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JOBS AND TAXES: THE EFFECT OF THE BUSINESS CLIMATE
ON MINNESOTA EMPLOYMENT

A DISCUSSION PAPER

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EXECUTIVE SUMMARY

One of the criteria by which Minnesota's tax system is
to be judged is whether the system has a positive or negative
effect on employment growth in comparison with other states.
Given that the strength of any state's economy is heavily depend-
ent upon the strength of the United States economy, the Minnesota
employment growth rate will vary from the U.S. average state
rate only if there are factors that not only differentiate
Minnesota from the other states but also are significant deter-
minants of employment growth. The purpose of this report is
to systematically determine which factors, taxes included,
are important in explaining a state's growth rate relative
to the U.S. average for all states..

The Method

To determine the factors important in explaining Minnesota's
employment growth relative to the U.S. average, the employment
growth rates of all forty-eight contiguous states are statisti-
cally related to a set of factors representing labor and energy
costs, market potential, amenities and the fiscal climate.
These factors are likely to affect all aspects of employment
growth, such as business formations and closings, on-site expan-
sions and contractions, relocations, and locations of branch

plants. The statistical technique is superior to anecdotal evidence as it can determine the effect of fiscal variables on overall employment, rather than just one business location decision. It is also superior to studies that simply compare the growth rates of states to some measure of the tax burden since it takes all other factors into account when determining the impact of each. Unlike this analysis, a survey may be able to determine which factor was decisive in some specific location decisions but such evidence does not address the relevant question. The object here is to determine which factors are individually or jointly important in determining overall employment growth rates.

The set of factors to be considered is a choice for the researcher and may not be the most relevant or complete set. Economic theory gives some guidance and survey evidence provides further help in determining which factors are likely to be most important. Given the chosen set of factors, statistical analysis can determine which if any of these factors help explain the observed differences in the variable of interest, state employment growth rates.

Previous Evidence

Previous statistical studies have not produced consistent results. Most but not all studies find that interstate differences in firm locations or in employment growth rates are affected by wages, the cost of energy and agglomeration economies.

Fiscal variables such as the overall tax burden have been found to be significant in some studies but unimportant in others. These inconsistent findings are attributable in part to differences in the structures of the studies. Some studies examine total employment changes whereas others analyze business relocations or births. Most studies only examine the manufacturing sector or a particular group of firms such as the Fortune 500. The results may also differ because of the different time periods or the different sets of independent variables chosen for examination.

An Analysis of the Determinants of Minnesota's Employment Growth

The study reported here builds upon previous studies but extends the analysis to five other industry classifications in addition to manufacturing and total employment. This disaggregation is possibly more relevant today than for previous periods as the importance of manufacturing in the U.S. and in most states has declined relative to trade and services, and finance and services represent two of the faster growing sectors.

This analysis has two additional strengths. First, it uses the most recent data available and, second, it tests a rich set of factors. In particular, many fiscal variables are employed in an attempt to capture several potentially important aspects of the fiscal climate such as announcement effects, overall burden, progressivity, expenditures, tax mix and trends.

Despite the efforts to correct for the inadequacies of previous studies, this analysis is open to at least two criticisms or caveats that plague all studies of the effect of the business climate on employment.

1. Although we may determine which factors included in our study are significant determinants of employment growth there may be other factors, omitted from the analysis, that are also important.

2. Although we may determine which factors were important during the time period of the analysis, an entirely different set of factors may be important today.

To determine which factors explain Minnesota's employment growth rate relative to the U.S. average state, employment growth rates for the forty-eight contiguous states from 1973 to 1980 are statistically related to a set of factors chosen to capture labor costs and availability, market potential, energy costs, agglomeration economies, weather, amenities, and the fiscal climate. During this time period the U.S. average state growth rate for total employment was 22.1% and Minnesota's rate was 35.0%. For specific industries (broadly defined) the rates were:

	U.S.	Minnesota
Manufacturing	7.0%	25.1%
Transportation	15.3	23.2
Wholesale Trade	23.5	34.5
Retail Trade	21.5	27.2
Finance	27.6	38.3
Services	45.3	56.2

The results indicate that the factors that were most important in explaining the observed differences across the states in total employment growth rates were wages (a negative factor), electricity costs (negative), expenditures on education as a share of total income (a positive factor), a warm climate (positive), manufacturing's share of the total employment base in 1973 (negative), per capita income (positive), and, to a lesser extent, the change in total tax effort over the period (negative). Minnesota, thus, outperformed the U.S. average because Minnesota's expenditures on education were higher, the decline in tax effort was greater, manufacturing's share was lower and per capita income was higher than the corresponding figures for the U.S. average. Minnesota's overall employment growth rate was inhibited by its comparatively high wage and electricity costs and its colder climate.

In addition to the variables that were important in explaining the growth rate in total employment, the effective individual income tax rate at $50,000 was an important and significant determinant for wholesale trade, retail trade, and finance. As Minnesota's effective individual income tax rate was 133% higher than the U.S. average, this factor inhibited growth in those three industries in Minnesota.

Another factor that was less important but still significant in explaining growth in the retail trade and finance industries was the population density of the state. This factor contributed

positively to the growth rates of these two industries in Minnesota because higher density states had lower growth and Minnesota's population density is one-third the density of the average U.S. state. This variable probably represents a regional effect as the high density states are all in the industrial northeast.

For the factors determined to be important, the most recent figures available do not provide a clear indication that Minnesota is more or less competitive today than in the 1970s. Given that, relative to the U.S. average, Minnesota's wages are still higher, the effective individual income tax is still much higher and the temperature is still much cooler, Minnesota's employment growth rate in the 1980s, especially in the wholesale trade, retail trade, and finance industries, may not be as high as it could be. On the other hand, the most recent figures for Minnesota for electricity costs, education expenditures, change in tax effort and per capita income, relative to the U.S. average are encouraging in their implications for the growth of employment in Minnesota in the 1980s.

There are at least four policy implications stemming from these results.

1. Two fiscal variables, the effective corporate income tax rate and the share of total state and local revenue attributable to the sales tax, were significant in determining

employment growth rates for total employment and wholesale trade, respectively. However, these variables were not significant for other categories and their importance was minimal in explaining growth rates in the two categories in which they were significant, so we can conclude that the corporate income tax burden and the share of total state and local revenue raised from the sales tax are not strong determinants (positive or negative) of employment growth rates.

2. Education expenditures as a percent of total income were highly significant and important in explaining growth rates in total employment, retail trade and finance, insurance and real estate. If the overall tax and expenditure burden is changed, expenditures on education should not be decreased. On the contrary, increased expenditures on education are likely to have a positive effect on employment in these three categories.

3. A decline in overall tax effort (burden) did have a positive, if small, effect on employment growth in total employment, manufacturing, retail trade and services. Thus the idea that the trend in taxes is important is supported by this study.

4. The effective individual income tax rate was a significant and strong negative determinant of employment growth in

wholesale trade, retail trade and finance. This may be a particularly relevant finding for finance as it is a high growth sector in both Minnesota and the U.S. and will become increasingly important in terms of its share of total employment.

Before any policy conclusions are drawn from these results, it is important to recognize that the effect of taxes on jobs and employment is only one of many criteria by which a tax system should be judged. For example, equity considerations may well override the implications of this study for reform of the individual income tax.

It is also important to recognize that the most important factors determining differential growth rates across states were not fiscal factors. Per capita income, wages, percent manufacturing and temperature were all strong determinants of employment growth. The implication for policy reform is that, no matter what policy makers do with respect to the significant fiscal variables, there will still be differences that are related to national trends and to facets of the states that are not in the control of policy makers.

To summarize, if the reported relationships hold, Minnesota's employment growth could improve relative to the U.S. average if the burden of the individual income tax were decreased by either changing the mix of taxes away from the

individual income tax or decreasing the overall level of taxes, while maintaining or increasing education expenditures.

JOBS AND TAXES: THE EFFECT OF THE BUSINESS CLIMATE ON MINNESOTA EMPLOYMENT[1]

I. INTRODUCTION

Two facts appear to be clear. First, Minnesota is a high tax state. Second, recent, long-term employment growth in Minnesota has generally been higher than employment growth in most of its neighboring states and higher than the U.S. average. These facts have been well documented by the work of this Commission. The purpose of the present study is to determine the relationship (if any) between these two facts, between taxes and changes in the level of employment in Minnesota.

Obviously, the Minnesota economy and thus its employment growth is tied closely to the national economy. No state can realistically have employment grow at a rate that differs widely from national trends. But there are differences in employment growth rates across the states. Even as some sectors of the national economy are growing and others declining, more of the growth and less of the decline is occurring in some states rather than in others. This study attempts to determine which factors explain these differences in state employment growth rates.

Many discussions of the business climate or tax climate center on various rankings of the states. For

example, the Alexander Grant report recently ranked Minnesota .43 out of 48 states on its measure of the "business climate". This low ranking resulted in large part because of the heavy emphasis placed on taxes in that study (see Appendix C for a further discussion of rankings). These rankings can help to document the first fact about Minnesota, that it is a high tax state. But they do not address the question of whether taxes affect employment as no attempt is made to bring the two facts together, to determine whether a poor tax climate ranking is, in fact, a matter for concern.

One approach to determining whether taxes affect employment growth is to ask those individuals responsible for changing employment, i.e., the business persons who decide to relocate, to form new branches, to start a new business, or to expand on site. Surveys of the individuals responsible for location decisions can provide a guide as to which factors may be important. But surveys must be carefully designed to elicit the actual determinants of location decisions as respondents may have an incentive to exaggerate the importance of those factors that they feel are amenable to policy changes. Results of a few well designed surveys are reported below.[2]

A second approach, which overcomes these problems, is to observe actual employment growth rates for Minnesota and the other states and then to statistically[3] relate

these growth rates to taxes and other factors in the states. These are the factors that compose "business climate" measures and that surveys, rankings, economic theory and common sense would lead one to believe are important in explaining changes in employment. The questions that are addressed include the following: have the bad business climate states been low employment growth states? Do taxes help explain the differences in growth rates or are tax differentials not large relative to other cost differentials and thus taxes are not significant determinants of employment growth? By comparing Minnesota to the other states on employment growth and many cost factors, not just taxes in isolation, we can ask, other things equal, do taxes matter?

In interpreting the results of the study it is important to understand that the analysis uses aggregate figures on employment. Our list of the significant and important factors for determining employment growth rates may not be relevant for an actual business location decision. It may, in fact, be the case that for a particular business location decision, a factor that we determine to be insignificant in explaining employment changes is the deciding factor. The study attempts to determine which factors explain differences in aggregate employment growth rates across states. The results cannot answer the question, were taxes the deciding factor in the out-migration of Business A from Minnesota? The study can

answer the question, are taxes important in determining employment growth in Minnesota and other states?

The next section first summarizes the results of previous studies relating taxes and other factors to either employment growth or to actual business location decisions. The statistical approach is described and a discussion of the proper interpretation of statistical results is included. The primary purpose of the section is to present a study of Minnesota relative to other states that uses the most recent figures available and attempts to address the specific concerns often expressed about the Minnesota business climate. The study asks which factors (the high personal and corporate income tax rates, the overall tax effort, the change in tax effort) appear to explain Minnesota's (and other states') employment growth.

A final section discussing the implications of the results for tax reform follows. The factors that are identified as being significant determinants may or may not be amenable to policy changes. If they are, then the question is what should Minnesota do about these factors (taxes and others) to improve its employment growth rate?

II. WHAT ARE THE DETERMINANTS OF EMPLOYMENT GROWTH?

The study reported here compares employment growth rates to taxes, labor costs, the weather, energy costs and other potential determinants of employment growth for the forty-eight contiguous states. Before reporting which factors were important in explaining Minnesota's growth rate relative to other states, the results of a few previous surveys and statistical studies are summarized.

Previous Studies[4]

Most studies of business location conclude that taxes have no effect or, at most, very little effect on business location decisions and thereby on employment. This finding remains the same whether the research results are derived from surveys of businesses or from statistical studies using data on actual business location decisions. Tables 1 and 2 summarize the results of a few previous surveys and statistical studies, respectively.

The survey results suggest that the most important factors for business location decisions that affect employment are proximity to markets and labor costs. There appears to be at best a weak link between employment shifts and taxes.

TABLE 1

Factors Considered Important to Respondents in Three Surveys*

	Labor Costs	Proximity to Markets	Availability of Skilled Labor	Taxes	Climate	Public Services	Potential for Market Growth
Manufacturing		H	L		L	L	H
New Firms	H	H	H	L			
Relocating	H	H		H			
Expanding	H	H		L			
Fortune 500 Branch Plants	H	H					

H – High on the list of important factors

L – Low on the list of important factors

* Mueller and Morgan (1962), Schmenner (1982), Greenhut and Colberg (1962)

Table 2 summarizes the results of previous statistical studies. Labor costs are almost always important determinants of firm location decisions or employment growth. While the more recent evidence suggests that taxes and the fiscal climate influence manufacturing employment growth, the evidence is weak in that some studies support the view that taxes matter, but others do not.

