	1.77623E+07
Root Mean Square	4214.534

Model Estimation Section

Parameter Name	Parameter Estimate	Standard Error	T-Value	Prob Level
MA(1)	0.7318724	0.1250084	5.8546	0.000000

Asymptotic Correlation Matrix of Parameters

	MA(1)
MA(1)	1.000000

Forecast Section of Test_Jobs

Row	Date	Actual	Residual	Forecast	Lower 95% Limit	Upper 95% Limit
1	1	165104.0	-12665.2	177769.2	164429.0	191109.5
2	2	168901.0	-11305.3	180206.3	166866.1	193546.6
3	3	171574.0	-9398.1	180972.1	167631.8	194312.3
4	4	179826.0	-1299.2	181125.2	167784.9	194465.4
5	5	190278.0	1249.2	189028.8	175688.6	202369.1
6	6	200607.0	791.2	199815.8	186475.5	213156.0
7	7	205373.0	-4983.9	210356.9	197016.7	223697.2
8	8	213741.0	-45.6	213786.6	200446.4	227126.8
9	9	222362.0	219.6	222142.4	208802.1	235482.6
10	10	229343.0	-1479.3	230822.3	217482.0	244162.5
11	11	232994.0	-4412.6	237406.6	224066.4	250746.9
12	12	236237.0	-3637.5	239874.5	226534.2	253214.7
13	13	239866.0	-2276.2	242142.2	228801.9	255482.4
14	14	242738.0	-2422.9	245160.9	231820.6	258501.1
15	15	245802.0	-1581.2	247383.2	234043.0	260723.5
16	16	248794.0	-1229.3	250023.3	236683.0	263363.5
17	17	251898.0	-787.7	252685.7	239345.4	266025.9
18	18	244975.0	-10603.5	255578.5	242238.2	268918.7
19	19	252887.0	7074.6	245812.4	232472.1	259152.6
20	20	254174.0	-1447.3	255621.3	242281.0	268961.5
21	21	250485.0	-6035.2	256520.2	243180.0	269860.5
22	22	254332.0	3119.0	251213.0	237872.8	264553.3
23	23	257503.0	1606.7	255896.3	242556.1	269236.5
24	24	257786.0	-1712.1	259498.1	246157.9	272838.3
25	25	267647.0	8325.0	259322.0	245981.8	272662.3
26	26	275599.0	4183.8	271415.2	258074.9	284755.4
27	27	284668.0	4179.0	280489.0	267148.7	293829.2
28	28	287548.0	-3130.5	290678.5	277338.3	304018.7
29	29	293595.0	875.9	292719.1	279378.9	306059.4
30	30	307118.0	8117.0	299001.0	285660.7	312341.2
31	31	312124.0	-2576.4	314700.4	301360.1	328040.6
32	32	317989.0	-1026.6	319015.6	305675.3	332355.8
33	33			324605.3	311265.1	337945.6

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Forecast and Data Plot

Test_Jobs Chart
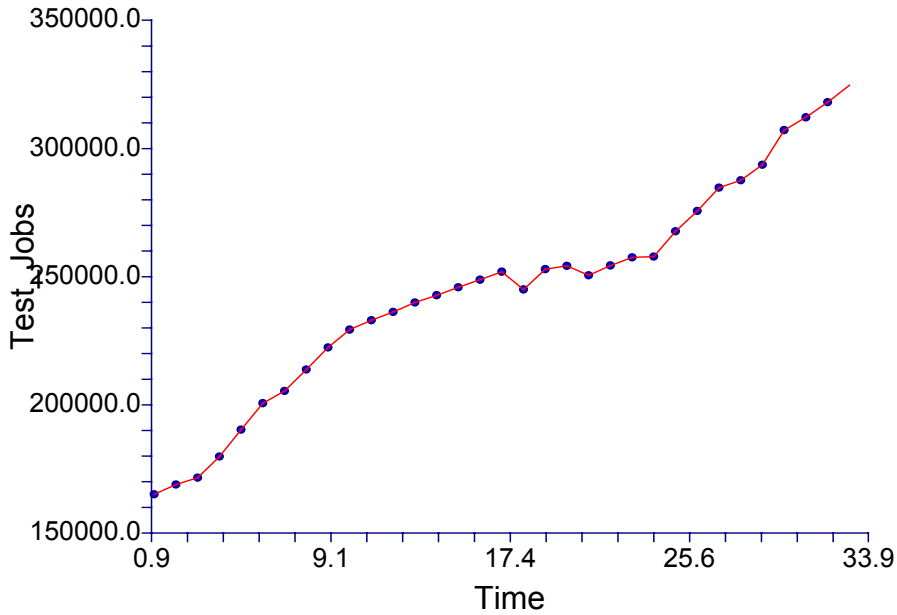
Autocorrelations of Residuals of Test_Jobs

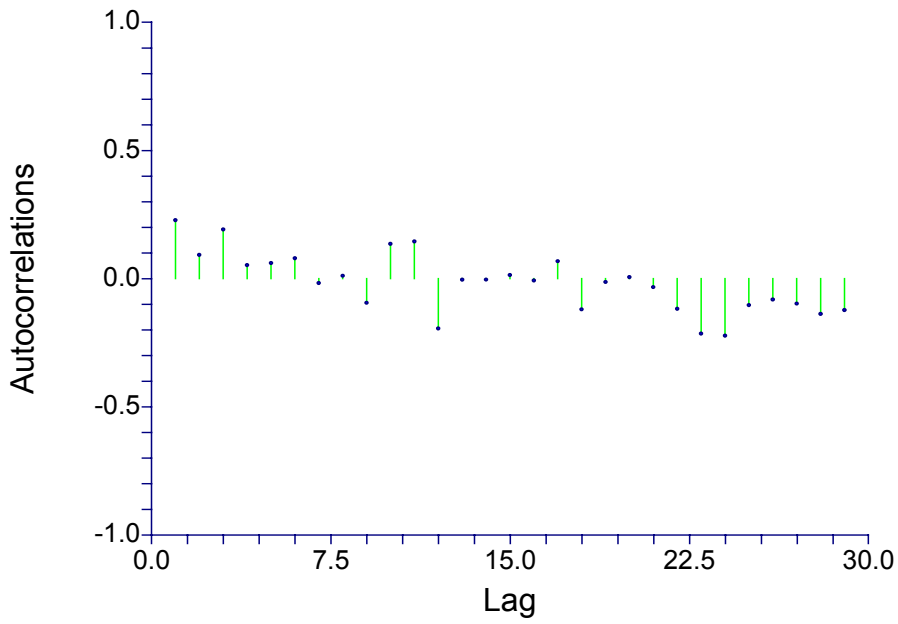| Lag	Correlation	Lag	Correlation	Lag	Correlation	Lag	Correlation
1	0.227855	9	-0.094686	17	0.067599	25	-0.103463
2	0.092419	10	0.135301	18	-0.120054	26	-0.081465
3	0.191595	11	0.144681	19	-0.013436	27	-0.097644
4	0.052072	12	-0.194489	20	0.005806	28	-0.137875
5	0.060634	13	-0.004640	21	-0.033371	29	-0.122920
6	0.078948	14	-0.004039	22	-0.118033		
7	-0.017226	15	0.013720	23	-0.214820		
8	0.010814	16	-0.007731	24	-0.222865		

Significant if |Correlation|> 0.353553

ARIMA Report

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Variable   Test_Jobs

Autocorrelation Plot Section

Autocorrelations of Residuals

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Variable   Test_Jobs

Portmanteau Test Section Test_Jobs

Lag	DF	Portmanteau Test Value	Prob Level	Decision (0.05)
2	1	2.13	0.144261	Adequate Model
3	2	3.51	0.172984	Adequate Model
4	3	3.61	0.306216	Adequate Model
5	4	3.76	0.439083	Adequate Model
6	5	4.02	0.546046	Adequate Model
7	6	4.04	0.671756	Adequate Model
8	7	4.04	0.774967	Adequate Model
9	8	4.47	0.812848	Adequate Model
10	9	5.37	0.800834	Adequate Model
11	10	6.46	0.775644	Adequate Model
12	11	8.51	0.666714	Adequate Model
13	12	8.51	0.743737	Adequate Model
14	13	8.52	0.808468	Adequate Model
15	14	8.53	0.860071	Adequate Model
16	15	8.53	0.900705	Adequate Model
17	16	8.86	0.918943	Adequate Model
18	17	9.98	0.904312	Adequate Model
19	18	10.00	0.931960	Adequate Model
20	19	10.00	0.952911	Adequate Model
21	20	10.11	0.966104	Adequate Model
22	21	11.63	0.949136	Adequate Model
23	22	17.21	0.751888	Adequate Model
24	23	23.96	0.405968	Adequate Model
25	24	25.62	0.372471	Adequate Model
26	25	26.83	0.364518	Adequate Model
27	26	28.90	0.315514	Adequate Model
28	27	34.07	0.163920	Adequate Model
29	28	39.55	0.072427	Adequate Model

APPENDIX B

ARIMA REPORT, CONTROL GROUP

ARIMA Report

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Variable   Cntrl_Jobs

Minimization Phase Section

Itn No.	Error Sum of Squares	Lambda	AR(1)
0	1.215398E+10	0.1	0.1
1	2.204973E+08	0.1	0.8974968
2	1.083865E+07	0.04	1.000992
3	1.083312E+07	0.016	1.000511
4	1.083312E+07	0.0064	1.000499

Normal convergence.

