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Tax Base Sharing: Simulations for Kalamazoo County

Timothy L. Hunt

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Timothy L. Hunt

TAX BASE SHARING:
SIMULATIONS FOR KALAMAZOO COUNTY

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1987

In late 1985, the Kalamazoo Forum asked the Upjohn Institute to look at tax base sharing within their study of tax structure. This paper is an outgrowth of simulations conducted for the Subcommittee on Tax Base Sharing. The author benefited from numerous conversations with Kalamazoo Forum members, all of whom will remain anonymous to insure that they are not implicated in any way with this effort. This paper represents the author's views solely, not those of the Kalamazoo Forum or the Upjohn Institute.

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TAX BASE SHARING:
SIMULATIONS FOR KALAMAZOO COUNTY

I. Introduction

Tax base sharing allows residents of participating jurisdictions in an area to share the benefits of the growth in the commercial-industrial property tax base regardless of where that growth occurs. This sharing does not create a new layer of government, however, change existing jurisdictional boundaries, or alter local decisionmaking authority.

The concept of tax base sharing may be especially apropos today for a number of reasons. Large manufacturing plants may locate next to key rail or highway links, while commercial establishments tend to agglomerate in shopping districts to improve customer traffic. These business firms serve the needs of residents throughout a broad area by providing jobs and products, yet local jurisdictional boundaries, which were established long before modern business patterns, govern the payment of local property taxes. The net result is that some jurisdictions find it difficult to support a given level of services at the same time that others are either expanding services or reducing tax burdens. Since local governments rely heavily on the property tax, these problems have been exacerbated recently by the decline in aid from other governmental sources.[1]

Another result is that local jurisdictions have a strong incentive to compete aggressively for new commercial-industrial development as long as they

1. Among others, the federal general revenue sharing program is currently slated to end December 31, 1986.

perceive the benefits to their jurisdictions to be greater than the costs. Unfortunately, the hard truth is that there are far fewer major commercial-industrial development projects today than there are localities. Witness the frenzied activity of many states and areas to attract the GM Saturn plant.

Business firms, especially those in basic industries, do not tend to think in terms of local jurisdictions. They sell their products throughout an area or export those products to other regions, states, or nations. On the other hand, their employees are likely to come from all areas within a region. Firms have a vital stake in the economic health of a region that has little to do with local jurisdictional boundaries. Economic development officials have long suggested that localities put aside their inter-jurisdictional rivalries and develop a more unified posture. The goal is to enhance regional economic growth through this unity and the pooling of available resources.

The region upon which this paper is focused is the Kalamazoo Metropolitan Statistical Area (MSA). MSAs are designated by the U.S. Bureau of the Census using a variety of criteria, all of which emphasize the degree of interdependence within a region and which thereby tend to differentiate it from other regions. The notion is that MSAs represent unique areas, in terms of local purchases, local labor markets, and commuting patterns. It turns out that the Kalamazoo MSA is synonymous with the boundaries of Kalamazoo County.

The purpose of this paper is to make a preliminary evaluation of tax base sharing for Kalamazoo County. It is written largely for a nontechnical

audience. More technical aspects of the discussion have been relegated to footnotes and appendices. There is also an extensive list of references for anyone who wishes to pursue the subject further.

The basic approach of the paper is to use historical data from the local jurisdictions within Kalamazoo County to simulate the effects of tax base sharing. The remainder of the introduction describes the key features of tax base sharing and its advantages and disadvantages. Section II briefly outlines the growth of the property tax base in Kalamazoo County. Such a description is a necessary prologue to understanding the simulations which follow in Sections III and IV. Specifically, the tax base sharing provisions adopted by the Minneapolis-St. Paul area are evaluated in Section III, while several hypothetical alternatives are evaluated in Section IV. Finally, the conclusions of the paper are drawn in Section V.

Tax base sharing became fully operational in the Minneapolis-St. Paul area in 1975, hereafter referred to as the Minnesota Plan. Since the Minnesota Plan was one of the earliest tax base sharing schemes, it has become the model on which to judge other tax base sharing plans.[2] For this reason and the sake of convenience, much of the discussion of this paper is couched in terms of

2. Other tax base sharing plans, albeit much more restrictive in scope and purpose, have been adopted in two areas, the Hackensack Meadows Redevelopment District of New Jersey and Charlottesville, Virginia. In the latter case a set millage is shared by formula between the city and remainder of the county, while in the former case school levies are shared among 14 districts affected by the redevelopment.

the Minnesota Plan even though the concept is more general and can be readily adapted to the specific needs and goals of other areas. In fact, some of the simulations presented later in this paper represent a considerable departure from the Minnesota Plan.

Key Features

Tax base sharing is a method whereby local jurisdictions may agree to share some portion of the growth in their property tax base. As practiced in the Minnesota Plan, localities contribute 40 percent of the growth in the commercial-industrial property tax base to an areawide pool. The tax base in the regional pool is redistributed back to the jurisdictions using a predetermined formula. After this allocation, local authorities establish their spending requirements and derive the tax rate necessary to meet those requirements. This tax rate is applied equally to all classes of property physically within each jurisdiction, except that a regionwide average tax rate is applied to business property nominally in the regional pool.

The details of the Minnesota Plan are discussed in Section III, but it is important at the outset to identify a number of key features of tax base sharing. First, tax base sharing generally does not establish a new layer of government in the local area because both the contribution and distribution formulas are predetermined and made a part of the tax base sharing agreement itself. In the Minnesota Plan local jurisdictions continue to independently set spending priorities just as they have always done in the past. It does not restrict the spending authority of local governments in any way.

Second, it should be mentioned that tax base sharing does not involve the imposition of any additional taxes in the region overall. This remains true as long as the contributions of tax base to the regional pool are exactly matched by the distributions of tax base from that same pool. Of course, individual jurisdictions, firms, and residents may be net recipients or contributors, depending on the location of future growth.

The third key feature of tax base sharing is that the distribution formula does have redistributive aspects. Although such redistribution may be controversial, the goal is to redress to some degree the fiscal imbalances alluded to earlier in this introduction. These imbalances are created by the concentration of businesses in a few districts, whereas the spending required to support the local population (which tends to be much more dispersed) is the responsibility of many jurisdictions.

The final key feature of tax base sharing is that local jurisdictions share a portion of the future growth in the tax base rather than the existing tax base. This means that initially tax base sharing has little effect on a region. As the region grows and prospers, the shared base also grows and becomes relatively more important. Since only 40 percent of the growth in the commercial-industrial tax base is shared, however, the bulk of all future growth remains in the local jurisdiction. Furthermore, the Minnesota Plan includes a limiter that effectively insures that each locality always receives a minimum distribution from the shared tax base.

Advantages

There is no agreement about the advantages or disadvantages of tax base sharing. In broad terms, it appears that proponents emphasize the importance of reducing fiscal disparities, sharing the benefits of regional growth, and retaining local autonomy and decisionmaking. Each of these aspects of tax base sharing is now discussed in turn.

In general, the Advisory Commission on Intergovernmental Relations defines state-local fiscal disparities as the "...imbalance between the financing ability of state-local governments and the responsibilities they bear, and the imbalance among different abilities of state and local governments to raise revenue." (ACIR, 1980: iii) Obviously, local tax base sharing does not address questions pertaining to what level of government -- local, state, or federal -- can or should be responsible for financing specific government services. The state and federal tax structure is basically assumed given, although questions may arise about the interaction of local tax base sharing with other existing intergovernmental aid programs.[3]

The presumption in tax base sharing is that the concentration of business firms in a few areas has led to the existence of considerable fiscal disparities among local jurisdictions in their abilities to raise revenue. In other words, at the local level an uneven distribution of property tax base is

3. These questions, legal and otherwise, are not addressed in this paper.

sufficient evidence that fiscal disparities exist.[4] Local tax base sharing then attempts to partially reduce these disparities by sharing the growth in the business tax base that occurs anywhere in the region.

In the late 1960s and the early 1970s, the residents of the Twin cities area were sensitive to the existence of fiscal disparities. That experience will be discussed in detail in Section III. Suffice it to say now that tax base sharing was actually authorized by the Minnesota Fiscal Disparities Law, and it is still commonly referred to in Minnesota simply as "Fiscal Disparities." Thus, there should be no question that tax base sharing was adopted at least in part to ameliorate the fiscal disparities that were perceived to exist in the Twin Cities area.

While any debate about fiscal disparities tends to stress fairness and tax equity, it is also thought that there are separate and distinguishable advantages from sharing the benefits of regional growth.[5] There would be fewer interjurisdictional rivalries for firms because "winners" would only be certain of keeping 60 percent of the growth, while "losers" would be assured of some benefits from that growth even though it didn't occur within their own jurisdictions. At the same time, business tax rates would slowly begin to move

4. It should also be clear that jurisdictions may differ in the amount of public services their residents desire. Therefore, economists define fiscal disparities as a situation where the tax price for the same bundle of services differs.

5. Lyall (1975) stresses this advantage of tax base sharing and actually identifies it as the primary reason to support tax base sharing.

toward the regional average as the shared pool grew. These developments would tend to encourage more regional thinking, both on the part of firms and local governments. The notion is that a broader framework for decisionmaking would lead to a more efficient rationalization of the development of the region and enhance economic growth generally.

Conceptually, tax base sharing does indeed reduce the incentives for competition among local governments and encourages them to work for the growth of the area as a whole. Just as important to sharing the benefits of regional development is that the growth of the tax base and therefore tax capacity of local governments becomes more stable. Paul Gilje of the Citizens League (Gilje, 1977: 38) compares this aspect of tax base sharing to purchasing an insurance policy. In exchange for the premium of 40 percent of the growth in the commercial-industrial tax base, a locality receives a guaranteed share of the region's growth. The question is whether or not a locality wants to gamble and go it alone or whether it is willing to give up the possibility of a large gain for a smaller but more certain share of the regionwide gain in the business tax base.

The final advantage of tax base sharing is that it retains the autonomy and local decisionmaking authority of local government. Although the tax base is shared, local governments continue to decide the size and composition of local spending. Tax base sharing therefore tends to equalize the capacity to tax rather than actual budgets. Although it will be seen later that tax base sharing adds significantly to administrative requirements, it does not add a new layer of government to the local area.

Disadvantages

Tax base sharing has had its share of critics. The disadvantages appear to fall into three areas. First, since tax base sharing does not create, at least directly, either new tax base or new revenues, it is very difficult to gain political consensus about any tax base sharing proposal because local jurisdictions can always utilize historical data to determine if they would have been a "winner" or "loser." In fact, John Kari and Eugene Knaff (1982) suggest that the "winners-losers" problem may account for the limited acceptance of tax base sharing nationwide.[6]

It is very important to understand the "winners-losers" problem because this paper will also present empirical simulations of the impacts of tax base sharing using historical data. Under these tax base sharing procedures, it is future growth which is shared, not historical growth. It is extremely dangerous to presume that past growth patterns will be perpetuated ad infinitum. In addition, the "winners-losers" can change cyclically or sometimes even abruptly from year to year. Try to imagine the impact that the GM Saturn plant would have had on Schoolcraft Township and Kalamazoo County generally. Does anyone pretend to know what local jurisdiction will be adversely affected by the next plant closure?

6. See footnote (2) for the other two areas which have adopted some form of tax base sharing. The author is unaware of any other localities in the U.S. which have adopted tax base sharing.

The Minnesota experience with tax base sharing has verified that there may be many changes in the fortunes of local jurisdictions over the years. For example, the cities of Minneapolis and St. Paul were initially net recipients of tax base, but recently they have been net contributors (Minnesota Journal, November 19, 1985: 1). The primary reason for this change has been a resurgence in the construction of office buildings downtown. A recent research report from the Minnesota House of Representatives details the dynamic nature of the program (Baker and Hinze, 1984).

It should be stressed that historical comparisons by their very nature tend to be artificial. The implicit assumption is that all decisions and developments would have occurred identically with or without the hypothesized program change (in this case, tax base sharing). But one of the goals of tax base sharing is to change incentives and influence both the pattern and pace of regional economic growth and development. Unfortunately, it does not appear to be possible to conduct historical simulations and capture these effects.

Thus, tax base sharing will create "winners" and "losers" in the sense that "after the fact" jurisdictions will always be able to calculate if they would have been better off or worse off because of tax base sharing alone. Even though such comparisons tend to be artificial, historical simulations will be conducted in this paper because there does not appear to be any other satisfactory way to develop a baseline or gain additional insight into how tax base sharing might impact Kalamazoo County. It can only be hoped that the results of this paper will be interpreted cautiously and that narrow self-interest will not be the only criteria used to evaluate tax base sharing.

The second major disadvantage of tax base sharing actually questions the existence of fiscal disparities and/or whether the changes brought about by sharing are desirable. Tiebout (1956) suggests that the existence of many local jurisdictions permits a matching of the preferences of households for public services with the production of those public services by local governments. Fox (1981a) approaches the issue somewhat differently but reaches the same conclusion as Tiebout. Fox suggests that any perceived revenue surplus created by business firms is actually compensation to residents of the local jurisdictions for undesirable external costs (pollution, traffic congestion, etc.) created by those business firms. According to Fox, the existence of zoning laws is evidence that business firms are undesirable neighbors.

It is far beyond the scope of this paper to critique the theoretical arguments for or against the existence of fiscal disparities.[7] Suffice it to say that if one concludes that either the status quo is optimal or the fiscal benefits from growth represent payment for the undesirable features of business firms, then it is obvious that any new program such as tax base sharing constitutes a movement away from optimality.

The proponents of tax base sharing obviously reject the notion that the existing distribution of tax base, public services, or tax rates resembles

7. The interested reader should consult an earlier Upjohn Institute paper by Wayne Wendling (1981c) which specifically addresses the theoretical issues.

anything close to optimal conditions.[8] They frequently appeal to the Serrano vs. Priest decision as evidence that the courts found extreme disparities in the abilities of localities to finance public education. Unlike the solution for public education, however, the goal of tax base sharing is not to provide identical government services to all residents, but to smooth out the capacity of local governments to provide those services. Each jurisdiction is then allowed to respond to the needs and desires of its own citizens.

Proponents of tax base sharing argue that it is at least an incremental step toward optimality. While that tends to be true overall for a region, it is not necessarily true for each jurisdiction within the region. For example, it is possible for a locality to be above average in terms of its property tax base and yet contain virtually no business property. In this situation the above average district would add modestly to its wealth through tax base sharing because each district always receives a minimum share of the regional growth, even if no business growth occurs locally.[9] In other words, tax base sharing assumes a more equal distribution of the business property tax base is desirable per se, without regard to other factors.[10] That this might not be

8. The exchange between Fox (1981a) and Reschovsky (1981) represents a brief but reasonable summary of the opposing situations.

9. Vogt (1979) found this to be true when he applied a version of the Minnesota Plan for tax base sharing to San Diego County, California.

10. Of course, it is possible to account for other factors in a tax base sharing plan.

the case highlights the need for careful study of tax base sharing before implementation in any region.

The third and final disadvantage of tax base sharing is one of perception only. Tax base sharing has sometimes been misconstrued with other efforts to reduce the reliance of local governments on the property tax to raise revenue, but there appears to be absolutely no valid reason to think that property tax bills will fall with the adoption of tax base sharing.

II. Growth of the Property Tax Base in Kalamazoo County[11]

Simulations of the impacts of tax base sharing on the local jurisdictions in Kalamazoo County will be presented in Sections III and IV of this paper. First, however, a brief overview of the growth in the property tax base in the county and its local jurisdictions is presented. This approach provides the necessary institutional framework for the later empirical analysis. The discussion includes the effects of property tax abatements and inflationary growth in the property tax base because both impact the available property tax base to be shared. The section ends with a consideration of some measures of fiscal disparities.

11. The raw property tax data discussed in this section and later sections were kindly provided by the Kalamazoo County Equalization Office. The author also benefited from several long discussions with the Director of that office, James Ringler, and with the Kalamazoo County Controller, Wesley Freeland. However, the author retains full responsibility for the interpretation and subsequent data manipulations.

Growth of the Property Tax Base

The growth in the taxable value or valuation of the commercial, industrial, and personal property tax base in Kalamazoo County is presented in Figure 1 for the years 1972 through 1985. The taxable value of each class of property includes the total State Equalized Valuation[12] (SEV) plus the taxable value of property granted special tax status by Public Acts 198 and 255, known popularly as property tax abatements. For simplicity, the commercial, industrial, and personal property taxable value are jointly referred to hereafter as the business tax base or business taxable value. Property tax abatements are discussed separately later in this section.

Figure 1 shows clearly that business taxable value and its three components have risen in almost every year from 1972 through 1985. Commercial taxable value has grown more than three times faster than industrial taxable value. The sharp decline in personal property taxable value in 1975-76 occurred because of the repeal of the personal property tax on business inventories in that year as part of the implementation of the Michigan Single Business

12. In the Michigan property tax system the taxable value of property is one-half its market value. Market value is generally determined by local assessors, but state equalization factors are applied across jurisdictions as necessary to insure that local governments do not deliberately underassess property.

Figure 1

TOTAL STATE EQUALIZED VALUE

Kalamazoo County, 1972-1985

Tax.[13] Overall, there has been significant growth countywide in the business tax base over this period.

Since property taxes are paid on one-half the nominal or market value of property, including any inflationary effects, significant taxable growth does not necessarily imply that real growth occurred. The effects of inflation on the growth of property values is discussed separately in the next subsection of the paper.

The growth of the property tax base for the basic tax collection units within Kalamazoo County is detailed in Table 1 for the years 1976 through 1985. The basic tax collection units, as the name implies, are responsible for collection and administration of local property taxation within their districts. These 19 local jurisdictions, consisting of four cities and 15 townships, are nonoverlapping and sum exactly to the countywide totals. Total taxable value includes business taxable value plus agricultural, residential, and developmental[14] SEV. The year 1976 is selected as the base year for this analysis to avoid the distortion in the data created by the removal of business inventories from business taxable value in 1976.

