

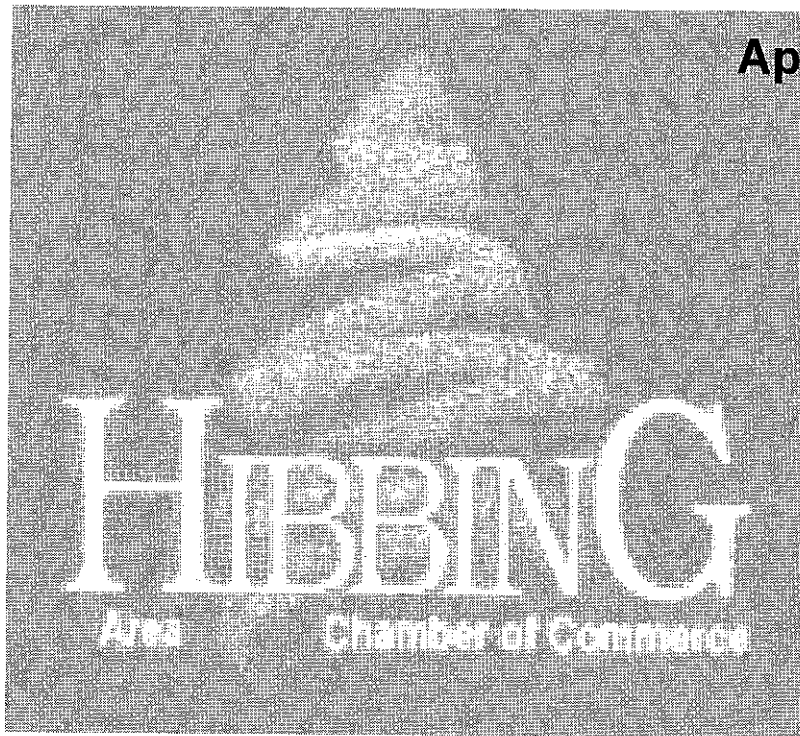
RESEARCH PROJECT:

Hibbing Business Retention and Expansion Survey and Report

Report #1: Hibbing's Economic Base

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EXECUTIVE SUMMARY

Hibbing's Economic Base

Hibbing has a diverse economic base. It relies heavily on the Iron Mining industry, as does much of Minnesota's Iron Range. However, Hibbing also has a significant manufacturing sector, particularly in durable goods. Durable goods manufacturing exceeds comparable manufacturing levels in the state of Minnesota in terms of employment.

What is more, the basic industries in Hibbing include several that are providing services instead of products. These services bring in money from outside the community; households from surrounding areas come to the Hibbing community for shopping, health services, and other services. Firms from outside Hibbing also depend on the community for intermediate purchase needs.

Summary Table 1 lists the basic and supporting industries for Hibbing. Six of the ten clusters of industries (a cluster being a set of closely related industries) are considered to be *basic* to the region. An industry is basic if it exports more than half of its output and employs more than ten individuals.

The remaining four clusters are *supporting*. Supporting industries are those that cater to other local industries as suppliers or that cater to local population (households). Levels of efficiency in the supporting sectors help define the competitiveness of the basic sectors. This is an important point to make when discussing the possibilities for retaining and growing the local economy.

Some sectors appear in both the basic (exporting) and the supporting clusters. Business Services is an example of such an industry. These are sectors that cater both to local industries and households but that also bring money into Hibbing from outside sources.

**Summary Table 1
The Economic Base of Hibbing's Economy**

Specific Sectors

General Categories for Discussion

Hibbing's Exporting Industries

Iron Mining		Natural Resource Based
Chemicals and Allied Products	}	Manufacturing
Rubber and Plastics Products		
Primary Metals Manufacturing		
Fabricated Metal Products		
Non-Electrical Machinery		
Scientific Instruments		
Electronic Components		
Printing and Publishing	}	Information/Transportation Services
Railroads and Related Services		
Local, Interurban Transportation		
Arrangement of Passenger Travel		
Communications		
Insurance Agents and Brokers		Trade/Finance
Personal Services		Personal/Business Services
Business Services		
Membership and Non-Profit		Other Exporters
Consulting and Research		

Hibbing's Supporting Industries

Food and Kindred Manufacturing		Support Manufacturing
Scientific Instruments		
Motor Freight		Transportation
Utilities	}	Support Services
Wholesale Trade		
Retail Trade		
Banking		
Credit Agencies		
Security and Commodity Brokers		
Real Estate		
Hotels and Lodging Places		
Business Services		
Automobile Repair and Services		
Motion Pictures		
Amusement Services		
Health Services	}	Professional Services
Legal Services		
Private Education		
Social Services		

Trends in Hibbing's Economic Base

Hibbing's performance between the first quarter of 1995 and the first quarter of 1996 was analyzed using shift-share techniques. This model shows that most sectors experienced an absolute increase in employment over that year. The region out-performed the rest of the state in Durable Goods Manufacturing, in Retail Trade, in Finance, and in Insurance & Real Estate over this period of time. However, the state outperformed Hibbing's industries in Non-Durable Goods Manufacturing, in Wholesale Trade, especially in Services, and in Government employment. (See Appendix A for additional shift-share analysis of Hibbing as compared to the Arrowhead Region, and for Location Quotient analyses for Hibbing as compared to the Arrowhead Region.)

From a regional competitive point of view, the biggest relative losers were in Hotels and Other Lodging Places, Personal Services, Business Services, Membership Organizations, Local Government, Food Stores, and Non-Durable Goods Manufacturing. Looking at competitive advantages, the biggest gainers were Local and Interurban Passenger Transit, General Merchandise Stores, Automotive Dealers and Service Stations, Apparel and Accessory Stores, Eating and Drinking Places, Miscellaneous Retail, and State Government.