The different results from these studies can in part be explained by the differences in the time periods analyzed and by the different sets of factors employed to explain the observed differences in business locations. Also, some studies analyze a particular type of business location decision whereas others examine total employment growth. For example, taxes may be an important determinant of relocations or branch openings but not on-site expansions or firm births so that any attempt to explain total employment change, which is the combination of many different location decisions, may find that taxes are not a strong determinant.

The study presented below relates several factors to employment growth rates. The choice over the set of included factors and the design of the study have been influenced by the surveys and statistical work summarized above.

TABLE 2

The Relationship Found in Statistical Studies Between Employment or Firm Locations and Various Factors

The Variable To Be Explained — Potential Determinants

	Skilled Labor	Wages	Warmer Climate	Extent of Unionization	Population Density	Fiscal Variables								Agglomeration Economics	Cost of Energy	Unemployment Rate
						Overall Tax Effort	Income Redistribution Programs	Education Expenditures	Progressivity	Corporate Taxes	Personal Income Tax	Business Climate Ranking	Property Tax as share of Total Revenue			
A		−	+	−	−											
B	+	−												+	−	
C	+	−												+		+
D	+	−												+	−	+
E		+					−			−						
F						−			+			−	+			
G				−							−			+		

Key:

+ Significant and positive relationship

− Significant and negative relationship

A   Changes in manufacturing employment, 1929-1954, (Fuchs)

B   Births of fabricated plastics firms, 1967-1971, 1972-1975, (Carlton)

C   Births of communication transmitting equipment firms, 1967-1971, 1972-1975, (Carlton)

D   Births of electronic components firms, 1967-1971, 1972-1975, (Carlton)

E   Percentage increase in nonagricultural employment, 1964-1974, (Romans and Subrahmanyan)

F   Manufacturing growth, 1967-1972, 1972-1977, (Plaut and Pluta)

G   New branch plant locations of Fortune 500 firms, 1972-1978, (Bartik)

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But the statistical study reported here expands the scope of inquiry into business location decisions in three ways. First, it focuses on the most recent period for which data are available (1973 to 1980). Second, it analyzes employment growth in non-manufacturing industries as well as manufacturing industries; and for the headquarters share of employment in these industries.

In particular, employment change during the 1970s in six major industrial categories is analyzed using a statistical framework that relates employment growth to a set of factors hypothesized to be important. The industries studied include: manufacturing; transportation and public utilities; wholesale trade; retail trade; finance, insurance and real estate (referred to as finance in the report); and services. Employment growth in the total of these categories is also analyzed.

Because Minnesota attracts corporate headquarters, the employment growth in the category administrative and auxiliary, which approximates headquarters employment, is analyzed separately for four industries and the total.[5] The separate industries are: manufacturing, wholesale trade, retail trade, and services. (Data limitations preclude the examination of administrative employment in transportation and finance.) It should be noted, that employment in administrative and auxiliary is only

3.7 percent of total employment in the U.S. in 1980. But it represents 6.2 percent of the employment in manufacturing, 8.9 percent of the employment in wholesale trade, 4.3 percent of the employment in retail trade and only 1.0 percent of the employment in services. In Minnesota, administrative and auxiliary employment is more important than in the U.S. as a share of total employment and manufacturing employment, representing 5.4 percent of total employment and 12.3 percent of the employment in manufacturing (a reflection, possibly, of the particular type of headquarter firms in Minnesota). In Minnesota, administative and auxiliary employment represents only 5.6 percent of the employment in wholesale trade, 3.8 percent of the employment in retail trade and 1.6 percent of the employment in services, percentages which are less than their U.S. counterparts.

The third way in which this study expands upon others is that the potential set of factors to be tested as determinants of employment is a far more extensive set than has been examined before. In addition to standard measures of market accessibility, labor force characteristics, energy prices, amentities and climate, many fiscal variables are included to capture burden, trend, progressivity, expenditure, and announcement effects. Also, the explanatory variables include a mixture of the levels of and the percentage changes in the levels of certain factors.

As the study is an attempt to explain differences in employment growth rates between Minnesota and other states for the period 1973 to 1980 it is useful to first compare these employment trend figures.

Table 3 contains employment growth by nine major industries for the U.S., Minnesota, South Dakota, North Dakota, Iowa, Wisconsin (which are neighboring states to Minnesota) and Illinois, plus Texas, California and Florida where employment is growing rapidly, and New York where employment is growing very slowly. The nine industries include: agriculture; mining; contract construction; manufacturing; transportation; wholesale trade; retail trade; finance, insurance and real estate; and services. This list includes three industries (agriculture, mining, and contract construction) that are not analyzed in subsequent sections as these industries are not "footloose" (i.e., they are tied to location specific resources or markets) and are not likely to be influenced by the same set of factors as the other six.

Overall employment in Minnesota between 1973 and 1980 grew 35 percent which was much faster than employment grew in the U.S. (22.1 percent). Moreover, employment growth in seven of the nine industries was more rapid

TABLE 3

Percentage Change in Employment by Major Industry, 1973-1980:
U.S., Minnesota and Selected States

	U.S.	Minn.	S.Dak.	N.Dak.	Iowa	Wisc.	Ill.	Texas	Cal.	Fla.	N.Y.
Total	22.1%	35.0%	31.9%	46.7%	24.1%	22.6%	11.9%	47.1%	41.4%	31.4%	2.6%
Agriculture	28.6	19.3	-40.0	26.1	25.6	21.0	18.6	10.7	71.6	35.8	7.7
Mining	65.4	25.3	14.9	164.0	-10.1	4.7	45.3	103.6	57.2	57.3	4.4
Construction	19.9	47.5	18.4	64.3	34.3	20.4	9.2	65.4	60.7	5.4	-19.1
Manufacturing	7.0	25.1	43.7	62.2	13.3	11.0	-4.4	35.6	31.2	24.2	-8.6
Transportation	15.3	23.2	25.9	35.6	13.7	17.1	1.8	41.0	24.1	20.0	-15.0
Wholesale Trade	23.5	34.5	44.1	53.1	51.4	32.9	13.5	43.5	37.4	29.6	-3.3
Retail Trade	21.5	27.2	25.4	28.6	16.2	19.6	10.1	38.9	32.7	34.6	-0.5
Finance, Insurance, Real Estate	27.6	38.3	32.2	46.4	34.6	32.2	29.5	39.5	51.0	26.7	12.7
Services	45.3	56.2	35.2	50.4	42.3	45.7	41.3	59.9	57.7	50.6	26.7

Source: U.S. Department of Commerce, Bureau of the Census, County Business Patterns,
(Washington, D.C.: U.S. Government Printing Office, selected years).

in Minnesota than in the U.S. In all industries, except agriculture and mining, employment grew between 8 and 27 percentage points faster than the same industries in the U.S. Employment in contract construction and manufacturing grew much more rapidly in Minnesota than in the U.S. as a whole.

Of the four neighboring states to Minnesota, total employment in North Dakota and South Dakota grew more rapidly than in the U.S. but only North Dakota had a growth rate that was greater than the rate in Minnesota. North Dakota had very strong employment growth relative to the U.S. in all industries except agriculture. With the exception of services, employment growth in the other eight industries was more rapid in North Dakota than in Minnesota.

Employment growth in South Dakota showed a more uneven pattern, but three industries, manufacturing, transportation and wholesale trade, grew faster in South Dakota than in Minnesota. With few exceptions, employment growth in each industry was higher in Minnesota than in the other three North Central states.

Of the three states where total employment is growing rapidly, employment growth in Minnesota was higher than in Florida. Moreover, employment growth in Minnesota was higher than in Florida in all but three industries

- agriculture, mining, and retail trade. Between 1973 and 1980 employment grew 47.1 percent and 41.1 percent in Texas and California, respectively. Employment grew faster in every industry (except agriculture employment in Texas) in these two states than in Minnesota. In Texas, mining is the most rapidly growing industry and manufacturing grew at five times the national average compared to 3.5 times the national average in Minnesota. In California, much of the rapid overall employment growth can be attributed to strong employment gains in agriculture, mining and contract construction.

Table 4 contains the employment growth for total administrative and auxiliary employment, and for that category in manufacturing, wholesale trade, retail trade and services. For total employment growth in administrative and auxiliary, Minnesota's employment grew faster than in the U.S. Minnesota's employment also grew faster than that in the U.S. in three of the four disaggregated industries. Only in retail trade administration did Minnesota's employment lag behind the growth in the U.S. In manufacturing administration, Minnesota grew at more than twice the rate of growth in this category for the U.S.

Both South Dakota and North Dakota had higher rates of employment growth for the total administrative and auxiliary category than in Minnesota. Administrative

TABLE 4

Percentage Change in Employment in Administrative and Auxiliary
Subsectors, 1973-1980: U.S., Minnesota and Selected States

	U.S.	Minn.	S.Dak.	N.Dak.	Iowa	Wisc.	Ill.	Texas	Cal.	Fla.	N.Y.
Total Administrative and Auxiliary (all industries)	53.4%	69.1%	105.7%	162.6%	44.6%	28.2%	33.5%	82.8%	97.0%	76.5%	6.0
Manufacturing	23.7	54.3	311.6	-15.7	35.5	22.1	38.5	45.7	57.8	23.4	-14.4
Wholesale Trade	41.9	72.9	-11.5	11.8	130.6	123.2	13.2	84.7	23.9	184.8	-2.8
Retail Trade	64.7	52.5	88.8	99.2	140.2	10.2	21.0	119.5	89.6	11,825.1	-1.8
Services	204.9	223.0	552.4	N.A.	469.8	443.0	190.1	353.3	284.2	2,316.9	122.9

N.A. represents Not Available due to missing data.

Source: See Table 3

employment in South Dakota grew much more rapidly in manufacturing (311.6%) and services (552.4%) and more rapidly in retail trade (88.8%) than in Minnesota. Administrative employment in wholesale trade declined between 1973 and 1980 in South Dakota, however. North Dakota lost administative employment in manufacturing between 1973 and 1980 and had growth below the national average for administative employment in wholesale trade. North Dakota grew more rapidly in administative employment in retail trade and services (although the exact figure for services is not available for 1973). It should be noted, however, that in 1980 Minnesota had 81,212 employees in the administrative and auxiliary employment category while South Dakota and North Dakota had only 1,115 and 1,783, respectively. Thus, these growth rates could mislead one to the conclusion that Minnesota's westward neighbors now enjoy a distinct advantage in attracting administrative employment.

Minnesota had more rapid growth in total administative employment than Iowa, Wisconsin and Illinois. Of the categories listed in Table 4, Minnesota had more growth than Illinois in every category and more growth in manufacturing than Iowa and Wisconsin. However, Iowa had more administrative employment growth in wholesale trade, retail trade and services than Minnesota, and Wisconsin had more administrative employment growth in wholesale trade and services.

Minnesota's growth in total administrative employment lagged behind the fast employment growth states (Texas, California, and Florida). However, administrative employment growth in manufacturing grew more rapidly in Minnesota than in Texas and Florida and it grew at about the same rate in Minnesota as it did in California. Except for growth in administrative employment in wholesale trade in California, the growth rates in the total, retail trade, and services categories in these three states were greater than the corresponding growth rates in these three categories in Minnesota. Florida in particular had a boom in administative employment growth for retail trade and services. New York, on the other hand, lost administrative employment in manufacturing, wholesale trade and retail trade and grew at less than the U.S. average growth rate in services. Total administrative and auxiliary employment grew only 6.0% in New York over the 1973 to 1980 period.

In sum, Minnesota had more rapid growth in total employment and total administrative and auxiliary employment than the U.S. as a whole. In a few categories Minnesota did as well as the fast growth states and in many categories its employment growth rates were higher than the corresponding rates of its neighboring states.

The Method

To determine which factors help explain the differences in the growth rates reported in Tables 3 and 4, a statistical model is employed. The technique statistically relates the employment growth rates of the forty-eight contiguous states from 1973 to 1980 to the set of potential explanatory variables or factors. For the sample chosen and within the set of factors chosen, a factor is said to be a significant determinant if it explains some of the observed differences or variance in the employment growth rates. A factor which does not help to explain or account for the differences observed in the states employment rates is said to be insignificant.

Of the significant factors, some will explain or account for more of the differences in employment growth rates than others. These important significant factors will have larger elasticities, i.e., for any percentage change in these factors the percentage change in employment growth rates will be larger than for significant factors with smaller elasticities. Thus, to ask the question, do taxes matter?, in this framework we ask, are taxes a significant and strong determinant of employment growth rates?

A _factor_ thus has explanatory power if it is significant and if it has a relatively strong (large elasticity) relationship to the employment growth rates. The _set_ of factors has explanatory power if _together_ the factors explain much of the observed difference in the employment growth rates. The explanatory power of the set of factors is represented by the statistic called R^2. An R^2 of .8, for example, means that 80% of the observed difference in the employment growth rates has been explained by the chosen set of factors.

As this study compares Minnesota to other states rather than comparing Minnesota's growth rate in 1976 to Minnesota's growth rate in 1980, the results are best interpreted as a test of Minnesota's competitive advantage (disadvantage) relative to other states, not as a test of which factors explain Minnesota employment over time.

Below is a description of each of the variables used in the analysis. A value for each variable was obtained for each of the forty-eight contiguous states. A list of all the variables used in this study and the data sources are reported in Appendix A.