13. Local districts are compensated by the state for this decline in their tax base (Michigan House of Representatives and Michigan State Senate, 1983). For more information about the Michigan Single Business Tax, see Michigan Department of Treasury (1985).

14. Developmental property is in transition, generally from agricultural usage to residential or business usage. It is a small part of total taxable value countywide.

Table 1

SUMMARY OF GROWTH RATES IN THE BUSINESS TAXABLE VALUE AND TOTAL TAXABLE VALUE

	Business Taxable Value (1976)	Business Taxable Value (1985)	Absolute Change (1976-85)	Percent Change (1976-85)	Average Annual Growth Rate	Total Taxable Value (1976)	Total Taxable Value (1985)	Absolute Change (1976-85)	Percent Change (1976-85)	Average Annual Growth Rate
Townships										
Alamo	3,066,663	4,695,600	1,628,937	53.12	4.85	14,257,853	32,810,500	18,552,647	130.12	9.70
Brady	2,206,105	3,900,002	1,693,897	76.78	6.54	17,380,255	43,163,277	25,783,022	148.35	10.64
Charleston	1,293,149	7,560,282	6,267,133	484.64	21.68	8,430,969	26,345,053	17,914,084	212.48	13.50
Climax	815,730	1,679,446	863,716	105.88	8.35	8,853,066	23,415,946	14,562,880	164.50	11.41
Comstock	70,471,207	97,014,617	26,543,410	37.67	3.62	107,944,316	180,156,217	72,211,901	66.90	5.86
Cooper	5,001,148	8,209,527	3,208,379	64.15	5.66	35,523,198	78,346,147	42,822,949	120.55	9.19
Kalamazoo	51,792,749	76,296,050	24,503,301	47.31	4.40	113,643,937	202,958,250	89,314,313	78.59	6.66
Oshtemo	33,440,735	71,786,075	38,345,340	114.67	8.86	64,356,808	150,907,083	86,550,275	134.49	9.93
Pavillion	4,017,876	6,958,749	2,940,873	73.19	6.29	20,759,379	51,184,349	30,424,970	146.56	10.55
Prairie Ronde	1,261,008	1,763,716	502,708	39.87	3.80	7,797,037	22,203,554	14,406,517	184.77	12.33
Richland	4,907,167	16,208,610	11,301,443	230.30	14.20	28,924,622	71,836,415	42,911,793	148.36	10.64
Ross	4,345,745	8,498,880	4,153,135	95.57	7.74	30,747,903	71,332,619	40,584,716	131.99	9.80
Schoolcraft	12,473,647	22,578,900	10,105,253	81.01	6.82	36,768,993	79,856,579	43,087,586	117.18	9.00
Texas	2,554,461	7,557,375	5,002,914	195.85	12.81	28,819,042	86,981,935	58,162,893	201.82	13.06
Wakeshma	729,250	862,348	133,098	18.25	1.88	6,371,050	17,649,798	11,278,748	177.03	11.99
Cities										
Galesburg	2,135,200	5,394,403	3,259,203	152.64	10.85	6,129,900	12,046,503	5,916,603	96.52	7.80
Kalamazoo	215,215,525	380,594,119	165,378,594	76.84	6.54	398,613,300	752,624,944	354,011,644	88.81	7.32
Parchment	17,600,620	28,174,516	10,573,896	60.08	5.37	24,052,370	41,863,116	17,810,746	74.05	6.35
Portage	113,252,291	306,667,200	193,414,909	170.78	11.70	259,748,813	609,881,500	350,132,687	134.80	9.95
County Total	546,580,276	1,056,400,415	509,820,139	93.27	7.60	1,219,122,811	2,555,563,785	1,336,440,974	109.62	8.57

Before proceeding to the analysis of the data from the last decade, it is important to understand the difference between relative and absolute growth rates. The relative growth (percent changes) of a jurisdiction can be high; but, if from a small absolute base, that growth may have only a marginal impact on overall growth in the county. In contrast, a slow growing but absolutely large district can have a significant impact on the countywide results. Furthermore, it is common for smaller jurisdictions to experience wider swings in growth rates.

The business taxable value of five localities experienced double-digit average annual growth rates over this period, namely Charleston, Richland, Texas, Portage, and Galesburg. Of these, only Portage makes the top five list in terms of the absolute change in business taxable value. Specifically, Portage was first in absolute growth of business taxable value over this decade, followed by Kalamazoo City, Oshtemo, Comstock, and Kalamazoo Township respectively. These five districts accounted for almost 88 percent of the absolute growth in business taxable value in Kalamazoo County in the last decade, with Portage and Kalamazoo City alone contributing over 70 percent of the countywide growth.

Turning our attention to total taxable value, it is interesting to note that the top seven fastest growing localities in relative terms are all townships, namely Charleston, Texas, Prairie Ronde, Wakeshma, Climax, Richland and Brady. Yet none of these seven makes the list of districts with the greatest absolute growth. The number one district in terms of absolute growth of total taxable value is Kalamazoo City, followed closely by Portage.

Trailing much further back are Kalamazoo Township, Oshtemo, Comstock, Texas, and Schoolcraft.

By 1985, the overall picture of Kalamazoo County that emerges shows the business tax base in the county to be concentrated in five districts -- Kalamazoo City, Portage, Comstock, Kalamazoo Township, and Oshtemo. Of these five districts, Portage and Oshtemo are becoming relatively more important, both in terms of business taxable value and total taxable value.

Effects of Inflation

Historically, prices have tended to rise for many goods and services in the U.S. What this means is that the rise in total dollar values may not indicate an increase in the physical quantities of goods and services actually being produced. Concomitantly, a rise in wages may not signify the ability of workers to purchase more goods and services. Therefore, it may be important to have some idea if changes are real or due only to the effects of inflation. For this reason, economists attempt to statistically adjust or account for changes in the price level by using a variety of price indices to deflate dollar values.

In Michigan, market values are used to derive the taxable value of parcels of property.[15] Since market values include inflationary growth, it is

15. The interested reader can consult Hunt (1985: 92-96) for a brief overview of the valuation of business property in Michigan.

logical to examine the effects of inflation on the growth in property values. The overall growth in the business tax base in Kalamazoo County for the years 1977 to 1985 is presented in Table 2, along with the rates of growth in a number of price indices, the Consumer Price Index for the U.S. and Detroit, the GNP Implicit Price Deflator, and an inflation rate in property values calculated by the Kalamazoo County Equalization Office, denoted in the table as the Kalamazoo County Property Price Index. The first three indices are more indicative of price changes generally, whereas the local index uses actual assessment values across all classes of property throughout the county to determine an average rate of inflation in property values.

Table 2 shows clearly that much of the apparent growth in business taxable value in Kalamazoo County is due to the effects of inflation, however measured.[16] The three general price indices frequently indicate negative real growth in business property values. Even the Kalamazoo County Property Price Index, which is consistently lower than the other indices[17], shows that about three-fourths of the growth in business taxable value countywide is due to inflation.

Of course, price indices may contain errors. It is also true that to some degree the use of a price index depends on one's perspective. If you are

16. This same conclusion was reached recently in a study of statewide property values. See Heideman (1985: 3).

17. All of the price indicators are highly correlated with each other even though the local index shows lower rates of inflation. For example, the simple correlation coefficient between the Kalamazoo Property Price Index and the Consumer Price Index for Detroit is .9343. The simple correlation coefficients of other pairs are even higher.

Table 2

ACCOUNTING FOR THE EFFECTS OF INFLATION IN THE GROWTH
OF THE BUSINESS TAX BASE IN KALAMAZOO COUNTY

Year	Growth in Business Taxable Value	Consumer Price Index (Urban)		GNP Price Deflator U.S.3	Kalamazoo County Property Price Index4
		U.S.1	Detroit2		
1977	9.0	6.5	6.8	5.8	4.4
1978	8.9	7.7	7.6	7.3	7.1
1979	9.2	11.3	12.7	8.5	9.9
1980	8.2	13.5	15.9	9.6	8.2
1981	8.9	10.4	9.3	9.6	9.0
1982	7.2	6.1	4.0	6.0	6.9
1983	6.9	3.2	2.8	3.8	3.4
1984	4.1	4.3	4.4	3.8	1.8
1985	6.2	3.6	3.5	2.9	1.6

¹ Business Condition Digest, April 1985 and February 1986.

² Monthly Labor Review, Various Issues.

³ Business Condition Digest, April 1985 and February 1986.

⁴ Kalamazoo County Equalization Office.

interested in local government's ability to purchase public services for their residents, then one of the general indices is probably more appropriate. If you are interested in determining whether there have been physical increases in the value of property in the county (the bricks and mortar measurement), then the local property index is probably more appropriate. Keep in mind, however, that the Kalamazoo County Property Price Index is an average price index across all types of property and all local jurisdictions. Thus it does not truly capture the price increase for a particular class of property nor does it account for the possibility of differential rates of inflation across local jurisdictions.

The Kalamazoo County Property Price Index is utilized in this paper to account for the effects of inflation on the growth in the property tax base in Kalamazoo County and its local jurisdictions.[18] The inflation adjusted data are reported in Table 3 in exactly the same format as Table 1 to facilitate comparisons between the two sets of figures.

The inflation adjusted data in Table 3 provide a much more sobering picture of Kalamazoo County and its local jurisdictions. The inflation adjusted average growth rate in business property valuation countywide is 1.73 percent per year over the entire decade versus the 7.6 percent nominal growth rate reported in Table 1. More importantly, seven jurisdictions actually

18. This choice was relatively arbitrary, but it was deemed important to attempt to gauge the extent to which any real growth may have occurred in the property tax base itself.

Table 3

SUMMARY OF GROWTH RATES IN THE BUSINESS TAXABLE VALUE AND TOTAL TAXABLE VALUE, ADJUSTED FOR INFLATION

	Business Taxable Value (1976)	Business Taxable Value (1985)	Absolute Change (1976-85)	Percent Change (1976-85)	Average Annual Growth Rate	Total Taxable Value (1976)	Total Taxable Value (1985)	Absolute Change (1976-85)	Percent Change (1976-85)	Average Annual Growth Rate
Townships										
Alamo	3,066,663	2,835,833	(230,830)	-7.53	-0.81	14,257,853	19,815,377	5,557,524	38.98	3.72
Brady	2,206,105	2,355,344	149,239	6.76	0.73	17,380,255	26,067,771	8,687,516	49.98	4.61
Charleston	1,293,149	4,565,912	3,272,763	253.08	15.05	8,430,969	15,910,674	7,479,705	88.72	7.31
Climax	815,730	1,014,275	198,545	24.34	2.45	8,853,066	14,141,687	5,288,621	59.74	5.34
Comstock	70,471,207	58,590,428	(11,880,779)	-16.86	-1.75	107,944,316	108,802,469	858,153	0.79	0.09
Cooper	5,001,148	4,958,013	(43,135)	-0.86	-0.10	35,523,198	47,315,904	11,792,706	33.20	3.24
Kalamazoo	51,792,749	46,077,781	(5,714,968)	-11.03	-1.17	113,643,937	122,573,393	8,929,456	7.86	0.84
Oshtemo	33,440,735	43,354,053	9,913,318	29.64	2.93	64,356,808	91,137,922	26,781,114	41.61	3.94
Pavillion	4,017,876	4,202,625	184,749	4.60	0.50	20,759,379	30,911,970	10,152,591	48.91	4.52
Prairie Ronde	1,261,008	1,065,168	(195,840)	-15.53	-1.62	7,797,037	13,409,482	5,612,445	71.98	6.21
Richland	4,907,167	9,788,931	4,881,764	99.48	7.97	28,924,622	43,384,455	14,459,833	49.99	4.61
Ross	4,345,745	5,132,763	787,018	18.11	1.87	30,747,903	43,080,196	12,332,293	40.11	3.82
Schoolcraft	12,473,647	13,636,166	1,162,519	9.32	0.99	36,768,993	48,228,105	11,459,112	31.17	3.06
Texas	2,554,461	4,564,156	2,009,695	78.67	6.66	28,819,042	52,531,350	23,712,308	82.28	6.90
Wakeshma	729,250	520,801	(208,449)	-28.58	-2.83	6,371,050	10,659,314	4,288,264	67.31	5.89
Cities										
Galesburg	2,135,200	3,257,864	1,122,664	52.58	4.81	6,129,900	7,275,293	1,145,393	18.69	1.92
Kalamazoo	215,215,525	229,853,739	14,638,214	6.80	0.73	398,613,300	454,535,813	55,922,513	14.03	1.47
Parchment	17,600,620	17,015,549	(585,071)	-3.32	-0.36	24,052,370	25,282,560	1,230,190	5.11	0.56
Portage	113,252,291	185,206,757	71,954,466	63.53	5.62	259,748,813	368,328,190	108,579,377	41.80	3.96
County Total	546,580,276	637,996,156	91,415,880	16.73	1.73	1,219,122,811	1,543,391,926	324,269,115	26.60	2.66

experienced negative business growth over the period 1976 to 1985 -- Alamo, Comstock, Cooper, Kalamazoo Township, Prairie Ronde, Wakeshma, and Parchment.

In general, the lack of business property growth in the county does not bode well for job growth in the region overall. It also indicates that if the inflation rates for provision of government services are actually higher than the inflation rates in property values, then many jurisdictions are finding it increasingly difficult to provide the same set of services without raising tax rates. Perhaps these results should not be surprising since population in the county has been stagnant for more than a decade.[19] But it is also indicative of how inflation can mask what is truly happening in an economy.

Effects of Property Tax Abatements

Local governments are authorized to grant property tax abatements under Michigan P.A. 198 for industrial facilities and P.A. 255 for commercial facilities.[20] Property tax abatements are an industrial tax incentive designed to spur new investment and thereby enhance regional economic development. Specifically through this program, firms can obtain a 50 percent

19. In Business Outlook, the Upjohn Institute tracks key economic indicators for Kalamazoo and other areas in Southwest Michigan. For the most recent population estimates, see Upjohn Institute for Employment Research (Winter, 1986).

20. The authority to grant commercial property tax abatements expired December 31, 1985. The legislature is currently considering changes to and an extension of P.A. 255 authority.

reduction in the taxes payable on new investment in plants and personal property or a 100 percent savings on rehabilitation projects, up to a maximum of 12 years. Commercial establishments are not permitted exemptions for personal property. Business firms must specifically apply for abatements and there are a number of restrictions to the granting of abatements.

The net effect of property tax abatements is to reduce the business property tax base. It should be mentioned, however, that property granted tax abatements is actually carried on separate tax rolls and technically pays a commercial facilities tax or an industrial facilities tax. This means, for instance, that the normal apportionment reports for Kalamazoo County and the State of Michigan, which detail property SEV, do not include any data whatsoever on property tax abatements. As mentioned earlier, commercial, industrial, and personal property SEV in this study have been adjusted to include the taxable value of business property currently granted special status under either P.A. 198 or 255, hence the term business taxable value. Thus, the data reported here may differ from those from other sources.

The taxable value of abatements and some related measures are presented in Table 4 for Kalamazoo County from 1977 through 1985. As might be expected, the growth in the taxable value of abatements was very rapid in the early years. As recently as 1981, this growth rate was a high 47 percent, probably due to the devastating tornado in downtown Kalamazoo in 1980. By 1985, the taxable value of property with tax abatements was almost \$92 million, about 8.7 percent of business taxable value countywide or 3.6 percent of total taxable value. Although the growth of property tax abatements has been rapid in Kalamazoo

Table 4

GROWTH OF PROPERTY TAX ABATEMENTS IN KALAMAZOO COUNTY

Year	Taxable Value of Abatements	Percent Change	Business Taxable Value	Abatements as a Percent of Business Taxable Value	Total Taxable Value	Abatements as a Percent of Total Taxable Value
1977	19,834,746		595,661,951	3.33	1,329,511,877	1.49
1978	24,464,091	23.34	648,616,531	3.77	1,456,555,034	1.68
1979	31,785,588	29.93	708,178,659	4.49	1,655,338,989	1.92
1980	34,909,777	9.83	766,039,115	4.56	1,842,945,039	1.89
1981	51,210,882	46.69	833,969,086	6.14	2,068,687,397	2.48
1982	62,729,557	22.49	893,936,943	7.02	2,270,347,518	2.76
1983	80,280,262	27.98	955,951,020	8.40	2,386,554,453	3.36
1984	86,622,534	7.90	994,783,125	8.71	2,456,057,343	3.53
1985	91,900,816	6.09	1,056,400,415	8.70	2,555,563,785	3.60

County, the relative importance of those abatements has not changed much in the last three years. It is not known whether this recent stability is a precursor of the future or simply a temporary phenomenon.

The same data about abatements are reported for the local jurisdictions within Kalamazoo County in Table 5, but only for one year -- 1985. In other words, this table provides a current snapshot of the distribution of property tax abatements across the local jurisdictions. The picture that emerges is that there is considerable variation in the relative importance of property tax abatements across local jurisdictions. Over 40 percent of business taxable value in Charleston is accounted for by the taxable value of abatements, most of that to a single firm -- Eaton Corporation. At the other extreme, four local districts with small business taxable value have granted no property tax abatements whatsoever.

There appears to be considerable variation in the distribution of abatements across the larger districts as well. The taxable value of abatements constitutes almost 13 percent of business taxable value in Kalamazoo City, about 8 percent in Portage and Kalamazoo Township, 3 percent in Comstock, and 1 percent in Oshtemo. It is not known how much of these differences can be accounted for by the lack of growth in business taxable value (remember abatements are available only for new investments), the willingness of local jurisdictions to grant abatements, or the aggressiveness of firms in seeking abatements.