Model Description Section

Series	Cntrl_Jobs
Model	Regular(1,0,0) Seasonal(No seasonal parameters)

Observations	32
Iterations	4
Pseudo R-Squared	57.842383
Residual Sum of Squares	1.083312E+07
Mean Square Error	349455.6
Root Mean Square	591.1476

Model Estimation Section

Parameter Name	Parameter Estimate	Standard Error	T-Value	Prob Level
AR(1)	1.000499	3.849955E-03	259.8730	0.000000

Asymptotic Correlation Matrix of Parameters

	AR(1)
AR(1)	1.000000

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Database D:\Thesis\Figures\Test-Cntrl.S0
Variable Cntrl_Jobs

Forecast Section of Cntrl_Jobs

Row	Date	Actual	Residual	Forecast	Lower 95% Limit	Upper 95% Limit
1	1	20794.0	-20.8	20814.8	19175.8	22453.7
2	2	21402.0	597.6	20804.4	19165.4	22443.3
3	3	20748.0	-664.7	21412.7	19773.7	23051.6
4	4	22074.0	1315.6	20758.4	19119.4	22397.3
5	5	21483.0	-602.0	22085.0	20446.1	23724.0
6	6	21744.0	250.3	21493.7	19854.8	23132.7
7	7	21773.0	18.1	21754.9	20115.9	23393.8
8	8	23054.0	1270.1	21783.9	20144.9	23422.8
9	9	23261.0	195.5	23065.5	21426.6	24704.5
10	10	22904.0	-368.6	23272.6	21633.7	24911.6
11	11	22824.0	-91.4	22915.4	21276.5	24554.4
12	12	23071.0	235.6	22835.4	21196.4	24474.3
13	13	22668.0	-414.5	23082.5	21443.6	24721.5
14	14	21864.0	-815.3	22679.3	21040.4	24318.3
15	15	22294.0	419.1	21874.9	20236.0	23513.9
16	16	22210.0	-95.1	22305.1	20666.2	23944.1
17	17	21800.0	-421.1	22221.1	20582.1	23860.0
18	18	20372.0	-1438.9	21810.9	20171.9	23449.8
19	19	21261.0	878.8	20382.2	18743.2	22021.1
20	20	20702.0	-569.6	21271.6	19632.7	22910.6
21	21	20294.0	-418.3	20712.3	19073.4	22351.3
22	22	20293.0	-11.1	20304.1	18665.2	21943.1
23	23	20060.0	-243.1	20303.1	18664.2	21942.1
24	24	20063.0	-7.0	20070.0	18431.1	21709.0
25	25	20980.0	907.0	20073.0	18434.1	21712.0
26	26	20996.0	5.5	20990.5	19351.5	22629.4
27	27	21187.0	180.5	21006.5	19367.5	22645.4
28	28	21553.0	355.4	21197.6	19558.6	22836.5
29	29	21801.0	237.2	21563.8	19924.8	23202.7
30	30	21662.0	-149.9	21811.9	20172.9	23450.8
31	31	21206.0	-466.8	21672.8	20033.9	23311.8
32	32	21599.0	382.4	21216.6	19577.6	22855.5
33	33			21609.8	19970.8	23248.7

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Variable   Cntrl_Jobs

Forecast and Data Plot

Cntrl_Jobs Chart
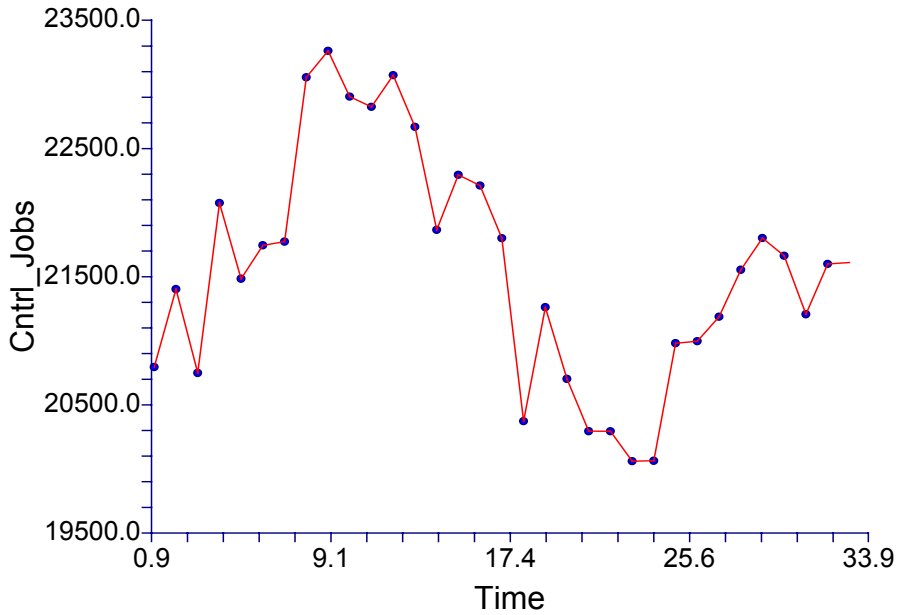
Autocorrelations of Residuals of Cntrl_Jobs

| Lag	Correlation	Lag	Correlation	Lag	Correlation	Lag	Correlation
1	-0.279107	9	-0.119388	17	0.187650	25	0.013406
2	0.086280	10	-0.178122	18	-0.020634	26	0.019564
3	-0.011932	11	0.058752	19	-0.035779	27	-0.057572
4	0.339071	12	-0.237628	20	0.024049	28	0.064884
5	-0.180286	13	0.156013	21	0.135701	29	-0.048491
6	-0.062958	14	-0.284932	22	-0.099372		
7	0.037476	15	0.090771	23	0.004503		
8	0.001476	16	-0.177162	24	0.053550		

Significant if |Correlation|> 0.353553

Autocorrelation Plot Section

Autocorrelations of Residuals
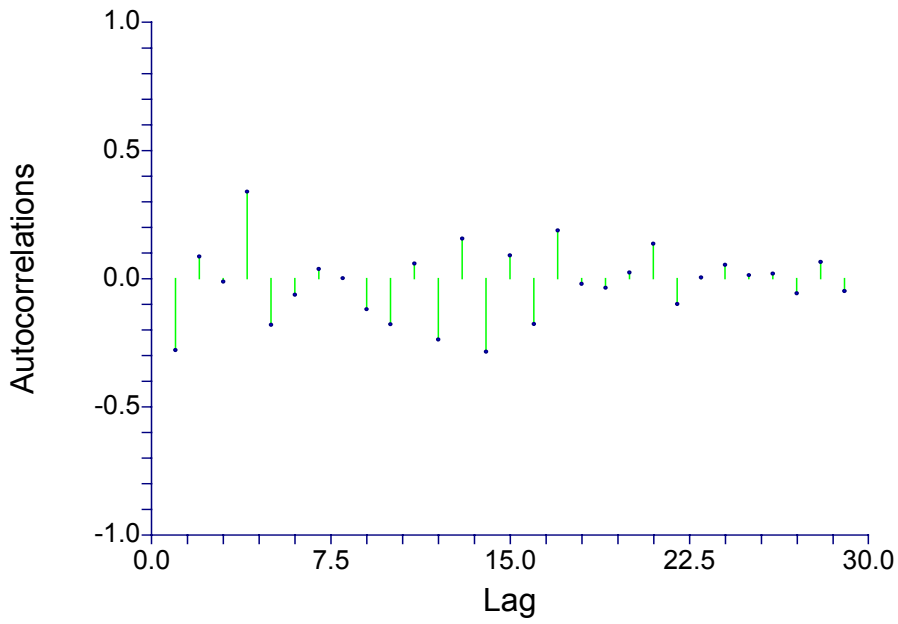
Portmanteau Test Section Cntrl_Jobs

Lag	DF	Portmanteau Test Value	Prob Level	Decision (0.05)
2	1	3.00	0.083057	Adequate Model
3	2	3.01	0.222086	Adequate Model
4	3	7.48	0.058158	Adequate Model
5	4	8.79	0.066663	Adequate Model
6	5	8.95	0.110979	Adequate Model
7	6	9.01	0.172820	Adequate Model
8	7	9.01	0.251681	Adequate Model
9	8	9.69	0.287622	Adequate Model
10	9	11.26	0.258508	Adequate Model
11	10	11.44	0.324590	Adequate Model
12	11	14.51	0.206168	Adequate Model
13	12	15.90	0.195796	Adequate Model
14	13	20.81	0.076801	Adequate Model
15	14	21.34	0.093328	Adequate Model
16	15	23.47	0.074653	Adequate Model
17	16	26.02	0.053687	Adequate Model
18	17	26.06	0.073421	Adequate Model
19	18	26.16	0.096055	Adequate Model
20	19	26.22	0.124255	Adequate Model
21	20	28.04	0.108494	Adequate Model
22	21	29.11	0.111321	Adequate Model
23	22	29.12	0.141601	Adequate Model
24	23	29.51	0.164139	Adequate Model
25	24	29.53	0.200710	Adequate Model
26	25	29.60	0.239517	Adequate Model
27	26	30.32	0.254415	Adequate Model
28	27	31.47	0.252326	Adequate Model
29	28	32.32	0.261620	Adequate Model