The Variables

1. The Variable to be Explained

The variable to be explained is the percentage change

in employment between 1973 and 1980 in each industry. The industries examined are manufacturing, transportation, wholesale trade, retail trade, finance (actually, finance, insurance and real estate), and services. Total employment which is the aggregate of these six industries is also examined. Total employment thus does not represent all employment as agriculture, mining and contract construction have been omitted. In addition, the administration and auxiliary employment in each of the seven categories is examined separately.

2. Potential Explanatory Variables (Factors)

The factors hypothesized to be important determinants of employment have a large number of dimensions to them. In what follows, these dimensions are represented using a large number of variables. For technical reasons[6], some of these variables are later dropped from the empirical work.

Labor Climate Variables   Labor climate is measured using wage rates, union activity, labor availability, productivity and unemployment compensation benefits. The wage rate variable (WAGE) is the average hourly pay for manufacturing production workers in a state. This same wage rate measure is used for every industry analyzed.

If the manufacturing wage rate is high, then other industries will have to pay higher wages to attract, hire, and retain employees. Thus the manufacturing wage rate is expected to be indicative of the overall wage level in the state.

Union activity is measured using three variables: the percentage of the work force that is unionized in 1976 (UNION), a variable equal to one if the state has a right to work law and zero otherwise (RTW), and the percentage of working time lost in a state due to union work stoppages (WSTOP). WSTOP is calculated using the average percentage of working time lost for years 1977, 1976 and 1975. The percentage change in the population between ages 18 and 44 (P1844) between 1965 and 1973 measures the growth in the prime working age population (labor availability) in a state.

The median education level in the state in 1976 is a measure of labor's inherent productivity (EDUCL). The level of unemployment compensation is measured as the average weekly basic unemployment insurance payment in 1976 (UI). Workers' compensation is another aspect of the labor climate that, due to a lack of data, is not represented among these variables.[7]

Energy Energy prices are difficult to measure. There are a variety of energy types -- electric, natural gas

-- and different tariff structures for user classes. One study[8] which uses both natural gas and electric prices shows that electric prices are statistically significant factors while natural gas prices are not significant determinants. Thus, for this analysis the industrial average electrical bill for the 300 to 600,000 KWH use class (ELEC) is used to proxy energy prices.

Fiscal Climate   The fiscal climate in a state is difficult to capture with only a few variables, thus numerous variables are proposed to measure both the expenditure and the tax climate in a state. Some policymakers and business representatives appear to believe that high nominal tax rates have detrimental effects on business' perception about a state. They argue that nominal rates matter even though the high nominal rates do not necessarily imply high taxes as taxable income in a state may be small due to, for example, generous depreciation allowances, deductibility of federal taxes, and a weighted apportionment formula. The suggestion is that businesses do not look much beyond the nominal tax rate, and that these so-called "announcement effects" about nominal rates affect business location decisions. Others argue that businesses do look beyond the obvious nominal rate and instead consider effective rates of taxation when making employment change decisions. These two hypotheses are tested in the empirical work using tax variables listed below.

On the expenditure side, the education burden in 1977 (EDUCI) and the welfare burden (public welfare plus medicaid) in 1977 (WELI) are included in the regressions. These are measured as total state and local expenditures from own revenues on each of these functions as a percentage of state personal income.

On the tax side, a measure of the overall level of tax effort in the state is the first dimension of the tax burden used here. The ACIR measure of effort, which is an index of a state's effort relative to the national average of 100, is used to measure effort (TEFF). Higher effort implies higher taxes given the state's fiscal capacity. An effort index of 120 for example would imply that the overall level of taxes is 20 percent higher in that state compared to the average in all states. Because it is often stated that firms are concerned about fiscal trends as well as about the level of taxation, the percentage change in effort from 1967 to 1977 (PTEFF) is used in the analysis as well as TEFF in 1977.

Aside from the overall level of taxation in a state, the burden of two specific taxes -- corporate or business taxes and the personal income tax -- may particularly affect employment change. Several variables can be used to measure the level of corporate or business taxation. The highest nominal state corporate tax rate in 1976 (HCIT)

measures the marginal tax rate on corporate income and is a measure of the announcement effect mentioned above. An alternative and more accurate measure of corporate tax burden is the ACIR's 1979 measure of the effective corporate tax rate or the ratio of corporate tax revenue to corporate tax capacity (EFFCIT).

High personal taxes may make it difficult for firms to attract employees to staff an expansion on-site or a new branch plant. To measure the so-called announcement effect the nominal state income tax rate for incomes of $50,000 or more (IT50) is used.[9] An alternative and more accurate measure of personal income tax burden is the ACIR's effective tax rate -- the ratio of taxes to income -- for households at various levels of income. The measure is available for households with incomes of $25,000 or more or for households with income of $50,000 or more (EFFIT50). The two measures are highly correlated, and as the results are similar using either measure only the latter is employed here.

Tax progressivity may also adversely influence employment growth if individuals do not have a strong preference for redistribution at the state level. The average 1977 effective tax rate for the personal income tax and the sales tax combined is calculated for the 90th percentile of income and the 10th percentile of income.[10] The difference between the effective tax rates in those two income

-33-

percentiles is used as a measure of the combined progressivity of these two personal taxes (PROG). The greater the difference between the average tax rate at the upper end of the income distribution and the average tax rate at the lower end, the more progressive is the state's tax system.

Some reseachers[11] argue that businesses may prefer states which rely more heavily on local tax sources because businesses may get more benefits from local governments than state governments and businesses can vary their tax bill within the state with a choice among several local governments. It is also argued that businesses may prefer states that make greater use of sales taxes, because, for various reasons, the sales tax is not as burdensome as the individual income tax or corporate income tax. To test these hypotheses, the local revenue raised from own sources as a percentage of state and local taxes (PCTLOC) in 1977-78 and sales tax revenues as a percentage of total state and local revenue in 1976-77 (SALETX) are included among the fiscal variables.

Climate   Temperature variations are used to measure climate. The average maximum daily temperature for every day in the month of July for the past 30 years in each state (MAXTEMP) is used to measure the heat extreme. A comparable measure of the average minimum temperature

for every day in the month of January for the past 30 years in a state (MINTEMP) is used to measure the cold extreme. These variables are used to test whether firms and employees specifically avoid cold climates and prefer hotter climates.

Market Variables To measure the market potential in a state for final goods producers, and particularly for the retail trade, finance, and services industries, the population density in a state in 1973 (DENST) and the per capita income in a state in 1977 (PCI) are included in the equation. For many businesses, the relevant market area is either much smaller than a state (2 mile radius) or much larger than a state (the world). For these firms, DENST, in particular, will not be a good measure of the market. It may instead act more like a regional variable, i.e., all high DENST states may be in the northeast. P1844, which was described above as a labor variable, may also represent a growing market for some industries, such as retail trade and services and thus is included in the equation.

Agglomerations and (Dis)Amenities Firms in some industries may be strongly attracted to one another. Specifically, manufacturing firms often cluster in locations to take advantage of agglomeration economies (cost savings resulting from the spatial concentration of firms). (This

argument, however, appears to be more compelling at the local level rather than at the state level.) A high concentration of manufacturing in a state may also lead to employment growth in wholesale trade and transportation if manufacturing firms are a market for those industries. Thus, the percentage of total employment in manufacturing in 1973, the beginning of the time period examined, (PCTMFG) is included for these three industries.

This PCTMFG variable, like the DENST variable above, may have an alternative interpretation. PCTMFG may not be a good measure of the spatial concentration of manufacturing firms (afterall, two states with 20% manufacturing could have very different spatial concentrations of those firms). It may instead measure the mix of the industrial base and as manufacturing is a slow growth sector relative to other sectors, a high PCTMFG would be expected to inhibit the overall growth of the state's jobs.

It is also likely that headquarters or central administration establishments (administative and auxiliary) profit from agglomeration in particular locations, such as Minneapolis-Saint Paul, New York City, and other places. Thus a relative concentration of employment in administrative and auxiliary measured as employment in this sector as a percentage of total employment in 1973 (PCTAD) may induce employment growth in this category.

Amenities such as cultural opportunities, are difficult to measure with only a few variables. However, amenities are known to be highly correlated with city size. Therefore, the number of metropolitan areas with populations above 500,000 in 1970 in a state (MA500) is used to measure amenities. This variable is meant to capture the attraction of Minnesota compared to South Dakota or Wyoming which may not necessarily be reflected in the fiscal climate, market or labor variables.

On the other hand, city size and density are often associated with pollution, congestion, crime, and other disamenities. Firms can shift operations within a state to avoid disamenities, but a plan to shift operations may induce them to look to other states for expansion. The population density of the largest urbanized area in 1970 in each state (DENUR) is used here to measure this potential congestion effect.

The Results: Which Business Climate Factors Affect Employment Growth?

Two sets of results are reported: A set of results explaining percentage changes in employment in each industry and a set of results explaining the percentage changes in administrative and auxiliary subsectors in each industry.

The extensive list of variables described above and in Table 5 is used in an initial test for each industry

TABLE 5

List of Variable Names Used in the Study

Variables Included in the Reported Equations

Labor Climate

WAGE: an indicator of the cost of labor as measured by average hourly pay for manufacturing production workers in a state.

WSTOP: an indicator of the cost of unionization as measured by percentage of working time lost in a state, due to union work stoppages.

EDUCL: an indicator of the quality of the labor force as measured by median education level in the state in 1976.

P1844: percentage change in the population aged 18 to 44 between 1965 and 1973, a measure of labor force availability.

Energy

ELEC: average industrial electrical bill for the 300 to 600,000 KWH use class, a measure of the cost of energy.

Fiscal Climate

EDUCI: total state and local expenditures from own revenues on education as a percentage of state personal income in 1977, the education burden.

WELI: total state and local expenditures from own revenues on public welfare plus medicaid as a percentage of state personal income in 1977, a measure of the welfare burden.

PTEFF: an indicator of tax trend as measured by percentage change in the overall level of tax effort (ACIR* measure of effort) from 1967 to 1977.

EFFCIT: ratio of corporate tax revenue to corporate tax capacity (income), a measure of the effective corporate tax rate.

EFFIT50: ratio of individual income tax revenue to income for households with income of $50,000 or more (ACIR*'s effective tax rate).

SALETX: sales tax revenues as a percentage of total state and local revenue in 1976-77, a measure of the mix of the tax system.

Table 5 cont.

Variables Included in the Reported Equations cont.

Climate

MAXTEMP: average maximum daily temperature for the month of July for the past 30 years in each state.

MINTEMP: average minimum daily temperature for the month of January for the past 30 years in each state.

Market (used in Retail Trade, Finance, and Services only)

DENST: the population density of the state in 1973.

PCI: per capita income in the state in 1977, both are measures of the strength of the state's market demand for goods and services.

Agglomeration and Amenities (used only in a few equations)

PCTMFG: the percentage of total employment in manufacturing in 1973, a measure of agglomeration economies.

PCTAD: the percentage of total employment in administrative and auxilary in 1973, a measure of agglomeration economies.

MA500:   number of metropolitan areas with populations greater than 500,000 in the state in 1970, a measure of the cultural environment of the state.

DENUR: population density of the largest urbanized area (SMSA - Standard Metropolitan Statistical Area) in the state in 1970, a measure of the disamenities associated with dense urban areas such as congestion and crime.

Variables Not Included in the Reported Equations

Labor Climate[a]

UI: average weekly basic unemployment insurance payment in 1976, a measure of the cost of unemployment compensation.

UNION: the percentage of the work force that was unionized in 1976, a measure of the costs associated with unionization.

Table 5 cont.

Variables not Included in the Reported Equations cont.

Fiscal Climate

TEFF[a]: ACIR* measure of tax effort in the state in 1977, a measure of the total tax burden.

PROG[a]: the difference between the combined average tax rates for the individual income and sales taxes between the 90th percentile of income and the 10th percentile of income, a progressivity measure.

PCTLOC[a]: local revenue raised from own sources as a percentage of state and local taxes, a measure of the relative importance of local governments in the state.

HCIT[b]: highest nominal state corporate tax rate in 1976, the announcement effect for corporate taxes.

IT50[b]: the nominal state income tax rate for incomes of $50,000 or more in 1976, the announcement effect for individual income taxes.

* Advisory Commission on Intergovernmental Relations

[a] These variables are not included in the reported equations because they are highly correlated with one or more other factors in their subgroups and they were always (for every industry) statistically insignificant in the initial test of all of the factors and they were not found to be statistically significant in most other studies.

[b] The reported equations were also tested with HCIT and IT50 substituted for EFFCIT and EFFIT50, respectively. These alternative "announcement" equations did not perform as well and so the effective tax rate specification is reported instead.

(results not reported here). The factors within each sub-group (e.g., labor climate, fiscal climate, etc.) were examined to check whether they are highly correlated with one another. If a factor was highly correlated with one or more factor(s) in the sub-group, and it was always statistically insignificant in the initial test and not found to be statistically significant in other studies of location, it was dropped from the set of factors, and a preferred model was formulated. A list of variables that were included in the final set of variables, those tested in the reported results, is given in Table 5. It should be emphasized, that the same explanatory variables may not be statistically significant for all industries, and even the signs of some variables could differ between industries. For example, the sales tax may discourage wholesale and retail trade locations, but have no effect on manufacturing locations.