Table 5

PROPERTY TAX ABATEMENTS IN LOCAL JURISDICTIONS OF KALAMAZOO COUNTY, 1985

	Taxable Value of Abatements (1985)	Business Taxable Value (1985)	Abatements as a Percent of Business Taxable Value	Total Taxable Value (1985)	Abatements as a Percent of Total Taxable Value
Townships					
Alamo	0	4,695,600	0.00	32,810,500	0.00
Brady	187,070	3,900,002	4.80	43,163,277	0.43
Charleston	3,150,708	7,560,282	41.67	26,345,053	11.96
Climax	5,600	1,679,446	0.33	23,415,946	0.02
Comstock	2,830,197	97,014,617	2.92	180,156,217	1.57
Cooper	370,352	8,209,527	4.51	78,346,147	0.47
Kalamazoo	5,736,700	76,296,050	7.52	202,958,250	2.83
Oshtemo	827,525	71,786,075	1.15	150,907,083	0.55
Pavillion	546,950	6,958,749	7.86	51,184,349	1.07
Prairie Ronde	0	1,763,716	0.00	22,203,554	0.00
Richland	1,677,309	16,208,610	10.35	71,836,415	2.33
Ross	280,139	8,498,880	3.30	71,332,619	0.39
Schoolcraft	507,600	22,578,900	2.25	79,856,579	0.64
Texas	935,975	7,557,375	12.38	86,981,935	1.08
Wakeshma	0	862,348	0.00	17,649,798	0.00
Cities					
Galesburg	0	5,394,403	0.00	12,046,503	0.00
Kalamazoo	49,146,894	380,594,119	12.91	752,624,944	6.53
Parchment	1,315,597	28,174,516	4.67	41,863,116	3.14
Portage	24,382,200	306,667,200	7.95	609,881,500	4.00
County Total	91,900,816	1,056,400,415	8.70	2,555,563,785	3.60

Measures of Fiscal Disparities

Before proceeding to a discussion of the Minnesota Plan for tax base sharing, it is important to ascertain whether fiscal disparities actually exist in Kalamazoo County. After all, it is the differing capabilities of local governments to raise revenue that is one of the prime factors motivating the consideration of tax base sharing. These measures of fiscal disparities will then be used in the simulations that are presented later in this paper.

Fiscal disparities in the Minnesota Plan refer to the question of differing tax capacities across local jurisdictions. There is no consideration of the bundle of services actually provided by governmental units, the efficiency with which they provide those services, or the degree to which they can tap other sources of revenue. Moreover, economists and others have pointed out that certain populations, such as the elderly, may require more governmental services than other groups. The logical implication is that even equal tax capacity may not provide local governments with equal abilities to meet the needs of their residents.

It is beyond the scope of this paper to address any of the aforementioned issues. The discussion is limited to the notion of fiscal disparities as developed within the context of the Minnesota Plan -- the ability of local governments to raise revenue irrespective of the characteristics of their populations or other fiscal matters.

Various measures of fiscal disparities are shown in Table 6. Where appropriate, each has been stated in per capita terms and related to the countywide average for that variable. Specifically, an index number is created as the local jurisdictional value for a variable divided by the countywide average for that same variable times 100. Thus an index number of 110 means that the locality is 10 percent above the countywide average for the variable in question. It should be clear that the concept of fiscal disparity is a relative one -- in this instance relative to some countywide average and stated in per capita terms so that comparisons across jurisdictions of different size and composition are meaningful.[21]

Kalamazoo County appears to be no exception to the hypothesis maintained in the introduction to this paper that business firms tend to concentrate in a few jurisdictions. In 1985, business taxable value per capita in the county was \$4,974 but actually ranged from a low of \$627 in Wakeshma to a high of \$15,506 in Parchment. In other words, across the 19 basic tax collection units in Kalamazoo County, business taxable value per capita is almost 25 times greater in the highest jurisdiction than in the lowest jurisdiction.

It is also interesting to note that there are only four jurisdictions -- Comstock, Oshtemo, Parchment, and Portage -- where business taxable value per

21. It is not necessarily obvious what common denominator should be used in these comparisons -- population, number of families, school pupils, electrical hookups, etc. However, population is undoubtedly the most frequently used measure.

Table 6

MEASURES OF FISCAL DISPARITIES, 1985

	Population (1980)	Percent of County Total	Per Capita Income (1981)	Indexed to County Average	Total Taxable Value per Capita (1985)	Indexed to County Average	Business Taxable Value per Capita (1985)	Indexed to County Average
Townships								
Alamo	2,909	1.37	8,006	89.04	11,279	93.73	1,614	32.45
Brady	3,852	1.81	9,038	100.52	11,205	93.12	1,012	20.35
Charleston	1,748	0.82	9,853	109.59	15,072	125.25	4,325	86.95
Climax	1,978	0.93	8,071	89.77	11,838	98.38	849	17.07
Comstock	11,162	5.26	8,528	94.85	16,140	134.13	8,692	174.73
Cooper	8,434	3.97	8,759	97.42	9,289	77.20	973	19.57
Kalamazoo	20,942	9.86	8,917	99.18	9,691	80.54	3,643	73.24
Oshtemo	10,958	5.16	9,841	109.45	13,771	114.45	6,551	131.70
Pavillion	4,811	2.27	8,558	95.18	10,639	88.41	1,446	29.08
Prairie Ronde	1,189	0.56	7,793	86.68	18,674	155.19	1,483	29.82
Richland	4,677	2.20	11,260	125.24	15,360	127.64	3,466	69.67
Ross	4,747	2.24	11,824	131.51	15,027	124.88	1,790	35.99
Schoolcraft	6,435	3.03	8,909	99.09	12,410	103.13	3,509	70.54
Texas	5,643	2.66	10,364	115.27	15,414	128.10	1,339	26.92
Wakeshma	1,375	0.65	7,610	84.64	12,836	106.67	627	12.61
Cities								
Galesburg	1,822	0.86	7,121	79.20	6,612	54.95	2,961	59.52
Kalamazoo	79,722	37.54	8,129	90.41	9,441	78.46	4,774	95.98
Parchment	1,817	0.86	9,749	108.43	23,040	191.47	15,506	311.73
Portage	38,157	17.97	10,190	113.34	15,983	132.83	8,037	161.57
County Total	212,378	100.00	8,991	100.00	12,033	100.00	4,974	100.00

capita exceeds the countywide average. Specifically, business taxable value per capita in Comstock is about 75 percent higher than the average for the county, Oshtemo 32 percent, Parchment 212 percent, and Portage 62 percent. Portage, Comstock, and Oshtemo are also noteworthy in that they are the area's second, third, and fifth largest districts absolutely in terms of population.

As might be expected, the range of total taxable value per capita across the county is far less than business taxable value per capita. But the range is still significant, varying by a factor of nearly 3.5. All four jurisdictions which had above average business taxable value per capita also have above average total taxable value per capita, but there are seven other districts which join them with an above average total taxable value per capita, namely Charleston, Prairie Ronde, Richland, Ross, Schoolcraft, Texas, and Wakeshma. These latter districts tend to be the more rural/suburban areas of the county.

Perhaps what is most startling about total taxable value per capita across the county is that Kalamazoo City, easily the largest jurisdiction absolutely, is very near the bottom in per capita total taxable value, actually 17th of 19 jurisdictions. In contrast, the county's second largest jurisdiction, Portage, is 4th highest in per capita total taxable value. In percentage terms, Kalamazoo City is nearly 22 percent below the county average for total taxable value per capita, while Portage is almost 33 percent above the county average. Thus, the area's two largest jurisdictions stand in sharp juxtaposition to each other in total taxable value per capita.

Perhaps the most frequently used measure of fiscal disparities is income per capita. The estimates of income per capita for local jurisdictions utilized in this paper are produced by the U.S. Bureau of the Census and play a key role in the distribution of monies from federal general revenue sharing.[22] The most recently available data, those for 1981, are shown in Table 6.

In general, there is a significant correlation of income per capita in the local jurisdictions of Kalamazoo County with total taxable value per capita.[23] It may seem logical that a measure of wealth (property values) would be closely related to a measure of income, but it is not necessarily true in some metropolitan areas of the U.S. There are also some exceptions in Kalamazoo County. For instance, Comstock is third highest in total taxable value per capita, but only twelfth highest in income per capita. Stated differently, Comstock is about 5 percent below the county average in income per capita, yet about 34 percent above average in total taxable value per capita. In this instance, it turns out that Comstock's high total taxable value per capita is due to its relatively large business tax base, which itself is dominated by the large GM/BOC stamping plant located in that jurisdiction.

22. The future for these data are uncertain since federal general revenue sharing is slated to end in 1986.

23. The simple linear statistical correlation coefficient of income per capita and total taxable value per capita is .5005.

Table 6 also shows the population of the local jurisdictions and its distribution in percentage terms across the county. These data are reported here because this simple distribution of population can itself be used to determine the size of each jurisdiction's allocation from the shared tax base. Population is the least redistributive of all fiscal disparities measures because it assumes that every person should receive the same dollar amount of revenue. Other measures of fiscal disparities such as total taxable value per capita and income per capita further modify strict per capita shares by the degree to which income or property values are above or below average.

It should be noted that Kalamazoo City has about twice as many people as Portage and that these two jurisdictions combined account for over 55 percent of the population of the county. Together with Kalamazoo Township, Comstock, and Oshtemo, the only other districts with populations over 10,000, these five districts jointly account for over three-fourths of the population in the county.

In brief, there does seem to be some reason to think that fiscal disparities exist among the local jurisdictions in Kalamazoo County, as indicated by the extremely wide variation in business taxable value per capita. The variation in total taxable value and income per capita are much less but still significant. These results thus suggest that localities in Kalamazoo County do indeed differ in their ability to provide public services to their residents.

III. Minnesota Plan

The purpose of this section is to gain a more detailed understanding of the Minnesota Plan and to apply its provisions to the local jurisdictions in Kalamazoo County. Some brief historical information is presented first to provide some background about passage of tax base sharing in the Twin Cities area and the legal challenges to it. Then the mechanics of the plan are discussed, followed by the empirical simulations.

Background

In the late 1960s and the early 1970s, the residents of the Twin Cities area were sensitive to the existence of fiscal disparities. A few years before there had been a major debate about a proposed power plant site on the St. Croix River.[24] Environmentalists and others opposed the project, largely on the grounds the river was the most scenic in the region and served as a recreational playground for the entire seven county area. On the other hand, the county and local jurisdictions in which the plant was to be located were strong supporters of the project because it would add substantially to their property tax base. These officials publicly suggested that they might be willing to let the St. Croix remain undeveloped if they were compensated by other districts for doing so, perhaps by receiving a share of the growth in the tax base of those districts. (Gilje, 1977: 38)

24. The federal government has since designated the St. Croix a "wild and scenic river."

The power plant was eventually built. As a result, the local jurisdiction in which the plant was located became the richest in the region, enjoying a per capita property tax base more than seven times higher than the regional average. (Kari and Knaff, 1982: 9)

A few years later Representative Charles Weaver, representing the northern suburbs of the Twin Cities area, became concerned that his districts had limited commercial-industrial growth potential. At that time the Twin Cities area was growing more to the west and south. He supported a Citizens League study of fiscal disparities out of which came the actual proposal for tax base sharing. The Citizens League, a private, nonpartisan public affairs association, became (and continues to be) a strong proponent of tax base sharing.

Another key actor in the passage of tax base sharing in the Twin Cities area was the Metropolitan Council, a regional planning agency authorized by the Minnesota legislature in 1967. The council was especially concerned with relieving the pressures of tax competition and the concomitant costs of unplanned growth in the region. According to their estimates, by 1990 the region would spend over \$2 billion on unneeded public infrastructure unless there was more orderly urban development. In their view, tax base sharing would enhance economic growth and development by providing incentives for more rational growth management policies.

Tax base sharing was introduced in the Minnesota legislature in 1969 and eventually passed in 1971. Thereupon, the legality of the law was immediately

challenged by Burnsville with the support of Bloomington. These districts expected to have rapid commercial-industrial growth in the years ahead and were therefore likely candidates to be net contributors of tax base under the sharing arrangement. The basis of their challenge was the uniformity clause of the Minnesota Constitution which requires equal taxation across classes of property and forbids the taxation of one district to benefit another. The Minnesota Supreme Court, in a 4-3 decision, while admitting that the plaintiff's arguments had some merit, found that the various jurisdictions within the Twin Cities area were socially and economically interdependent. Therefore, the traditional interpretation of property tax law was inappropriate. In sum, the sharing of tax base was justified because those localities with the greatest commercial-industrial growth (the potential losers) also benefited from other communities through their hospitals, schools, roads, parks, housing, etc.

With the conclusion of this legal challenge, tax base sharing finally became operational in 1975. Surprisingly, there have been few changes to the law since its inception, but that is not to say that tax base sharing has escaped controversy. The law was challenged once again in 1980 without success (Baker and Hinze, 1984: 6), and some districts who are net contributors of tax base under the plan continue to be vocal critics. Nevertheless, besides the contentiousness that appears to always surround tax issues, it is probably fair to conclude that the majority of districts and residents support tax base sharing in the Twin Cities area.

How the Plan Works

A conceptual description of the Minnesota Plan is presented in this section. Some readers may need/want more detail about the mechanics of tax base sharing than provided here. In Appendix A, a step-by-step application of the Minnesota Plan for tax base sharing is presented for a single tax year. This example utilizes data from the local jurisdictions in Kalamazoo County. In Appendix B, a technical description of the contribution and distribution formulas can be found.

Tax base sharing in the Twin Cities area encompasses seven counties and 195 basic tax collection units. Together with school districts, water districts, etc., there are actually about 300 taxing jurisdictions, many of which obviously overlap the boundaries of the basic tax collection units. All of these jurisdictions participate in tax base sharing.

Although the large number of overlapping tax districts greatly complicate the bookkeeping system required to support tax base sharing, the system remains simple conceptually. The overlapping governments contribute and receive tax base depending on the growth that occurs within their boundaries. The county auditors, with the help of the basic tax collection units, perform the allocations of tax base for the overlapping jurisdictions. While Minnesota does not have a property tax abatement law, it does have tax increment financing districts. Since 1979, tax increment financing districts have been included in the shared tax base.

It is the total net growth in the commercial-industrial tax base which is shared in the Minnesota Plan, including the effects of new construction, reassessments, and inflation. There is absolutely no attempt to determine which property is physically new or obsolete. Since the state specifically exempts personal property from its property tax system generally, it is not eligible for inclusion in tax base sharing.

In the Minnesota Plan, 40 percent of the growth in the commercial-industrial property tax base since 1971 is shared. That means the contribution of tax base to the regional pool is cumulative. Each year the district compares its current commercial-industrial tax base with the base that existed in the benchmark year of 1971, then takes 40 percent of the difference as its contribution to the areawide pool. If the growth of a district has been negative since the benchmark year, then it contributes nothing to the regional pool. However, it still remains eligible to receive a distribution of tax base from the regional pool.

In the Minnesota Plan, all of the contributions to the areawide pool are redistributed back to the various governmental units. The distribution is based upon population and fiscal capacity. Fiscal capacity is measured as the total value of all property within the jurisdiction divided by its population relative to the same measure for the entire region. In actual operation a distribution index is calculated as two times the local area's population multiplied by the ratio of the areawide tax capacity to the local tax capacity.

The net effect of this distribution index is that local jurisdictions are allocated shares modified inversely by the total tax base per capita locally relative to the average tax base per capita in the region.[25] The implication is that a jurisdiction with a lower than average property tax base per capita will receive a higher than average share from the regional pool. For example, a locality that is 10 percent below average in property tax base would receive about a 10 percent above average distribution of tax base from the shared pool. A limiter is included in the Minnesota Plan so that jurisdictions with much higher than average property tax bases per capita (more than two times the regional average) are guaranteed a minimum distribution index equal to their population.

In the Minnesota Plan it is tax base which is shared, so the contribution and distribution of shared base must precede the budget setting cycle. Local jurisdictions then independently determine the size and composition of their spending and derive the millage rate. The tax base for these calculations includes the unshared portion of the local property tax base plus the distribution received from the regional pool. This implies that each jurisdiction determines one millage rate for all property, shared and unshared, just as it does now. The product of the local millage rate times the distributed share is the actual claim which a district has on the regional pool.

25. For more technical details about the distribution index, see Appendix B.

Thus, in establishing their budgets, localities must treat the distribution from the regional pool in the same way as they treat all other property in the district. Consequently, one might say that "raiding" the regional pool is limited to the willingness of a jurisdiction to tax its own local taxpayers in the same manner as those nominally represented in the regional pool.

The actual tax rate levied on business property, however, is more complicated than the aforementioned local rate levied on all other classes of property. Firms pay the local rate of their jurisdiction on the unshared portion of business property and a regionwide shared rate on business property contributed to the regional pool. The regionwide average rate is determined by summing the claims on the regional pool, as described previously, and then dividing by the total value of property in the regional pool. For example, if a local jurisdiction has contributed 20 percent of its commercial-industrial tax base to the regional pool, then all firms in that locality pay the regionwide average rate on 20 percent of their property and the local rate on the remainder.

This approach insures that there is exactly enough revenue in the regional pool to meet the claims on the regional pool. Notice that, in effect, businesses pay a composite tax rate. This composite tax rate is applied to all businesses, not just those with increased valuations. Each firm is treated as if it had the average experience for that district. To do otherwise would create an administrative nightmare.