APPENDIX C

MULTIPLE REGRESSION REPORT, TEST GROUP

Multiple Regression Report

Run Summary Section

Parameter	Value	Parameter	
Dependent Variable	TEST_RESx	Rows Processed	32
Number Ind. Variables	2	Rows Filtered Out	0
Weight Variable	None	Rows with X's Missing	0
R2	0.2655	Rows with Weight Missing	0
Adj R2	0.2149	Rows with Y Missing	0
Coefficient of Variation	-3.2488	Rows Used in Estimation	32
Mean Square Error	2.024076E+07	Sum of Weights	
	32.000		
Square Root of MSE	4498.974	Completion Status	
	Normal Completion		
Ave Abs Pct Error	198.809		

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Minimum	Maximum
C5	32	0.25	0.4399413	0	1
CNTRL_RESx	32	14.08205	590.9273	-1438.881	1315.644
TEST_RESx	32	-1384.823	5077.379	-12665.22	8324.96

Correlation Matrix Section

	C5	CNTRL_RESx	TEST_RESx
C5	1.0000	0.1661	0.4336
CNTRL_RESx	0.1661	1.0000	0.3465
TEST_RESx	0.4336	0.3465	1.0000

Regression Equation Section

Independent Variable	Regression Coefficient b(i)	Standard Error Sb(i)	T-Value to test H0:B(i)=0	Prob Level	Reject H0 at 5%?	Power of Test at 5%
Intercept	-2534.7519	920.1678	-2.755	0.0100	Yes	0.7588
C5	4463.0838	1862.5770	2.396	0.0232	Yes	0.6392
CNTRL_RESx	2.4256	1.3867	1.749	0.0908	No	0.3942

Estimated Model

-2534.75191161537+ 4463.08378913967*C5+ 2.42561201961171*CNTRL_RESx

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Multiple Regression Report

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Dependent   TEST_RESx

Regression Coefficient Section

Independent Variable	Regression Coefficient	Standard Error	Lower 95% C.L.	Upper 95% C.L.	Standardized Coefficient
Intercept	-2534.7519	920.1678	-4416.7064	-652.7974	0.0000
C5	4463.0838	1862.5770	653.6861	8272.4815	0.3867
CNTRL_RESx	2.4256	1.3867	-0.4105	5.2617	0.2823

Note: The T-Value used to calculate these confidence limits was 2.045.

Analysis of Variance Section

Source	DF	R2	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (5%)
Intercept	1		6.136754E+07	6.136754E+07			
Model	2	0.2655	2.121911E+08	1.060956E+08	5.242	0.0114	0.7912
Error	29	0.7345	5.869822E+08	2.024076E+07			
Total(Adjusted)	31	1.0000	7.991733E+08	2.577978E+07			

Normality Tests Section

Test Name	Test Value	Prob Level	Reject H0 At Alpha = 20%?
Shapiro Wilk	0.9629	0.328953	No
Anderson Darling	0.3740	0.416525	No
D'Agostino Skewness	-1.4133	0.157576	Yes
D'Agostino Kurtosis	0.4573	0.647439	No
D'Agostino Omnibus	2.2065	0.331794	No

Serial Correlation of Residuals Section

Lag	Serial Correlation	Lag	Serial Correlation	Lag	Serial Correlation
1	0.2576	9	-0.1152	17	0.0381
2	-0.0783	10	0.1236	18	-0.1898
3	0.1476	11	0.0903	19	-0.0957
4	-0.0121	12	-0.2167	20	-0.0192
5	0.0139	13	-0.0332	21	-0.1210
6	0.0173	14	0.0654	22	-0.1778
7	-0.0074	15	-0.1176	23	-0.2135
8	-0.0110	16	-0.0142	24	-0.0736

Above serial correlations significant if their absolute values are greater than 0.353553

Durbin-Watson Test For Serial Correlation

Parameter	Value	Did the Test Reject H0: Rho(1) = 0?
Durbin-Watson Value	1.2860	
Prob. Level: Positive Serial Correlation	0.0434	Yes
Prob. Level: Negative Serial Correlation	0.9511	No

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Dependent   TEST_RESx

R-Squared Section

Independent Variable	Total R2 for This I.V. And Those Above	R2 Increase When This I.V. Added To Those Above	R2 Decrease When This I.V. Is Removed	R2 When This I.V. Is Fit Alone	Partial R2 Adjusted For All Other I.V.'s
C5	0.1880	0.1880	0.1454	0.1880	0.1653
CNTRL_RESx	0.2655	0.0775	0.0775	0.1201	0.0954

Multicollinearity Section

Independent Variable	Variance Inflation Factor	R2 Versus Other I.V.'s	Tolerance	Diagonal of X'X Inverse
C5	1.0284	0.0276	0.9724	0.1713963
CNTRL_RESx	1.0284	0.0276	0.9724	9.499986E-08

Eigenvalues of Centered Correlations

No.	Eigenvalue	Incremental Percent	Cumulative Percent	Condition Number
1	1.1661	58.306	58.306	1.000
2	0.8339	41.694	100.000	1.398

All Condition Numbers less than 100. Multicollinearity is NOT a problem.

Eigenvalues of Uncentered Correlations

No.	Eigenvalue	Incremental Percent	Cumulative Percent	Condition Number
1	1.5310	51.035	51.035	1.000
2	0.9863	32.875	83.910	1.552
3	0.4827	16.090	100.000	3.172

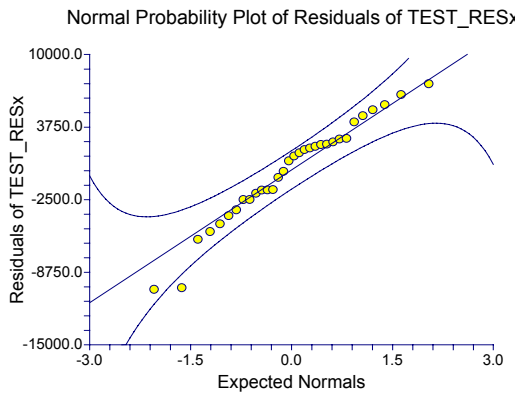All Condition Numbers less than 100. Multicollinearity is NOT a problem.

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Database   D:\Thesis\Figures\Test-Cntrl.S0
Dependent   TEST_RESx

Regression Diagnostics Section

Row	Standardized Residual	RStudent	Hat Diagonal	Cook's D	Dffits	CovRatio
1	-2.2888	-2.4845	0.0417	0.0760	-0.5183	0.6378
2	-2.3690	-2.5921	0.0805	0.1638	-0.7669	0.6338