In summary: Hibbing's base is strong and diverse, and at least for the period in which the most recent data are available, the trends are generally positive. Most of the competitive strength, when looking at trends in Hibbing vs. trends in the state, seem to come from Trade and the Finance, Insurance, and Real Estate sectors. Much of the competitive weaknesses seem to appear in a number of service sectors. Durable Goods Manufacturing, very important to the regional economy, is holding its own and shows strength in the Fabricated Metal Products and in the Instruments and Related Products sector.

THE ECONOMIC BASE OF HIBBING

INTRODUCTION

This report is the first in a series of two reports to be used in analyzing Hibbing's business retention and growth prospects. The information contained in this report represents as comprehensive an analysis of Hibbing's economic base as possible using data from two secondary data sources: 1) the IMPLAN users group data series, and 2) data provided through a special compilation by the Minnesota Department of Economic Security.

Finding adequate secondary economic data at a geographical level as small as a community can be very difficult. Americans value their privacy. The right to privacy has been extended to businesses in this county. While such an extension provides business with protections from government, it also makes it difficult for the government to divulge information which would in any way identify a firm's activities within a geographical area. Thus, much government data at the local level contain "not available" or "disclosure" statements instead of information.

Since both of the sources used for this analysis depend upon government information, they are generally incomplete. Therefore, the industry rankings offered in the report are also incomplete, often overlooking firms that would be identified if the data were presented in finer detail. On the other hand, the presentations that follow are at the finest level of detail possible. Few communities the size of Hibbing, or even larger than Hibbing, have data as detailed as are summarized in this report.

This does not represent a complete economic base study. Such a study would involve techniques such as personal interviews, focus groups, and a comprehensive survey of local industries expressly conducted for the identification of a region's base. This report is intended to provide background, putting the results of an opinion study towards business retention and growth within the community into perspective.

The second report in this series summarizes the results of a series of interviews and mail questionnaires involving all members of the Hibbing Chamber of Commerce.

THE ECONOMIC BASE OF HIBBING USING THE IMPLAN INFORMATION SYSTEM

Basic and Supporting Industries

This report describes the economic base for the City of Hibbing. Understanding the economic base and trends in that base provide foundations for predicting the city's economic future.

This assessment begins with an aggregated view of the city. Ten sectors are isolated (agriculture excluded) from a special run of the IMPLAN input-output software using data purchased from the IMPLAN Users Group.

Economic base identification begins by identifying Hibbing's exporting industries. Exporting industries are defined as those industries that bring money into the city from anywhere outside of

Hibbing, including but not limited to exports to foreign markets.¹ Defining the economic base also requires the identification of local support industries. These are industries that support the exporting sector by providing needed intermediate goods and services as well as industries that exist to support the needs of the local population.

The region for analysis is identified on the basis of Zip Code. The Zip Code used in compiling the Hibbing data is 55746. Under this arrangement, it is possible to identify a few industries that are not within the political boundaries of Hibbing. Looking at a Zip Code map leads us to believe that the number of such "non-Hibbing" industries are limited to one or two firms. To the extent that there are "outside" industries included, they tend to be highly significant to Hibbing's economy (e.g., Hibbing Taconite) and probably should have been included.

The organization of this report begins with an aggregate look at Hibbing's economic base. Aggregation loses much of the detail that is desirable in such studies. However, it provides the greatest coverage not subject to disclosure problems, as discussed above. Table 1 summarizes the economic base of the region from the export and local service perspective. Hibbing exports approximately 49% of its final demand to customers from outside of Hibbing's boundaries.

¹While most sales to government would also represent an export, these are not included for this assessment. The total export level is somewhat underestimated as a result.

Table 1
Hibbing's Industry Clusters (Based on 1993 Data)

Exporting Industries	% of Final Demand Going to Exports	# Employees
Natural Resource Based Industries		
•Mining	100	792
•Food and Kindred Products Manufacturing	50	11
Manufacturing		
•Chemicals and Allied Products	91	32
•Rubber and Plastics Products	100	120
•Primary Metals Manufacturing	100	81
•Fabricated Metal Products	99	98
•Non-Electrical Machinery	96	61
•Scientific Instruments	70	10
Information/Transportation Services		
•Printing and Publishing	95	38
•Railroads and Related Services	63	23
•Local, Interurban Transportation	84	157
•Arrangement of Passenger Travel	65	10
•Communications	53	85
Trade/Finance		
•Insurance Agents and Brokers	99	61
Personal/Business Services		
•Personal Services	54	301
•Business Services	76	
Other Exporters		
•Membership and Non-Profit Organizations	55	316
•Consulting and Research	90	262

Important Local Suppliers (Local Service Industries)	% of Output Going to Local Units	# Employees
Support Manufacturing		
•Food and Kindred Manufacturing	53	11
•Scientific Instruments	96	10
Transportation		
•Motor Freight*	89	34
Support Services		
•Utilities*	69	19

Important Local Suppliers (Local Service Industries)	% of Output Going to Local Units	# Employees
●Wholesale Trade	49	736
●Retail Trade	87	2045
●Banking	89	87
●Credit Agencies*	88	11
●Security and Commodity Brokers	86	13
●Real Estate	81	114
●Hotels and Lodging Places*	83	92
●Business Services*	70	417
●Automobile Repair and Services	70	100
●Motion Pictures	99	73
●Amusement Services	95	100
Professional Services		
●Health Services	62	1388
●Legal Services*	96	55
●Private Education	78	54
●Social Services	70	141

Note: In economic base theory, a local service industry is one that is especially important as a supplier to other industries in the region. This is not to be confused with services as an industrial category (sector).

Also Note: We are attempting to provide as much industry detail as the data will allow. Unfortunately, government data sources are organized in such a manner as to disallow disclosure of any one firm's activities. There could be industries missing from this list due to these disclosure requirements. The disclosure problems are especially acute for manufacturing industries located in small geographical areas.