As time passes, the size of the shared base grows. That in turn means the taxes which businesses pay will become more and more equalized, since they will be more dependent on the regional pool. Since 40 percent of the growth in the commercial-industrial tax base is contributed to the pool, then at the maximum 40 percent of its tax rate can be dependent on the pooled base. This pooling of business tax rates in the Minnesota Plan must necessarily reduce the range of variation in business tax rates across the region.

The Minnesota Plan for tax base sharing is simple conceptually but somewhat difficult to follow in terms of the mechanics of the plan. It is definitely much more complex operationally than the current property tax system and requires tax administrators to keep a more complicated set of records. Perhaps it should be reiterated that the Minnesota Plan is not the only plan for tax base sharing but it has become the benchmark on which to evaluate other tax base sharing schemes.

Kalamazoo Simulations of the Minnesota Plan

In this section, the Minnesota Plan for tax base sharing is applied to the local jurisdictions of Kalamazoo County. The data base for these simulations was introduced in Section II. The 19 townships/cities which constitute the basic tax collection units in the county are used exclusively in these simulations. Villages, school districts, and other overlapping jurisdictions are not separately examined in this preliminary study, but that should not

obscure the fact that such overlapping jurisdictions can be included in any tax base sharing plan.[26]

Thus, these simulations illustrate the impacts of tax base sharing on townships/cities only in Kalamazoo County. For this initial simulation, the tax base is defined much like the Minnesota Plan. Personal property is excluded, but property tax abatements are included (except those for personal property). The tax base reflects all sources of growth, including inflation. The effects of inflation and property tax abatements are examined further later in the paper.

A base year of 1979 is utilized in this initial simulation. Although the choice of a base year is arbitrary, the goal was to select a relatively recent year to better reflect more recent growth trends, but not so recent that the regional pool is negligible. An alternative base year, 1981, is examined later.[27] The tax rates for this simulation were obtained from the Kalamazoo County Equalization Office. For several districts the rates were adjusted to include special assessments for police and fire.[28]

26. It should be clear that the exclusion of overlapping jurisdictions significantly reduces the computational requirements for this study.

27. 1981 is the first year in which Michigan required equalization by class of property. In earlier years, one equalization factor was applied to all classes of property, whereas separate factors are applied now. Thus the data set may be more consistent from 1981 to 1985.

28. Townships/cities obviously provide police and fire protection, but some jurisdictions pay for capital facilities through special assessments of real property for a specified number of years. For purposes of this research these special assessments have been included in local tax rates, but it is not clear if or how this would be done in an operational tax base sharing plan.

The overall growth in the shared tax base since 1979 in Kalamazoo County is shown in Table 7. It illustrates an important feature of tax base sharing, namely, that it impacts an area slowly. The shared tax base is about 1 percent of total taxable value in 1980, rising to almost 4 percent by 1985. Since it is the business tax base that is actually shared, the total countywide pool represents a greater percent of business taxable value, growing from about 3 percent to 12 percent over this six year span.

Although it is valuable to gain some insight about the steady growth of the shared pool, it is more important to examine the contributions and distributions of tax base made by the individual jurisdictions. The total shared pool countywide is identical whether viewed from the perspective of contributions or distributions, but the contribution of tax base by a single jurisdiction may differ from the distribution it receives. Remember that the contribution that a jurisdiction makes is a function of the growth in its business tax base but the distribution it receives is a function of population modified inversely by its fiscal capacity.

The contributions and distributions of tax base by the local jurisdictions are presented for a single tax year, 1985, in Table 8. Thus, this table and the two which follow, summarize the impacts of the Minnesota Plan for tax base sharing on the local jurisdictions in Kalamazoo County in its sixth year of operation. As stated earlier, the simulation uses historical data which may not be indicative of future growth rates. Such an approach also implies that tax base sharing, beyond imposition of the program itself, had no other effects in the county.

Table 7

EFFECTS OF THE MINNESOTA PLAN ON KALAMAZOO COUNTY
BASE YEAR = 1979

Growth in Areawide Tax Base

Year	Business Taxable Value in Shared Pool	Shared Pool as a Percent of Business Taxable Value	Shared Pool as a Percent of Total Taxable Value
1980	17,317,275	3.26	1.08
1981	34,424,162	6.00	1.90
1982	50,553,021	7.98	2.51
1983	64,378,784	9.93	3.10
1984	76,942,208	11.32	3.59
1985	86,209,786	12.27	3.92

Table 8

EFFECTS OF THE MINNESOTA PLAN ON THE LOCAL JURISDICTIONS
IN KALAMAZOO COUNTY, 1985 (BASE YEAR = 1979)

	Contributed Share to Pool	Contribution as a Percent of Business Taxable Value	Distributed Share from Pool	Net Change in Tax Base due to Sharing	Net Change in Tax Base as a percent of Business Taxable Value	Net Change in Tax Base per Capita
Townships						
Alamo	509,484	20.03	1,090,113	580,629	22.82	199.60
Brady	234,438	18.04	1,444,707	1,210,270	93.10	314.19
Charleston	1,191,614	32.18	536,631	(654,983)	-17.69	(374.70)
Climax	146,730	14.00	678,185	531,456	50.70	268.68
Comstock	3,640,770	5.91	3,400,663	(240,107)	-0.39	(21.51)
Cooper	600,225	15.61	3,797,348	3,197,123	83.14	379.08
Kalamazoo	4,122,220	8.44	9,869,062	5,746,842	11.77	274.42
Oshtemo	8,028,934	13.96	3,471,149	(4,557,785)	-7.93	(415.93)
Pavillion	671,615	17.51	1,901,991	1,230,376	32.07	255.74
Prairie Ronde	69,597	15.11	267,145	197,547	42.88	166.15
Richland	2,001,947	17.47	1,287,772	(714,175)	-6.23	(152.70)
Ross	947,676	16.47	1,297,543	349,867	6.08	73.70
Schoolcraft	1,584,033	11.46	2,300,158	716,125	5.18	111.29
Texas	819,612	18.54	1,499,961	680,349	15.39	120.57
Wakeshma	16,891	6.64	438,154	421,263	165.56	306.37
Cities						
Galesburg	497,646	11.96	1,212,365	714,720	17.17	392.27
Kalamazoo	19,815,220	7.77	40,029,706	20,214,486	7.93	253.56
Parchment	1,190,854	9.19	489,314	(701,540)	-5.41	(386.10)
Portage	40,120,280	19.08	11,197,816	(28,922,464)	-13.75	(757.99)
County Total	86,209,786	12.27	86,209,786	0	0.00	0.00

Since 40 percent of the cumulative growth in the business tax base after 1979 is contributed to the shared pool, the faster growing localities contribute more to the pool relative to their tax bases. Charleston, Alamo, Texas, Portage, and Pavilion, contribute from 18 to 32 percent of their business tax base to the pool compared to the 12 percent average for the county. In absolute terms the contributions of these jurisdictions tend to be small portions of the total shared pool because of their smaller business tax bases, i.e., high relative growth from a small absolute base. The lone exception is Portage which has experienced high relative growth from a much larger base. It contributes more than twice as much tax base to the regional pool as the second most important contributor, Kalamazoo City. Portage accounts for just under 47 percent of the shared pool in 1985, Kalamazoo City about 23 percent.

The distributions from the regional pool are a function of local population and fiscal capacity. Districts with higher than average fiscal capacity receive less tax base from the regional pool, just the opposite for districts with lower than average fiscal capacity. Various measures of fiscal capacity were presented earlier in Table 6. In the Minnesota Plan, total taxable value per capita is utilized as the measure of fiscal capacity. Remember that this redistribution of tax base is designed to at least partially redress fiscal disparities, one of the key features of tax base sharing as discussed in the introduction to this paper.

It is perhaps more meaningful to examine the net change in tax base due to sharing, calculated as distributions minus contributions, than to look at the

distributions in isolation (Table 8). The net change can be positive because of low growth in the business tax base, low fiscal capacity, or both. In similar fashion, a negative net change indicates a high business tax base growth, high fiscal capacity, or a combination of these factors. Six jurisdictions are net contributors of tax base -- Charleston, Comstock, Oshtemo, Richland, Parchment, and Portage. Of those, Portage easily outdistances the others, losing nearly \$29 million in tax base, about 14 percent of business taxable value in Portage in 1985.

Of the 13 net recipients, on the other hand, Kalamazoo City is the largest absolutely. It adds about \$20 million in tax base which is nearly 8 percent of its 1985 business taxable value. Other significant gainers include Cooper and Kalamazoo Townships. Of course, some smaller jurisdictions do gain substantially from their own perspective. For instance, Wakeshma has the smallest business tax base per capita in the county and it experienced very little growth from 1979 to 1985, so it gains a whopping 165 percent increase in its business tax base due to sharing. Yet the net change in total taxable value per capita is only a little over \$300. In fact, most of the per capita changes in the table appear to be very modest.

The overall picture which emerges from the analysis so far is that Kalamazoo County's two largest jurisdictions are affected very differently by tax base sharing. Although Kalamazoo City is absolutely the largest jurisdiction, its total taxable value per capita is below the regional average and historically it has been slower growing than average. On the other hand, Portage has above average total taxable value per capita and it is among the

fastest growing districts in the county. This combination of factors tends to make Portage absolutely the largest net contributor to tax base sharing, while Kalamazoo City is the largest net recipient. Keep in mind that this result is perfectly in accord with the general objective of tax base sharing to partially redress fiscal imbalances.

Once the tax base has been redistributed, it remains to work out the revenue implications of tax base sharing. These effects are shown in Table 9. The tax payable without sharing is the local millage rate times the total taxable value. Notice that the Minnesota Plan does not consider the effects of revenue from other governmental sources or other types of taxes. The focus is strictly on the property tax base and the local revenue raised from that base.[29]

The new overall tax rate with sharing is simply the taxes payable without sharing divided by the sum of total taxable value without sharing plus the net change in total taxable value due to sharing (distributions minus contributions). Thus it is assumed that tax base sharing has no effect on local budgets. Obviously, if a program of tax base sharing were adopted, there would be no guarantee that localities would have the same budgets with sharing as without. It is even hoped, as mentioned earlier, that tax base sharing would affect decisionmaking in the region. Nonetheless, the assumption of

29. Conceptually there is no reason why tax base sharing could not be related to the size or composition of other revenue sources. Such a possibility, however, is not examined in this paper.

Table 9

TAX EFFECTS OF THE MINNESOTA PLAN ON THE LOCAL JURISDICTIONS
IN KALAMAZOO COUNTY, 1985

	Tax without Sharing	Tax Rate without Sharing	Overall Tax Rate with Sharing	Composite Business Tax Rate with Sharing	Net Change in Taxes Due with Sharing	Net Change in Taxes Due per Capita
Townships						
Alamo	30,659	1.0000	0.9814	3.1817	5,027	1.73
Brady	40,563	1.0000	0.9710	2.9542	1,403	0.36
Charleston	21,440	0.9534	0.9820	4.5171	13,734	7.86
Climax	20,010	0.8782	0.8582	2.4133	1,174	0.59
Comstock	649,227	4.4868	4.4943	4.9363	28,287	2.53
Cooper	69,713	0.9423	0.9033	2.6303	3,753	0.45
Kalamazoo	1,667,336	9.5000	9.1988	9.4324	(41,451)	(1.98)
Oshtemo	353,270	2.5857	2.6749	3.9724	86,801	7.92
Pavillion	47,999	0.9987	0.9738	2.8984	6,185	1.29
Prairie Ronde	16,982	0.8125	0.8049	2.4914	618	0.52
Richland	95,813	1.4282	1.4436	3.2822	22,099	4.73
Ross	91,772	1.3380	1.3312	3.0825	9,614	2.03
Schoolcraft	71,101	1.0000	0.9900	2.2479	16,680	2.59
Texas	87,887	1.0482	1.0398	3.0657	8,249	1.46
Wakeshma	13,431	0.7881	0.7691	1.5125	(135)	(0.10)
Cities						
Galesburg	107,484	9.9390	9.3229	9.6390	(5,347)	(2.93)
Kalamazoo	12,419,667	19.8060	19.1875	18.6265	(530,931)	(6.66)
Parchment	266,478	10.0000	10.2704	10.4263	9,226	5.08
Portage	4,981,982	9.7017	10.2807	10.6025	365,015	9.57
County Total	21,052,815			11.8130	0	0.00

fixed budgets provides a point of reference, however artificial, for the evaluation of tax base sharing.

Given the assumption of fixed budgets, it is necessarily true that any locality experiencing a gain in tax base due to sharing will have a lower overall tax rate with sharing. This new overall tax rate with sharing is important because that is the tax rate which will actually be levied on all nonbusiness property and the unshared portion of local business property. Thus, tax base sharing very modestly impacts all tax rates in the region. Specifically, rates climb slightly in the six localities losing tax base because the same amount of local spending is spread over a smaller property tax base. Just the opposite is true for the gainers of tax base. In absolute terms, the change in millage rates seldom exceeds one-half mill.[30]

It should also be remembered that this new overall tax rate multiplied by the distributed share is equal to that locality's claim on the regional pool. Thus, if the residents of a local jurisdiction decide that they want few public services, then those same residents will also have only a small claim on the regional pool, even though they may be a net gainer of tax base. The bottom line is that a jurisdiction's claim on the regional pool is limited by the willingness of local taxpayers to pay the same millage rate that is assessed property nominally in the regional pool.

30. The tax rate in mills, sometimes referred to as the millage rate, is the taxes due per \$1,000 of taxable value. Thus, a millage rate of one mill means that \$1.00 of taxes is paid for each \$1,000.00 of taxable value.

As explained earlier, the composite business tax rate is a function of the local millage rate and the shared rate where the weights are determined by the jurisdiction's contribution of business tax base to the regional pool. In 1985 the sum of the claims on the shared pool divided by the tax base in the pool results in a millage rate of 11.813. That is the shared rate applied to business property in the regional pool. For example, all businesses physically located in Galesburg would pay this shared rate on about 12 percent of their property, their contribution of business tax base to the regional pool, whereas they would pay the local rate of 9.3229 mills on the remainder. The net result is that firms in Galesburg would pay a composite rate of about 9.6 mills with sharing.

Since there is such a divergence of millage rates throughout the county, the change in business tax rates can be dramatic, particularly in the smaller jurisdictions which have low tax rates initially. In most of these situations, the change in tax rates easily exceeds 100 percent. Thus, tax base sharing tends to significantly reduce the range of business tax rates across a region by raising some and reducing others. This happens gradually over the years but there is no doubt that the Minnesota Plan, through the shared portion of the business tax rate, ultimately impacts business tax payers to a far greater extent than other taxpayers.

In evaluating tax base sharing, a logical question is the extent to which it actually eliminates fiscal disparities. As explained in the subsection on measures of fiscal disparity, differences in income per capita is one of the

most commonly accepted measures of fiscal disparity. The Minnesota Plan for tax base sharing, however, utilizes another, total taxable value per capita. It turns out that in this simulation the correlation of either measure with the net change in the business tax base is moderately negative.[31] The negative relationship indicates that the net recipients of tax base sharing tend to be those districts with lower than average total taxable values or income, while the net contributors tend to be those districts with higher than average total taxable values or income. In other words, it confirms that tax base sharing does tend to equalize the tax bases across the individual jurisdictions, providing them with more equal capability to raise revenue.

It also turns out that the correlation of the net change in taxes due per capita with sharing (a measure of the revenue/cost effects of tax base sharing) is moderately positive.[32] This positive relationship means that taxes are increasing more in jurisdictions with higher than average per capita total taxable value or per capita income. Thus, whether viewed from the perspective of changes in tax base or changes in taxes payable, the Minnesota Plan for tax base sharing would alleviate fiscal disparities across the local jurisdictions in Kalamazoo County.

31. The simple statistical correlation coefficient of the net change in the business tax base per capita due to sharing with income per capita is $-.5718$, with total taxable value per capita without sharing, $-.5054$.

32. The simple statistical correlation coefficient of the net change in taxes due per capita with income per capita is $.576$, with total taxable value per capita without sharing, $.559$.

But it is also interesting to note in Table 10 that there are eight districts with above average total taxable value without sharing, namely, Alamo, Brady, Climax, Prairie Ronde, Ross, Schoolcraft, Texas, and Wakeshma, which actually gain a small amount of additional tax base with sharing. This result occurs because it is growth in the business tax base which is shared, thus allowing districts with small business tax bases and little growth to benefit from sharing. However, almost all of these districts end up paying more taxes in spite of this favorable shift in tax base. The reason is that businesses in those districts must pay the shared rate on a portion of their property and that shared rate is much higher than local rates.

One practical problem highlighted by this simulation is that very few districts gain from tax base sharing. The net change in taxes payable is favorable (meaning that taxes due actually decline) only in Kalamazoo Township, Wakeshma, Galesburg, and Kalamazoo City. Unless jurisdictions embrace the notion of redressing fiscal imbalances and believe that regional cooperation has the potential to enhance economic growth throughout the area, it may be difficult to achieve a political consensus about tax base sharing.

In general, this simulation shows that tax base sharing would tend to equalize fiscal disparities across the local jurisdictions in Kalamazoo County, at least for the historical period analyzed. The results for future periods or other historical periods may be much different. Other possibilities for tax base sharing are examined now.