Plots Section

Histogram of Residuals of TEST_RESx

Normal Probability Plot of Residuals of TEST_RESx

Residuals of TEST_RESx vs Row

Rstudent vs Hat Diagonal
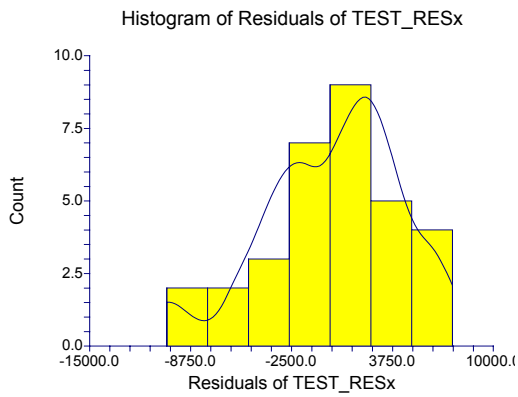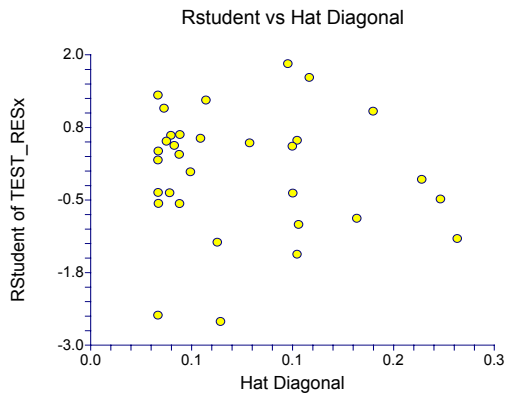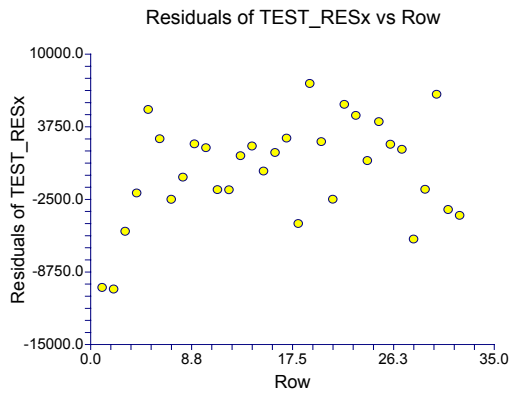
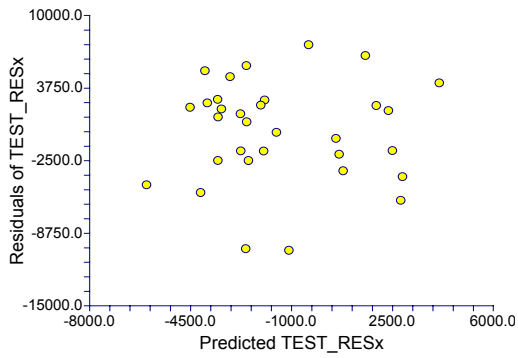Page/Date/Time   5   8/7/2002 2:29:29 PM
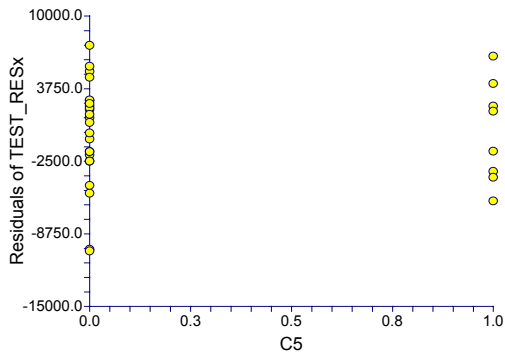Database   D:\Thesis\Figures\Test-Cntrl.S0
Dependent   TEST_RESx
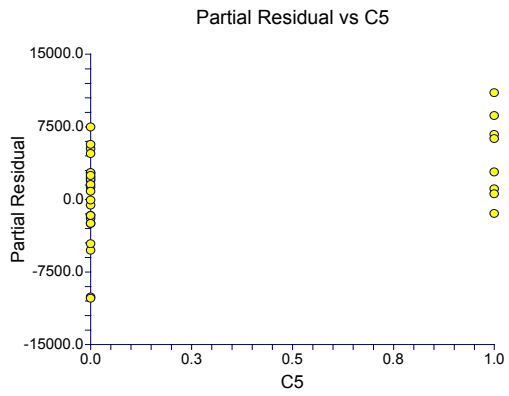
Residuals of TEST_RESx vs Predicted

Residuals of TEST_RESx vs C5

Residuals of TEST_RESx vs CNTRL_RESx

Partial Residual vs C5

Partial Residual vs CNTRL_RESx

48
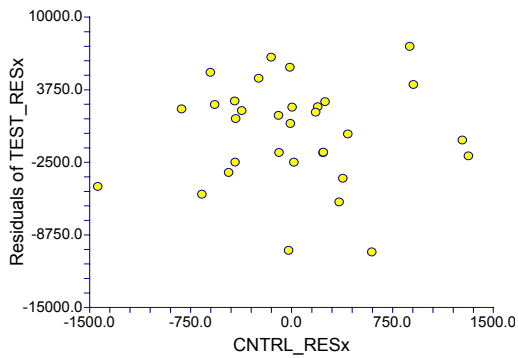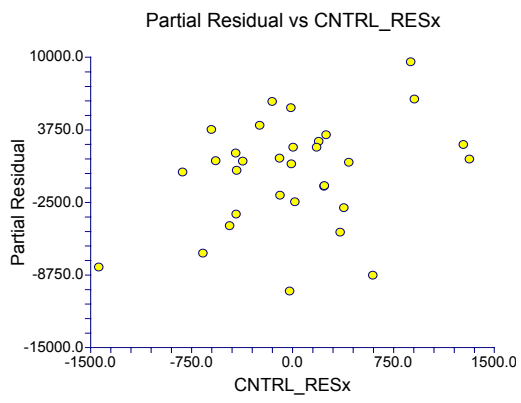
APPENDIX D

IMPLAN OUTPUT

Gregs study.iap
Copyright MIG   2002   IMPACT NAME: out   MULTIPLIER: Type SAM

	Industry	Direct	Indirect	Induced	Total	Deflator
1	Dairy Farm Products	0	133	30,264	30,397	1.00
2	Poultry and Eggs	0	3,737	442,049	445,787	1.00
3	Ranch Fed Cattle	0	2,449	385,878	388,327	1.00
4	Range Fed Cattle	0	1,316	205,190	206,506	1.00
5	Cattle Feedlots	0	2,504	395,013	397,517	1.00
6	Sheep- Lambs and Goats	0	12	1,971	1,983	1.00
7	Hogs- Pigs and Swine	0	55	8,732	8,788	1.00
8	Other Meat Animal Products	0	0	32	33	1.00
9	Miscellaneous Livestock	0	1,680	107,069	108,749	1.00
10	Cotton	0	186	3,230	3,416	1.00
11	Food Grains	0	397	1,947	2,344	1.00
12	Feed Grains	0	1,081	31,377	32,458	1.00
13	Hay and Pasture	0	400	11,615	12,015	1.00
14	Grass Seeds	0	43,538	1,301	44,839	1.00
15	Tobacco	0	0	0	0	1.00
16	Fruits	0	151	132,183	132,334	1.00
17	Tree Nuts	0	13	15,152	15,165	1.00
18	Vegetables	0	4,121	740,091	744,212	1.00
19	Sugar Crops	0	60	5,257	5,317	1.00
20	Miscellaneous Crops	0	4,365	8,497	12,862	1.00
21	Oil Bearing Crops	0	65	17,841	17,906	1.00
22	Forest Products	0	2,443	5,057	7,500	1.00
23	Greenhouse and Nursery Products	0	666,474	815,766	1,482,241	1.00
24	Forestry Products	0	407	2,962	3,369	1.00
25	Commercial Fishing	0	1,104	19,346	20,450	1.00
26	Agricultural- Forestry- Fishery Servic	0	19,762	218,146	237,909	1.00
27	Landscape and Horticultural Services	0	8,518,545	1,543,257	10,061,802	1.00
28	Iron Ores	0	20	12	32	1.00
29	Copper Ores	0	0	0	0	1.00
30	Lead and Zinc Ores	0	0	0	0	1.00
31	Gold Ores	0	2,443	2,571	5,014	1.00
32	Silver Ores	0	0	0	0	1.00
33	Ferroalloy Ores- Except Vanadium	0	0	0	0	1.00
34	Metal Mining Services	0	52	54	106	1.00
35	Uranium-radium-vanadium Ores	0	105	110	215	1.00
36	Metal Ores- Not Elswhere Classified	0	0	0	0	1.00
37	Coal Mining	0	17,150	52,263	69,413	1.00
38	Natural Gas & Crude Petroleum	0	15,611,870	13,052,829	28,664,700	1.00
39	Natural Gas Liquids	0	1,189,420	994,455	2,183,874	1.00
40	Dimension Stone	0	33,792	89	33,880	1.00
41	Sand and Gravel	0	687,442	1,750	689,192	1.00
42	Clay- Ceramic- Refractory Minerals-	0	491	40	532	1.00
43	Potash- Soda- and Borate Minerals	0	2,705	4,931	7,636	1.00
44	Phosphate Rock	0	0	0	0	1.00
45	Chemical- Fertilizer Mineral Mininig-	0	3,718	6,776	10,494	1.00
46	Nonmetallic Minerals (Except Fuels)	0	14,761	47	14,808	1.00
47	Misc. Nonmetallic Minerals- N.E.C.	0	3,868	12	3,880	1.00
48	New Residential Structures	0	0	0	0	1.00
49	New Industrial and Commercial Build	0	0	0	0	1.00
50	New Utility Structures	0	0	0	0	1.00
51	New Highways and Streets	2,255,494,912	0	0	2,255,494,912	1.00
52	New Farm Structures	0	0	0	0	1.00
53	New Mineral Extraction Facilities	0	0	0	0	1.00
54	New Government Facilities	0	0	0	0	1.00
55	Maintenance and Repair- Residential	0	961,961	12,049,542	13,011,503	1.00
56	Maintenance and Repair Other Faciliti	0	7,719,565	16,516,745	24,236,310	1.00
57	Maintenance and Repair Oil and Gas	0	1,067,017	892,115	1,959,133	1.00
58	Meat Packing Plants	0	13,408	2,186,101	2,199,510	1.00
59	Sausages and Other Prepared Meats	0	24,437	3,531,668	3,556,106	1.00
60	Poultry Processing	0	14,709	1,531,124	1,545,833	1.00