The equation using the announcement effect variables (IT50 and HCIT) instead of the effective rate variables (EFFIT50 and EFFCIT) generally had slightly less explanatory power (as evidenced by the lower R^2 of the equations) than the effective rate equations. Moreover, for the three industries in which the coefficient of the effective income tax variable is statistically significant and has the expected negative sign, the coefficient of IT50 in the counterpart announcement equation is either not statistically significant (retail trade) or has less statistical

significance than in the counterpart effective rate equations (wholesale trade and finance, insurance and real estate). Thus, the idea that firms and employees do not look beyond the nominal rates of taxation is rejected here and only the results using the conceptually more correct effective rates are reported below.

1. Percent Change in Employment by Industry

The results for percentage change in total employment for these industries and in each of the six industries are reported in Table 6. The first column is the final list of factors that was tested for each industry. The results can be interpreted in two different ways depending on whether one reads down a column or across a row.

First, to see which factors explain the observed differences in employment growth rates for a particular industry, say, total employment, read down the total employment column. The negative sign in the WAGE row with two asterisks means that wages were a highly significant determinant and that higher wages in one state inhibit employment growth in that state relative to states with lower wages. A blank in the row for WSTOP means that that factor was not a significant determinant, i.e, for this sample, a state's WSTOP relative to other states' work stoppage rates does not explain any of the observed differences in the state's employment growth rates.

Table 6[a]

Results for Percentage Employment Changes 1973-80: By Industry

	Total Employment	Manufacturing	Transportation	Wholesale Trade	Retail Trade	Finance, Insurance, Real Estate	Services
WAGE	-**				-**	-**	-*
WSTOP			-*				
EDUCL							
P1844						-*	
ELEC	-**		-**	-**	-**	-**	-**
EDUCI	+*				+**	+**	
WELI							
PTEFF	-**	-**			-*		-**
EFFCIT	+*						
EFFIT50				-**	-**	-**	
SALETX				-*			
MAXTEMP	+**	+*	+**	+*			+**
MINTEMP							
PCTMFG	-**	-**	-**	-**			
DENST					-**	-**	
PCI	+**				+**	+**	+**
R^2	.85	.73	.75	.63	.69	.75	.62

[a] The coefficients associated with these regressions are reported in Appendix B.

+: The variable is positively related to employment growth (higher values of this factor contribute to employment growth).

-: The variable is negatively related to employment growth (higher values of this factor inhibit employment growth).

* and ** indicate statistical significance at the 90% and 95% confidence levels, respectively. That is, we are confident that the variables with two asterisks are highly significant. We are not as confident that those with one asterisk are significant. A blank indicates that the variable is statistically insignificant in the specific equation, i.e., it does not help explain the observed differences in employment growth rates for that industry.

The second way to use the table is to check if some factor of interest is an important explanatory variable for any industry. To see if, for example, MAXTEMP was an important determinant, read across the table for the line associated with MAXTEMP. The results indicate that MAXTEMP was a highly significant, positive determinant of relative employment growth rates for three industry categories: total employment, transportation and services. That is, for these industries employment growth was higher in states with warm temperatures. It was also significant (although we are not as confident about its significance as indicated by the single asterisk) for manufacturing and wholesale trade. It had no explanatory power, i.e., MAXTEMP did not help explain the differences in the growth rates across the states, for two industries, retail trade and finance. The results for each of the industries are described next.

For the six industries as a whole, higher wages, and energy prices have a negative and statistically significant effect on the percentage change in total employment. For fiscal variables, higher spending on education as a proportion of income appears to have a positive statistically significant influence on employment growth. A higher percentage increase in tax effort discourages employment growth and it is statistically significant. Surprisingly, a higher effective corporate income tax rate increases

total employment growth but the factor is only statistically significant at a confidence level of 90%.

Employment growth is higher in states that have warmer climates as represented by the average maximum temperature for July variable and higher in states with a higher per capita income. Growth in total employment is also higher in states with a lower concentration of manufacturing. This finding supports the alternative hypothesis that this variable measures industry mix and not agglomeration economies. It illustrates that employment growth is spreading away from traditional manufacturing states.

For manufacturing, the signs are generally as hypothesized, but only PTEFF, MAXTEMP and PCTMGF are statistically significant. These coefficients show that an increase in relative tax effort reduces manufacturing employment growth and that employment growth is stronger in warmer climates, other things being equal. Again the agglomeration economies story is not borne out by the results as manufacturing employment is growing more slowly in states with higher concentrations of manufacturing employment.

The results for manufacturing in other research are not uniform across these studies. With one exception,[12] studies analyzing state level employment data, this study included, generally do not find that wages nor energy

prices influence employment growth in manufacturing. Two studies find that taxation influences manufacturing employment growth. This study in part confirms that increasing the relative level of taxation in a state reduces manufacturing employment growth.

For transportation, more work stoppages and higher energy prices reduce employment growth. The fiscal variables are not (individually) statistically significant. Transportation employment, like manufacturing, is growing more quickly in warmer climates as the sign on the MAXTEMP variable shows. Transportation employment is growing less rapidly in states with higher concentrations of manufacturing employment.

Higher energy prices adversely affect employment growth in wholesale trade. Higher effective personal income tax rates and a higher percentage of state and local revenue raised from sales taxation have a negative and statistically significant effect on wholesale trade employment. Wholesale trade is also growing more rapidly in states with warmer climates and more slowly in states with high concentrations of manufacturing employment.

Higher wages and energy prices also adversely affect employment growth in retail trade. The fiscal variables influence employment growth in this industry. Both a

higher percentage increase in tax effort and a higher effective personal income tax rate reduces employment growth in this industry. On the other hand, higher expenditures on education as a percentage of income appears to increase employment growth in this industry. For market variables, population growth in the 18-44 age cohort does not affect retail trade employment growth and high population density adversely affects employment growth in this sector. Thus population density may be acting as a regional variable instead of a market variable. Another market variable, per capita income, does positively influence employment growth in retail trade.

Higher wages, energy prices and, somewhat surprisingly, population growth in the 18-44 cohort reduce employment growth in the financial industries. The last result may indicate that the 18 to 44 cohort does not demand many financial services because they are still for the most part in the consumption phase of their life cycle.

A higher expenditure on education as a percentage of income has a strong positive affect on employment growth in the finance industry, and high effective personal income tax rates adversely affect employment growth in this industry. As in retail trade, employees in the financial industry are probably attracted to and deterred by, respectively, these aspects of the fiscal structure.

Population density in the state adversely affects employment growth in the finance industries and per capita income has a strong positive influence on employment growth in this sector.

Higher wages and energy prices adversely affect employment growth in _services_ and larger _increases in the relative tax effort_ in a state also has an adverse effect on employment growth in this sector. Warmer climates and stronger per capita income growth have a positive effect on employment growth in the services industries.

2. **Percent Change in Employment in Administrative and Auxiliary**

Table 7 reports the results for the percentage increase in administrative and auxiliary employment between 1973 and 1980. As mentioned above, the agglomeration variable is replaced with the administration and auxiliary employment as a percentage of total employment in 1973 (PCTAD), and two variables measuring amenities (MA500) and congestion (DENUR) are added to the equation.

The set of explanatory variables do not explain much of the observed difference in the percentage increase in employment (as indicated by the relatively low R^2). There appear to be a few rapid growth states in this category in each industry and the growth does

TABLE 7[a]

Results for Percentage Employment Change in
Administration and Auxilary, 1973-80

	Total Employment	Manufacturing	Wholesale Trade	Retail Trade	Services
WAGE			-*	-*	
WSTOP					
EDUC					
P1844					-**
ELEC					
EDUCI					
WELI					
PTEFF					
EFFCIT					
EFFIT50				-**	
SALETX				-**	
MAXTEMP	+**				+*
MINTEMP					
PCTAD	-*			-*	
DENST				-*	
PCI	+*	+*		+**	+*
MA500					
DENUR					
R^2	.51	.22	.49	.57	.34

a: The coefficients associated with these regressions are reported in Appendix B.
+: The factor has a positive relationship with employment change
-: The factor has a negative relationship with employment change

* and ** indicate statistical significance at the 90% and 95% confidence level, respectively.

A blank indicates that the variable was statistically insignificant.

not follow any particular pattern (or at last not any pattern with the factors tested here).

The only equation that does explain at least some of the difference in employment trends is the equation for retail trade. The evidence for retail trade administrative employment suggests that higher wages, a higher effective personal income tax rate, a higher sales tax rate, a larger concentration of administrative firms, and a higher population density, reduce the percentage increase in administrative employment in retail trade. Higher per capita income increases the percentage increase in this category. Given the weakness of these results, the only strong conclusion one can make is that the set of variables included in this analysis does not explain employment growth in the administrative and auxiliary categories.

III. INTERPRETATION AND IMPLICATIONS FOR TAX REFORM IN MINNESOTA

To interpret the results of this analysis of the effect of the business climate on employment growth for policy implications it is useful to first review the results by looking again at Table 6. The factors whose coefficients have two asterisks indicate that, for total employment, wages, cost of electricity, trend in tax effort, warm climate, percent manufacturing and per capita income are highly significant determinants of employment growth.

The retail trade and finance industries appear to also be influenced by wages, cost of electricity and per capita income but, unlike total employment, these industries are affected by education expenditures, the effective individual tax rate at $50,000 and population density of the state. The fiscal variables that are highly significant determinants in explaining employment growth in either the total employment category or one of the six industries that compose total employment are education expenditures, trend in tax effort, and the effective individual tax rate.

Table 6 indicates which factors were found to be significant in explaining the differences observed in employment growth rates. But to determine the relative strengths of these effects the elasticities of the employment growth rates with respect to the significant explanatory variables must be calculated. Elasticity figures are reported in Table 8.

To interpret Table 8, note, as an example of a strong determinant, that the elasticity for WAGES in the total employment equation is -1.12. This implies that for a 10% decrease in a state's wages relative to the other states' wages, the employment growth rate would increase 11.2%. By contrast, the effect of DENST is much weaker. The elasticity figure for DENST in the finance equation

TABLE 8

Elasticities of Percentage Employment Change with Respect to
Statistically Significant Independent Variables Reported in Table 6

	Total Employment	Manufacturing	Tansportation	Wholesale Trade	Retail Trade	Finance, Insurance, Real Estate	Services
WAGE	-1.12**	-1.08	0.28	-0.45	-1.05**	-1.34*	0.51*
WSTOP	-0.08	-0.23	-0.16*	-0.03	-0.05	-0.01	-0.04
P1844	0.00	0.19	0.12	0.05	0.11	-0.25*	-0.09
ELEC	-0.84**	-0.68	-1.01**	-0.72**	-0.91**	-0.73*	-0.49**
EDUCI	0.72*	-1.09	-0.69	-0.49	1.43**	1.94*	0.31
PTEFF	-0.06**	-0.14**	-0.05	-0.03	-0.05*	-0.04	-0.04**
EFFIT50	-0.10	-0.07	-0.01	-0.33**	-0.23**	-0.25**	0.03
SALETX	.05	0.31	-0.04	-0.31*	-0.08	-0.04	0.10
MAXTEMP	2.42**	3.82*	6.25**	2.49*	0.57	0.30	1.62**
PCTMFG	-0.85**	-6.60**	-0.64**	-0.58**			
DENST	-0.05				-0.11**	-0.09**	-0.01
PCI	2.36**				2.58**	4.16**	1.39**

* and ** indicate that the factors defining the elasticity are statistically significant determinants at the 90% and 95% level of confidence respectively.

(-0.09) indicates that a 10% increase in population density decreases employment in this industry by less than 1% (.9%). The larger the elasticity (in absolute value) the stronger is that factor's effect on employment growth in a state.

For total employment, the elasticities indicate that the wage rate, electricity charges, expenditures on education, warmer climate, the concentration of manufacturing employment, and per capita income have the strongest effects on employment change. The elasticity of the percent change in employment with respect to EFFIT50 is relatively high for the wholesale trade, retail trade, and finance industries, but that of PTEFF is relatively low.

While the elasticity coefficients indicate the relative importance of a given percent change in different variables on any state's employment growth, how an individual state, such as Minnesota, fared relative to other states depended on Minnesota's relative position compared to the other states on the factors determined to be significant (as indicated by * and ** in Table 6) and important (as indicated by large elasticities in Table 8). For example, if Minnesota had about average U.S. manufacturing wage rates then even though the elasticity of manufacturing wage rate variable is high, the wage rate variable would not have had much effect on the growth rate of Minnesota's

employment relative to the U.S. average. On the other hand, if Minnesota's increase in tax effort was 50 percent higher than the U.S. average, this variable would have played a significant role in determining the percentage of employment changes even though its elasticity was relatively small.

Table 9 reports the Minnesota figure used in the equations, the U.S. average figure and the elasticities for the statistically significant variables listed in Table 8. The figures for the effective corporate income tax rate are also reported simply because they are likely to be of interest. As the corporate income tax rate was found to be significant with a positive effect in this analysis whereas others found this variable to be significant with a negative effect, we have no confidence in its influence and thus no elasticity is reported.