Table 10

REDUCTION IN FISCAL DISPARITIES DUE TO THE MINNESOTA PLAN FOR TAX BASE SHARING

	Business Taxable Value per Capita Indexed to County Average			Total Taxable Value per Capita Indexed to County Average			Income per Capita Indexed to County Average	Net Change in Taxes Due per Capita
	without Sharing	with Sharing	Net Change in Index	without Sharing	with Sharing	Net Change in Index		
Townships								
Alamo	26.43	32.46	6.03	101.65	103.58	1.93	89.04	1.73
Brady	10.20	19.69	9.49	101.56	104.59	3.03	100.52	0.36
Charleston	64.01	52.69	(11.32)	124.08	120.47	(3.61)	109.59	7.86
Climax	16.01	24.13	8.12	111.10	113.69	2.59	89.77	0.59
Comstock	166.65	166.00	(0.65)	125.03	124.82	(0.21)	94.85	2.53
Cooper	13.78	25.23	11.45	84.60	88.26	3.66	97.42	0.45
Kalamazoo	70.48	78.78	8.29	80.83	83.48	2.65	99.18	(1.98)
Oshtemo	158.57	146.01	(12.57)	120.25	116.24	(4.01)	109.45	7.92
Pavillion	24.10	31.82	7.73	96.35	98.82	2.47	95.18	1.29
Prairie Ronde	11.71	16.73	5.02	169.54	171.14	1.60	86.68	0.52
Richland	74.03	69.42	(4.61)	138.35	136.87	(1.47)	125.24	4.73
Ross	36.64	38.87	2.23	139.36	140.07	0.71	131.51	2.03
Schoolcraft	64.92	68.28	3.36	106.57	107.64	1.07	99.09	2.59
Texas	23.67	27.32	3.64	143.31	144.47	1.16	115.27	1.46
Wakeshma	5.59	14.85	9.26	119.54	122.49	2.95	84.64	(0.10)
Cities								
Galesburg	69.03	80.89	11.85	57.25	61.03	3.78	79.20	(2.93)
Kalamazoo	96.67	104.33	7.66	75.86	78.31	2.45	90.41	(6.66)
Parchment	215.52	203.85	(11.67)	141.45	137.73	(3.72)	108.43	5.08
Portage	166.55	143.64	(22.90)	129.80	122.49	(7.31)	113.34	9.57
County Total	100.00	100.00	0.00	100.00	100.00	0.00	100.00	0.00

IV. Selected Alternatives to the Minnesota Plan

Since there are virtually unlimited numbers of alternatives to the Minnesota Plan for tax base sharing, it is possible to investigate only a few options in this brief evaluation. First, some minor modifications to the Minnesota Plan are made to account for the effects of inflation, to show the effects of changing the base year, and to change the distribution formula. Second, a major modification is made to the Minnesota Plan that utilizes local tax rates rather than a shared rate on business property in the regional pool. This plan appears to be consistent with the enabling legislation for tax base sharing proposed in Michigan House Bill 4859.[33] Third, a simulation of tax base sharing is conducted using local rates given the assumption that a new auto assembly plant were constructed in the county. Finally, several options are considered for establishing a regional economic growth and development fund. The distinctive feature of this last possibility is that a portion of the shared revenue pool is not redistributed back to the local jurisdictions but held in a separate fund to be used regionwide in support of regional economic growth and development.

Minor Modifications to the Minnesota Plan

Tables 11 and 12 look at some minor modifications to the Minnesota Plan for tax base sharing -- changing the base year, adjusting for the effects of

33. House Bill 4859 was introduced by Mary Brown, Donald Gilmer, and Paul Wartner, all representatives of Kalamazoo County districts, Michigan House of Representatives. The bill is currently being considered by the House Taxation Committee.

Table 11

**TAX BASE SHARING: SIMULATIONS FOR KALAMAZOO COUNTY
BASED UPON VARIATIONS ON THE MINNESOTA PLAN**

(Results for 1985 with 1979 as the Base Year)

Township/City	Net Change in Tax Base Due to Sharing Nominal Growth	Net Change in Taxes Payable, Distribution Based Upon:			Net Change in Tax Base Due to Sharing Adjusted for Inflation	Net Change in Taxes Payable, Distribution Based Upon:	
		SEV per Capita (Minnesota Plan)	Income per Capita	Simple per Capita (Relative Population)		SEV per Capita (Minnesota Plan)	Simple per Capita (Relative Population)
Alamo	580,629	5,027	4,432	4,351	56,255	2,682	2,346
Brady	1,210,270	1,403	1,138	1,020	301,694	813	654
Charleston	(654,983)	13,734	12,727	12,188	(660,376)	9,633	8,567
Climax	531,456	1,174	893	900	150,115	302	223
Comstock	(240,107)	28,287	19,784	19,145	946,432	(4,219)	(5,609)
Cooper	3,197,123	3,753	3,577	3,380	853,179	1,475	1,315
Kalamazoo	5,746,842	(41,451)	(32,285)	(34,239)	2,746,639	(25,691)	(22,177)
Oshtemo	(4,557,785)	86,801	79,272	74,967	(1,132,563)	22,827	19,485
Pavillion	1,230,376	6,185	5,557	5,359	253,367	2,807	2,446
Prairie Ronde	197,547	618	343	368	52,258	207	130
Richland	(714,175)	22,099	20,277	18,922	(461,822)	9,391	8,116
Ross	349,867	9,614	8,697	7,701	7,001	3,794	3,116
Schoolcraft	716,125	16,680	15,182	14,546	481,764	1,277	992
Texas	680,349	8,249	7,154	6,499	53,761	3,955	3,269
Wakeshma	421,263	(135)	(306)	(244)	121,942	(95)	(121)
Galesburg	714,720	(5,347)	(3,243)	(1,811)	269,022	(2,446)	(1,280)
Kalamazoo	20,214,486	(530,931)	(461,142)	(414,208)	11,140,587	(216,799)	(175,855)
Parchment	(701,540)	9,226	6,492	5,368	136,180	(1,355)	(2,037)
Portage	(28,922,464)	365,015	311,448	275,788	(15,315,434)	191,444	156,419
Total	0	0	0	0	0	0	0

Note: Contributions from tax base are calculated as 40 percent of the growth in the business tax base (real property). A change in the contribution rate has a scalar effect on the results, i.e., a 20 percent contribution rate reduces both contributions and distributions by 20/40, or 50 percent.

Table 12

TAX BASE SHARING: SIMULATIONS FOR KALAMAZOO COUNTY
BASED UPON VARIATIONS ON THE MINNESOTA PLAN

(Results for 1985 with 1981 as the Base Year)

Township/City	Net Change in Tax Base Due to Sharing	Net Change in Taxes Payable, Distribution Based Upon:			Net Change in Tax Base Due to Sharing Adjusted for Inflation	Net Change in Taxes Payable, Distribution Based Upon:	
		SEV per Capita (Minnesota Plan)	Income per Capita	Simple per Capita (Relative Population)		SEV per Capita (Minnesota Plan)	Simple per Capita (Relative Population)
Alamo	439,116	2,080	1,768	1,748	161,011	938	791
Brady	745,922	776	612	539	273,595	513	395
Charleston	(629,104)	11,256	10,420	9,975	(643,251)	9,226	8,201
Climax	343,473	493	330	342	143,688	75	27
Comstock	2,075,009	(9,179)	(12,663)	(12,172)	809,945	(3,614)	(4,806)
Cooper	2,120,580	256	274	216	900,560	(795)	(718)
Kalamazoo	3,497,136	(25,532)	(19,832)	(21,097)	2,272,519	(21,098)	(18,177)
Oshtemo	(3,080,362)	57,315	52,237	49,359	(1,491,316)	25,952	22,388
Pavillion	807,835	3,129	2,770	2,664	292,447	1,498	1,281
Prairie Ronde	137,061	182	24	46	60,755	(17)	(62)
Richland	(391,903)	13,125	11,988	11,146	(297,001)	6,882	5,904
Ross	486,551	2,642	2,275	1,764	292,147	(207)	(427)
Schoolcraft	364,050	11,184	10,161	9,717	200,809	3,663	3,146
Texas	685,177	1,833	1,357	1,056	348,623	(268)	(475)
Wakeshma	241,085	110	(10)	22	90,835	82	43
Galesburg	400,379	(2,982)	(1,647)	(750)	157,861	(1,241)	(323)
Kalamazoo	9,180,101	(292,270)	(250,770)	(222,589)	7,063,468	(156,764)	(124,584)
Parchment	(300,551)	4,232	2,637	1,987	116,541	(1,160)	(1,745)
Portage	(17,121,555)	221,350	188,069	166,027	(10,753,238)	136,335	109,142
Total	0	0	0	0	0	0	0

Note: Contributions from tax base are calculated as 40 percent of the growth in the business tax base (real property). A change in the contribution rate has a scalar effect on the results, i.e., a 20 percent contribution rate reduces both contributions and distributions by 20/40, or 50 percent.

inflation, and utilizing two other distribution formulas. The results for the 1985 tax year using the 1979 base year are reported in Table 11, those for a 1981 base year in Table 12. These summary tables only report the net change in tax base and taxes payable. The Minnesota Plan results are included as well to facilitate comparisons with that plan.

As could be expected, adjusting for the effects of inflation significantly reduces the size of the regional pool to be shared, by 72.2 percent using the 1979 base year or by 61.1 percent using the 1981 base year. Although not shown in the tables, five districts would be zero contributors of tax base after six years of operation of the plan. Those districts are Comstock, Kalamazoo Township, Wakeshma, Kalamazoo City, and Parchment. Remember that under tax base sharing, if growth has been negative since the base year, then that locality's contribution of tax base is zero. These results reflect the fact that the business tax bases of some districts in Kalamazoo County have not exceeded the rate of inflation, at least since 1979.

It should be mentioned that the Kalamazoo County Property Price Index was used throughout this analysis. Since that index increased less than the other potential inflation indices discussed in Section II, that means the substitution of any of the other indicators would reduce the regional pool even further. As suggested earlier, in real terms it does not appear as if there has been much growth in the business tax base in Kalamazoo County for a considerable number of years.

There are also a number of interesting changes in the results caused simply by changing the base year. For instance, Comstock becomes a gainer of tax base using 1981 as the base year; it also pays less tax. This may seem surprising since it was shown earlier that Comstock has well above average total taxable value and business taxable value relative to the county as a whole. But it must also be remembered that it is the growth in the tax base which is shared. So what these results imply is that the growth in the business tax base of Comstock has been below average since 1981. Again, any growth sharing plan will tend to benefit slow growing districts. A logical corollary is that the selection of a base year is not a trivial matter with tax base sharing.

Since total taxable value may not be a perfect measure of fiscal disparities, two other measures are used here, income per capita and relative population. All three measures tend to redistribute tax base, but population alone is the least redistributive. The notion of using relative population in a distribution formula is simply that each district receives a share of the regional pool based strictly upon its population, treating all residents exactly alike. Total taxable value and income per capita go beyond that, on the other hand, by modifying the population shares to the extent that income or total taxable value varies across the county. These matters were discussed earlier in the last part of Section II.

Thus, it should come as no surprise that using relative population in the distribution formula results in the least amount of redistribution across the local jurisdictions. The gains/losses are all reduced, save one, when

comparing the relative population approach to either the Minnesota Plan (total taxable value per capita) or income per capita. Therefore, if the goal is to reduce somewhat the amount of redistribution, then simple relative population may be one alternative to consider in distributing the shared pool under a program of tax base sharing.

Except as noted, the differences in all of these alternative simulations tend to be ones of degree rather than changes in absolute direction. It might be said that the results tend to confirm those of the Minnesota Plan. That should not be surprising since only minor modifications were made to the Minnesota Plan. But neither should it rule out the possibility of other plans and other simulations. We turn our attention now to some simulations that represent a significant departure from the Minnesota Plan for tax base sharing.

Tax Base Sharing Using Local Tax Rates

One of the major characteristics of the Minnesota Plan is that businesses pay a shared or regionwide average tax rate on business property nominally in the regional pool. As time passes and the regional pool grows, the shared portion of the tax also grows. The implication is that over time business tax rates converge toward the regional average.

As pointed out earlier, this aspect of tax base sharing was legally challenged in Minnesota, and it would likely be challenged here if tax base sharing were adopted. Therefore, this section explores the impacts of eliminating the shared tax rate on business property. That means, in effect,

that sharing takes place using local tax rates, thereby distributing the effects of tax base sharing equally across all taxpayers. This approach to tax base sharing appears to be more consistent with that proposed in Michigan House Bill 4859 than the Minnesota Plan.

The easiest way to understand this major alternative to the Minnesota Plan for tax base sharing is to look at an example of its application. That is done here for the broadest definition of the business property tax base possible in Michigan, that which includes personal property and any abatements thereon.[34] The reader interested in more detail about tax base sharing using local rates can consult Appendix C. It contains a step-by-step application and explanation of this approach rather than the more conceptual presentation of this section. A technical description of the distribution formula for tax base sharing using local rates can be found in Appendix D.

The tax base contributed to the regional pool in this approach is calculated in the same way as the Minnesota Plan, 40 percent of the nominal growth in the business tax base since the benchmark year. But the tax base is not shared as in the Minnesota Plan. The nominal contribution of tax base times the local tax rates constitutes the shared pool under this alternative plan. Therefore, tax revenues are shared rather than tax base. For this reason, the approach might be termed local revenue sharing rather than tax base sharing,

34. Other simulations were conducted but only the aforementioned is reported in this paper.

although it remains true that the contribution of revenue to the pool is tied to the growth of the business tax base.

The method of distribution of revenues in the shared pool back to the localities also differs from the Minnesota Plan. In this simulation the redistribution is accomplished using the distribution formula of the federal general revenue sharing program. This approach may not be superior to others, but the federal formula does have the advantage of being found to be politically acceptable by the U.S. Congress after staff researchers experimented with hundreds of alternatives (Spencer, 1980: 152). The distribution of revenue is a function of population, income, and taxes payable. A technical description of the distribution formula is provided in Appendix D.

It should be mentioned that it is absolutely critical to add a measure of tax effort (taxes payable) because the contribution of revenues is calculated at local rates. This means that districts with high local tax rates contribute much more revenue to the shared pool than districts with low tax rates. Without the addition of a tax effort measure to the distribution formula, all of the higher than average tax districts lose substantially, while the smaller, lower tax districts are the primary beneficiaries.

The results of tax base sharing using local rates are shown in Table 13 using 1979 as the base year. What becomes clear from looking at Table 13 is that the net change in taxes payable is favorable (meaning lower) for 14 of 19 districts. This contrasts sharply with the Minnesota Plan where only four

Table 13

TAX BASE SHARING AS PROPOSED BY HOUSE BILL 4859

	Contributed Tax Base to Pool	Tax Rate without Sharing	Taxes Contributed to Pool	Distribution Received from Pool	Net Change in Taxes Due with Sharing	Net Change in Taxes Due per Capita	Tax Rate with Sharing	Net Change in Tax Rates
Townships								
Alamo	665,884	1.0000	666	2,302	(1,636)	(0.56)	0.9501	-0.0499
Brady	466,836	1.0000	467	2,376	(1,909)	(0.50)	0.9558	-0.0442
Charleston	2,365,107	0.9534	2,255	1,163	1,092	0.62	0.9948	0.0414
Climax	207,608	0.8782	182	1,419	(1,237)	(0.63)	0.8254	-0.0528
Comstock	7,935,912	4.4868	35,607	49,975	(14,368)	(1.29)	4.4070	-0.0798
Cooper	926,488	0.9423	873	4,327	(3,454)	(0.41)	0.8982	-0.0441
Kalamazoo	4,983,630	9.5000	47,344	109,031	(61,687)	(2.95)	9.1961	-0.3039
Oshtemo	10,684,344	2.5857	27,627	18,116	9,510	0.87	2.6487	0.0630
Pavillion	988,135	0.9987	987	3,138	(2,151)	(0.45)	0.9567	-0.0420
Prairie Ronde	156,091	0.8125	127	1,336	(1,209)	(1.02)	0.7581	-0.0544
Richland	2,785,600	1.4282	3,978	3,638	340	0.07	1.4329	0.0047
Ross	1,281,398	1.3380	1,715	3,070	(1,355)	(0.29)	1.3190	-0.0190
Schoolcraft	2,446,668	1.0000	2,447	4,524	(2,077)	(0.32)	0.9740	-0.0260
Texas	1,208,724	1.0482	1,267	3,817	(2,550)	(0.45)	1.0189	-0.0293
Wakeshma	37,726	0.7881	30	1,080	(1,050)	(0.76)	0.7286	-0.0595
Cities								
Galesburg	795,327	9.9390	7,905	10,616	(2,712)	(1.49)	9.7139	-0.2251
Kalamazoo	38,838,318	19.8060	769,232	1,014,284	(245,052)	(3.07)	19.4804	-0.3256
Parchment	3,429,747	10.0000	34,297	19,805	14,493	7.98	10.3462	0.3462
Portage	59,085,160	9.7017	573,226	256,214	317,012	8.31	10.2215	0.5198
County Total	139,288,702		1,510,231	1,510,231	0			

districts were net recipients. Of course, this conclusion and others to be drawn shortly should be tempered with the knowledge that the same fixed budget assumption is made here that was made with the Minnesota Plan. Similarly, it is also implicitly assumed that this program has no other effects on the area or its growth.

As a result of using a broader definition of the business tax base in this simulation than that which was used in the Minnesota Plan, namely, including business personal property and abatements thereon, the tax base available for sharing increases countywide from about \$89 million to \$139 million. The amount of revenue available for sharing also climbs significantly, from about \$1.0 million to \$1.5 million. Thus, this illustrates clearly the order of magnitude of the impacts that could be expected from adding business personal property to the shared pool.

In spite of this increase in shared revenues countywide, many of the absolute gains and losses for the individual jurisdictions are actually smaller with tax base sharing using local rates than with the Minnesota Plan. For instance, Portage pays only \$317 thousand more taxes under this plan compared to \$365 thousand more under the Minnesota Plan. In contrast, Kalamazoo City sees its gain (meaning less taxes payable) cut in half by tax base sharing using local rates. Perhaps this should not be surprising since revenue is contributed at local rates under this plan rather than the shared rate of the Minnesota Plan. Since Kalamazoo City easily has the highest rate, it contributes the largest revenue share to the pool, even though the growth in the business tax base in Kalamazoo City has been less than average. Although

the distribution formula accounts for this greater tax effort, Kalamazoo's gain is still reduced. Kalamazoo's loss in this alternative approach to tax base sharing is what turns many of the other districts into small gainers.