61	Creamery Butter	0	0	0	0	1.00
62	Cheese- Natural and Processed	0	127	8,575	8,702	1.00
63	Condensed and Evaporated Milk	0	357	29,669	30,026	1.00
64	Ice Cream and Frozen Desserts	0	5,682	278,235	283,916	1.00
65	Fluid Milk	0	3,952	1,081,784	1,085,736	1.00
66	Canned Specialties	0	61	13,866	13,926	1.00
67	Canned Fruits and Vegetables	0	496	61,234	61,730	1.00
68	Dehydrated Food Products	0	0	0	0	1.00
69	Pickles- Sauces- and Salad Dressings	0	123	12,134	12,257	1.00
70	Frozen Fruits- Juices and Vegetables	0	1,408	37,825	39,233	1.00
71	Frozen Specialties	0	1,491	177,919	179,410	1.00
72	Flour and Other Grain Mill Products	0	348	32,286	32,634	1.00
73	Cereal Preparations	0	0	0	0	1.00
74	Rice Milling	0	113	42,738	42,852	1.00
75	Blended and Prepared Flour	0	146	42,419	42,565	1.00
76	Wet Corn Milling	0	0	0	0	1.00
77	Dog- Cat- and Other Pet Food	0	1	4,991	4,993	1.00
78	Prepared Feeds- N.E.C	0	565	10,196	10,760	1.00
79	Bread- Cake- and Related Products	0	44,537	2,169,248	2,213,785	1.00
80	Cookies and Crackers	0	4,038	909,516	913,555	1.00
81	Sugar	0	1,516	165,584	167,100	1.00
82	Confectionery Products	0	703	129,622	130,325	1.00
83	Chocolate and Cocoa Products	0	0	0	0	1.00
84	Chewing Gum	0	0	0	0	1.00
85	Salted and Roasted Nuts & Seeds	0	42	7,553	7,595	1.00
86	Cottonseed Oil Mills	0	806	10,008	10,813	1.00
87	Soybean Oil Mills	0	0	0	0	1.00
88	Vegetable Oil Mills- N.E.C	0	0	0	0	1.00
89	Animal and Marine Fats and Oils	0	39,431	25,413	64,844	1.00
90	Shortening and Cooking Oils	0	582	30,966	31,548	1.00
91	Malt Beverages	0	4,687	302,436	307,123	1.00
92	Malt	0	0	0	0	1.00
93	Wines- Brandy- and Brandy Spirits	0	0	0	0	1.00
94	Distilled Liquor- Except Brandy	0	0	0	0	1.00
95	Bottled and Canned Soft Drinks & Wa	0	6,865	632,930	639,795	1.00
96	Flavoring Extracts and Syrups- N.E.C	0	46	6,720	6,766	1.00
97	Canned and Cured Sea Foods	0	0	0	0	1.00
98	Prepared Fresh Or Frozen Fish Or Se	0	165	4,278	4,443	1.00
99	Roasted Coffee	0	19,295	956,260	975,555	1.00
100	Potato Chips & Similar Snacks	0	3,994	785,687	789,681	1.00
101	Manufactured Ice	0	0	51,446	51,447	1.00
102	Macaroni and Spaghetti	0	155	99,469	99,624	1.00
103	Food Preparations- N.E.C	0	2,388	1,712,040	1,714,429	1.00
104	Cigarettes	0	0	0	0	1.00
105	Cigars	0	0	0	0	1.00
106	Chewing and Smoking Tobacco	0	0	0	0	1.00
107	Tobacco Stemming and Redrying	0	0	0	0	1.00
108	Broadwoven Fabric Mills and Finishin	0	1,659	18,732	20,392	1.00
109	Narrow Fabric Mills	0	231	4,422	4,652	1.00
110	Womens Hosiery- Except Socks	0	0	0	0	1.00
111	Hosiery- N.E.C	0	0	0	0	1.00
112	Knit Outerwear Mills	0	0	0	0	1.00
113	Knit Underwear Mills	0	0	0	0	1.00
114	Knit Fabric Mills	0	0	0	0	1.00
115	Knitting Mills- N.E.C.	0	0	0	0	1.00
116	Yarn Mills and Finishing Of Textiles-	0	127	995	1,122	1.00
117	Carpets and Rugs	0	0	0	0	1.00
118	Thread Mills	0	33	453	486	1.00
119	Coated Fabrics- Not Rubberized	0	111,250	1,140	112,390	1.00
120	Tire Cord and Fabric	0	0	0	0	1.00
121	Nonwoven Fabrics	0	225	161	386	1.00
122	Cordage and Twine	0	160	64	224	1.00
123	Textile Goods- N.E.C	0	477	778	1,255	1.00
124	Apparel Made From Purchased Materi	0	13,580	3,184,982	3,198,562	1.00
125	Curtains and Draperies	0	2,962	181,605	184,567	1.00
126	Housefurnishings- N.E.C	0	28,971	377,528	406,499	1.00

127	Textile Bags	0	7,297	11,310	18,607	1.00
128	Canvas Products	0	447,112	72,851	519,963	1.00
129	Pleating and Stitching	0	151	53,897	54,048	1.00
130	Automotive and Apparel Trimmings	0	9,046	349,731	358,777	1.00
131	Schiffi Machine Embroideries	0	0	0	0	1.00
132	Fabricated Textile Products- N.E.C.	0	8,196	139,662	147,858	1.00
133	Logging Camps and Logging Contracto	0	175,715	124,438	300,153	1.00
134	Sawmills and Planing Mills- General	0	304,060	324,974	629,034	1.00
135	Hardwood Dimension and Flooring Mi	0	2,118	11,307	13,425	1.00
136	Special Product Sawmills- N.E.C	0	52	224	276	1.00
137	Millwork	0	51,724	209,599	261,323	1.00
138	Wood Kitchen Cabinets	0	18,528	133,034	151,562	1.00
139	Veneer and Plywood	0	62,341	180,403	242,744	1.00
140	Structural Wood Members- N.E.C	0	20,702	116,265	136,966	1.00
141	Wood Containers	0	11,959	10,689	22,649	1.00
142	Wood Pallets and Skids	0	202,234	103,688	305,922	1.00
143	Mobile Homes	0	5	3	8	1.00
144	Prefabricated Wood Buildings	0	221	400	622	1.00
145	Wood Preserving	0	1,126,329	78,239	1,204,567	1.00
146	Reconstituted Wood Products	0	9,459	52,340	61,800	1.00
147	Wood Products- N.E.C	0	96,996	224,935	321,931	1.00
148	Wood Household Furniture	0	2,893	253,621	256,515	1.00
149	Upholstered Household Furniture	0	34	282,428	282,462	1.00
150	Metal Household Furniture	0	1,731	142,090	143,821	1.00
151	Mattresses and Bedsprings	0	1,059	445,923	446,982	1.00
152	Wood Tv and Radio Cabinets	0	576	14,336	14,911	1.00
153	Household Furniture- N.E.C	0	2,111	26,571	28,681	1.00
154	Wood Office Furniture	0	135	16,099	16,234	1.00
155	Metal Office Furniture	0	527	1,647	2,174	1.00
156	Public Building Furniture	0	12,721	10,822	23,543	1.00
157	Wood Partitions and Fixtures	0	930	2,826	3,756	1.00
158	Metal Partitions and Fixtures	0	534	869	1,402	1.00
159	Blinds- Shades- and Drapery Hardwar	0	156	387,027	387,183	1.00
160	Furniture and Fixtures- N.E.C	0	1,104	2,356	3,459	1.00
161	Pulp Mills	0	0	0	0	1.00
162	Paper Mills- Except Building Paper	0	3,700	5,611	9,311	1.00
163	Paperboard Mills	0	628	952	1,580	1.00
164	Paperboard Containers and Boxes	0	974,065	670,482	1,644,547	1.00
165	Paper Coated & Laminated Packaging	0	922	450	1,372	1.00
166	Paper Coated & Laminated N.E.C.	0	4,317	2,108	6,425	1.00
167	Bags- Plastic	0	11,488	12,554	24,042	1.00
168	Bags- Paper	0	612	668	1,280	1.00
169	Die-cut Paper and Board	0	284	244	528	1.00
170	Sanitary Paper Products	0	3,881	14,383	18,264	1.00
171	Envelopes	0	138	95	233	1.00
172	Stationery Products	0	5,517	4,446	9,964	1.00
173	Converted Paper Products- N.E.C	0	4,286	11,329	15,616	1.00
174	Newspapers	0	1,247,480	1,606,432	2,853,912	1.00
175	Periodicals	0	310,866	627,127	937,993	1.00
176	Book Publishing	0	7,848	468,053	475,901	1.00
177	Book Printing	0	7,766	21,339	29,105	1.00
178	Miscellaneous Publishing	0	305,542	441,325	746,867	1.00
179	Commercial Printing	0	2,077,546	2,037,812	4,115,358	1.00
180	Manifold Business Forms	0	160,459	113,703	274,162	1.00
181	Greeting Card Publishing	0	0	0	0	1.00
182	Blankbooks and Looseleaf Binder	0	74,891	63,925	138,816	1.00
183	Bookbinding & Related	0	3,997	23,690	27,687	1.00
184	Typesetting	0	14,443	5,863	20,306	1.00
185	Plate Making	0	15,167	16,665	31,832	1.00
186	Alkalies & Chlorine	0	66,731	85,449	152,181	1.00
187	Industrial Gases	0	93,120	119,240	212,361	1.00
188	Inorganic Pigments	0	21,832	27,956	49,787	1.00
189	Inorganic Chemicals Nec.	0	158,195	202,569	360,765	1.00
190	Cyclic Crudes- Interm. & Indus. Orga	0	3,133,669	4,012,668	7,146,337	1.00
191	Plastics Materials and Resins	0	641,077	262,218	903,295	1.00
192	Synthetic Rubber	0	172,138	39,477	211,614	1.00