First, it is interesting to note from the last colulmn that Minnesota compared favorably in several categories. Wage rates were not out of line with the U.S. average, Minnesota spent more on education relative to the U.S. average, Minnesota had a per capita income that was 6.5 percent higher than the average, the percentage increase in the labor force was nearly 50% higher in Minnesota than the U.S. average, and the tax effort decline was greater in Minnesota than the U.S. average decline in

Table 9

Elasticities for the Significant Variables and Minnesota vs. the U.S. Average
for the Sample Period

Elasticity of Employment Change with Respect to the Explanatory Variables

	Total Employ-ment	Manufac-turing	Transpor-tation	Whole Sale Trade	Retail Trade	Fire	Services	MN Figure	U.S. Average Figure	MN Figure as a percentage of U.S. Average
WAGE	-1.12				-1.05	-1.34	-.51	$5.98	$5.72	104.5
WSTOP			-.16					.21	.16	131.3
P1844						-.25		27.38%	18.33%	149.4
ELEC	-.84		-1.01	-.72	-.91	-.73	-.49	$2563.00	$2360.00	108.6
EDUCI	.72				1.43	1.94		8.9%	7.9%	112.7
PTEFF	-.06	-.14			-.05		-.04	-5.0%	-4.3%	116.?
EFFIT50				-.33	-.23	-.25		7.7%	3.3%	233.3
SALETX				-.31				7.9%	12.4%	63.7
MAXTEMP	2.42	3.82	6.25	2.49			1.62	79.4	86.6	91.7
PCTMFG	-.85	-6.60	-.64	-.58				28.35%	29.7%	95.5
DENST					-.11	-.09	-.01	49.0	152.4	32.?
PCYI	2.36				2.58	4.16	1.39	$7108.80	$6674.7	106.5
EFFCIT								7.9%	4.1%	192.7

effort. It is readily apparent from these figures that Minnesota differed dramatically from the U.S. average in terms of the effective individual income tax rate, the percentage of total revenue attributable to the sales tax and the effective corporate income tax rate. Minnesota was at a competitive disadvantage relative to the U.S. average with respect to work stoppage, electricity costs, temperature, and state population density.

As an example of how Table 9 is to be interpreted notice that PCTMFG has an elasticity figure of -.85 for total employment, -6.60 for manufacturing, -.64 for transportation and -.58 for wholesale trade. Thus PCTMFG is a strong determinant of the relative employment growth rates for the states for total employment, transportation and wholesale trade and an even stronger determinant of the growth rate for manufacturing. The negative numbers mean that a higher percentage of total employment in manufacturing in 1973 in a state relative to other states inhibits that state's employment growth rates. What does this mean for Minnesota? The last column of Table 8 indicates that Minnesota had a smaller share of its industrial base in manufacturing in 1973 than the average state. Thus Minnesota's below average PCTMFG helps explain Minnesota's high growth rate relative to the U.S. average in total employment, manufacturing, transportation and wholesale trade.

By comparing the elasticity figures with the amount by which Minnesota differed from the U.S. average, we can better understand which factors contributed to Minnesota's differential growth rate relative to the U.S. For example, the largest elasticities for total employment are associated with wages, warm climate (MAXTEMP) and per capita income. Since Minnesota had above average wages and below average maximum temperature these two factors inhibited Minnesota's employment growth. Minnesota had above average per capita income so this factor contributed to Minnesota's employment growth relative to the U.S. average.

The more interesting variables for our purposes are the fiscal variables. Even though PTEFF, the tax effort trend variable, is significant for four of the seven categories of employment, the fact that the elasticity is very small and Minnesota's value for this factor did not vary a great deal from the U.S. average indicate that PTEFF had little if any effect on Minnesota's growth rate relative to the U.S. average growth rate. If it had any effect at all its influence was positive as Minnesota's tax effort declined further in percentage terms than the U.S. average.

Expenditures on education (as a percentage of personal income) are significant for three categories and the

elasticities are relatively large. Since Minnesota spends 12.7% more than the U.S. average this variable had a large positive effect on Minnesota employment growth rate relative to the U.S. employment growth rate.

The effective individual income tax rate variable was significant for three industries but its elasticity is relatively small. For a 10% increase in this rate, the percentage decrease in the employment rate would be between 2.3 and 3.3%. This is a variable whose Minnesota value is much greater than the U.S. average value and thus even though the elasticity is small this factor probably had a strong negative influence on Minnesota's growth rate in wholesale trade, retail trade, and finance.

The variable representing the percentage of total revenue attributable to the sales tax is significant only for wholesale trade and its elasticity is relatively small. But as Minnesota is far below the U.S. average on this variable it contributed positively to employment growth in wholesale trade.

To summarize, many of the factors with the strongest effect on Minnesota's employment growth relative to the U.S. in 1973-1980 were factors that policy makers have little control over. Such factors include wages (total employment, retail, finance, and services) maximum tempera-

ture (total employment, manufacturing, transportation, wholesale services) work stoppage (transportation), percentage change in labor force (finance), electricity costs (all but manufacturing), percentage of total employment in manufacturing (total employment, manufacturing, transportation, and wholesale), population density of the state (retail, finance, and services) and per capita income (total employment, retail, finance, and services).

The fiscal variables where Minnesota varied a great deal from the U.S. average were the effective individual income tax rate (EFFIT50), the effective corporate tax rate (EFFCIT) and the share of total revenue attributable to the sales tax (SALETX). No conclusion can be made about the influence of EFFCIT, and SALETX was significant only for wholesale trade and its contribution to employment in that industry was probably not large. But EFFIT50 was significant in explaining growth rates in wholesale trade, retail trade and finance and the elasticities, while small, were large enough to conclude that this factor inhibited growth in these sectors.

Minnesota did not vary a great deal from the U.S. average on two fiscal variables, expenditures on education as a percentage of income (EDUCI) and the trend in tax effort (PTEFF). The elasticities for PTEFF were so small that the importance of this variable in explaining

Minnesota's employment growth can essentially be ignored (except possibly for manufacturing where the elasticity was more than twice the elasticity obtained in the other three categories). The elasticities for EDUCI on the other hand were relatively large, particularly for retail trade and finance but also for total employment, thus we can conclude that Minnesota's above average expenditures on education were important in explaining the relatively high employment growth rate for Minnesota from 1973 to 1980.

Implications for Policy

What do these conclusions imply for policy reform? With respect to tax levels, the results for EFFIT50 are relevant. It was a factor that was highly correlated with TEFF, overall tax effort, and effective tax rates are good measures of burden (unlike nominal rates). The results would indicate that, for at least some industries (wholesale and retail trade and finance) a heavy tax burden is a deterrent to employment growth. Minnesota's employment growth in those three industries would benefit from a reduction in effective individual income tax rates.

To bring about such a reduction in individual income tax rates it may be necessary to decrease spending. The results here indicate that it would be unwise to let the

burden of any expenditure decrease rest on education. Higher education expenditures relative to income had a positive effect on overall employment growth. It is interesting to note that another expenditure category, welfare, was not a significant determinant of employment growth rates in any of the industries.

Another means of decreasing the individual income tax burden if not the overall burden would be to change the mix of taxes to rely more heavily on sales taxes or local taxes. There is no strong evidence that the shares of total state and local revenue attributable to local taxes or to the sales tax have any effect on employment growth. Thus a shift to these taxes may have no influence on employment while the shift away from individual taxes may have a positive effect.

The trend in overall tax effort appears to have only a small effect on employment growth. The effect is in the expected direction, i.e., a larger decrease in the overall tax effort increases employment growth rates.

Where Do We Stand Today?

Before any changes in Minnesota's tax level and structure are recommended based on this analysis it is necessary to see how Minnesota compares on the relevant factors

today. It may be, for example, that although EFFIT50 was important in 1977 because Minnesota was far out of line relative to the average, it may no longer be important today if Minnesota's value for EFFIT50 is closer to the average.

Table 10 contains the latest[13] published information on the explanatory variables for Minnesota, for its neighboring states and for the U.S. Minnesota's position vis-a-vis the U.S. average has changed somewhat since 1977. Wage rates in Minnesota relative to the U.S. were higher in 1982 than in 1977. But Minnesota did not have high wage rates relative to its region (with the exception of the Dakotas which were low wage states relative to the U.S. average). The percentage of work stoppages was up relative to the U.S. in the 1979-1981 period compared to the 1975-1977 period and these were high relative to its neighboring states. Minnesota enjoyed a higher growth rate in the population in the 18 to 44 age cohort than most of its regional counterparts, but Minnesota's growth rate was not higher than the U.S. average. Minnesota's advantage in per capita income over the U.S. average slipped from 6.5 percent higher in 1977 to 5.7 percent higher than the U.S. average in 1982. But per capita income was still higher in Minnesota than in the other states in the region except for Illinois. On the positive side, Minnesota's typical industrial electric bill was 90 percent

Table 10

Minnesota Versus Its Neighbors and the U.S. Average: Using the Most Recent Data

	Minnesota	S. Dakota	N. Dakota	Iowa	Wisconsin	Illinois	U.S. Average	Minnesota Figure as a Percentage of U.S. Average
WAGE(1982)	$9.11	$7.36	$7.50	$10.00	$9.37	$9.31	$8.50	107.2%
WSTOP (Average of 1979, 80, 81)	0.18	0.03	0.03	0.12	0.15	0.26	0.13	138.5
P1844 (percentage increase in 18-44 cohort 1977-82)	11.5	8.1	13.1	8.5	10.0	9.5	14.9	77.2
ELEC (1980)	2,596	2,632	2,692	3,166	2,747	3,396	2,868	90.5
EDUCI (1982)	7.5	6.7	7.7	7.0	8.2	5.3	6.4	117.2
PTEFF (1977-81)	-3.5	6.9	-15.9	7.7	5.2	9.4	2.8	N.A.*
EFFIT50 (1980)	7.3	0	2.2	4.5	7.0	2.3	3.2	228.1
SALETX (1981)	8.0	15.2	8.9	10.0	9.7	14.5	13.2	60.6
MAXTEMP	79.4	85.1	84.3	84.9	80.4	84.3	86.6	91.7
PCTMFG (1980)	26.3	15.6	9.5	28.5	35.5	31.0	26.9	97.8
DENST (1982)	52	9	10	52	88	206	160	32.5
PCY (1982)	$11,174	$9,659	$10,876	$10,790	$10,774	$12,099	$10,572**	105.7
EFFCIT (1981)	9.7	1.0	6.8	6.2	6.9	8.0	7.4	131.1
Employment Growth Rate March 1983- March 1984	4.8	2.7	1.5	0.9	3.0	0.9	3.4	

*N.A. means the calculation is not applicable to the particular figures.
**This figure represents the average per capita income in the 48 states.

of the national average in 1980. In 1976, Minnesota industries had higher than average utility bills.

For the relevant fiscal variables, Minnesota was in approximately the same position in the early 1980's as it was in the mid to late 1970's. Minnesota spent 17% more on education in 1982 and its effective individual income tax rate in 1980 was 128% above the U.S. average. By contrast, the effective corporate income tax in Minnesota relative to the U.S. average has fallen dramatically from 93% above to 31% above the U.S. average.

The last line of Table 9 reports overall employment growth rates for these states from March 1983 to March 1984. As in the previous time period Minnesota outperformed all of its neighboring states and the U.S. average. Do these encouraging employment numbers negate the results here? On the contrary, the results here indicate that Minnesota's lower electricity costs, lower population density, lower percentage manufacturing, and higher per capita income probably contributed to its relatively high employment growth rate. The more recent figures on fiscal variables indicate that Minnesota's employment growth (at least in the finance and trade industries) may have been even higher if without cutting education expenditures, the overall tax level could have been decreased further or at least the burden of the individual income tax could have been lessened.

[1] The results reported here are derived from a study by Michael Wasylenko entitled "The Effect of Business Climate on Employment Growth: A Report to the Minnesota Tax Study Commission".

[2] As the St. Thomas study is not well designed to address the issue of the effect of taxes on employment, the results of that study are not reported here. See Appendix C for a more detailed discussion of the St. Thomas study.

[3] Statistical methods are employed to determine which factors account for interstate differences in employment growth rates.

[4] For recent examples of survey and econometric studies, see R. Schmenner, Making Business Location Decisions, (Englewood Cliffs, NJ: Prentice-Hall, 1982), and D. Carlton, "The Location and Employment Choices of New Firms: An Econometric Model with Discrete and Continuous Endogenous Variables", Review of Economic and Statistics, 65 (3) (August 1983): 440-449. See M. Wasylenko, "The Role of Taxes and Fiscal Incentives in the Location of Firms", (in Roy W. Bahl (Editor), Urban Government

Finance: Emerging Issues. Vol. XX, Beverly Hills, CA: Sage Publications, 1981), for a review of previous studies on firm location.

5   Country Business Patterns identified employment in "administrative and auxiliary" for each industry. This classification represents "central administrative office and auxiliary units, such as warehouses, laboratories and maintenance locations" (see County Business Patterns, 1973 U.S. Summary, p. 3). While this category includes more than simply central administration or headquarters, it is the largest component of this classification and the closest one can come to data on headquarters.

6   The number of factors that can technically be included must be limited to a number that is much smaller than the number of observations (48 states in most cases).