As mentioned earlier, the magnitudes of the gains and losses appear to be small. Twelve of the 19 localities gain or lose less than one dollar of taxes per capita, and the net change in tax rates is usually less than five one-hundredths of a mill. Portage is absolutely the largest loser and sees its tax rates climb by about one-half a mill, while the largest gainer, Kalamazoo City, experiences about a one-third of a mill decline in rates.

A final question is whether or not tax base sharing using local rates tends to eliminate fiscal disparities. Remember that the goal is to provide additional revenue to districts with lower than average income or total taxable value per capita. With tax base sharing using local rates the correlation of the net change in taxes payable with either total taxable value per capita or income per capita is moderately positive.[35] This result is much like that of the Minnesota Plan; it shows that tax base sharing using local rates would tend to redress fiscal imbalances.

Simulation of Auto Assembly Plant

Proponents of tax base sharing argue that sharing distributes the benefits of regional economic growth more equally yet preserves the independence of

35. The simple statistical correlation coefficient of the net change in taxes payable per capita with total taxable value per capita is .638, with income per capita, .383.

local governmental units. They also maintain that the location of future growth is so uncertain that jurisdictions are better off accepting a guaranteed share of the regional growth rather than simply going it alone. Perhaps one way to get a better perspective of the impacts of tax base sharing is to simulate the location of a single new firm in Kalamazoo County. It is wellknown that Kalamazoo County has been considered as the site for several new auto assembly plants. Such a major facility is therefore a logical candidate for this analysis, although it should be clear at the outset that the industry identification is immaterial to the tax analysis.

It is assumed that the auto assembly plant is built in Schoolcraft Township and became fully taxable in 1985. Although it is not known what the market value of such a facility might be, it is convenient to assume that the market value of the plant and equipment is \$1 billion (land values are not considered in this illustration).[36] Since property taxes are payable in Michigan on 50 percent of the market value of any class of property, that leads to a state equalized valuation of \$500 million dollars.

Undoubtedly, such a new firm would apply for and likely receive a property tax abatement for the plant. Since it is a new facility rather than a

36. It is anticipated that the Mazda plant in Flat Rock, Michigan will have a market value of \$300-400 million (Fulton, Grimes, and Baum, 1984: 31). The Chrysler-Mitsubishi plant in Illinois may be valued in excess of \$500 million. GM's investment in the Saturn project may exceed \$5 billion, but it is not known how much of that will be plant and equipment at the production site.

rehabilitation project, the maximum abatement award would effectively reduce the SEV by 50 percent, so the actual taxable value of the auto assembly plant would be \$250 million. This \$250 million would be defined as additional business taxable value in this paper.

It may be helpful at this point to get a brief overview of what this plant would mean for Kalamazoo County and Schoolcraft Township specifically. An increase of \$250 million in business taxable value in 1985 represents nearly a 24 percent gain in business taxable value or about a 10 percent gain in total taxable value for the entire county. That gain is obviously substantial, but the effects on Schoolcraft Township are truly huge by any standards. A net gain of business taxable value of \$250 million exceeds the total taxable value of Schoolcraft Township by a factor just in excess of three. That means the plant alone would amount to more than three times the current taxable value of all property in Schoolcraft Township.

Such a change would have tremendous effects in Schoolcraft Township and lesser but still significant effects throughout the county. There would be new supplier firms, new housing, and new school enrollments, among others. But the focus of this simulation is strictly on the new primary facility, the auto assembly plant itself, and the impacts it would have on the local jurisdictions with and without tax base sharing.

Without tax base sharing, Schoolcraft would capture all of the increase in tax base.[37] The local budget would undoubtedly increase, although to what extent is unknown. For this analysis, it is assumed that Schoolcraft's current millage rate of one mill is maintained with the addition of the new plant, probably as neutral an assumption as possible. It means that without sharing, Schoolcraft Township's local spending could increase by \$250,000, again three times more than their current spending from the local property tax base.

With tax base sharing, the impacts would differ depending on the nature of the program adopted. But this simulation specifically looks once again at tax base sharing using local rates, emphasizing the net changes from the simulation discussed earlier in this section. Tax base sharing using local rates is not necessarily superior to other plans, but it may be more tractable politically and legally.

Schoolcraft's contribution of tax base to the shared pool grows by \$100 million with the new auto facility, 40 percent of the increase in business taxable value of \$250 million. Given Schoolcraft's millage rate of one mill, it also means that \$100,000 in revenue is added to the shared pool. Conversely, it should be noted that tax base sharing protects the other 60 percent of the growth in the tax base. In other words, \$150,000 is reserved exclusively for spending by Schoolcraft.

37. To the extent that the site already had improvements to the land, then that would reduce the net gain to Schoolcraft because that utilization would now become obsolete, for example agricultural buildings replaced by the auto. It is likely that these effects would be small compared to the valuation of the new plant.

It might be argued that Schoolcraft somehow "cannot afford" or "needs" the \$100,000 contributed to the regional pool. Of course, that neglects the share of the regional pool which Schoolcraft itself will receive, but the distribution of the regional pool will be addressed momentarily. The question here is really one of fiscal capacity again.

Although no definitive answer is possible, the new auto assembly facility would easily make Schoolcraft Township the richest in the area. Its total taxable value would be nearly four times the county average. That means the population of Schoolcraft could double because of the new plant and yet it would still have a property tax base about two times higher than the regional average. It would also remain the richest district in the area. Furthermore, this simple example neglects the added property valuation that the increased population would bring to Schoolcraft. Proponents of tax base sharing would maintain that Schoolcraft does have the capacity to share tax base and revenues and even the obligation to do so since the plant will undoubtedly create many costs in other jurisdictions.

The distribution of the regional pool and the net change in taxes and tax rates are shown in Table 14. Only the changes arising from the new plant are shown in the table, so the distribution of revenue from the regional pool back to the local jurisdictions rises by \$100,000, exactly the amount of additional revenue contributed to the shared pool by Schoolcraft. The distribution in this simulation is accomplished using the U.S. Senate three-factor distribution formula. It is interesting to note that Schoolcraft receives \$15,215 of the increase in the shared pool. Thus, from Schoolcraft's perspective it has only

Table 14

AUTO ASSEMBLY PLANT SIMULATION:
TAX BASE SHARING USING LOCAL RATES

	Distribution From Regional Pool	Net Change in Taxes Received from Pool	New Overall Tax Rate
Townships			
Alamo	130	130	-0.003950
Brady	134	134	-0.003100
Charleston	66	66	-0.002486
Climax	80	80	-0.003413
Comstock	2,814	2,814	-0.015620
Cooper	244	244	-0.003110
Kalamazoo	6,139	6,139	-0.030250
Oshtemo	1,020	1,020	-0.006760
Pavillion	177	177	-0.003452
Prairie Ronde	75	75	-0.003387
Richland	205	205	-0.002852
Ross	173	173	-0.002423
Schoolcraft	15,215	(84,785)	0.276751
Texas	215	215	-0.002471
Wakeshma	61	61	-0.003445
Cities			
Galesburg	598	598	-0.049625
Kalamazoo	57,114	57,114	-0.075886
Parchment	1,115	1,115	-0.026639
Portage	14,427	14,427	-0.023656
County Total	100,000	0	0

lost the difference of its \$100,000 contribution less its increased share received from the regional pool, or \$84,785.

All of the other districts, of course, gain modestly from the location of the new facility in Schoolcraft. With tax base sharing using local rates, these gains are rather small -- in large part because Schoolcraft's millage rate is so low. Notice that both higher than average and lower than average income or property tax base districts gain from sharing. Again, tax base sharing shares the growth in business taxable value regardless of where that growth occurs and all districts receive a guaranteed share of that growth; so a single increase of business taxable value such as that assumed here benefits all districts. Schoolcraft gained \$165,215 (60 percent of growth in business taxable value plus their share of distribution from pool), while the other districts jointly shared \$84,785.

Of course, it remains true that Schoolcraft could have gained even more by going it alone. But remember it did not truly know where future growth would occur in the county. More important, the notion of tax base sharing is that the new auto plant would create many costs beyond Schoolcraft and that the residents of Schoolcraft benefit from some of the public services provided by those jurisdictions. Advocates of tax base sharing would argue that Schoolcraft and the owners of the new plant would actually have a self-interest in seeing that the entire region grows and prospers, including other governmental units.

In summary, this section explored the direct impacts of a major new industrial facility on Kalamazoo County without any sharing and with sharing using local rates. The impacts were small, in part because Schoolcraft has low local tax rates. But the simulation demonstrates how a program of tax base sharing might distribute the benefits of regional economic growth and development from a major new industrial plant. Without sharing, the local jurisdiction in which the plant locates captures all of the increase in taxable value, whereas sharing distributes at least some of the gains throughout the county.

Regional Economic Growth and Development Fund

In the options for tax base sharing discussed heretofore, all of the contributions to the shared pool were redistributed back to the local districts. The logical implication is that the shared pool is exhausted annually. Therefore, there is no possibility for the accumulation of funds in the regional pool.

It may be desirable, however, to consider establishing a modest regional economic growth and development fund. The maintained hypothesis of this paper throughout has been that the benefits and costs of economic development reach far beyond local jurisdictional boundaries. Thus, it is entirely possible that there may be joint spending that would enhance economic growth and development countywide, spending that would not likely be done otherwise because those costs (and subsequent benefits) are not captured by the individual localities. Since one of the goals of tax base sharing is to promote more regional thinking

and cooperation, a regional economic growth and development fund might lend direct support to the achievement of that goal.

The monies in such a joint fund would be explicitly permitted to accumulate over the years. Any limitations on spending would have to be agreed upon in advance. But the idea is to approach economic development in a systematic way across the region. It is wellknown that development of local infrastructure can be critical in determining the success of an area. For instance, consider a major, new industrial facility once again. What would be the impact in the future if firms knew that local jurisdictions share tax base in order that all localities might be better able to support local spending? That residents think regional cooperation is so important that they have set aside a fund for regional economic growth and development? Would any preliminary planning studies or other research be helpful? Beyond any state spending/tax incentives, could a regionwide fund help in guaranteeing easy access to potential sites, providing for special education needs, or meeting other unmet needs?

It is far beyond the scope of this paper to evaluate the spending options for a regional economic growth and development fund. It is certainly not necessary to attract a major, new industrial plant; there may be many other joint needs which far transcend those of a single industrial facility. In fact, one of the knottiest problems with such a regionwide fund might be deciding how to spend the monies. Suffice it to say here that some regions, including Minneapolis-St. Paul, have a much stronger and more formal regional development and planning focus than currently exists in Kalamazoo County. It

is simply assumed here that there may be joint spending and/or planning not currently being done that might enhance regional economic growth and development.

Three possibilities for the establishment of a regional economic growth and development fund are explored briefly. First, a 10 percent holdback of revenues in the shared pool is considered as part of tax base sharing using local rates. This means that 10 percent of a jurisdiction's distribution is withheld and placed in a joint fund for future spending. Second, 10 percent of each jurisdiction's contribution could be held back from redistribution. Both options raise the same amount of money because the shared pool is identical whether viewed from the contribution or distribution side. But the costs to the local jurisdictions differ because an individual jurisdiction's contribution is not necessarily the same as its distribution. It should also be mentioned that this second option can operate independently of any tax base sharing program.[38]

Finally, a regional economic growth and development fund could be established with all jurisdictions contributing at the same millage rate times the total growth of the business tax base in that jurisdiction. This final plan differs from the others in breaking the connection to local rates. All

38. In a joint fund independent of tax base sharing, the same amount of revenue could be raised by taking local tax rates times 4 percent of the growth of the business tax base. The 4 percent figure is the same as 40 percent of the business tax base times a 10 percent holdback.

business growth anywhere in the county would then be treated equally regardless of local rates or fiscal disparities. A millage rate of .434 is selected for this example because that rate raises the same amount of revenue in 1985 as the other options.

The growth of the regional economic growth and development fund countywide is presented in Table 15. The base year is assumed to be 1979. The aggregate results are identical in 1985 regardless of the specific plan used to determine the contributions by the individual jurisdictions. But it should be noted that the contributions at a constant millage rate would differ in earlier years. After six years of operation, the cumulative value of the fund assuming no spending whatsoever is a little more than one-half million dollars. The contribution in 1985 alone is \$151,123.

There is no doubt that the regional economic growth and development fund is extremely small relative to total local governmental spending. But the maintained assumption, much like that of tax base sharing, is that it may be desirable for such a fund to grow slowly. The commitment of a portion of the future growth in the business tax base obviously leaves current spending untouched. If the residents of Kalamazoo County wish to see a faster growth or more immediate spending, then the contributions to the fund can be increased accordingly.

Table 16 summarizes the costs to the local jurisdictions of establishing a joint fund for regional economic growth and development for a single tax year, 1985. The contribution and distribution of revenues from the simulation of tax

Table 15

GROWTH OF THE REGIONAL ECONOMIC GROWTH
AND DEVELOPMENT FUND

Year	Annual Increase (10%)	Total Amount
1980	22,954	22,954
1981	52,159	75,113
1982	85,862	160,975
1983	109,939	270,914
1984	124,358	395,272
1985	151,023	546,295

Table 16

COSTS TO LOCAL JURISDICTIONS OF REGIONAL ECONOMIC GROWTH AND DEVELOPMENT FUND

	Tax Base Sharing Using Local Rates		Cost of Economic Development Fund			Cost of Economic Development Fund Per Capita			Cost of Economic Development Fund As a Percent of Local Property Tax Receipts		
	Taxes Contributed to Pool	Distribution Received from Pool	10 Percent Holdback from Distribution	10 Percent Holdback from Contribution	Countywide Millage Rate (.434 mills)	10 Percent Holdback from Distribution	10 Percent Holdback from Contribution	Countywide Millage Rate (.434 mills)	10 Percent Holdback from Distribution	10 Percent Holdback from Contribution	Countywide Millage Rate (.434 mills)
1985											
Alamo	666	2,302	230	67	722	0.08	0.02	0.25	0.70	0.20	2.20
Brady	467	2,376	238	47	506	0.06	0.01	0.13	0.55	0.11	1.17
Charleston	2,255	1,163	116	225	2,564	0.07	0.13	1.47	0.46	0.90	10.21
Climax	182	1,419	142	18	225	0.07	0.01	0.11	0.69	0.09	1.09
Constock	35,607	49,975	4,997	3,561	8,604	0.45	0.32	0.77	0.62	0.44	1.06
Cooper	873	4,327	433	87	1,005	0.05	0.01	0.12	0.59	0.12	1.36
Kalamazoo	47,344	109,031	10,903	4,734	5,403	0.52	0.23	0.26	0.57	0.25	0.28
Oshtemo	27,627	18,116	1,812	2,763	11,584	0.17	0.25	1.06	0.46	0.71	2.97
Pavillion	987	3,138	314	99	1,071	0.07	0.02	0.22	0.61	0.19	2.10
Prairie Ronde	127	1,336	134	13	169	0.11	0.01	0.14	0.74	0.07	0.94
Richland	3,978	3,638	364	398	3,020	0.08	0.09	0.65	0.35	0.39	2.94
Ross	1,715	3,070	307	171	1,389	0.06	0.04	0.29	0.32	0.18	1.46
Schoolcraft	2,447	4,524	452	245	2,653	0.07	0.04	0.41	0.57	0.31	3.32
Texas	1,267	3,817	382	127	1,311	0.07	0.02	0.23	0.42	0.14	1.44
Wakesha	30	1,080	108	3	41	0.08	0.00	0.03	0.78	0.02	0.29
Cities											
Galesburg	7,905	10,616	1,062	790	862	0.58	0.43	0.47	0.89	0.66	0.72
Kalamazoo	769,232	1,014,284	101,428	76,923	42,110	1.27	0.96	0.53	0.68	0.52	0.28
Parchment	34,297	19,805	1,980	3,430	3,719	1.09	1.89	2.05	0.47	0.82	0.89
Portage	573,226	256,214	25,621	57,323	64,063	0.67	1.50	1.68	0.43	0.97	1.08
County Total	1,359,208	1,510,231	151,023	151,023	151,023	0.71	0.71	0.71	0.60	0.60	0.60

base sharing using local rates are also presented because those data help in explaining the costs of the fund. For instance, 10 percent of Alamo's distribution, \$230, is withheld using the holdback from distribution method, \$67 using 10 percent of its contribution, or \$832 by simply using a constant millage rate.

These differences arise due to the structure of the plans themselves. For example, one of the consequences of the holdback of a portion of the distribution is that the net additional cost of establishing the joint fund is relatively greater for those districts slated to receive greater than average shares of the fund, lesser for those due to receive smaller than average shares. Similarly, the constant millage rate tends to be more costly for those localities which actually grow the fastest.

The focus of Table 16 is on the costs of the regional economic growth and development fund because it is not known what the future spending might be. The overall impression is that none of the plans are very costly on either a per capita basis or relative to total property tax receipts. But the absolute difference in costs to the local jurisdictions across the three plans may seem surprising.

V. Conclusions

The central notion of tax base sharing is that the business tax base is legitimately a regional resource because firms are concentrated in a few jurisdictions while people are not. This situation has arisen in part because

political boundaries were established many years ago and no longer define self-contained economic areas. The net result of this fragmentation is that inequities have arisen across localities both in the demand of residents for services and in the ability of local governments to provide those services.