193	Cellulosic Man-made Fibers	0	0	0	0	1.00
194	Organic Fibers- Noncellulosic	0	0	0	0	1.00
195	Drugs	0	3,544	1,717,834	1,721,378	1.00
196	Soap and Other Detergents	0	8,808	119,977	128,785	1.00
197	Polishes and Sanitation Goods	0	162,273	590,620	752,894	1.00
198	Surface Active Agents	0	170,854	31,649	202,503	1.00
199	Toilet Preparations	0	2,593	756,602	759,195	1.00
200	Paints and Allied Products	0	430,249	18,002	448,250	1.00
201	Gum and Wood Chemicals	0	8,586	30,015	38,601	1.00
202	Nitrogenous and Phosphatic Fertilizer	0	23,611	20,234	43,844	1.00
203	Fertilizers- Mixing Only	0	7,078	9,119	16,197	1.00
204	Agricultural Chemicals- N.E.C	0	60,711	235,093	295,804	1.00
205	Adhesives and Sealants	0	2,351,373	154,224	2,505,597	1.00
206	Explosives	0	0	0	0	1.00
207	Printing Ink	0	77,571	84,820	162,391	1.00
208	Carbon Black	0	3,032	2,188	5,220	1.00
209	Chemical Preparations- N.E.C	0	2,928,997	695,451	3,624,447	1.00
210	Petroleum Refining	0	26,351,926	19,486,800	45,838,728	1.00
211	Paving Mixtures and Blocks	0	44,313,900	103,043	44,416,944	1.00
212	Asphalt Felts and Coatings	0	27,419,128	90,426	27,509,554	1.00
213	Lubricating Oils and Greases	0	574,636	249,127	823,762	1.00
214	Petroleum and Coal Products- N.E.C.	0	0	0	0	1.00
215	Tires and Inner Tubes	0	27	15	42	1.00
216	Rubber and Plastics Footwear	0	0	0	0	1.00
217	Rubber and Plastics Hose and Belting	0	1,697	519	2,216	1.00
218	Gaskets- Packing and Sealing Device	0	19,393	13,130	32,523	1.00
219	Fabricated Rubber Products- N.E.C.	0	19,393	4,409	23,801	1.00
220	Miscellaneous Plastics Products	0	109,732	55,520	165,252	1.00
221	Leather Tanning and Finishing	0	366	4,399	4,765	1.00
222	Footwear Cut Stock	0	5	573	578	1.00
223	House Slippers	0	3	40,785	40,787	1.00
224	Shoes- Except Rubber	0	12	46,773	46,785	1.00
225	Leather Gloves and Mittens	0	8,244	31,821	40,065	1.00
226	Luggage	0	621	6,937	7,558	1.00
227	Womens Handbags and Purses	0	0	0	0	1.00
228	Personal Leather Goods	0	89	8,121	8,209	1.00
229	Leather Goods- N.E.C	0	765	30,943	31,708	1.00
230	Glass and Glass Products- Exc Contai	0	536,732	147,673	684,405	1.00
231	Glass Containers	0	1,607	8,024	9,631	1.00
232	Cement- Hydraulic	0	2,061	19	2,080	1.00
233	Brick and Structural Clay Tile	0	0	0	0	1.00
234	Ceramic Wall and Floor Tile	0	3	19	22	1.00
235	Clay Refractories	0	66	13	78	1.00
236	Structural Clay Products- N.E.C	0	0	0	0	1.00
237	Vitreous Plumbing Fixtures	0	0	0	0	1.00
238	Vitreous China Food Utensils	0	0	0	0	1.00
239	Fine Earthenware Food Utensils	0	0	9	9	1.00
240	Porcelain Electrical Supplies	0	694	231	925	1.00
241	Pottery Products- N.E.C	0	1,201	3,978	5,179	1.00
242	Concrete Block and Brick	0	147,776	447	148,223	1.00
243	Concrete Products- N.E.C	0	547,268	1,118	548,386	1.00
244	Ready-mixed Concrete	0	1,209,218	3,509	1,212,727	1.00
245	Lime	0	0	0	0	1.00
246	Gypsum Products	0	12,567	431	12,998	1.00
247	Cut Stone and Stone Products	0	18,837	108	18,944	1.00
248	Abrasive Products	0	9,017	3,037	12,054	1.00
249	Asbestos Products	0	0	0	0	1.00
250	Minerals- Ground Or Treated	0	6,208	493	6,701	1.00
251	Mineral Wool	0	1,642	698	2,340	1.00
252	Nonclay Refractories	0	294	88	383	1.00
253	Nonmetallic Mineral Products- N.E.C	0	1,065	1,500	2,565	1.00
254	Blast Furnaces and Steel Mills	0	33,460	2,280	35,740	1.00
255	Electrometallurgical Products	0	110	50	160	1.00
256	Steel Wire and Related Products	0	1,038,153	50,111	1,088,264	1.00
257	Cold Finishing Of Steel Shapes	0	6,241	420	6,662	1.00
258	Steel Pipe and Tubes	0	166,192	11,544	177,737	1.00

259	Iron and Steel Foundries	0	5,124	675	5,800	1.00
260	Primary Copper	0	0	0	0	1.00
261	Primary Aluminum	0	0	0	0	1.00
262	Primary Nonferrous Metals- N.E.C.	0	148	83	231	1.00
263	Secondary Nonferrous Metals	0	1,985	493	2,478	1.00
264	Copper Rolling and Drawing	0	0	0	0	1.00
265	Aluminum Rolling and Drawing	0	6,542	3,593	10,135	1.00
266	Nonferrous Rolling and Drawing- N.E	0	793	153	945	1.00
267	Nonferrous Wire Drawing and Insulati	0	193,309	9,263	202,572	1.00
268	Aluminum Foundries	0	2,090	795	2,885	1.00
269	Brass- Bronze- and Copper Foundries	0	557	198	755	1.00
270	Nonferrous Castings- N.E.C.	0	549	206	755	1.00
271	Metal Heat Treating	0	10,983	3,939	14,922	1.00
272	Primary Metal Products- N.E.C	0	611	94	705	1.00
273	Metal Cans	0	32,934	53,437	86,372	1.00
274	Metal Barrels- Drums and Pails	0	41,986	20,885	62,871	1.00
275	Cutlery	0	1,862	37,949	39,811	1.00
276	Hand and Edge Tools- N.E.C.	0	12,379	16,829	29,208	1.00
277	Hand Saws and Saw Blades	0	1,111	4,385	5,496	1.00
278	Hardware- N.E.C.	0	16,366	15,848	32,213	1.00
279	Metal Sanitary Ware	0	49	250	299	1.00
280	Plumbing Fixture Fittings and Trim	0	312	686	998	1.00
281	Heating Equipment- Except Electric	0	190	231	420	1.00
282	Fabricated Structural Metal	0	2,539,831	9,167	2,548,998	1.00
283	Metal Doors- Sash- and Trim	0	70,909	13,035	83,945	1.00
284	Fabricated Plate Work (Boiler Shops)	0	71,937	9,321	81,257	1.00
285	Sheet Metal Work	0	680,198	14,345	694,543	1.00
286	Architectural Metal Work	0	486,336	5,834	492,169	1.00
287	Prefabricated Metal Buildings	0	470,267	9,165	479,431	1.00
288	Miscellaneous Metal Work	0	304,075	5,227	309,302	1.00
289	Screw Machine Products and Bolts- Et	0	165,090	36,216	201,306	1.00
290	Iron and Steel Forgings	0	26,918	10,212	37,130	1.00
291	Nonferrous Forgings	0	0	0	0	1.00
292	Automotive Stampings	0	0	0	0	1.00
293	Crowns and Closures	0	0	0	0	1.00
294	Metal Stampings- N.E.C.	0	27,709	57,121	84,830	1.00
295	Plating and Polishing	0	17,608	7,027	24,635	1.00
296	Metal Coating and Allied Services	0	55,175	13,742	68,917	1.00
297	Small Arms Ammunition	0	0	0	0	1.00
298	Ammunition- Except For Small Arms-	0	2,319	2,009	4,328	1.00
299	Small Arms	0	89	243	332	1.00
300	Other Ordnance and Accessories	0	4	2	6	1.00
301	Industrial and Fluid Valves	0	1,827,267	62,844	1,890,111	1.00
302	Steel Springs- Except Wire	0	1,081	369	1,450	1.00
303	Pipe- Valves- and Pipe Fittings	0	1,354,592	46,588	1,401,180	1.00
304	Miscellaneous Fabricated Wire Produ	0	1,217,747	60,008	1,277,755	1.00
305	Metal Foil and Leaf	0	7,205	29,255	36,460	1.00
306	Fabricated Metal Products- N.E.C.	0	20,039	16,776	36,815	1.00
307	Steam Engines and Turbines	0	28,199	51,490	79,689	1.00
308	Internal Combustion Engines- N.E.C.	0	417,088	213,092	630,180	1.00
309	Farm Machinery and Equipment	0	29,562	27,494	57,056	1.00
310	Lawn and Garden Equipment	0	0	0	0	1.00
311	Construction Machinery and Equipme	0	235,542	10,378	245,919	1.00
312	Mining Machinery- Except Oil Field	0	103	27	129	1.00
313	Oil Field Machinery	0	448,793	107,368	556,161	1.00
314	Elevators and Moving Stairways	0	1,061	752	1,813	1.00
315	Conveyors and Conveying Equipment	0	4,324	1,248	5,572	1.00
316	Hoists- Cranes- and Monorails	0	23,336	9,570	32,906	1.00
317	Industrial Trucks and Tractors	0	77,764	17,893	95,657	1.00
318	Machine Tools- Metal Cutting Types	0	3,033	4,761	7,794	1.00
319	Machine Tools- Metal Forming Types	0	3,958	396	4,354	1.00
320	Industrial Patterns	0	95	40	135	1.00
321	Special Dies and Tools and Accessori	0	72,046	31,245	103,292	1.00
322	Power Driven Hand Tools	0	359,274	144,331	503,605	1.00
323	Rolling Mill Machinery	0	103	22	125	1.00
324	Welding Apparatus	0	231,406	5,981	237,387	1.00