7   John Mikesell and Kurt Zorn have developed some estimates for 1982 Workers' Compensation costs for manufacturing industries. (See "The Financing of Social Insurance of Indiana", unpublished paper, Indiana University, March 1984.) Two of their findings are important for this work. Minnesota ranks tenth highest in the nation for Workers' Compensation costs (see their Table 9, p. 21), which are about 2.9 percent of payroll in Minnesota. On the other hand, they note that "Workers'

Compensation costs constitute a negligible percentage of total manufacturing production worker costs, even a lesser amount than unemployment insurance costs" (p.22). Thus, it is unlikely that Workers' Compensation would affect decisions about employment change among states. This is not to say that legislatures should pay no heed to the costs of social insurance because it could make some difference if these costs begin to grow in what may appear to be an uncontrollable way.

[8] See Carlton (1983).

[9] The nominal tax rate for the $25,000 tax bracket is also collected as part of the data set, and could be used to measure the announcement effect. This nominal rate is highly correlated with IT50 ($r=.97$) and only IT50 is used in the analysis.

[10] See Feenberg and Rosen (1984).

[11] See Plaut and Pluta (1983).

[12] See Fuchs (1962).

[13] More recent figures for Minnesota are available for some factors, the fiscal factors in particular, but the comparable figures for other states are not readily available and these are needed in order to make use of the comparative results obtained in this study.

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Dependent Variable:

Employment changes 1973 to 1980 -- U.S. Department of Commerce, Bureau of the Census, County Business Patterns 1973 and 1980.

Independent Variables:

Labor Climate

WAGE   --   U.S. Department of Commerce, Bureau of the Census, Census of Manufacturing, 1977, Vol. 3, Table 5.

UNION   --   U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the U.S. 1979.

WSTOP   --   U.S. Department of Labor, Bureau of Labor Statistics, Handbook of Labor Statistics 1983 (Bulletin 2175).

RTW   --   U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the U.S. 1980.

EDUCL   --   U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the U.S., 1979.

UI   -- U.S. Department of Labor, <u>Handbook of</u>
             <u>Unemployment Insurance</u>, Financial Data
             ⸲ 1938-76.

P1844   -- U.S. Department of Commerce, Bureau of
             the Census, <u>Statistical Abstract of the</u>
             <u>U.S.</u> 1967, p. 25 and 1974 p. 32.

Energy

ELEC   -- U.S. Department of Energy, Typical Electric
             Bills 1978.

Fiscal Climate of the State

EDUCI, WELI -- ACIR, <u>Significant Features of Fiscal</u>
             <u>Federalism</u>, 1980-1981, Section 2, State
             Profiles Item 6 M-132 December 1981.

TEFF, PTEFF -- ACIR, <u>1981 Tax Capacity of the Fifty</u>
             <u>States A-93</u>, September 1983, Table 6,
             pp. 12-13.

HCIT, IT50 -- ACIR, <u>Significant Features of Fiscal</u>
             <u>Federalism</u>, 1976-77, Vol. II, Revenue
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<u>Methodology and Estimates</u>, M-134, State
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PCTLOC -- ACIR, <u>Significant Features of Fiscal Feder-</u>
<u>alism 1979-80</u>, Table 15, p. 21.

SALETX -- ACIR, <u>Significant Features of Fiscal Feder-</u>
<u>alism 1978-79</u>, M115, May 1971, Table 25.

<u>Climate</u>

MAXTEMP, MINTEMP -- U.S. Department of Commerce,
Bureau of the Census, <u>Statistical Abstract</u>
<u>of the U.S.</u>, 1979.

<u>Market</u>

DENST -- U.S. Department of Commerce, Bureau of

the Census, Statistical Abstract of the
U.S., 1974, p. 12.

PCY   -- Personal Income   -- U.S. Department of
           Commerce, Bureau of Economic Analysis,
           State Personal Income Accounts 1977. Popula-
           tion 1977--U.S. Department of Commerce,
           Bureau of the Census, Statistical Abstract
           of the U.S., 1978.

Agglomeration, (Dis)Amenities

PCTMFG, PCTAD -- U.S. Department of Commerce, Bureau
           of the Census, County Business Patterns,
           1973.

MA500, DENUR   -- U.S. Department of Commerce, Bureau
           of the Census, Census of Population 1970,
           individual state volumes.

The following two tables report the coefficients of the regressions summarized in Tables 6 and 7 in the text. The source for these results is "The Effect of Business Climate on Employment Growth: A Report to the Minnesota Tax Study Commission" by Michael Wasylenko.

TABLE 11[a]

Regression Results for Percentage Employment Changes 1973-80: By Industry
(No. of Observations = 48)

	Total Employment	Manufacturing	Transportation	Wholesale Trade	Retail Trade	Finance, Insurance, Real Estate	Services
CONSTANT	51.84	-307.71	-281.03	-17.26	75.47	-211.30	-238.51
WAGE	-5.54**	-3.31	1.12	-2.59	-4.75**	-7.54**	-4.27*
WSTOP	-14.25	-24.38	-23.19*	-6.54	-8.24	-2.14	-11.40
EDUC	-10.28	26.20	16.80	2.11	-10.78	11.02	11.60
P1844	-0.001	0.18	0.15	0.09	0.15	-0.44*	-0.24
ELEC	-0.01**	-0.005	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**
EDUCI	2.57*	-2.39	-2.03	3.25	4.67**	7.87**	1.85
WELI	2.17	3.68	1.56	0.11	0.77	1.05	-0.01
PTEFF	-0.42**	-0.55**	-0.22	-0.03	-0.28*	-0.28	-0.43**
EFFCIT	1.72*	0.60	-0.05	1.36	-0.18	1.65	0.71
EFFIT50	-0.89	-0.36	-0.06	-3.26**	-1.78**	-2.46**	0.47
SALETX	0.11	0.43	-0.07	-0.81*	-0.16	-0.10	0.39
MAXTEMP	0.79**	0.77*	1.68**	0.94*	0.17	0.11	0.90**
MINTEMP	-0.04	-0.26	-0.08	-0.30	0.22	-0.04	0.08
PCTMFG	-0.81**	-3.81**	-0.50**	-0.64**			
DENST	-0.01				-0.02**	-0.02**	-0.002
PCY	0.01**				0.01**	0.02**	0.01**
$\bar{R}^2$	.77	.62	.64	.48	.54	.62	.44

[a] Corresponds to Table 6 in the text.

* and ** indicate statistical significance for a one-tail test at the 0.10 and 0.05 levels, respectively.

TABLE 12[a]

Regression Results for Percentage Employment Change in Administration and Auxiliary, 1973-80

	Total Employment	Manufacturing	Wholesale Trade	Retail Trade	Services
CONSTANT	-1,279.09	41.36	-1,374.21	3,008.65	68,723.5
WAGE	-6.87	-15.88	-46.05*	-82.57*	-494.48
WSTOP	-88.17	-89.71	4.95	128.07	1,668.52
EDUC	68.04	-39.41	188.58	-347.49	3,880.36
P1844	-0.54	-2.40	1.14	3.37	-121.36**
ELEC	-0.02	-0.04	-0.04	0.03	-0.74
EDUCI	-13.99	8.65	-7.74	1.58	-232.67
WELI	6.01	9.78	-34.70	-0.65	81.29
PTEFF	-0.09	0.72	-3.14	-3.94	-70.50
EFFCIT	-5.27	-2.68	8.73	0.64	293.09
EFFIT50	8.77	-3.95	9.02	-32.64**	53.17
SALETX	2.11	1.03	-0.32	-15.89**	-62.13
MAXTEMP	5.42**	3.31	-4.08	7.10	205.85*
MINTEMP	-1.00	-1.73	1.52	3.02	-16.22
PCTAD	-10.31*	3.65	11.95	-57.62*	234.00
DENST	0.02	-0.03	0.25	-0.33*	-1.20
PCY	0.04*	0.06*	-0.03	0.22**	1.81*
MA500	-3.25	1.12	13.40	-36.23	-275.37
DEN	-0.002	-0.002	-0.003	0.01	0.01
$\bar{R}^2$	.18	-.13	.15	.28	-.10
F	1.55	.72	1.33	1.96**	.81
No. of Observations	46	46	46	46	38

* and ** indicate statistical significance for a one-tail test at the .10 and .05 level, respectively.

[a] Corresponds to Table 7 in the text.

ALEXANDER GRANT, INC MAGAZINE, AND THE ST. THOMAS STUDY:
COMMENTS ON THREE MINNESOTA BUSINESS CLIMATE STUDIES*

Introduction

Several recent studies relating Minnesota's tax effort
to the state's overall business climate have received wide
publicity. The purpose of this paper is to provide a review
of these studies discussing both the limitations of the specif-
ic techniques and methodologies used and their potential
appropriate uses for policy making purposes.

The three studies that will be discussed are: "Inc.'s
Third Annual Report on the States" by Inc. Magazine, "The
General Manufacturing Business Climate" by Alexander Grant
and Co., and "Minnesota Business and Jobs 1967-1982" by
John Plaster of the Small Business Development Center (SBDC)
of the College of St. Thomas.[1]

Ranking Studies

The Inc. and Alexander Grant studies rank the states
by using a set of weighted variables that are selected to
represent important factors in determining a state's "business
climate". The Alexander Grant study uses twenty-two variables
grouped in five categories to measure the manufacturing busi-
ness climate: state and local fiscal policies, state regulated
employment costs, labor costs, availability and productivity
of labor and other manufacturing related issues (e.g. energy
cost and environmental controls). In order to determine
the relative importance or weight of each variable, the Grant
Co. surveyed 32 state manufacturing associations, asking
them to provide a percentage weight for each category and
each variable within each category.

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* This report was written by Abigail McKenzie of the Commission
staff.

The Inc. study uses 15 variables in five categories to measure the business climate for small growing businesses. The categories included capital resource availability, taxes, labor costs, state supports and business activity. Inc. staff used interviews with business professionals, who were either small businessmen themselves or frequently dealt with small business, to determine both which categories to include in the study and the relative importance of each category. The quantitative weight attached to each category was determined by Inc. staff using the qualitative information gathered in the interviews.

Though employing similar techniques, the Grant study ranks Minnesota 43rd, while the Inc. study ranks Minnesota 5th. Furthermore from 1982 to 1983 Minnesota's ranking in the Grant study dropped 11 places, while Minnesota's ranking in the Inc. study increased 14 places. These surprisingly disparate outcomes point to some of the limitations of the ranking approach:

● Survey results establishing important business climate factors may be biased by respondent reporting error.

The variables included and the importance or weight of those variables are the sole determinants of the rankings. Yet the reported importance of those variables may or may not reflect the actual determinants of a business decision to open, maintain, or expand a facility in a particular state. This can occur because the respondents may not be responsible for any actual location decision and, therefore, uninformed of the determining factors. Similarly, respondents such as Grant's manufacturing associations may have an incentive to emphasize variables such as taxes that are susceptible to policy changes.

Clearly, substantial uncertainty is associated with self reporting of business climate factors. In 1982 the

Grant study ranked fiscal policies as the least important determinant of business climate. In contrast, the 1983 Grant survey resulted in taxes receiving the highest weight of the five categories. It seems unlikely that the criteria for business decisionmaking have so radically changed in the space of twelve months.

The importance of various factors may also be biased by the list of variables the respondents were asked to rank. In the Grant study, respondents ranked a fixed set of variables that did not include such factors as resource or capital availability, state supports or inducements, or quality of the infrastructure and educational system. Notably, the Inc. study considered two of these factors -- state supports and capital availability -- to be very important. Although the Inc. interviews were apparently more open ended, their list of variables is also far from comprehensive.

● Ranking results are limited to the specific business sectors examined and cannot be extrapolated to all industries.

The second limitation of these two studies is that although it is not impossible for such studies to generate the correct set of variables and variable weights for the business sectors examined, the results cannot be extrapolated to Minnesota's entire business community. In the Alexander Grant study energy costs were listed as the single most important manufacturing business climate variable. Yet energy costs may be a much less important factor for such industries as communications, finance and insurance, or trade. Thus, even if one accepts the view that Minnesota's manufacturing business climate is poor, the manufacturing sector represents only 25% of earnings and 17% of jobs in Minnesota. The results of this study can tell us little about the business climate for the sectors that account for the remaining 83% of Minnesota's jobs. Similarly, the rankings of the Inc. study are specific to small growing companies.

● No evidence is provided that the rankings either determine
   or reflect the level or growth of jobs in the state.

Finally, and most importantly, neither the <u>Inc.</u> nor the
Alexander Grant study demonstrates a statistical relationship
between their rankings, or the variables that determine them,
and the actual level or growth of employment in the states.
What decisionmakers must be concerned about is the health
of the state's economic base and the availability of quality
jobs for Minnesota citizens. Yet the <u>Inc.</u> and Alexander
Grant studies provide no evidence that factors such as tax
levels, wages, and energy costs have, in fact, significantly
affected employment or business growth in Minnesota or any
other state. Without such evidence, these studies can have
only limited usefulness to policy makers.

How, then, can the results of ranking studies be used?