These imbalances undoubtedly contribute to the inter-jurisdictional disputes which seem so commonplace today in many areas of the nation. Moreover, communities compete aggressively for new business development because it is widely perceived that the local benefits of expansion far exceed their costs. This "winner take all" type of competition and squabbling within a region may actually disrupt economic development because firms have a vital stake in the health of the entire region. Even if a firm does not sell its product locally, its survival still depends on the quantity and quality of the local labor force, which resides throughout the area, as well as the quantity and quality of the many local services consumed in producing its product.

But it is impractical to redraw local boundaries, and it would be an expensive duplication to establish a new level of government. Besides, making such changes would be very disruptive. From this perspective, tax base sharing can be viewed as a modest attempt to gradually reverse the fiscal imbalances or disparities which have evolved over the past years without diminishing the legal authority of local governments.

The plan calls for some portion of the growth in the business tax base to be shared by all local jurisdictions regardless of where that new development occurs. This approach protects the existing tax base of local jurisdictions

and reserves for local use the bulk of the future growth in that tax base. This part of the plan is designed to insure that localities have sufficient funds to finance local governmental services, including those directly required by new businesses.

It should also be emphasized that local jurisdictions are guaranteed a minimum share of the pooled tax base. Over time, the shared or pooled portion of the tax base grows, allowing all communities to benefit from regional economic growth and development regardless of where that growth occurs. Under tax base sharing a major new business like the auto assembly plant examined in this paper would create not only substantial new tax base for the locality in which it locates but also it would add modestly to the tax base of other communities in the area. This new tax base would help those districts to pay for the additional services, e.g., police, roads, schools, and others, that would be required throughout the region to support such a plant. Tax base sharing thereby provides an incentive for regional cooperation and hopefully the evolution of a more unified economic development effort.

Advocates of tax base sharing argue strongly and sometimes fervently that this plan is fairer to taxpayers at the same time that it promotes regional economic growth. In other words, advocates believe that tax base sharing creates a "win-win" situation for the region. The problem is not that these arguments are false but that their acceptance requires a much broader perspective than either local taxpayers or governments usually take in making local policy decisions.

Recalling the auto assembly plant once again, advocates view the shared pool as a plus for the region. They would claim that such regional cooperation and sharing might even influence the firm's location decision. They would argue that it is in the self-interest of the local jurisdiction in which the plant is located to share tax base/revenues with the other districts in order to help provide that plant and its employees with the necessary local governmental services. The simulation of the taxes and revenues generated by such a new auto assembly plant showed convincingly that the local district acquiring the plant would have more than adequate resources to support sharing. After sharing, it remained the richest district in the area, even assuming a doubling of the population in that district.

But the truth is that many taxpayers and local governments would not take such a broad perspective in evaluating tax base sharing. They would see the shared pool as tax monies that could be theirs instead of other jurisdictions. They would maintain that their residents make only minimal use of the services of other districts. They would likely dismiss any suggestion that someday the growth in the business tax base of their district might be behind that of other districts in the region, in spite of the fact that such reversals of local fortunes have occurred in the Minneapolis-St. Paul area. Furthermore, it should also be noted that once growth has occurred a local district could always check to see if it would have been better off under the old regime of taxation and develop its position on tax base sharing on that basis alone.

Thus, although tax base sharing maintains the existing legal authority of local governments, it still requires a shift to regional thinking and the

development of a greater spirit of cooperation throughout the area. Such a new perspective may not be easy to bring about in Kalamazoo County.

Limitations

This study of tax base sharing has been described as a preliminary empirical inquiry, so there are necessarily many limitations herein. Many of these have been pointed out along the way and will not be repeated here. But two broad limitations, perhaps cautions, are discussed briefly now.

First, and most important, the conclusions of this study are drawn from a limited number of simulations. Many other variations to tax base sharing are undoubtedly possible by changing the contribution or distribution formulas, by adding various limiters to insure that the gains and losses are within politically acceptable ranges, etc. It is possible that there may exist a tax base sharing scheme more appropriate for Kalamazoo County than those which were examined here.

Second, many simplifying assumptions were made in this study about the institutional framework which would govern the operation of any tax base sharing plan in Michigan. Some aspects of the general property tax system in Michigan were actually ignored, while others were included to some extent. For example, there was no investigation of the many legal questions which tax base sharing would undoubtedly raise. Overlapping jurisdictions were excluded because of computational difficulties. On the other hand, property tax abatements were included in the analysis because they may be an important

component of the future growth of the business tax base. The point is that others will have to investigate the legal ramifications of tax base sharing, the administrative requirements which it would impose on the region, and other institutional questions relevant to tax base sharing.

Obviously, we tried to be reasonable and objective both in selecting simulations for the study and in making assumptions pertaining to those simulations. We also have reported a large amount of data to allow others to draw their own conclusions. But there is no doubt that implementation of tax base sharing would require fuller consideration of many issues.

Impacts of Tax Base Sharing on Kalamazoo County

Much of the focus of this paper has been on the Minnesota Plan for tax base sharing and the impacts that it would have on the local jurisdictions of Kalamazoo County. But other alternatives were explored also. Some of these represented only minor modifications to the Minnesota Plan, but two of them, tax base sharing using local rates and the possibility for a regional economic growth and development fund, differ more substantively from the Minnesota Plan.

Before examining what we have learned from the simulations, however, it should be emphasized that the conclusions are drawn strictly from the experience of the last decade in Kalamazoo County. If future events differ significantly from this recent history, then the impacts of tax base sharing may differ as well. Furthermore, it should be remembered that no tax scheme is likely to be perfect. So perhaps the wisest course of action is to evaluate

tax base sharing on the basis of whether or not it will likely be an improvement over the current system. Ultimately it is the voters who must make this judgment.

There appears to be little doubt that disparities in fiscal capacity exist among the local jurisdictions in Kalamazoo County, at least as measured by total property values per capita or total income per capita. Furthermore, there is a wide divergence across localities in terms of their business tax bases per capita. In general this means that some localities are better able than others to support local governmental services. It also implies that tax base sharing has the potential to correct some of these disparities.

The simulations conducted in this study showed that tax base sharing would reduce fiscal disparities in Kalamazoo County. Moreover, this conclusion changes to only a small degree whether the Minnesota Plan or one of the alternatives is considered. In all cases, the net recipients tend to be those jurisdictions with lower than average income or total taxable values per capita, and the net contributors tend to be those areas with higher than average incomes or total taxable values per capita. Even using simple relative population as the basis for distribution would be mildly redistributive across the local jurisdictions in Kalamazoo County.

Although the Minnesota Plan shares nominal business growth, which includes growth due to inflation, one of the options evaluated in this paper was to share only the real growth in the business property tax base, i.e., growth above the rate of inflation. In some ways this possibility is appealing

because it would help local jurisdictions meet increases in their budgets due solely to inflation. But it was found that in the last decade there has not been much real growth in the business tax base of Kalamazoo County.

Specifically, about three-fourths of the growth in the business tax base countywide has been due to inflationary price increases. Thus, however meritorious it may be to share only real business growth, the bottom line is that sharing of real growth in Kalamazoo County essentially means sharing no growth.

Turning our attention to the differences among the various tax base sharing plans, it should be clear that the Minnesota Plan impacts business firms to a far greater degree than other taxpayers. This occurs because firms pay the average regionwide tax rate on property in the regional pool. So, as the shared pool grows over time and becomes relatively more important as a proportion of the total business tax base, business tax rates converge toward the regional average.

In contrast, tax base sharing using the local rates of individual jurisdictions spreads the effects of the program across all taxpayers. In essence, the size of the regional pool remains a function of the growth in the business tax base, while the tax effects of the regional pool are shared equally among all taxpayers. As a result of this spreading of the effects of the program, there is very little convergence of tax rates toward the regional average. This also necessarily means that tax base sharing using local rates has far less effect on business taxpayers than the Minnesota Plan does.

This equal treatment of taxpayers is one of the reasons that tax base sharing using local rates might be more acceptable to Michigan voters than the Minnesota Plan. It is also likely that the Minnesota Plan would be more subject to legal challenge in Michigan than tax base sharing using local rates. Both factors probably help to explain why Michigan House Bill 4859 is structured to support tax base sharing using local rates rather than the Minnesota Plan which applies the average rate in the region to business property in the regional pool.

Another key distinction among the tax base sharing programs is that in the simulations of the Minnesota Plan only four jurisdictions in Kalamazoo County were net recipients, whereas that number increased to fourteen with tax base sharing using local rates. At the same time, tax base sharing using local rates reduced the losses and gains absolutely vis-a-vis the Minnesota Plan. This means that the redistribution effects were smaller across the local jurisdictions. Advocates of tax base sharing might argue against such a flatter distribution, but it may help to make tax base sharing using local rates more acceptable politically.

Finally, it should be mentioned that a regional economic growth and development fund could be established jointly with one of the tax base sharing plans or it could be supported by the local jurisdictions without tax base sharing. The purpose of the fund would be to allow the districts to undertake joint projects which would enhance regionwide growth but which would not otherwise be accomplished in the absence of such a fund.

In conclusion, the finding of lackluster real growth in Kalamazoo County, whether looking at the growth in the business tax base or population, highlights the need for innovative thinking about the future of this area. Whether or not tax base sharing is found to be one avenue to achieve regional cooperation and to enhance regional economic growth and development, it is difficult to avoid the conclusion that new solutions to regional problems are needed.

It is commonplace to read today that firms must adjust to the new requirements of the so-called information age, to new and sometimes revolutionary production processes, and to the existence of worldwide markets. It is less commonplace, but perhaps equally important to suggest that local governments must be willing to adapt to this new environment as well. If a region is going to grow and prosper in the years ahead, it will require the participation of all sectors of the economy.

**APPENDICES TO ACCOMPANY
TAX BASE SHARING:
SIMULATIONS FOR KALAMAZOO COUNTY**

Appendix A
Step-by-Step Calculation
of the Minnesota Plan for Tax Base Sharing

Note: The columns of Appendix Table A.1 have been numbered consecutively to correspond exactly with the numbering in this outline.

1. The simulation of the impacts of tax base sharing is conducted for a single tax year, 1985, for the 19 townships/cities in Kalamazoo County, the basic tax collection units. Overlapping jurisdictions such as villages and schools are not included in this analysis.

2-3. The first major step in tax base sharing is to determine the contributions to the regional pool (columns 2 thru 5 in the table). The total business tax base is the state equalized valuation of all real commercial and industrial property plus the taxable value of real property currently granted special tax status by Public Acts 198 and 255. Thus, property tax abatements have been included in this analysis but only to the extent to which that property remains taxable. Business personal property has been excluded.

4. It is assumed in this simulation that the growth in the business tax base from 1979 to 1985 is that which is potentially available for sharing. The selection of the base year of 1979 allows for reasonable growth in the business tax base from that year to the current year. But it also means that the existing business tax base in 1979 in each jurisdiction is protected from the effects of tax base sharing. In other words, any local jurisdiction which

TABLE A.1

STEP BY STEP CALCULATIONS OF THE EFFECTS OF THE MINNESOTA PLAN
FOR TAX BASE SHARING ON KALAMAZOO COUNTY, 1985

(1)	Total Business Tax Base (1979 SEV)	Total Business Tax Base (1985 SEV)	Growth in Business Tax Base (1979 - 85)	Contributed Share (40% of Increase)	Population (1980)	Total Tax Base (1985 SEV)	Total SEV per Capita	Distributed Share	Net Change in Tax Base due to Sharing	
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		Townships
Townships										
Alamo	1,270,190	2,543,900	1,273,710	509,484	2,909	30,658,800	10,539	1,090,113	580,629	Alamo
Brady	713,806	1,299,900	586,094	234,438	3,852	40,563,175	10,530	1,444,707	1,210,270	Brady
Charleston	723,965	3,703,000	2,979,035	1,191,614	1,748	22,487,771	12,865	536,631	(654,983)	Charleston
Climax	681,376	1,048,200	366,824	146,730	1,978	22,784,700	11,519	678,185	531,456	Climax
Comstock	52,453,525	61,555,450	9,101,925	3,640,770	11,162	144,697,050	12,963	3,400,663	(240,107)	Comstock
Cooper	2,344,800	3,845,363	1,500,563	600,225	8,434	73,981,983	8,772	3,797,348	3,197,123	Cooper
Kalamazoo	38,541,349	48,846,900	10,305,551	4,122,220	20,942	175,509,100	8,381	9,869,062	5,746,842	Kalamazoo
Oshkosh	37,431,166	57,503,500	20,072,334	8,028,934	10,958	136,624,508	12,468	3,471,149	(4,557,785)	Oshkosh
Pavillion	2,157,323	3,836,359	1,679,037	671,615	4,811	48,061,959	9,990	1,901,991	1,230,376	Pavillion
Prairie Ronde	286,655	460,648	173,993	69,597	1,189	20,900,486	17,578	267,145	197,547	Prairie Ronde
Richland	6,453,778	11,458,646	5,004,868	2,001,947	4,677	67,086,451	14,344	1,287,772	(714,175)	Richland
Ross	3,386,279	5,755,470	2,369,191	947,676	4,747	68,589,209	14,449	1,297,543	349,867	Ross
Schoolcraft	9,863,717	13,823,800	3,960,084	1,584,033	6,435	71,101,479	11,049	2,300,158	716,125	Schoolcraft
Texas	2,371,821	4,420,850	2,049,030	819,612	5,643	83,845,410	14,858	1,499,961	680,349	Texas
Wakeshma	212,223	254,450	42,227	16,891	1,375	17,041,900	12,394	438,154	421,263	Wakeshma
Cities										Cities
Galesburg	2,918,186	4,162,300	1,244,114	497,646	1,822	10,814,400	5,935	1,212,365	714,720	Galesburg
Kalamazoo	205,497,025	255,035,075	49,538,050	19,815,220	79,722	627,065,900	7,866	40,029,706	20,214,486	Kalamazoo
Parchment	9,982,059	12,959,195	2,977,136	1,190,854	1,817	26,647,795	14,666	489,314	(701,540)	Parchment
Portage	110,001,400	210,302,100	100,300,700	40,120,280	38,157	513,516,400	13,458	11,197,816	(28,922,464)	Portage
County Total	487,290,642	702,815,106	215,524,464	86,209,786	212,378	2,201,978,476	10,368	86,209,786	0	County Total

TABLE A.1 (Continued)

STEP BY STEP CALCULATIONS OF THE EFFECTS OF THE MINNESOTA PLAN
FOR TAX BASE SHARING ON KALAMAZOO COUNTY, 1985

	Tax Rate without Sharing (1985)	Implied Revenue without Sharing	Overall Tax Rate with Sharing	Revenue Required from Pool	Contributed Share of Business Tax Base as a proportion of Total Business Tax Base	Composite Business Tax Rate with Sharing	Net Change in Taxes Due with Sharing	Net Change in Taxes Due per Capita	
Townships	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	Townships
Alamo	1.0000	30,659	0.9814	1,070	0.200	3.1817	5,027	1.73	Alamo
Brady	1.0000	40,563	0.9710	1,403	0.180	2.9542	1,403	0.36	Brady
Charleston	0.9534	21,440	0.9820	527	0.322	4.5171	13,734	7.86	Charleston
Climax	0.8782	20,010	0.8582	582	0.140	2.4133	1,174	0.59	Climax
Comstock	4.4868	649,227	4.4943	15,283	0.059	4.9363	28,287	2.53	Comstock
Cooper	0.9423	69,713	0.9033	3,430	0.156	2.6303	3,753	0.45	Cooper
Kalamazoo	9.5000	1,667,336	9.1988	90,783	0.084	9.4324	(41,451)	(1.98)	Kalamazoo
Oshtemo	2.5857	353,270	2.6749	9,285	0.140	3.9724	86,801	7.92	Oshtemo
Pavillion	0.9987	47,999	0.9738	1,852	0.175	2.8984	6,185	1.29	Pavillion
Prairie Ronde	0.8125	16,982	0.8049	215	0.151	2.4914	618	0.52	Prairie Ronde
Richland	1.4282	95,813	1.4436	1,859	0.175	3.2822	22,099	4.73	Richland
Ross	1.3380	91,772	1.3312	1,727	0.165	3.0825	9,614	2.03	Ross
Schoolcraft	1.0000	71,101	0.9900	2,277	0.115	2.2479	16,680	2.59	Schoolcraft
Texas	1.0482	87,887	1.0398	1,560	0.185	3.0657	8,249	1.46	Texas
Wakeshma	0.7881	13,431	0.7691	337	0.066	1.5125	(135)	(0.10)	Wakeshma
Cities									Cities
Galesburg	9.9390	107,484	9.3229	11,303	0.120	9.6390	(5,347)	(2.93)	Galesburg
Kalamazoo	19.8060	12,419,667	19.1875	768,068	0.078	18.6265	(530,931)	(6.66)	Kalamazoo
Parchment	10.0000	266,478	10.2704	5,025	0.092	10.4263	9,226	5.08	Parchment
Portage	9.7017	4,981,982	10.2807	115,122	0.191	10.6025	365,015	9.57	Portage
County Total		21,052,815		1,031,709	0.123	11.8130	0	0.00	County Total

ceased growing after 1979 will contribute very little to the regional pool, just the opposite for those areas which grow rapidly after 1979.

5. In the Minnesota Plan each local jurisdiction contributes 40 percent of the increase in its business tax base. The sum of these contributions, \$86,209,786, constitutes the total regional tax base pool in 1985 in Kalamazoo County. Notice that the size of the regional pool is a function of time, the growth rate of the region, and the proportion of that growth which is contributed to the pool.