Table 1 is divided into two major sections. One indicates those industries that export at least fifty percent of their final demand. The other indicates those industries that sell at least fifty percent of their gross output to either other local firms or to the local population. No industry employing fewer than ten individuals was included no matter what percentage figure appears. The reader's attention is also called to the second note attached to Table 1. Disclosure problems, especially in the manufacturing sectors, lead to some industries not being identified that could have been included in these lists.

From the export and local service perspective a few interesting industries appear: For example, Printing and Publishing brings in money from the outside, selling 95 percent of its output to exports. This industry employees 38 individuals. Insurance Agents and Brokers found 99 percent of its output

going to exports while employing 61 individuals. Business Services, a majoremployer in the region with 417 employees, sold 76 percent of its output to exports. Finally, the two industries appearing in the "Other" category (Membership and Non-Profit/Consulting and Research) employed 578 individuals in 1993 and exported 55 and 90 percent of their outputs respectively. This includes the sponsor of this research, the Hibbing Chamber of Commerce, which brings membership money into Hibbing from members and other supporters not located in the 55746 Zip Code region.

Support industries are extremely important. The efficiency in their operations affects the competitiveness of Hibbing vs. the rest of the world. Inefficient support industries can lead to inefficient exporting industries and a loss of competitiveness in the global marketplace.

The interpretation of the numbers in Table 1 for support industries is similar to that for exporting industries. To appear in this table, the sector must sell at least 50 percent of its output to local households or to other local industries. When sales to local industries was found to be particularly important, the sector was given a ★ designation.

Manufacturing and Transportation are generally of interest when looking at industrial support. In that regard, Scientific Instruments and Motor Freight Transportation were particularly important, employing 44 individuals and selling from 89 to 96 of their output locally.

We found few surprises when looking at the support services. Utilities, Credit Agencies, Hotels and Lodging Places, and Business Services all show the ★ designation as having other local industries as a major portion of their business.

Professional Services found one industry, Legal Services, as depending strongly on other, local industrial sectors. Health Services, a particularly large industry in terms of employment with 1388 employees, sold 62 percent of its output to other local firms or to local households.

Another look at the exporting industries in the region uses absolute levels of activity as the measure. Table 2 lists the ten largest exporters in terms of dollars of output along with the IMPLAN data base's 1993 estimated dollar volume of export activity.

Table 2
Ten Largest Exporting Industries: 1993
(All Data in Millions of 1993 Dollars)

Industry	Export Levels
Iron Ore	\$119
Rubber and Plastic Products	15
Primary Metals Manufacturing	10
Fabricated Metal Products	11
Non-Electrical Machinery	6
Wholesale Trade	6
Retail Trade	6
Real Estate	7
Health Services	27
Consulting and Research Services	7

It is no surprise to find the Iron Ore industry as the most basic to Hibbing's economy. It might be a surprise to find that the Health Services industry comes in second, albeit a distant second. Health Services appears as both a major input for Hibbing's households and industries and also as a major generator of funds from outside the region.

Five of the ten sectors in Table 2 could be termed as industrial in that processing and manufacturing are their principal modes of operation. The remaining sectors are trade and service categories. There is a fairly even balance between services and processing when looking at the absolute levels of Hibbing's exports.

Hibbing depends very much on the Iron Ore industry. However, it appears that Hibbing has quite a diversified economy with a good mix of manufacturing, trade, and service industries making up its economic base. It exports about half of its total output with a significant amount of local support for those exports.

Leading Industries: Raw Data

The economic base of a region also consists of the region's leading industries in terms of such measures as output, employment, and value added. The following three tables summarize industry rankings based on these measures. Care should be taken in interpreting these tables. Leading industries depend at least somewhat on the industrial definition employed. The more aggregated

the industrial definition, the greater will be the aggregated measures. With that caveat, Table 3 presents the top ten Hibbing industries in terms of output as estimated by the IMPLAN system and database.

Table 3
Top Ten Output Producing Industries: Hibbing 1993
(Output In Millions of 1993 Dollars)

Industry	Output
Iron Ores	\$119
Health Services	70
Construction	64
Retail Trade	56
Real Estate	41
Wholesale Trade	39
Rubber and Plastics	15
Consulting and Research Services	13
Business Services	12
Communications	12

Once again the dominate influence of iron mining on the Hibbing economy is highlighted. The other top producing output industries identified in Table 3 also appear in various positions (both exporting and local service) in the earlier economic base analysis as well.

It should be noted that the IMPLAN system does not analyze output simply in terms of sales. Where this is most apparent is in the categories of Retail and Wholesale Trade. The value of inventory purchased is deducted from the sales of the retail and wholesale sectors. The products sold are not generally produced in Hibbing and are not a part of Hibbing's output. Only trade margins are included in retail and wholesale input-output accounting. However, the strength and importance of these two sectors is apparent even when these deductions are taken.

Table 4 lists the top ten industries in terms of employment. Employment is defined as people working, not full-time equivalents. The large number in Retail Trade and Health Services could reflect a practice of hiring part time employees. However, the very large numbers for these sectors are still impressive.

**Table 4
Top Ten Employers: Hibbing**

Industry	Employment
Retail Trade	2045
State and Local Government	1882
Health Services	1388
Iron Ores	792
Wholesale Trade	736
Construction	535
Business Services	417
Membership and Non-Profit	316
Consulting and Research Services	262
Federal Civilian	176

Iron Ores is still important, but not the leading employer. Retail is a key industry in Hibbing as well as in most other regions for which such comparisons are made. Health Services appears dominant once again. For the first time, State and Local Government appears as a major player in the region. Membership and Non-Profit organizations also appears on this as well as the previous lists.

Table 5 is the final of these summary tables. It looks at the rankings of industry based on value added. Value added includes the employee compensation, interest, and property incomes that remain in the region. Employee compensation is generally the largest category in value added.

