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ENTREPRENEURSHIP AND FUTURE EMPLOYMENT IN MINNESOTA

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ENTREPRENEURSHIP AND FUTURE EMPLOYMENT IN MINNESOTA

Creative entrepreneurship is obviously vital in any assessment of the future of employment and income in Minnesota. It is important to look at the nature of entrepreneurship in the state, its performance, and the location factors which explain i pr nce here. This is a large order and a subject which appears to have had little systemic study. In this essay I can explore only a small amount of data and draw a few tentative inferences.

Jobs don't just happen. They are created--by individuals who employ themselves and others. When we describe the economy, we tend to speak of masses of jobs and types of work in abstract terms. Massive numbers shift about from one region or one class to another under the stimulus of "independent variables" or "trend-line projections". Such abstractions are essential shorthand in our complicated struggle to understand how the productive society operates. But there remains a gnawing concern about what the driving forces in that big machine really are. In Minnesota about 1.75 million people are in the labor force. The self-employed, including farmers, number slightly under one-quarter million. That means nearly 1.5 million Minnesotans work for a corporation, an individually-owned business or a public agency.

Thus organizations are necessary to the creation and maintenance of those masses of jobs summarized in the statistics. There are roughly 55 thousand such job-creating non-farm organizations in the state. About 90 percent are business or professional firms; the others are governments or government agencies.

Somebody started each organization, built it, fashioned its management. There had to be an initial concept and a series of authoritative, risky decisions followed by actions concerning finance, personnel, production, sales,

and research. There had to be creative entrepreneurs. This is true not only for all of the private firms but also in varying degree for services which are wholly or partly public--notably in the fields of education, transportation, utilities, and health.

To be sure, entrepreneurship is not the only reason why there are jobs in Minnesota or any other place. The ability to create jobs partly depends on local resources and location--the access to national and world markets, resources, and capital. Nor does entrepreneurship inevitably improve the general well-being. Entrepreneurs can organize exploitation of people or resources; they can be dishonest and destructive. The presence of skills and entrepreneurship does not assure that everyone and every institution will function honestly and responsibly.

Nevertheless, entrepreneurship is an essential skill. It is not sufficient for an ordered, productive society, but it is necessary. It is necessary to the establishment of all job-creating organizations, large and small. It will be necessary in the evolution of a non-growth economy or a less materialistic society.

THE ROLE OF ENTREPRENEURSHIP

In Minnesota local entrepreneurship may well be even more necessary for local job creation than it is in some other parts of the United States. For this region has always lacked important resources or energy; it is on the geographical margin of the national market; and it is not a geographical concentration of low-priced labor. Circumstances would seem to demand that people within the state invent ways to serve the national and local markets and thus to create jobs that otherwise would not exist here. The alternatives would be either to move or to work for wages low enough to offset the costs of importing energy and reaching distant markets.

In fact, it is clear that the development of non-farm jobs and income in Minnesota has been heavily dependent on local entrepreneurship. Most jobs have been created not by "attracting industry" from elsewhere or by national or international organizations who have discovered here some obvious, conventional locational advantages waiting to be exploited. Instead, the vast majority of jobs have been organized by Minnesotans.

This is apparent if one looks at (1) the origin and growth of large national corporations based in Minnesota, (2) the medium-sized firms which have grown in the state, or (3) industrial employment by small and medium-sized plants in major post-World War II growth centers outside the Twin Cities.

The amount and performance of local entrepreneurship appears to have been quite high in comparison with the United States generally. It also appears not to be simply the result of a high degree of concentration of the regional economy in a single metropolitan area. There is evidence that this high rate of development of job-providing firms has been a continuing process at least from the 1850s through the 1960s. It appears that Minnesota enterprise not only accounts for virtually all job creation within the state but also contributes more to job creation in the nation as a whole than might be expected on the basis of the state's population.

Major National and International Corporations

The growth of national corporate headquarters emphasizes the importance of local entrepreneurship in the Minnesota picture. One group of firms are among America's largest 500 industrial corporations, which account for well over half the nation's industrial assets and jobs.