6. The next major step in tax base sharing is to distribute 100 percent of the regional pool back to the localities (columns 6 thru 9 in the table). This requires data on both population and the total tax base of each locality. In this simulation population is fixed at the 1980 values, the date of the last census, due to the lack of more recent local data. In the Minnesota Plan, the Metropolitan Council for the Twin Cities Area estimates the population in all local jurisdictions (about 200) annually.

7. The total tax base constitutes the business tax base plus residential, agricultural, and developmental real property. Remember that personal property has been excluded and that only the taxable value of property with abatements has been included.

8. The total tax base per capita (column 7 divided by column 6) is the key element in determining the distribution of the shares from the regional pool.

This is the crucial measure of fiscal capacity. Notice that the countywide regional average is \$10,368 in 1985.

9. In the Minnesota Plan the tax base shares actually distributed to each local jurisdiction are inversely related to the total tax base per capita. The net effect of the distribution formula is that a jurisdiction with a lower than average property tax base per capita will receive a higher than average share from the regional pool. The details of these calculations are not shown in the table, but they are summarized mathematically in Appendix B.

10. The difference between the distributed shares and the contributed shares constitutes the net gain/loss of tax base due to sharing. A positive number indicates a gain in tax base, while a negative number indicates a loss in tax base. The sum of the gains and losses across the local jurisdictions is zero because tax base sharing only redistributes the existing tax base.

11. The next major step in tax base sharing is to calculate the regionwide tax rate which must be levied on business property in the regional pool (column 11 thru 14 in the table). The tax rate without sharing is the effective township/city tax rate in 1985. These rates were compiled from various reports of the Kalamazoo County Equalization Department but adjusted to include district-wide special taxes. Thus, school taxes (all levels), village taxes, and, of course, all county-wide taxes are excluded from this analysis.

The administration of tax base sharing would require various lags to insure that the tax base was actually distributed prior to the budget setting cycle.

Those lags are not accounted for in this historical simulation, but neither would they have any material effects on the results.

12. The total tax base without sharing (column 7) times the tax rate without sharing equals the implied revenue required from the local property tax base in each jurisdiction. This is the revenue that each jurisdiction independently determined that it needed in 1985. It will be used as the basis for comparing the effects of tax base sharing with the current system of no tax base sharing.

It should be noted that such comparisons are inevitably artificial because there is no guarantee that localities will have identical budgets with tax base sharing as they would without it. It is also true that in reality localities do not know the future growth rate of their business tax base. Nonetheless, the assumption of fixed budgets is probably the "least objectionable," and it is the type of analysis that local jurisdictions would likely perform in evaluating tax base sharing.

13. The overall tax rate with tax base sharing is simply the implied revenue required originally (column 12) divided by the new tax base with sharing. The new tax base with sharing is not shown separately in the table but it is the sum of the total tax base (column 7) less the contributed tax base to the regional pool (column 5) plus the distributed tax base from the regional pool (column 9). This overall tax rate with tax base sharing is important because it represents the actual tax rate which will be levied on all nonbusiness property and a portion of local business property. Notice that tax base

sharing modestly impacts all tax rates in the region (compare column 11 to column 13).

14. Each locality's claim on the regional pool is limited to the overall tax rate with sharing (column 13) times the distribution of tax base which that locality received from the regional pool (column 9). This means that each jurisdiction only receives from the regional pool a sum of money equal to that jurisdiction's willingness to tax all of its residents.

This point is a key feature of tax base sharing and deserves further comment. Each locality continues to independently make its own spending decisions with tax base sharing, albeit with slightly more or less tax base. A locality's ability to raid the regional pool is limited by the size of the tax base received from the regional pool and by its willingness to tax all of its citizens by that same millage rate.

The tax rate actually levied and paid on business property, however, is determined differently with tax base sharing. Firms pay the local rate of their jurisdiction on the unshared portion of business property and a region-wide shared rate on business property in the regional pool. This region-wide average rate is simply the sum of the claims on the regional pool (the sum of column 14) divided by the value of the property in the pool (the sum of column 5). This results in a millage rate of 11.8130 for all business property in the regional pool in this example.

15. One way to calculate the composite tax rate to be applied to business firms is to first express the contributed share of the local business tax base as a proportion of the total business tax base in each locality (column 5 divided by column 3).

16. The composite business tax rate which each firm pays is then the proportion from column 15 times the regional tax rate of 11.8130 plus 1 minus the proportion in column 15 times the local tax rate. In other words, business firms continue to pay the local tax rate on the unshared portion of business property but pay the regional average rate on the shared portion of business property.

For example, a firm located in Alamo Township would pay the regional rate of 11.8130 on 20 percent of its business property and the local rate of .9814 on the remaining 80 percent of its property. The composite tax rate for firms in Alamo Township is therefore 3.1817 mills.

17. Given the tax rates actually levied with tax base sharing it is possible to compare the taxes due in each locality with what they would have paid with no tax base sharing (remember the assumption, however, that the implied revenue required in each jurisdiction remains fixed). The difference is what taxpayers in these jurisdictions gain or lose from tax base sharing. A positive number in this instance indicates that taxpayers on average must pay more taxes, a negative number less taxes.

18. The same gains or losses (from column 17) are restated on a per capita basis to provide a better perspective on the size of the transfers.

Appendix BTechnical Description of the Contribution
and Distribution Formulas in the Minnesota
Plan for Tax Base Sharing

1. Each locality's contribution of tax base to the regional pool is given by

$$C_t^i = Z (B_t^i - B_b^i)$$

where

C_t^i = the contribution of tax base to the regional pool for each local community i in year t

Z = proportion of the growth in the business tax base which will be shared (40 percent in the Minnesota case)

B_t^i = the state equalized valuation of business property in community i in year t

B_b^i = the state equalized valuation of business property in the base year in community i in year t

If $B_b^i > B_t^i$, then the locality's contribution to the regional pool is zero for that year, although it remains eligible for a distribution of tax base from the regional pool.

2. The total regional pool is simply the sum of the contributions of each community, or

$$C_t = \sum_i^n C_t^i$$

where

C_t = total regional pool in year t

n = total number of communities in the region which have agreed to participate in tax base sharing.

3. Each locality's distribution from the regional pool is given by

$$D_t^i = C_t \left(\frac{I_t^i}{\sum_i I_t^i} \right)$$

where

D_t^i = the distribution received by each local community i in year t

I_t^i = distribution index value for community i

4. The sum of the distributions of tax base from the regional pool is given by

$$D_t = \sum_i^n D_t^i$$

where

D_t = total regional pool in year t

5. In the Minnesota Plan the distribution index values are calculated as

$$I_t^i = 2N_t^i \left(\frac{\bar{Y}_t}{Y_t^i} \right)$$

or

$$I_t^i = N_t^i$$

whichever is greater, where

N_t^i = population of community i in year t

Y_t^i = per capita state equalized valuation of all property in community i

$\bar{Y}_t$ = average per capita state equalized valuation of all property in the region

If $Y_t^i > 2\bar{Y}_t$, then the alternative distribution index, $I_t^i = N_t^i$, will be greater than the primary index. This provision effectively sets a minimum on the distribution that a wealthy community would receive.

6. Regardless of how the index values are calculated,

$$C_t = D_t$$

as long as

$$\sum_i^n I_t^i = 1$$

thus insuring that the distributions from the regional pool exhaust the contributions to the regional pool. In general, however,

$$C_t^i \neq D_t^i$$

Indeed, it would be pure chance if a community's contribution to the regional pool exactly equaled the distribution it received from the regional pool.

Appendix C

Step-by-Step Calculation of Tax Base Sharing
as Proposed by Michigan House Bill 4859

Note: The columns of Appendix Table C.1 have been numbered consecutively to correspond exactly with the numbering in this outline. The description which follows highlights the differences with the Minnesota Plan and should therefore be used in conjunction with Appendix A.

1. The jurisdictions are the same as those in the Minnesota Plan. The simulation is conducted for a single tax year, 1985, assuming a base year of 1979. Remember that overlapping jurisdictions are not included in this analysis.

2-5. The tax base contributed to the regional pool is determined in the same way as the Minnesota Plan, 40 percent of the nominal growth since the base year. In this simulation, however, the business tax base is defined to include personal property (the machinery and equipment of business) as well as structures and land. Once again, tax abatements are included in these totals.

6-7. The contributed tax base is not really shared but it is used to determine the revenue which each jurisdiction contributes to the regional pool -- the local tax rate (column 6) times the contributed tax base (column 5). The resultant revenue contributed to the regional pool is shown in Column 7.

8-11. The distribution of revenue from the regional pool (column 11) is a function of population, income, and tax effort (columns 8 thru 10). The

TABLE C.1

STEP BY STEP CALCULATIONS OF THE EFFECTS OF TAX BASE SHARING
ON KALAMAZOO COUNTY, 1985, AS PROPOSED IN HOUSE BILL 4859

	Total Business Tax Base (1979)	Total Business Tax Base (1985)	Growth in Business Tax Base (1979-85)	Contributed Share (40% of Increase)	Tax Rate without Sharing (1985)	Revenue Contributed to Regional Pool	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Townships							Townships
Alamo	3,030,890	4,695,600	1,664,710	665,884	1.0000	666	Alamo
Brady	2,732,911	3,900,002	1,167,091	466,836	1.0000	467	Brady
Charleston	1,647,515	7,560,282	5,912,767	2,365,107	0.9534	2,255	Charleston
Climax	1,160,427	1,679,446	519,019	207,608	0.8782	182	Climax
Comstock	77,174,837	97,014,617	19,839,780	7,935,912	4.4868	35,607	Comstock
Cooper	5,893,307	8,209,527	2,316,221	926,488	0.9423	873	Cooper
Kalamazoo	63,836,974	76,296,050	12,459,076	4,983,630	9.5000	47,344	Kalamazoo
Oshtemo	45,075,216	71,786,075	26,710,859	10,684,344	2.5857	27,627	Oshtemo
Pavillion	4,488,412	6,958,749	2,470,338	988,135	0.9987	987	Pavillion
Prairie Ronde	1,373,488	1,763,716	390,228	156,091	0.8125	127	Prairie Ronde
Richland	9,244,611	16,208,610	6,963,999	2,785,600	1.4282	3,978	Richland
Ross	5,295,384	8,498,880	3,203,496	1,281,398	1.3380	1,715	Ross
Schoolcraft	16,462,231	22,578,900	6,116,670	2,446,668	1.0000	2,447	Schoolcraft
Texas	4,535,566	7,557,375	3,021,810	1,208,724	1.0482	1,267	Texas
Wakeshma	768,033	862,348	94,315	37,726	0.7881	30	Wakeshma
Cities							Cities
Galesburg	3,406,086	5,394,403	1,988,317	795,327	9.9390	7,905	Galesburg
Kalamazoo	283,498,325	380,594,119	97,095,794	38,838,318	19.8060	769,232	Kalamazoo
Parchment	19,600,148	28,174,516	8,574,368	3,429,747	10.0000	34,297	Parchment
Portage	158,954,300	306,667,200	147,712,900	59,085,160	9.7017	573,226	Portage
County Total	708,178,659	1,056,400,415	348,221,756	139,288,702		1,510,231	County Total

TABLE C.1 (Continued)

STEP BY STEP CALCULATIONS OF THE EFFECTS OF TAX BASE SHARING
ON KALAMAZOO COUNTY, 1985, AS PROPOSED IN HOUSE BILL 4859

	Population (1980)	Per Capita Income (1981)	Implied Budget from Local Property Tax (1985)	Revenue Distributed from Regional Pool	Net Change in Revenue	Net Change in Taxes Due with Sharing	Net Change in Taxes Due per Capita	Tax Rate with Sharing	Net Change in Tax Rates	
Townships	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	Townships
Alamo	2,909	8,006	32,811	2,302	1,636	(1,636)	(0.56)	0.9501	-0.0499	Alamo
Brady	3,852	9,038	43,163	2,376	1,909	(1,909)	(0.50)	0.9558	-0.0442	Brady
Charleston	1,748	9,853	25,117	1,163	(1,092)	1,092	0.62	0.9948	0.0414	Charleston
Climax	1,978	8,071	20,564	1,419	1,237	(1,237)	(0.63)	0.8254	-0.0528	Climax
Comstock	11,162	8,528	808,325	49,975	14,368	(14,368)	(1.29)	4.4070	-0.0798	Comstock
Cooper	8,434	8,759	73,826	4,327	3,454	(3,454)	(0.41)	0.8982	-0.0441	Cooper
Kalamazoo	20,942	8,917	1,928,103	109,031	61,687	(61,687)	(2.95)	9.1961	-0.3039	Kalamazoo
Oshtemo	10,958	9,841	390,200	18,116	(9,510)	9,510	0.87	2.6487	0.0630	Oshtemo
Pavillion	4,811	8,558	51,118	3,138	2,151	(2,151)	(0.45)	0.9567	-0.0420	Pavillion
Prairie Ronde	1,189	7,793	18,040	1,336	1,209	(1,209)	(1.02)	0.7581	-0.0544	Prairie Ronde
Richland	4,677	11,260	102,597	3,638	(340)	340	0.07	1.4329	0.0047	Richland
Ross	4,747	11,824	95,443	3,070	1,355	(1,355)	(0.29)	1.3190	-0.0190	Ross
Schoolcraft	6,435	8,909	79,857	4,524	2,077	(2,077)	(0.32)	0.9740	-0.0260	Schoolcraft
Texas	5,643	10,364	91,174	3,817	2,550	(2,550)	(0.45)	1.0189	-0.0293	Texas
Wakeshma	1,375	7,610	13,910	1,080	1,050	(1,050)	(0.76)	0.7286	-0.0595	Wakeshma
Cities										Cities
Galesburg	1,822	7,121	119,730	10,616	2,712	(2,712)	(1.49)	9.7139	-0.2251	Galesburg
Kalamazoo	79,722	8,129	14,906,490	1,014,284	245,052	(245,052)	(3.07)	19.4804	-0.3256	Kalamazoo
Parchment	1,817	9,749	418,631	19,805	(14,493)	14,493	7.98	10.3462	0.3462	Parchment
Portage	38,157	10,190	5,916,887	256,214	(317,012)	317,012	8.31	10.2215	0.5198	Portage
County Total	212,378	8,991	25,135,987	1,510,231	(0)	0				County Total

details of these calculations are not shown here but the specific mathematical approach follows the federal general revenue sharing formula, more specifically the U.S. Senate three factor formula. A mathematical summary of the distribution formula can be found in Appendix D.

12. The net change in each jurisdiction's revenue is simply the distributed revenue minus the contributed revenue of that jurisdiction. Notice, once again, that the sum of these changes is zero since 100 percent of the contributions are redistributed to the local jurisdictions.

13. This column may be superfluous, but it is important to understand that under the assumption of fixed budgets at the level of spending which existed without sharing (column 10), the net change in revenue due to sharing implies exactly the opposite requirement for local taxpayers. In other words, if the net change in revenue is positive due to sharing, then that allows a locality to lower the amount of taxes it collects from local taxpayers to support a fixed budget. Of course, there is no guarantee that localities would maintain identical budgets with sharing that they had without sharing, but this assumption appears less "biased" than other alternatives.

14. The change in taxes due from column 13 are restated here on a per capita basis to provide a better perspective of the size of the transfers between localities.

15. The new overall tax rates required with sharing are shown in this column. Notice that there is no shared tax rate for business property like the Minnesota Plan. This approach affects only the overall tax rate in a district.

16. The net change in the rates is calculated as the rate with sharing minus the rate without sharing. Thus a positive number in this column indicates that taxpayers would pay higher tax rates with sharing than without sharing, a negative number lower tax rates with sharing than without.

Appendix DTechnical Description of the
Federal General Revenue Sharing Formula

1. The U.S. Senate three factor general revenue sharing formula relates a community's share, S , directly to that community's population and tax effort and inversely to per capita income. For the application to Kalamazoo county it can be stated mathematically as

$$S_t^i = \frac{P_t^i \left(\frac{T_t^i}{Y_t^i} \right) \left(\frac{PCY_t^C}{PCY_t^i} \right)}{\sum_{i=1}^n P_t^i \left(\frac{T_t^i}{Y_t^i} \right) \left(\frac{PCY_t^C}{PCY_t^i} \right)}$$

where

S_t^i = the proportion or share of revenue due each community i in year t

P_t^i = population of community i in year t

T_t^i = property tax collections in community i in year t

Y_t^i = income in community i in year t

PCY_t^C = per capita income in the county in year t

PCY_t^i = per capita income in community i in year t

2. The three factors of population (P), tax effort $\left(\frac{T}{Y}\right)$, and relative income $\left(\frac{PCY^C}{PCY^I}\right)$ are multiplicatively related. The divisor, of course, constitutes the simple summation of the product of the three factors for each community and thereby insures that all funds to be shared

will be exhausted, i.e., $\sum_{i=1}^n S_t^i = 1$.

3. It should be noted that the general revenue sharing formula can be reduced as follows:

$$(a) \quad \frac{\cancel{P_t^i} \left[\frac{T_t^i}{PCY_t^i \cancel{(P_t^i)}} \right] \left[\frac{PCY_t^C}{PCY_t^i} \right]}{\sum_i \cancel{P_t^i} \left[\frac{T_t^i}{PCY_t^i \cancel{(P_t^i)}} \right] \left[\frac{PCY_t^C}{PCY_t^i} \right]}$$

$$(b) \quad \frac{\frac{T_t^i}{(PCY_t^i)^2} \cancel{(PCY_t^C)}}{\left[\cancel{PCY_t^C} \right] \left[\frac{\sum T_i}{(PCY_t^i)^2} \right]}$$

(c)

$$\frac{\frac{\tau_t^i}{\left(\text{PCY}_t^i\right)^2}}{\sum \frac{\tau_t^i}{\left(\text{PCY}_t^i\right)^2}}$$

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