**Table 5
Top Ten Value Added Industries: Hibbing 1993
(All Values are in 1993 Dollars)**

Industry	Value Added
Iron Ores	61
State and Local Government	59
Health Services	50
Retail Trade	41
Wholesale Trade	36
Real Estate	31
Construction	26
Business Services	9
Federal Civilian	8
Consulting and Research Services	8

Perhaps the biggest surprise is the inclusion of two government categories in this list. As mentioned the largest category in value added is employee compensation. It is this category that brings these two to the forefront. Iron Ores and Health Services are still at the top, with Wholesale and Retail Trade not far behind.

Many of the others are consistent with our other measures. However, when exploring Tables 3, 4, and 5, we find that manufacturing, so prominent in the export base of the region, generally drops out. As a matter of fact, many of Hibbing's service industries are found in either the supporting or the exporter role, or both, when looking at Hibbing's economic base, as described by Table 1.

Leading Industries: Multiplier Values

Another measure of Hibbing's economy can be found by exploring multiplier values for the various industries. Multipliers reflect the level of interaction an industry has with other industries and with the population in the region. A large firm that purchases nothing locally, sells nothing locally, and that has a relatively small work force or a work force paid minimum wages would not have the same spin-off effect as does a firm that buys its inputs from local producers, hires local workers, pays higher wages, or sells its products locally. Therefore, it is instructive to look at the top industries in the region from a multiplier perspective.

The three tables that follow are much like the three presented above. They look at the multipliers related to

- output : for every dollar of output in the reference industry, how many dollars are generated in the region
- employment: for every employee in the reference industry, how many employees are generated in the region
- value added: for every dollar of value added earned from the operations of the reference industry, how many dollars of value added are generated in the region.

Obviously, multipliers can also be useful for impact analysis.

One other thing about multipliers. There are actually several layers that can be analyzed through multipliers; the most basic uses a multiplier that takes only the interaction between local industries into account. Interaction between industries is measured as purchases and sales from and to one another so that further production can take place. For example, the purchase of accounting services from the Business Service sector in order to meet government requirements for production to take place, or the purchase of semi-finished products by a local industry from another local industry for

further processing towards a final product. Multipliers from this point of view are called Type I multipliers. Type I multipliers do not take further rounds of purchases out of incomes generated by industrial activity.

The Type III multiplier is much more extensive (and, subject to much more controversy in terms of its accuracy). It includes the inter-industry interactions alluded to above as well as expenditures generated through incomes earned from economic activity. It also includes extra expenditures or the loss of expenditures generated by the in-migration or out-migration of population from a growing or contracting economy.

Table 6 presents both the Type I and Type III multipliers on the basis of output for the top ten industries in the region. Once again, all data are taken from the IMPLAN system and attending database. The position in the top ten is generated from the values of the Type I multipliers only.

**Table 6
Top Ten Output Multipliers: Hibbing 1993**

Industry	Type I Multiplier	Type III Multiplier
Motion Picture Services	1.56	1.38
Insurance Carriers	1.46	1.92
Private Education	1.46	2.83
Social Services	1.31	2.29
Credit Agencies	1.30	2.14
Railroads & Related Services	1.29	1.64
Communications	1.28	1.62
Banking	1.27	1.61
Consulting & Research Serv.	1.25	2.09
Arrangement of Passenger	1.24	2.21

These multipliers say nothing about the relative size of the industry. They only give an indication as to what effect these industries have on other industries in the region. While many of the basic and strong servicing industries reappear on this list, others of great absolute importance, the obvious one being iron ores, does not appear. Further (and for the most part), those industries that do appear are service oriented as opposed to manufacturing based. A most interesting result.

Table 7 provides a similar summary for employment multipliers.

**Table 7
Top Ten Employment Multipliers: Hibbing 1993**

Industry	Type I Multiplier	Type III Multiplier
Insurance Carriers	2.07	3.39
Real Estate	1.75	2.82
Banking	1.58	2.59
Motion Pictures	1.56	2.58
Construction	1.45	2.38
Communications	1.50	2.46
Auto Repair and Services	1.43	2.35
Chemicals and Allied Products	1.39	2.24
Rail and Related Services	1.38	2.26
Primary Metals Mfg.	1.34	2.20

Many of the same industries appear here. However, the order is different and we find some manufacturing appearing in the employment multipliers where none appeared in the output multiplier table (Table 6).

Table 8 presents the multipliers for value added and represents the last in this series. The reader should be reminded that the largest component of value added for virtually all regions is employee compensation.

**Table 8
Top Ten Value Added Multipliers: Hibbing 1993**

Industry	Type I Multiplier	Type III Multiplier
Insurance Carriers	2.05	3.09
Motion Pictures	1.96	4.52
Private Education	1.53	3.69
Credit Agencies	1.47	3.06
Banking	1.43	2.04
Auto Repair and Services	1.39	2.16
Construction	1.31	1.93
Rubber and Plastics	1.31	1.89
Membership & Non-Profit	1.29	2.92
Maintenance and Repair	1.27	3.68

Again, many of the same industries appear. One manufacturing industry appears (Rubber and Plastics). The rest are services. In fact, when looking at the export base, there is an even distribution of exporters between services and manufacturing. But when it comes to local impacts, services definitely show themselves to be dominant.

LOOKING AT HIBBING'S ECONOMY RELATIVE TO MINNESOTA'S ECONOMY: RELATIVE SHARES AND CHANGES IN THE TWO ECONOMIES

The Importance of Hibbing's Industrial Base Relative to Minnesota's

We first look at Hibbing's industrial base relative to that of Minnesota's. The employment related data were obtained from the Minnesota Department of Economic Security and relate to the first quarter of 1996. The definition of employment for these comparisons is "employment that is covered," i.e., employment that is subject to social security contributions. [The problems with disclosure discussed in the IMPLAN section of this report also apply to the data reported here.]