325	Metalworking Machinery- N.E.C.	0	225	74	299	1.00
326	Textile Machinery	0	4,079	697	4,776	1.00
327	Woodworking Machinery	0	643	28,363	29,006	1.00
328	Paper Industries Machinery	0	0	0	0	1.00
329	Printing Trades Machinery	0	7,528	2,449	9,977	1.00
330	Food Products Machinery	0	15,511	11,096	26,608	1.00
331	Special Industry Machinery N.E.C.	0	67,117	24,125	91,242	1.00
332	Pumps and Compressors	0	30,447	11,162	41,610	1.00
333	Ball and Roller Bearings	0	184	80	264	1.00
334	Blowers and Fans	0	2,633	1,106	3,739	1.00
335	Packaging Machinery	0	40,133	14,715	54,848	1.00
336	Power Transmission Equipment	0	1,106	714	1,820	1.00
337	Industrial Furnaces and Ovens	0	951	521	1,472	1.00
338	General Industrial Machinery- N.E.C	0	7,200	3,971	11,171	1.00
339	Electronic Computers	0	1,451,847	2,066,574	3,518,421	1.00
340	Computer Storage Devices	0	20,898	31,153	52,052	1.00
341	Computer Terminals	0	16	23	39	1.00
342	Computer Peripheral Equipment-	0	21,389	31,884	53,273	1.00
343	Calculating and Accounting Machines	0	0	0	0	1.00
344	Typewriters and Office Machines N.E	0	0	0	0	1.00
345	Automatic Merchandising Machine	0	1,070	5,500	6,570	1.00
346	Commercial Laundry Equipment	0	0	0	0	1.00
347	Refrigeration and Heating Equipment	0	865,019	684,340	1,549,359	1.00
348	Measuring and Dispensing Pumps	0	1,591	236	1,827	1.00
349	Service Industry Machines- N.E.C.	0	6,564	52,433	58,997	1.00
350	Carburetors- Pistons- Rings- Valves	0	61,198	8,964	70,162	1.00
351	Fluid Power Cylinders & Actuators	0	9,327	815	10,143	1.00
352	Fluid Power Pumps & Motors	0	2,889	253	3,142	1.00
353	Scales and Balances	0	2,295	12,500	14,796	1.00
354	Industrial Machines N.E.C.	0	22,336	8,084	30,421	1.00
355	Transformers	0	1,571	543	2,114	1.00
356	Switchgear and Switchboard Apparatu	0	628,556	40,240	668,796	1.00
357	Motors and Generators	0	95,434	58,550	153,984	1.00
358	Carbon and Graphite Products	0	232	118	350	1.00
359	Relays & Industrial Controls	0	78,676	25,481	104,157	1.00
360	Electrical Industrial Apparatus- N.E.C	0	8,323	5,718	14,041	1.00
361	Household Cooking Equipment	0	134	514	648	1.00
362	Household Refrigerators and Freezers	0	0	0	0	1.00
363	Household Laundry Equipment	0	0	0	0	1.00
364	Electric Housewares and Fans	0	547	561	1,108	1.00
365	Household Vacuum Cleaners	0	0	0	0	1.00
366	Household Appliances- N.E.C.	0	0	0	0	1.00
367	Electric Lamps	0	112	60	172	1.00
368	Wiring Devices	0	11,168	4,946	16,114	1.00
369	Lighting Fixtures and Equipment	0	22,683	2,204	24,887	1.00
370	Radio and TV Receiving Sets	0	17,371	103,807	121,178	1.00
371	Phonograph Records and Tape	0	2,107	10,633	12,740	1.00
372	Telephone and Telegraph Apparatus	0	90,580	84,537	175,117	1.00
373	Radio and Tv Communication Equipm	0	1,590,347	30,578	1,620,925	1.00
374	Communications Equipment N.E.C.	0	499,873	9,611	509,484	1.00
375	Electron Tubes	0	0	0	0	1.00
376	Printed Circuit Boards	0	59,616	41,410	101,026	1.00
377	Semiconductors and Related Devices	0	1,161,854	620,095	1,781,949	1.00
378	Electronic Components- N.E.C.	0	468,673	325,542	794,215	1.00
379	Storage Batteries	0	21,263	12,633	33,896	1.00
380	Primary Batteries- Dry and Wet	0	358	5,559	5,917	1.00
381	Engine Electrical Equipment	0	1,238,784	145,653	1,384,437	1.00
382	Magnetic & Optical Recording Media	0	3,795	2,494	6,289	1.00
383	Electrical Equipment- N.E.C.	0	36,181	53,283	89,463	1.00
384	Motor Vehicles	0	8,252	549,322	557,575	1.00
385	Truck and Bus Bodies	0	6,472	243,850	250,322	1.00
386	Motor Vehicle Parts and Accessories	0	1,122,382	501,723	1,624,105	1.00
387	Truck Trailers	0	11,378	42,943	54,322	1.00
388	Motor Homes	0	60	4,237	4,297	1.00
389	Aircraft	0	55,427	126,935	182,362	1.00
390	Aircraft and Missile Engines and Part	0	2,860	4,331	7,191	1.00