Although there is an extreme concentration of headquarters of those firms in New York, Minnesota has long been one of the few states whose share of major

corporate headquarters has exceeded its share of the national population and wealth. Furthermore, the state's share of headquarters has gained substantially in recent years (Table 1). While seven of the nation's 500 largest corporations were Minnesota-based in 1960, the number had grown to 13 by 1974. In both years all but one of the firms were headquartered in the Twin Cities metropolitan area. The number of manufacturing jobs nationwide which were controlled by Twin Cities-based corporations grew from 100 thousand to 300 thousand in twelve years. That was the sixth largest gain among all U.S. metropolitan areas in both absolute and relative terms.*

Minnesota entrepreneurship explains most of the pattern. Of the seven state-based firms in the top 500 in 1961, all were home-grown. Of the thirteen in 1974, all but one were originally established in Minnesota by local people. Most Minnesota jobs controlled by national corporations are traceable to Minnesota entrepreneurs. Of the 106 thousand Twin Cities manufacturing jobs controlled by major national corporations in a 1965 survey, 56 thousand were controlled by Minnesota-based corporations--the highest percentage in local control for any U.S. metropolitan area over 500 thousand population. Virtually all of those locally-based corporations were home-grown. The remaining 50 thousand jobs, though controlled by "outside" corporations, were more than 90 percent in plants and offices which had been established by Minnesota entrepreneurs and subsequently sold to outside firms, then expanded in their Minnesota locations.

Minnesota entrepreneurship has been at least equally important in the growth of major national corporations in fields other than industry (Table 2). Fortune magazine annually tabulates the fifty largest firms in each of five types of non-industrial business. Headquarters of those firms are less concentrated

*Allan R. Pred, Major Job-Providing Organizations and Systems of Cities, Washington: Association of American Geographers (Commission on College Geography Resource Paper No. 27), 1974.

at New York than are the corporate headquarters of industry. Hence the Minneapolis-St. Paul area emerges with an even greater share of major headquarters than its share of national wealth and population would indicate. All of these service corporations are also home-grown, established here by Minnesotans.

Medium-Sized Corporations

A similar picture emerges if one looks at the spectrum of medium-sized firms, not at just the large ones (Table 3). One national directory of publicly-held corporations lists 211 firms based in the Minneapolis-St. Paul metropolitan area with 1972 revenues over 10 million dollars. Fifty such firms were based in the rest of Minnesota at that time, and 33 more in North and South Dakota. A comparison of number of firms per million of population shows that the Minneapolis-St. Paul area has a significantly higher ratio than any other metropolitan area over one million population except Boston. The ratio exceeds those of metropolitan New York, Chicago, Cleveland, Detroit, and the other two great "plains frontier" regional distribution centers at Kansas City and Dallas-Fort Worth.

Almost without exception these firms were started in the Upper Midwest region by local entrepreneurs. Hence it appears that the unusual number of large organizations in the Twin Cities garden is not so much a matter of concentrating growth in a few large plants as it is a reflection of the size and diversity of the seed-bed.

Of course, the position of Minneapolis-St. Paul among metropolitan areas could be a reflection not of any exceptional generation or performance of local entrepreneurship but, instead, simply a result of unusual concentration of the Upper Midwest economy in one metropolis--a characteristic of this region which is often noted.

But that does not appear to be the case (Table 4). In comparable regions in the Midwest and West, although the number of medium and large firms based in the regional metropolis is less than it is in the Twin Cities, there is not a corresponding greater number in the rest of the region. Furthermore, if one takes other plains frontier states whose metropolitan activities are centered at one or more smaller cities, the level of non-metropolitan local corporate development is even lower. The result is dispersal of metropolitan facilities to two or more "minor league" centers rather than one "major league" center, with no compensating increase in activity in the outlying towns.

Smaller Cities and Smaller Firms

A more detailed look at the major industrial growth centers outside the Twin Cities further emphasizes the importance of local entrepreneurs. The five urban areas which reported the largest gains in manufacturing jobs from 1947 to 1972 were St. Cloud, Hutchinson-Glencoe, Mankato, Owatonna, Rochester, and Winona. Each area added more than 2000 jobs, and the counties which contain those centers gained about 21 thousand industrial jobs in the 25-year period (Table 5).