We make our first comparison by employing a technique known as location quotient analysis. Location quotients are simple in concept. They simply compare the percentage of total *regional* employment that is working in a particular industry with the percentage of total *state* employment that is working in the same industry. When taking the ratio of the two:

$$LQ = \frac{\% \text{ of employment in regional industry } i}{\% \text{ of employment in same industry } i \text{ for the state}}$$

A location quotient greater than one indicates that the industry is a more important employer in Hibbing than it is in Minnesota. A location quotient less than one means that the industry is less important in Hibbing than it is in Minnesota. In other words, the location quotient values are an indicator of the basic nature of the industry in Hibbing relative to the state. Table 9 summarizes the location quotient values from the data base provided.

Table 9
Location Quotient Analysis for Hibbing as Compared to Minnesota, First Quarter 1996*

	Hibbing Employment	Minnesota Employment	Location Quotient
AGRICULTURE, FORESTRY & FISHING	12	16,408	0.21
07 Agricultural Services	12	8,033	0.42
MANUFACTURING	1,239	422,326	0.81
Durable Goods	975	241,536	1.11
24 Lumber & Wood Products	16	18,569	0.24
34 Fabricated Metal Products	254	34,512	2.03
38 Instruments & Related Products	31	37,970	0.23
Non-durable Goods	264	180,790	0.40
27 Printing & Publishing	137	55,329	0.68
30 Rubber & Misc. Plastics Products	72	19,477	1.01
TRANSPORTATION & PUBLIC UTILITIES	206	112,718	0.50
41 Local & Interurban Passenger Transit	77	12,395	1.70
47 Transportation Services	35	8,545	1.13
48 Communications	78	20,359	1.06
TRADE	2,110	576,945	1.01
Wholesale Trade	472	146,084	0.89
50 Durable Goods	381	86,501	1.21
51 Nondurable Goods	90	59,583	0.42
Retail Trade	1,639	430,861	1.05
52 Building Materials	105	16,959	1.70
53 General Merchandise Stores	224	61,190	1.01
54 Food Stores	155	58,665	0.73
55 Automotive Dealers & Service Stations	204	48,369	1.16
56 Apparel & Accessory Stores	94	18,115	1.43
57 Furniture & Homefurnishings Stores	44	21,530	0.56
58 Eating & Drinking Places	634	143,290	1.22
59 Miscellaneous Retail	180	62,743	0.79
FINANCE, INSURANCE & REAL ESTATE	220	140,350	0.43
60 Depository Institutions	107	35,099	0.84
62 Security & Commodity Brokers	8	13,144	0.17
64 Insurance Agents, Brokers & Service	44	14,961	0.81
65 Real Estate	51	23,627	0.59
SERVICES	2,296	622,167	1.02
70 Hotels & Other Lodging Places	91	24,781	1.01
72 Personal Services	114	25,354	1.23
73 Business Services	129	136,447	0.26
75 Auto Repair, Services & Parking	52	20,371	0.70
76 Miscellaneous Repair Services	23	5,487	1.17
78 Motion Pictures	30	8,584	0.95
79 Amusement & Recreation Services	38	37,670	0.28
80 Health Services	1,435	191,042	2.07
81 Legal Services	37	16,371	0.63
83 Social Services	122	62,147	0.54
86 Membership Organizations	95	25,120	1.04
87 Engineering & Management Services	97	40,354	0.66
88 Private Households	6	3,116	0.53
GOVERNMENT	1,038	339,322	0.84
Federal	38	33,817	0.31
State	230	67,621	0.94
Local	771	237,884	0.89

*See Appendix A for 1st Quarter 1996 location quotient analysis of Hibbing as compared to the Arrowhead Region.

It is interesting to note that retail trade has a location quotient value greater than one, as do most of the individual sectors in the retail category. Further, the basic nature of Durable Goods manufacturing also presents itself out of these calculations. The most significant area where Hibbing is under-represented when compared to Minnesota is in the Finance, Insurance, and Real Estate area where every industrial category shows a location quotient value that is less than one.

Changes in the Economic Base

One other look at the base is to explore the changes in that base over time. Using the data provided by the Minnesota Department of Economic Security, we compared the trends in employment in Hibbing against similar trends for the state of Minnesota between the first quarter of 1995 and the first quarter of 1996. Table 10 makes these comparisons.

**Table 10
Shift-Share (Trend) Analysis for Hibbing as Compared to Minnesota***

	1q95 MN	1q96 MN	1q95 Hibbing	1q96 Hibbing	Share	Mix	Competi- -tion	Change
Agriculture, Forestry & Fishing	15,549	16,408	12	12	0.29	0.35	0.02	1
Manufacturing	418,545	422,326	1,211	1,239	30.26	-19.32	17.40	28
Durable Goods	239,352	241,536	946	975	23.64	-15.01	20.70	29
Non-durable Goods	179,193	180,790	265	264	6.62	-4.26	-3.36	-1
Trade	562,933	576,945	2,000	2,110	49.98	-0.21	60.89	111
Wholesale Trade	137,538	146,084	452	472	11.30	16.79	-8.42	20
Retail Trade	425,395	430,861	1,548	1,639	38.68	-18.80	71.11	91
Finance, Insurance & Real Estate	135,261	140,350	209	220	5.23	2.64	3.12	11
Services	598,269	622,167	2,289	2,296	57.22	34.23	-84.45	7
Government	338,820	339,322	1,081	1,038	27.02	-25.42	-44.27	-43

*See Appendix A for 1st Quarter 1995 shift-share analysis of Hibbing as compared to the Arrowhead Region.

The final column of Table 10 shows the net change in employment between these two time periods. As can be seen, most sectors either posted a gain in employment or relatively small losses. Looking at the aggregate categories, only government and non-durable manufacturing lost

employment between these two periods.

Most of the modest gains can be attributed to the fact that the state as a whole demonstrated a fairly strong economy between the two time periods. The so-called share effect reported in Table 10 shows the increase in employment in Hibbing that would occur had Hibbing industries all increased at the state average.