Once the individual variables that are the determinants
of employment growth or business location have been identified
using empirical studies, Minnesota's position relative to
other states with respect to those variables will be important
information for decision makers. The Grant, <u>Inc.</u> and other
similar studies can be useful in providing quantitative meas-
ures of the factors thought to be important in explaining
differences in employment growth rates across states. Further-
more, if the Grant and <u>Inc.</u> rankings are identified as being,
themselves, significant factors in the growth of employment
among states, Minnesota's ranking relative to other states
will also be useful information for policy makers. Thus,
the Grant and <u>Inc.</u> studies can only be useful policy tools
if they are used in conjunction with empirical evidence of
the determinants of employment growth. Alone, they cannot
be used to explain or predict the health of Minnesota's economy
or its ability to provide jobs to its citizens.

College of St. Thomas Study

A study published by the Small Business Developmental Center (SBDC) of the College of St. Thomas undertook to examine Minnesota's business climate in the three part study "Minnesota Business and Jobs 1967-1982". The bulk of the study is devoted to an attempt to identify jobs lost to the state through business relocations or expansions due to state-induced costs. Reviewing 1000 businesses that expanded or relocated outside the state between 1967 and 1982, the SBDC researchers identified 407 that they felt left due to high taxes, unemployment insurance and workers' compensation costs. By using job loss as concrete evidence of the effects of taxes on business behavior, the St. Thomas study attempts to go one step further than the Inc. and Alexander Grant studies. However, the St. Thomas study fails to prove the link between Minnesota's tax effort and employment in three fundamental ways:

- The method used to identify job loss attributable to state-induced costs was subjective and is open to respondent reporting bias.

The study does not show that taxes were in fact the cause of the job loss identified in the study. According to the St. Thomas study 90% of the 407 companies identified were included because company representatives declared that state induced costs were a significant factor in the decision to move. The results of these interviews have the same weaknesses discussed with the ranking studies. Respondents have an incentive to exaggerate policy-related issues, or may not be informed of the actual determinants of the location decision. Further, although respondents reported that taxes were a significant factor, they did not report that they were the sole or even determining factor. Even if Minnesota taxes had been lower, those businesses might well have moved anyway for any number of other reasons such as an opportunity to enter new markets, or to take advantage of a lower cost or more productive labor force.

The other 10% of the businesses were included when St. Thomas staff determined that the facility equally could have been located in Minnesota and still serve company objectives. This is an extremely subjective approach, including no proof or evidence that taxes were a significant variable in the location decision. Thus, the 407 businesses and 82,190 jobs identified by the researchers as lost to Minnesota due to out-of-state expansion or relocations cannot be attributed to state taxes, or other state costs, with any certainty.

● **The study does not compare Minnesota's job loss with that experienced by other states in the nation or region.**

A study of the rate and characteristics of the jobs or business lost to Minnesota by expansion or relocation out-of-state would provide useful information. However, the St. Thomas study is limited in this regard as well, because it does not provide information on job loss in other states. As a result, we are unable to evaluate Minnesota's rate of job loss on a comparative basis. If Minnesota's job loss is roughly equal to that of other states in the region or nation we have little to be concerned about. If it is consistently higher, then this might be cause for concern.

● **The study does not relate job loss to Minnesota's level or growth of employment, ignoring that Minnesota employment grew at a faster rate than either the region or nation during the Seventies.**

The final serious limitation of the study is its failure to relate job loss to the net change or overall growth of employment in the state. Net employment change is composed of business formation and closings, on-site contractions and expansions, and out-of-state expansions and relocations. There is much evidence that differential rates of employment growth are primarily due to differences in formations and

expansions across regions.[2] The St. Thomas study looked only at out-of-state expansions and relocations. Further, it does not compare net employment growth in Minnesota over the period in question with that of other states. In fact, from 1969 to 1982 Minnesota generated jobs faster than the twelve state north central region and the U.S. as a whole. Of the north central states, only North Dakota had a higher rate of job growth than Minnesota's rate of 26.3%. Thus Minnesota was actually better able to employ its citizens during the 70s than most other states in the nation or region.[3]

The conclusion that "Minnesota clearly slipped from being the Midwest's leading industrial development state, and now trails its neighbors" has simply not been proved. Although attempting a more rigorous approach, the St. Thomas study fails either to definitively identify actual jobs lost or that fiscal factors adversely affected the level or growth of employment in Minnesota.

Conclusion

The fundamental test of the health of the state's economy must be its ability to provide jobs to its citizens. The Business Climate studies or rankings discussed in this paper do not reflect the effect of taxes or other factors on Minnesota's current employment and cannot be assumed to predict future growth in Minnesota employment. In order to provide such an assessment of employment, statistical evidence relating employment growth in Minnesota and other states to a broad range of cost factors, not just taxes in isolation, is necessary. Thus, these studies should not be used as the basis for policy decisions regarding the Minnesota tax system or the Minnesota economy in general.

ENDNOTES

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Plaster, John L., "Minnesota Business and Jobs, 1967-82", Small Business Development Center, St. Paul, Minnesota, (April 1983), pp. 4-30. (The Small Business Development Center is affiliated with the College of St. Thomas. However, the College has disassociated itself from the study.)

[2] See for example, Armington, Harris and Odle, "Formation and Growth in High Technology Business: A Regional Assessment" Brookings Institution, Washington, D.C., 1984.

[3] Roden, Lisa, The Minnesota Economy, a paper prepared for the Minnesota Tax Study Commission, June 1983.
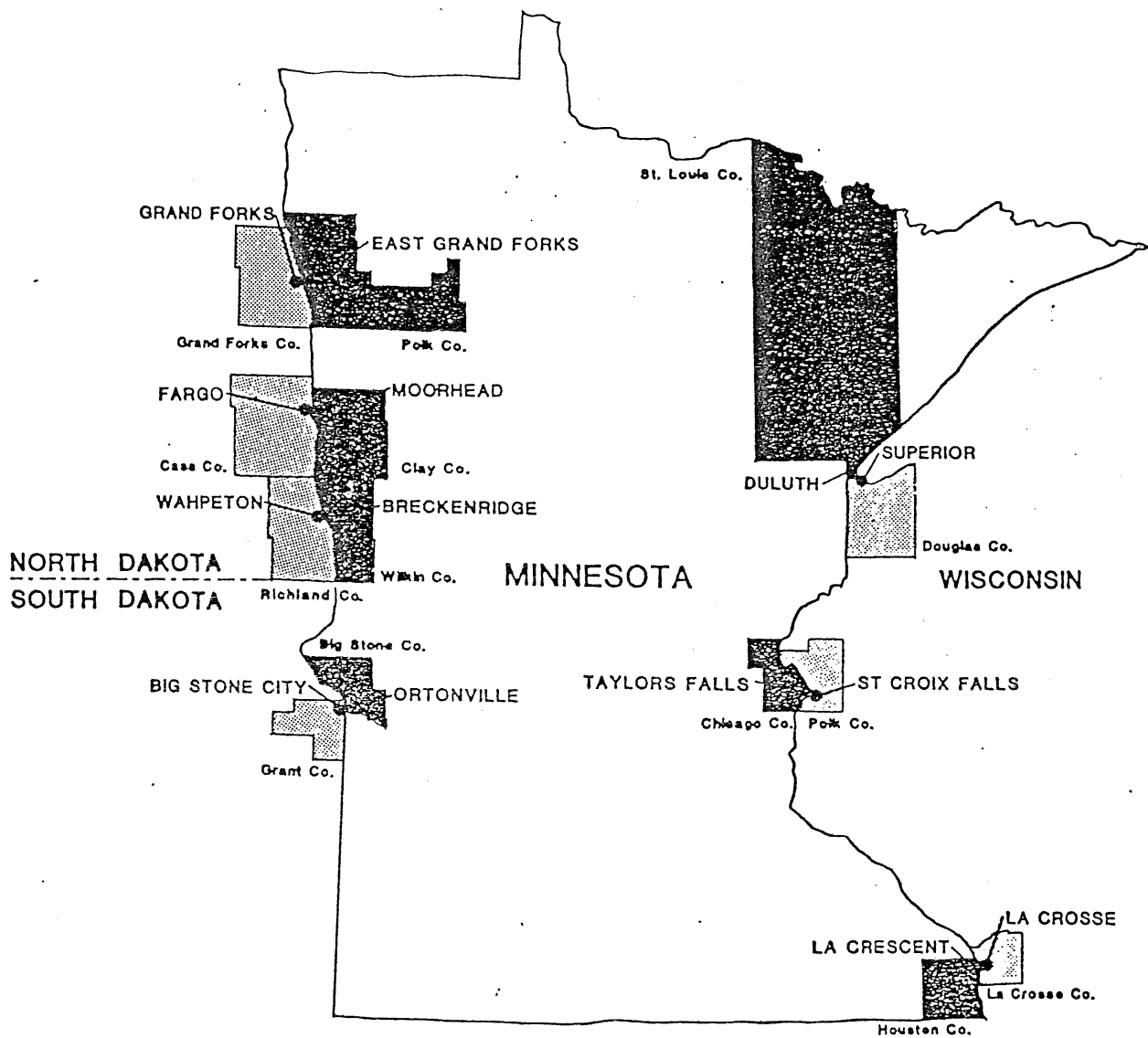
APPENDIX D

THE EFFECT OF INTERSTATE TAX DISPARITIES
ON MINNESOTA'S BORDER CITIES

In Minnesota, the per capita tax burden from state and local taxes exceeds the burden in some of our neighboring states, especially North and South Dakota. The purpose of this appendix is to discuss the effect of these fiscal disparities on employment and population growth in Minnesota's seven border cities. As shown on the map, these cities and their other-state sister jurisdictions are: Breckenridge-Wahpeton, North Dakota; East Grand Forks-Grand Forks, North Dakota; Moorhead/Dilworth-Fargo/West Fargo, North Dakota; Ortonville-Big Stone City, South Dakota; Duluth-Superior, Wisconsin; LaCrescent-LaCrosse, Wisconsin; and, Taylors Falls-St. Croix Falls, Wisconsin.

Section One discusses how tax differentials may be linked to employment changes in border cities. Section One also presents the data (to the extent that these data are available) which indicate the extent of the border city problem. The major conclusions are: 1) in many cases there are important efficiency reasons for tax differentials between jurisdictions; 2) in some cases, tax disparities are inefficient and may result in out-migration of employment. While potentially important, this does not appear to be a major problem in Minnesota; and 3) due especially to North Dakota's severance tax revenues and to an income tax reciprocity agreement with Minnesota, tax disparities are likely to encourage North Dakota residence for Minnesota workers along the North Dakota border.

Section Two offers a discussion of the implications for tax reform measures, including a review of Minnesota's Enterprise Zone program. The major conclusion of Section Two is that state-wide programs are not good tools for addressing the localized border cities' problems.

GRAND FORKS
EAST GRAND FORKS
St. Louis Co.
Grand Forks Co.
Polk Co.
FARGO
MOORHEAD
Cass Co.
Clay Co.
WAHPETON
BRECKENRIDGE
SUPERIOR
DULUTH
NORTH DAKOTA
SOUTH DAKOTA
Wilkin Co.
MINNESOTA
WISCONSIN
Douglas Co.
Richland Co.
Big Stone Co.
BIG STONE CITY
ORTONVILLE
TAYLORS FALLS
ST CROIX FALLS
Chisago Co. Polk Co.
Grant Co.
LA CROSSE
LA CRESCENT
La Crosse Co.
Houston Co.

MAP 1.1   BORDER CITY AREAS

Source: Minnesota Department of Energy, Planning and Development
         (1983). Border Cities Study, p. 4.

I. Interstate Tax Differentials and the Location of Households and Business

Statement of the Problem

This section contains a brief discussion of how tax differentials affect the choice of location within an urban area. Data are presented to indicate the location choices of businesses and households in the seven border cities during the period 1975 - 1979. Only weak conclusions can be drawn from these data. If conclusions must be drawn, it appears that 1) employment migration is not a major problem and, 2) residential migration may be significant for cities bordering North Dakota. If Minnesota has "suffered" vis-à-vis North Dakota, some of the disadvantage will remain even if the tax differential is closed.

A metropolitan area is comprised of many taxing jurisdictions. These jurisdictions may lie in one state, as in the case of the Twin Cities, or in two states, as in the seven border cities. What matters is that the jurisdictions assess different taxes and provide different sets of public services. Within the metropolitan area, the locations of both households and businesses will be influenced by these tax or tax-and-service options regardless of the state in which the various smaller jurisdictions lie.

Tax burdens ought not to be the same in all locations. For example, a family or business moving into the Taylors Falls-St. Croix Falls area will have the choice of two or more bundles of public services - those public services offered in Taylors Falls and those offered in St. Croix Falls. Since these bundles are not identical, the family or business would not expect to pay the same prices (tax bill) for them.

If, however, the tax-price of each public service is not the same in all locations, households and businesses will have an incentive to locate where they get the best buy on public services. Higher production costs in one jurisdiction than another is one source of tax price disparities.[1] By shopping around for low cost public services, businesses and households encourage efficiency in the production of these services.

Any jurisdiction can subsidize the consumption of public services; this is a source of tax price differences between jurisdictions which has no efficiency benefits. For example, in 1977, North Dakota lowered it's sales tax and in 1978, did the same for personal income taxes. These tax charges to public service users were replaced with revenues from severance taxes. This tax subsidy effect means that tax differentials do not reflect cost differentials. Therefore, taxes are not efficient prices in this case.