391	Aircraft and Missile Equipment-	0	1,941	568	2,509	1.00
392	Ship Building and Repairing	0	8,732	609	9,342	1.00
393	Boat Building and Repairing	0	2,716	7,134	9,850	1.00
394	Railroad Equipment	0	4,389	2,634	7,023	1.00
395	Motorcycles- Bicycles- and Parts	0	3,767	2,133	5,900	1.00
396	Complete Guided Missiles	0	118,161	9,452	127,612	1.00
397	Travel Trailers and Camper	0	0	0	0	1.00
398	Tanks and Tank Components	0	0	0	0	1.00
399	Transportation Equipment- N.E.C	0	33,932	4,649	38,581	1.00
400	Search & Navigation Equipment	0	18,097	1,047	19,143	1.00
401	Laboratory Apparatus & Furniture	0	345	530	875	1.00
402	Automatic Temperature Controls	0	34,527	2,779	37,306	1.00
403	Mechanical Measuring Devices	0	209,251	65,637	274,887	1.00
404	Instruments To Measure Electricity	0	9,142	937	10,079	1.00
405	Analytical Instruments	0	6,085	32,932	39,017	1.00
406	Optical Instruments & Lenses	0	7	36	42	1.00
407	Surgical and Medical Instrument	0	1,069	196,998	198,067	1.00
408	Surgical Appliances and Supplies	0	5,493	530,775	536,267	1.00
409	Dental Equipment and Supplies	0	376	23,481	23,857	1.00
410	X-Ray Apparatus	0	1,310	7,175	8,484	1.00
411	Electromedical Apparatus	0	421	18,854	19,275	1.00
412	Ophthalmic Goods	0	6,252	51,397	57,649	1.00
413	Photographic Equipment and Supplies	0	14,387	184,493	198,880	1.00
414	Watches- Clocks- and Parts	0	37	1,994	2,031	1.00
415	Jewelry- Precious Metal	0	2,020	50,443	52,463	1.00
416	Silverware and Plated Ware	0	28	361	389	1.00
417	Jewelers Materials and Lapidary Wor	0	0	0	0	1.00
418	Musical Instruments	0	1,697	2,459	4,156	1.00
419	Dolls	0	2	470	472	1.00
420	Games- Toys- and Childrens Vehicles	0	19	497	516	1.00
421	Sporting and Athletic Goods- N.E.C.	0	384	30,953	31,337	1.00
422	Pens and Mechanical Pencils	0	247	405	652	1.00
423	Lead Pencils and Art Goods	0	607	1,182	1,789	1.00
424	Marking Devices	0	11,667	2,708	14,374	1.00
425	Carbon Paper and Inked Ribbons	0	0	0	0	1.00
426	Costume Jewelery	0	73	10,912	10,985	1.00
427	Fasteners- Buttons- Needles- Pins	0	9	454	463	1.00
428	Brooms and Brushes	0	22,592	6,440	29,032	1.00
429	Signs and Advertising Displays	0	981,063	288,851	1,269,914	1.00
430	Burial Caskets and Vaults	0	17	4,905	4,922	1.00
431	Hard Surface Floor Coverings	0	1,675	5,906	7,581	1.00
432	Manufacturing Industries- N.E.C.	0	28,214	64,172	92,386	1.00
433	Railroads and Related Services	0	4,602,852	1,224,984	5,827,835	1.00
434	Local- Interurban Passenger Transit	0	485,036	2,205,528	2,690,564	1.00
435	Motor Freight Transport and Warehou	0	101,022,088	10,963,022	111,985,112	1.00
436	Water Transportation	0	14,521,480	2,347,556	16,869,036	1.00
437	Air Transportation	0	2,771,279	5,005,716	7,776,995	1.00
438	Pipe Lines- Except Natural Gas	0	1,119,909	751,214	1,871,123	1.00
439	Arrangement Of Passenger Transporta	0	652,037	955,324	1,607,361	1.00
440	Transportation Services	0	7,451,213	1,338,232	8,789,445	1.00
441	Communications- Except Radio and	0	21,524,742	19,469,802	40,994,544	1.00
442	Radio and TV Broadcasting	0	2,676,786	2,771,572	5,448,358	1.00
443	Electric Services	0	6,045,343	23,211,208	29,256,550	1.00
444	Gas Production and Distribution	0	3,539,684	8,646,820	12,186,504	1.00
445	Water Supply and Sewerage Systems	0	368,851	1,872,137	2,240,988	1.00
446	Sanitary Services and Steam Supply	0	6,381,043	2,606,220	8,987,263	1.00
447	Wholesale Trade	0	84,225,792	50,520,848	134,746,640	1.00
448	Building Materials & Gardening	0	2,376,418	6,540,370	8,916,788	1.00
449	General Merchandise Stores	0	1,254,893	13,927,059	15,181,952	1.00
450	Food Stores	0	1,626,774	18,179,162	19,805,936	1.00
451	Automotive Dealers & Service Statio	0	10,372,897	24,329,332	34,702,228	1.00
452	Apparel & Accessory Stores	0	1,160,022	8,316,569	9,476,591	1.00
453	Furniture & Home Furnishings Stores	0	1,313,473	7,011,535	8,325,008	1.00
454	Eating & Drinking	0	2,732,474	37,886,392	40,618,864	1.00
455	Miscellaneous Retail	0	5,708,574	26,206,588	31,915,162	1.00
456	Banking	0	27,814,854	35,317,420	63,132,272	1.00

457	Credit Agencies	0	12,333,428	9,347,420	21,680,848	1.00
458	Security and Commodity Brokers	0	6,688,235	9,422,762	16,110,997	1.00
459	Insurance Carriers	0	12,682,373	22,516,234	35,198,608	1.00
460	Insurance Agents and Brokers	0	2,632,097	4,673,014	7,305,110	1.00
461	Owner-occupied Dwellings	0	0	78,982,480	78,982,480	1.00
462	Real Estate	0	13,283,435	41,581,400	54,864,836	1.00
463	Hotels and Lodging Places	0	4,887,573	8,528,831	13,416,404	1.00
464	Laundry- Cleaning and Shoe Repair	0	901,229	3,168,457	4,069,686	1.00
465	Portrait and Photographic Studios	0	36,843	870,735	907,577	1.00
466	Beauty and Barber Shops	0	0	3,546,449	3,546,449	1.00
467	Funeral Service and Crematories	0	0	1,175,293	1,175,293	1.00
468	Miscellaneous Personal Services	0	170,790	4,036,436	4,207,226	1.00
469	Advertising	0	1,424,278	1,342,895	2,767,173	1.00
470	Other Business Services	0	29,270,266	8,716,385	37,986,652	1.00
471	Photofinishing- Commercial Photogra	0	1,147,805	2,297,202	3,445,007	1.00
472	Services To Buildings	0	2,008,881	2,932,726	4,941,606	1.00
473	Equipment Rental and Leasing	0	1,513,159	1,743,131	3,256,290	1.00
474	Personnel Supply Services	0	20,463,476	5,067,377	25,530,852	1.00
475	Computer and Data Processing Servic	0	21,875,504	15,791,047	37,666,552	1.00
476	Detective and Protective Services	0	3,762,105	1,419,896	5,182,002	1.00
477	Automobile Rental and Leasing	0	5,635,378	2,020,989	7,656,366	1.00
478	Automobile Parking and Car Wash	0	214,598	1,704,361	1,918,959	1.00
479	Automobile Repair and Services	0	21,380,010	9,512,852	30,892,862	1.00
480	Electrical Repair Service	0	1,611,259	1,380,948	2,992,207	1.00
481	Watch- Clock- Jewelry and Furniture	0	61,656	506,457	568,113	1.00
482	Miscellaneous Repair Shops	0	17,841,852	1,431,050	19,272,902	1.00
483	Motion Pictures	0	953,360	3,227,974	4,181,334	1.00
484	Theatrical Producers- Bands Etc.	0	639,537	2,039,049	2,678,586	1.00
485	Bowling Alleys and Pool Halls	0	313	303,717	304,029	1.00
486	Commercial Sports Except Racing	0	516,968	1,686,370	2,203,338	1.00
487	Racing and Track Operation	0	676	555,135	555,812	1.00
488	Amusement and Recreation Services-	0	15	4,321,269	4,321,284	1.00
489	Membership Sports and Recreation Cl	0	326,605	2,307,398	2,634,003	1.00
490	Doctors and Dentists	0	0	37,577,936	37,577,936	1.00
491	Nursing and Protective Care	0	0	2,853,271	2,853,271	1.00
492	Hospitals	0	43,295	27,713,294	27,756,588	1.00
493	Other Medical and Health Services	0	11,960	11,491,469	11,503,429	1.00
494	Legal Services	0	7,164,592	15,211,915	22,376,508	1.00
495	Elementary and Secondary Schools	0	0	2,323,966	2,323,966	1.00
496	Colleges- Universities- Schools	0	122,184	5,667,239	5,789,423	1.00
497	Other Educational Services	0	51,135	3,258,359	3,309,494	1.00
498	Job Trainings & Related Services	0	21,486	663,491	684,978	1.00
499	Child Day Care Services	0	0	5,048,515	5,048,515	1.00
500	Social Services- N.E.C.	0	0	4,191,969	4,191,969	1.00
501	Residential Care	0	0	2,124,475	2,124,475	1.00
502	Other Nonprofit Organizations	0	50,963	1,536,809	1,587,772	1.00
503	Business Associations	0	637,450	1,609,719	2,247,169	1.00
504	Labor and Civic Organizations	0	8,941	2,496,426	2,505,367	1.00
505	Religious Organizations	0	0	1,490,938	1,490,938	1.00
506	Engineering- Architectural Services	0	124,332,752	2,499,891	126,832,640	1.00
507	Accounting- Auditing and Bookkeepin	0	20,273,142	5,909,457	26,182,598	1.00
508	Management and Consulting Services	0	44,108,736	7,401,895	51,510,632	1.00
509	Research- Development & Testing Ser	0	5,351,981	4,148,938	9,500,918	1.00
510	Local Government Passenger Transit	0	157,319	820,083	977,401	1.00
511	State and Local Electric Utilities	0	5,598	21,677	27,275	1.00
512	Other State and Local Govt Enterprise	0	1,841,821	7,672,376	9,514,197	1.00
513	U.S. Postal Service	0	5,295,563	4,001,967	9,297,530	1.00
514	Federal Electric Utilities	0	0	0	0	1.00
515	Other Federal Government Enterprise	0	83,430	181,149	264,579	1.00
516	Noncomparable Imports	0	0	0	0	1.00
517	Scrap	0	0	0	0	1.00
518	Used and Secondhand Goods	0	0	0	0	1.00
519	Federal Government - Military	0	0	8,584,535	8,584,535	1.00
520	Federal Government - Non-Military	0	0	19,471,904	19,471,904	1.00
521	Commodity Credit Corporation	0	0	0	0	1.00
522	State & Local Government - Educatio	0	0	24,922,328	24,922,328	1.00

523	State & Local Government - Non-Educ	0	0	18,078,864	18,078,864	1.00
524	Rest Of The World Industry	0	0	0	0	1.00
525	Domestic Services	0	0	2,208,011	2,208,011	1.00
526	Dummy	0	0	0	0	1.00
527	Dummy	0	0	0	0	1.00
528	Inventory Valuation Adjustment	0	0	0	0	1.00
25001	Foreign Trade	0	0	0	0	1.00
28001	Domestic Trade	167,937,648	0	0	167,937,648	1.00
	Total	2,423,432,560	886,455,261	918,961,858	4,228,849,682	

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