The mix of fast growing or slow growing industries is the second category. This is found by taking the state industry's rate of growth (or decline) as a percentage of total state growth and applying that ratio to the base period employment for Hibbing. For example, the aggregate durable goods manufacturing sector was shown to be a slow growth industry for the state as a whole. To the extent that this industry is located in Hibbing, we would expect slower than average growth for this community as well.

The last category is the difference between the share and the mix effects and what actually happened. In other words, if we can't account for the change in Hibbing employment because Hibbing participates in the state performance or because of the mix of industries that are located in Hibbing, the difference must be due to the fact that Hibbing out- or under-performed in this sector relative to the rest of the state. Again looking at durable goods: If this industry grew at the state average rate of growth, Hibbing would have had 24 more employees in the first quarter of 1996 than it did in the first quarter of 1995. Because durable goods grew at a slower rate than did other industries in the state, Hibbing would have lost 15 individuals in this sector had it also underperformed the overall average. Between these two forces at work, we would predict an increase in employment between these two time periods of 9 individuals. Instead, we had an increase of 29 individuals. How can we account for the other 20 individuals? By saying that Hibbing had a comparative advantage in attracting employment in this sector as compared to the rest of the state.

Again, when looking at the aggregates, the year was a good one for most of Hibbing's industries.

Additional Sectors in Hibbing's Base

It has been pointed out that the above analysis does not take into account industries for which disclosure is an issue when using government data. One obvious omission when looking at the data is located in the IMPLAN sector titled Wiring Devices where the activities of Hibbing Electronics are not taken into account. Any account of these activities is also missing from the Economic

Security Data. Technically, Hibbing Electronics appears in the Electronic Components and Accessories category in the Standard Industrial Classification (SIC) manual. It is obviously an exporter from the region and is also a major employer (454 employees according to the *Minnesota Manufacturers Register, 1996*) in the region. Since this sector is not separated in the data base, about all we can do is to insert this sector into the summary document to this report. (See Appendix B for additional information on Standard Industrial Codes for Hibbing.)

Further, since the Economic Security data includes only covered employment, the Railroad and Railway Express industry does not appear since railroad workers are not covered. However, in this case, the IMPLAN data base makes an attempt at estimating the level of this activity.

Appendix A: Location Quotient and Shift-Share Analysis for Hibbing, MN

The shift-share and location quotient comparisons made earlier in this report involved Hibbing data relative to the State of Minnesota. This appendix makes a similar comparison between Hibbing and Region 3 in Northeast Minnesota. The interpretations of the values reported in the accompanying tables of this appendix are the same as for those in the main body of the text. Therefore, a restatement of the properties of location quotients and of shift-share techniques will not be repeated here. The research team is grateful for data for this analysis which was provided by the Minnesota Department of Economic Security.

LOCATION QUOTIENT

Refer to Table A1. This table presents location quotient values comparing Hibbing to Northeast Minnesota Region 3. The bold titles represent the overall industry category as defined by the Department of Economic Security and the U. S. Department of Labor. The sub-categories under the bold titles represent more specific industrial classifications *consistent with the non-disclosure requirements imposed on government data providing agencies by federal and state law*. In other words, not all possible sub-category industries can be represented because of concerns over disclosure.

Manufacturing: Of particular interest is the fact that Manufacturing in Hibbing is over-represented relative to Region 3. The level of over-representation is consistent when looking at the years 1995 and 1996. What is more, the over-representation comes from durable goods manufacturing, whereas non-durable goods is actually under-represented when compared to Region 3 data. All of these observations are consistent with those made in the main body of this report. That is, Hibbing has a strong economic base in the manufacturing sector and, in fact, has a stronger manufacturing base than would be expected for communities of Hibbing's size.

Transportation And Public Utilities: The overall category, Transportation And Public Utilities is under-represented relative to Region 3. While the sub-category industries all have location quotient values that are greater than one, the overall location quotient value is .58. This means that Hibbing is under-represented in this industry by 42 points, a fairly substantial amount.

Trade: There has been a great deal of interest in Hibbing's position relative to Trade. When compared to the rest of Minnesota, Hibbing was found to have a greater than proportional share of both wholesale and retail trade. However, when compared to the Northeast Minnesota Region 3, Hibbing is found to have an exact proportion of employment in the broader Trade sector, with a location quotient value equal to 1.

The Trade location quotient value of one does not translate equally into the major two sub-categories, wholesale and retail trade. Hibbing has a more than proportionate location quotient value in Wholesale Trade equal to 1.66. However, the location quotient of .90 for retail trade indicates that Hibbing is less specialized in Retail Trade than is Region 3 taken as a whole. The value of .90 for 1996 is slightly higher than the 1995 value of .88, a fact which should be reflected in the analysis of the community's shift-share position which constitutes the next portion of this appendix.

Finance, Insurance and Real Estate: Finance, Insurance and Real Estate (F.I.R.E.) Shows a location quotient of .75. Therefore, this sector is under-represented in Hibbing relative to Region 3.

Services: Finally, the overall category of Services is a bag with mixed signals. Its location quotient value of 1.02 indicates but a small surplus of employment relative to Region 3. However, when looking at the sub-categories, we see an under-representation for Hotels and Other Lodging Places, Business Services (a possible area of opportunity identified in the main body of this report, Amusement and Recreation Services, Legal Services, Legal Services, Private Social Services, Membership Organizations (an area of strength when compared to the State), and Private Household Services. Relative strength is found in Personal Services, Amusement and Recreation Services and in Engineering and Management Services. The rest were near proportional to the Region 3 economy. Most of these industries demonstrated roughly comparable location quotient values in 1995 as well.

SHIFT-SHARE

Now refer to Table A2. This table provides the shift-share summary between Hibbing and Region 3. Once again, emphasis will be placed in the most aggregated industries shown in bold type in this table.