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While the location choices of business among metropolitan
areas are somewhat influenced by local taxes, tax differentials
are more important in determining where a firm will locate
within the chosen area. Six factors traditionally are used
to explain intra-urban location choices: land rent, proximity
to transportation, agglomeration economies, proximity to labor
markets, size of local markets, and fiscal variables.[2] While
taxes may account for only a small part of total costs, tax
differentials among local jurisdictions can comprise a large
share of total profit.[3] Thus, if other product and factor
markets are constant throughout the metropolitan area, tax
disparities may significantly influence business location
within the area. And, if tax differentials encourage more
clustering of households and firms, the clustering itself
may produce agglomeration economies, adding an additional
locational advantage in the low tax jurisdiction.

Sales tax differentials can have specific consequences for
shopping patterns in border cities. This problem will be
covered as part of the report on Non-Property Tax Local
Revenues to be presented to the Commission at a later date.

Data for Minnesota, Iowa, North Dakota, South Dakota, and
Wisconsin confirm that, except for Wisconsin, relative tax
burdens are, in fact, greater in Minnesota. If, however,
severance taxes are excluded, then only in North and South
Dakota are tax burdens significantly lower than in Minnesota.
Table 1 below reports per capita tax burdens in these states.
Column 3 omits the severance tax from the estimated burden;
severance taxes are "exported" to out-of-state buyers of
minerals and other exported natural resources.

TABLE 1: Per Capita State and Local
Tax Burdens*, 1981

	Revenue Per Capita	Severance Revenue Per Capita	Revenue Other Than Severance Per Capita
Iowa	$1035.	$0.	$1035.
Minnesota	1121.	24.	1097.
North Dakota	941.	157.	784.
South Dakota	826.	9.	817.
Wisconsin	1126.	0.	1126.

Source: ACIR, 1981 Tax Capacity of the Fifty States. (1981)

* Figures rounded to the nearest dollar.

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As the discussion above suggests, these tax differentials might affect location. We look to employment, income, and population growth for evidence of changing patterns in location.

Between 1975 and 1979, employment and income grew about as fast or faster on the Minnesota side of five of the border city areas - East Grand Forks, Moorhead, Ortonville, LaCrescent, Taylors Falls - as on the out-state side. For the other two, Breckenridge and Duluth, this growth was less than for Wahpeton and Superior, respectively. Tables 2 and 3 contain Bureau of Economic Analysis data as reported in Minnesota Department of Energy, Planning and Development (p. 67). In each case, the percentage change is for the county in which the city is located, not for the city itself.

TABLE 2:   Change in Private Non-Farm Employment,
Border City Areas, 1975-1979.

	Minnesota	Other State
East Grand Forks-Grand Forks	+19.4%	+19.0% (ND)
Moorhead-Fargo	+24.8%	+20.2% (ND)
Breckenridge-Wahpeton	+ 3.6%	+19.7% (ND)
Ortonville-Big Stone City	+ 9.8%	+ 3.8% (SD)
LaCresent-LaCrosse	+24.9%	+24.8% (WI)
Taylors Falls-St. Croix Falls	+35.6%	+31.4% (WI)
Duluth-Superior	+ 8.2%	+15.2% (WI)

Source: U.S. Department of Commerce, Bureau of Economic
Analysis

TABLE 3:   Change in Private Non-Farm Income,
Border City Areas, 1975-1979.

	Minnesota	Other State
East Grand Forks-Grand Forks	+56.1%	+58.6% (ND)
Moorhead-Fargo	+71.0%	+62.6% (ND)
Breckenridge-Wahpeton	+47.3%	+59.0% (ND)
Ortonville-Big Stone City	+44.0%	+27.7% (SD)
LaCresent-LaCrosse	+68.4%	+68.8% (WI)
Taylors Falls-St. Croix Falls	+94.2%	+67.6% (WI)
Duluth-Superior	+51.0%	+63.0% (WI)

Source: U.S. Department of Commerce, Bureau of Economic
Analysis

For the five robust areas any economic drag from tax differences was either insignificant or overcome by more powerful factors favoring growth on the Minnesota side.

It is not clear why Duluth lags Superior in growth. Table 1 shows very little tax disparity between Minnesota and Wisconsin. Duluth has experienced many other problems, not related to tax differences, and unfortunately the kind of comparisons in Tables 2 and 3 cannot separate these problems from tax effects. Examination of additional BEA data for 1975-79 shows that income and employment grew in Duluth's St. Louis County for the non-farm, manufacturing, retail trade, wholesale trade, and services categories. Superior's Douglas County had a decline in manufacturing employment. The relatively weak performance of Duluth vis-à-vis Superior may be a statistical illusion where a small increase in employment in Superior's Douglas County (with 44,421 population in 1980) is a large percentage while a large increase in Duluth's St. Louis County (with 222,229 population in 1980) is a small percentage growth.

In the case of Breckenridge (Wilkin County) and Wahpeton (Richland County, North Dakota) the results are more clear. Some factor change appears to have stimulated a shift in locational choice by manufacturing firms. Both cities and counties are relatively small. Wilkin's small manufacturing sector declined while Richland's much larger manufacturing activity grew markedly.

Tax differentials can also influence the residential location choices of households. Table 4 summarizes population growth in the counties of the seven border cities between 1970 and 1980.

TABLE 4: Population Growth

| | 1970-1980 | |
	MN County	Other-State County
Grand Forks-East Grand Forks	1.2%	8.2% (ND)
Moorhead-Fargo	5.9%	19.8% (ND)
Breckenridge-Wahpeton	-10.7%	6.2% (ND)
Ortonville-Big Stone City	-2.8%	0.1% (SD)
LaCresent-LaCrosse	4.7%	13.2% (WI)
Taylors Falls-St. Croix Falls	47.0%	21.3% (WI)
Duluth-Superior	0.7%	-0.5% (WI)

Minnesota cities on the western border were outstripped in growth especially by their North Dakota counterparts. A detailed analysis by the State Department of Energy, Planning, and Development (1983, p. 77) shows that Moorhead lags Fargo especially in growth of the population aged 25 - 34 years old.[4]

Concluding Observations

After reviewing these data, is there evidence of a border cities problem which is caused by tax disparities? The answer based on these data is that a problem in the location of businesses can neither be ruled out nor in; a problem of population relocation into North Dakota appears to be real.

On the eastern border, Minnesota and Wisconsin have very nearly the same per capita tax burdens, although there may be important local differences which are not identified or discussed in this brief paper. Population grows faster on the Minnesota side of two border cities, and slower in a third, than in Wisconsin. The evidence on employment and income growth is mixed.

On the western side, Ortonville, MN performs better than Big Stone City, SD in employment and income growth inspite of the much higher tax in Minnesota than South Dakota. Both parts of the urban area are struggling for population with the South Dakota side holding its own, the Minnesota side shrinking.

Among the North Dakota border cities, Breckenridge-Wahpeton shows evidence that something is happening to shift both population and employment. And while Minnesota is keeping stride with North Dakota in income and employment growth, of the two larger border cities, population is more often settling in North Dakota.

Differential tax burdens between the two states could encourage living in North Dakota even while working in Minnesota. This incentive may be deepened by a personal income tax reciprocity agreement requiring Minnesota workers who live in North Dakota to pay personal income taxes in North Dakota. In 1981, the average per capita income tax in North Dakota was $95; for Minnesota the same average tax bill was $341.[5]

In the mid-1970s, North Dakota's collection of tax revenues from energy exports accelerated. This allowed the state to substitute severance taxes, paid by out-of-state energy buyers, for state and local tax sources.[6] A falling tax burden with no corresponding decline in public services could encourage re-locating households to live in North Dakota rather than Minnesota. More dense population does create advantages for attracting business and jobs, although some of this advantage is likely to be dissipated by rising prices and rents for property in North Dakota.

The tax burden disparity between Minnesota and North Dakota may be closing as the market for energy products weakens. In 1983, North Dakota enacted increases in personal and corporate income taxes, sales taxes, gas and cigarette taxes, and other revenue categories.[7] As the gap closes, the direct disadvantages to Minnesota obviously will fade. The indirect disadvantage will linger. This disadvantage results from the more dense clustering of population and business in North Dakota jurisdictions.

II. Implications for Tax Reform Measures

Statewide vs. Local Policies

Drawing on the analysis in Section One, it appears that tax disparities present both an efficiency problem and an equity problem especially in Minnesota cities bordering North Dakota. The efficiency problem results from the non-neutrality of the tax disparities, i.e., tax differentials do not properly reflect public service differences but do encourage re-location. In a "neutral" tax world, a firm might want to stay-put while in the non-neutral tax environment this same firm may choose to re-locate in order to improve after tax profits. The economic advantages created by the clustering of population and/or businesses in North Dakota act to compound the efficiency issue. This secondary advantage will persist for North Dakota cities - as will the concomitant disadvantage for Minnesota cities - after tax differentials subside. As seen above, these efficiency effects do not appear substantial or wide-spread during the period 1975-79.

The equity problem results from the loss in wealth to landowners on the Minnesota side of the border cities. If tax subsidies in North Dakota made Minnesota property less valuable, current Minnesota owners suffered while North Dakota owners gained.

Policies for tax reform to deal with the border cities can take two basic forms: 1) state-wide policies to eliminate the tax burden differentials and 2) policies to address the efficiency and equity problems caused by tax differentials. Statewide policies to eliminate the differentials are not advisable. Such policies will not solve tax disparity problems. If Minnesota, lacking a way to export taxes, lowers both tax and services while North Dakota maintains services, then a service disparity will replace a tax disparity with corresponding efficiency and equity problems.

Localized policies to address the border cities problems are likely to be less costly to the economic health of the state than more broadly-based policies. Tax disparities likely cause economic changes away from the borders as well as on the the borders and these changes will not have the same characteristics as the problems on the borders. Thus, to address the border cities, a policy will have to identify a specific problem relevant to the border area and to address a localized solution to this problem. For example, Minnesota has income tax reciprocity agreements with North Dakota, Wisconsin, and Michigan. At first glance this reciprocity might appear to serve to reduce border problems. But on the North Dakota border, it exacerbates tax disparity problems. And the policy potentially applies to all residents of the agreeing states, not just those who live and work in border cities. Because of this general eligibility, the policy has been somewhat costly to Minnesota as Wisconsin residents drive to the interior to work in the Twin Cities. Fortunately, as part of the Minnesota-Wisconsin agreement, Minnesota is reimbursed by Wisconsin for this loss of revenue. Minnesota and North Dakota do not have a reimbursement agreement. When Minnesota loses revenue because workers here live in North Dakota, that revenue is not reimbursed by North Dakota.

Enterprise Zones

The Enterprise Zone is one policy which is now implemented in six border cities - Moorhead, East Grand Forks, Dilworth, Ortonville, Breckenridge, and Duluth. The program permits a qualifying third or fourth class city anywhere in the state, including border cities, to develop an Enterprise Zone. Within the Zone, business is eligible for subsidies of production costs and tax obligations. This program, again, is broadly-based and is not a specific localized solution to a well-identified border cities problem. It is likely that at least some provisions of the Enterprise Zone Program are not suitable solutions for, or may exacerbate, border cities' problems.

Other provisions of the Enterprise Zone may be favorable to border cities. Businesses receive state tax credits related to employees, property taxes, sales taxes, and income taxes. These credits counteract the direct disadvantages created by state-to-state tax disparities. And Minnesota's zoned incentives might be more competitive with the advantages of agglomeration on the other-state side of border cities. One of the important economic functions of Enterprise Zones is to combat the loss of agglomerative economies when "firm closings and accompanying building abandonment detract from the business environment, making other firms less likely to stay in the area."[8]

It is possible, however, that the Enterprise Zone may simply "move the border in", i.e., impose the localized tax disparity and attendant inefficiencies somewhere other than along the border. If entire border city areas (like Moorhead and Dilworth together) were encompassed by a single Enterprise Zone, this "in-bounds" problem would be less likely to happen.

A final efficiency problem is posed by the complex nature of the Enterprise Zone program. Small cities are likely to have difficulty in staffing and operating the administrative process for the zones - and the economic benefits to these cities may not equal these administrative costs.

Enterprise Zones do have the equity advantage of potentially "bringing the jobs to the poor." Presumably these poor, for economic reasons, are not equally able to take themselves to the jobs elsewhere. Thus, an Enterprise Zone in Moorhead (Clay County, Minnesota) might have an important impact for the 15.9% of Clay County's families whose incomes were below $10,000 in 1979 (this contrasts with the 14.3% of such families in Fargo's Cass County).

An appropriate policy for the border cities must reflect the fundamental relationship between taxes and public services: taxes are the prices of public services and tax disparities usually do, and should, reflect the differing costs of differing bundles of public services. If public services are correctly priced by the tax structure, then on efficiency grounds, government involvement is not justified. If, as may be true in the case of North Dakota, taxes are exported to non-residents, then tax prices are false signals and may encourage re-location. The specific re-location issue needs to be the focus for an appropriate "spot" policy of repair. Given that Minnesota is not as able to export taxes to non-residents, it is not appropriate to engage in a state-wide price-war. The only possible outcome would be a state-wide deterioration in the level of public services.

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