Hibbing generally performed well relative to Region 3. In looking at the final column, actual increases or decreases in total employment between the years 1995 and 1996, we can see that all sectors in Hibbing, with the sole exception of government employment, show increases. The largest absolute gains are to be found in Trade and in the broad sub-category of Retail Trade. Both the general and the sub-category showed gains due to Hibbing's competitive position relative to Region 3.

In fact, the only broad sectors to show Hibbing to be at a competitive disadvantage relative to Region 3 were in Finance, Insurance and Real Estate, in the Services category, and in Government, two of which (F.I.R.E. and Services) had absolute increases in employment due to their high growth nature and due to the growth in Region 3. Hibbing participated in what appears to be a strong year in the region for those two sectors. It may be wise to monitor these two industries's trends in the future, since their relatively low location quotients and their negative competitive components relative to Region 3 could indicate potential future problems. However, nothing in the absolute numbers indicate immediate causes for concern in this regard.

Table A1: LOCATION QUOTIENT

First Quarter 1996 (As compared to the Arrowhead Region)	Hibbing Employment	Region 3 Employment	Location Quotient
Agriculture, Forestry & Fishing	12	438	0.42
07 Agricultural Services	12	301	0.62
Manufacturing	1,239	13,436	1.39
Durable Goods	975	6,538	2.24
24 Lumber & Wood Products	16	2,627	0.09
38 Instruments & Related Products	31	125	3.77
Non-durable Goods	264	6,898	0.58
27 Printing & Publishing	137	1,555	1.33
30 Rubber & Misc Plastics Products	72	329	3.28
Transportation & Public Utilities	206	5,601	0.55
41 Local & Interurban Passenger Transit	77	752	1.53
47 Transportation Services	35	208	2.53
48 Communications	78	1,111	1.06
Trade	2,110	31,635	1.00
Wholesale Trade	472	4,276	1.66
50 Durable Goods	381	2,759	2.08
51 Nondurable Goods	90	1,517	0.90
Retail Trade	1,639	27,359	0.90
52 Building Materials	105	1,422	1.11
53 General Merchandise Stores	224	3,583	0.94
54 Food Stores	155	3,761	0.62
55 Automotive Dealers & Service Stations	204	3,786	0.81
56 Apparel & Accessory Stores	94	1,188	1.19
57 Furniture & Homefurnishings Stores	44	888	0.74
58 Eating & Drinking Places	634	8,862	1.08
59 Miscellaneous Retail	180	3,869	0.70
Finance, Insurance & Real Estate	220	4,415	0.75
60 Depository Institutions	107	2,084	0.78
62 Security & Commodity Brokers	8	181	0.69
64 Insurance Agents, Brokers & Service	44	582	1.14
65 Real Estate	51	874	0.87
Services	2,296	33,716	1.02
70 Hotels & Other Lodging Places	91	2,764	0.50
72 Personal Services	114	1,144	1.50
73 Business Services	129	2,405	0.81
75 Auto Repair, Services & Parking	52	842	0.92
76 Miscellaneous Repair Services	23	362	0.97
78 Motion Pictures	30	395	1.13
79 Amusement & Recreation Services	38	2,625	0.22
80 Health Services	1,435	13,319	1.62
81 Legal Services	37	687	0.82
83 Social Services	122	4,138	0.44
86 Membership Organizations	95	2,537	0.57
87 Engineering & Management Services	97	1,360	1.07
88 Private Households	6	166	0.54
Government	1,038	27,452	0.57
Federal	38	2,856	0.20
State	230	4,619	0.75
Local	771	20,067	0.58

Table A2: SHIFT-SHARE

Base Period: First Quarter 1995 (As compared to the Arrowhead Region)		Share	Mix	Competition	Change
Agriculture, Forestry & Fishing		0.26	-0.75	1.16	1
07	Agricultural Services	0.26	-0.50	0.91	1
Manufacturing		26.82	-34.46	35.97	28
Durable Goods		20.95	4.30	4.09	29
24	Lumber & Wood Products	0.41	-0.88	-2.20	-3
34	Fabricated Metal Products	5.52	-28.01	27.49	5
38	Instruments & Related Products	0.51	38.82	-31.00	8
Non-durable Goods		5.87	-15.33	8.46	-1
27	Printing & Publishing	3.09	-6.55	1.47	-2
30	Rubber & Misc Plastics Products	1.67	3.99	-9.33	-4
Transportation					
41	Local & Interurban Passenger Transit	1.41	13.96	-2.37	13
48	Communications	1.71	-0.08	-0.63	1
Trade		44.30	4.21	62.15	111
Wholesale Trade		10.01	-5.93	15.58	20
50	Durable Goods	8.22	-6.55	8.67	10
51	Nondurable Goods	1.79	-0.38	7.92	9
Retail Trade		34.29	7.01	49.71	91
52	Building Materials	2.34	2.45	-5.46	-1
53	General Merchandise Stores	4.41	-6.08	26.34	25
54	Food Stores	4.25	13.30	-54.55	-37
55	Automotive Dealers & Service Stations	4.16	17.04	-5.20	16
56	Apparel & Accessory Stores	1.57	-5.84	27.60	23
57	Furniture & Homefurnishings Stores	0.75	0.00	9.25	10
58	Eating & Drinking Places	13.21	-12.63	36.75	37
59	Miscellaneous Retail	3.60	-2.40	16.14	17
Finance, Insurance & Real Estate		4.64	11.78	-5.41	11
60	Depository Institutions	2.30	4.67	-3.30	4
62	Security & Commodity Brokers	0.24	0.78	-3.35	-2
64	Insurance Agents, Brokers & Service	0.85	-1.15	5.97	6
65	Real Estate	1.01	-2.40	6.39	5
Services		50.72	16.21	-59.93	7
70	Hotels & Other Lodging Places	2.49	1.06	-24.55	-21
72	Personal Services	2.74	-2.38	-10.36	-10
73	Business Services	2.72	1.34	2.61	7
75	Auto Repair, Services & Parking	1.04	3.00	0.62	5
76	Miscellaneous Repair Services	0.54	0.22	-1.76	-1
78	Motion Pictures	0.70	-2.98	0.28	-2
79	Amusement & Recreation Services	0.79	1.76	0.11	3
80	Health Services	31.10	-7.27	7.17	31
81	Legal Services	0.83	-0.66	-0.16	0
83	Social Services	2.66	5.12	-6.12	2
86	Membership Organizations	2.45	-2.38	-15.41	-15
87	Engineering & Management Services	1.96	1.12	4.92	8
88	Private Households	0.11	0.01	0.88	1
Government		23.95	-6.94	-59.68	-43
Federal		0.86	12.88	-14.74	-1
State		3.89	7.80	42.64	54
Local		19.20	-44.78	-70.42	-96

Appendix B: Hibbing Standard Industrial Codes

The industries are classified according to the *1987 Standard Industrial Classification (SIC) Manual*.

The SIC Manual classifies establishments by the type of activity in which they are engaged. Industries are defined in four levels of detail, ranging from one digit levels to four digits. The single digit level is the most aggregated level. For example, the SIC code for Manufacturing is 2. Manufacturing is then broken down to the two digit level. Food and Kindred Products fall under Manufacturing with an SIC code of 20. With an SIC of 201, Meat Products are at the three digit SIC level. The four digit level contains the most detail. Following the Manufacturing example, Meat Packing Plants (SIC 2011) fall under Meat Products (SIC 210).

Due to the fact that the SIC Manual consists of almost 700 pages, only the most aggregated industries will be included in the following discussion. In addition to the most aggregated industries, a brief description of the Motion Pictures industry is also included. This component is included because it consistently showed up as a significant industry in the city of Hibbing. The following descriptions were taken directly from the *1987 Standard Industrial Classification Manual*. A more in depth description of the industries can be found in the SIC Manual.

Agriculture, Forestry, and Fishing

This division includes establishments primarily engaged in agricultural production, forestry, commercial fishing, hunting and trapping, and related services. (SIC Manual p.21)

Mining

This division includes all establishments primarily engaged in mining. The term mining is used in the broad sense to include the extraction of minerals occurring naturally: solids, such as coal and ores: liquids, such as crude petroleum: and gases such as natural gas. The term mining is also used in the broad sense to include quarrying, well operations, milling (e.g., crushing, screening, washing, flotation), and other preparation customarily done at the mine site, or as a part of mining activity. (SIC Manual p.39)

Construction

This division includes establishments primarily engaged in construction. The term construction includes new work, additions, alternations, reconstruction, installations, and repairs. Construction activities are generally administered or managed from a relatively fixed place of business, but the actual construction work is performed at one or more different sites. If a company has more than one relatively fixed place of business from which it undertakes or manages construction activities and for which separate data on the number of employees, payroll, receipts, and other establishment-type records are maintained, each such place of business is considered a separate construction establishment. (SIC Manual p.53)

Manufacturing

The manufacturing division includes establishments engaged in the mechanical or chemical transformation of materials or substances into new products. These establishments are usually described as plants, factories, or mills and characteristically use power driven machines and materials handling equipment. Establishments engaged in assembling component parts of manufactured products are also considered manufacturing if the new product is neither a structure nor other fixed improvement. Also included is the blending of materials, such as lubricating oils, plastics resins, or liquors. (SIC Manual p.67)

Transportation, Communications, Electric, Gas, and Sanitary Services

This division includes establishments providing, to the general public or to other business enterprises, passenger and freight transportation communications services, or electricity, gas steam, water or sanitary services, and all establishments of the United States Postal Service. (SIC Manual p.265)

Wholesale Trade

This division includes establishments or places of business primarily engaged in selling merchandise to retailers; to industrial, commercial, institutional, farm, construction contractors, or professional business users; or to other wholesalers; or acting as agents or brokers in buying merchandise for or selling merchandise to such persons or companies. (SIC Manual p.287)

Retail Trade

This division includes establishments engaged in selling merchandise for personal or household consumption and rendering services incidental to the sale of the goods. In general, retail establishments are classified by kind of business according to the principal lines of commodities sold (groceries, hardware, etc.), or the usual trade designation (drug store, cigar store, etc.). Some of the important characteristics of retail trade establishments are : the establishment is usually a place of business and is engaged in activities to attract the general public to buy; the establishment buys or receives merchandise as well as sells; the establishment may process its products, but such processing is incidental or subordinate to selling; the establishment is considered as retail in the trade; and the establishment sells to customers for personal or household use. Not all of these characteristics need be present and some are modified by trade practice. (SIC Manual p.313)

Finance, Insurance, and Real Estate

This division includes establishments operating primarily in the fields of finance, insurance, and real estate. Finance includes depository institutions, nondepository credit institutions, holding (but not predominantly operating) companies, other investment companies, brokers and dealers in securities and commodity contracts, and security and commodity exchanges. Insurance covers carriers of all types of insurance, and insurance agents and brokers. Real estate includes owners, lessors,

lessees, buyers, sellers, agents, and developers of real estate. Establishments primarily engaged in the construction of buildings for sale (operative builders) are classified in Construction, Industry 1531. (SIC Manual p.335)

Services

This division includes establishments primarily engaged in providing a wide variety of services for individuals, business and government establishments, and other organizations. Hotels and other lodging places; establishments providing personal, business, repair, and amusement services; health, legal, engineering, and other professional services; educational institutions; membership organizations, and other miscellaneous services, are included. (SIC Manual p.353)

Motion Pictures

This major group includes establishments producing and distributing motion pictures, exhibiting motion pictures in commercially operated theaters, and furnishing services to the motion picture industry. The term motion pictures, as used in this major group, includes similar productions for television or other media using film, tape, or other means. (SIC Manual p.378)

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