Seventy-three firms accounted for nearly all of the gain--more than 19 thousand new jobs. New firms played a very important role. Nearly half the employment gains were produced by 25 plants which arrived newly on the scene in the post-War period. Most of the 73 firms are small; only one in three reports annual sales more than 10 million dollars. Yet six in every seven distribute to the national or export market. They earn credit with which Minnesotans import goods and services not produced here.

Minnesota entrepreneurs, compared with "outsiders", provided 70 percent of the new jobs created by the 73 growth firms (Table 6). Fifty-nine percent of the new jobs were provided by Minnesota firms, mostly headquartered in the

five local communities. Another 11 percent of the jobs were added at plants originally established by Minnesotans, though subsequently sold, and expanded by their new outside owners. The IBM plant at Rochester provided nearly all of the new employment by firms whose current headquarters and birthplaces are outside Minnesota; and one can only speculate on the indirect role of Minnesota entrepreneurship in that location decision.

The foregoing tables and data probably only begin to tell the story. There are the smaller firms in finance and commerce and the thousands of farmers who have played the entrepreneurial role in that industry, which has quadrupled the value and sales of family farms in the past quarter-century. Even more subtle is the role of researchers and administrators in public organizations, whose entrepreneurship brings to the state its portion of national income redistributed through the mysterious workings of federal programs and foundation grants. Indeed, along with vigorous generation of medium- and large-size corporations, another distinctive feature of Minnesota's economy may well be the large number of people who are self-employed in professions and crafts or work in very small business enterprises.

Continuity and Adaptation

It is possible, however, that the apparent high level of entrepreneurial activity today is a relic remaining from the past--empires and smaller economic domains persisting from an earlier epoch of frontier development and resource exploitation. In the decades from 1850 to 1910, local entrepreneurship strongly reflected the westward movement of the frontier, when the Twin Cities occupied a key position in an expanding territory. Since 1920 Minnesota entrepreneurs have had to adjust to the closing of the frontier. To participate in the national marketplace, they have had to depend more on skills, ideas, diversity and quality of goods and services rather than unique raw materials.

A look at the ages of 87 Twin Cities firms for which data are readily available indicates that the emergence of entrepreneurship has been continuous rather than a unique episode that ended when the frontier closed (Table 7). Major firms were established in every decade from the 1850s through the 1950s. Among those with annual sales over ten million dollars, one in every seven was started since 1960. The data do show that firms started during the two World Wars have had relatively stunted growth. There is also some tendency for size--measured by either sales or jobs--to be related directly to age. Firms started in the 1970s are still relatively small and reflect the normal period of five years or so needed to establish profitability and stability. Also, corporations in the pre-1910 age group have somewhat higher aggregate sales than those established since 1920.

The record also shows that growth of locally-based firms soon leads to expansion outside the state. Minnesota and the Dakotas embrace about three percent of the national consumer buying power and perhaps eight percent of the nation's market for farm supplies and equipment. Hence, while headquarters may grow locally, successful expansion of the enterprise--even survival, in the face of changing technologies and markets--has commonly required expansion in other regions of the nation and the world. This has obviously contributed to a more cosmopolitan outlook, and has also represented a kind of regional contribution to the task of organizing resources and markets and creating jobs in the rest of the country.

THE ENVIRONMENT FOR ENTREPRENEURSHIP

The essential characteristics of entrepreneurial activity are obvious in some ways, yet in other ways as elusive as the spark of creativity, itself. Like all the rest of us, an entrepreneur in action is responding to information

about the needs and resources around him in the society. But his (or hers, of course) is a more complex, more nearly unique response. He uses more information than most other people, or he uses it more quickly, or both. He creates a new or critically modified institutional structure rather than simply working within an organization as he finds it. His use of information probably requires more work and more risk than those people less involved in organizing and reorganizing the resources of nature and man. Entrepreneurs are key nodes in the ever-spreading, intensifying international network of management, financial, and personnel information. Hence they are always known and coveted by others elsewhere, and they are always aware of opportunities elsewhere.

Location Factors in Minnesota

What, then governs the location of entrepreneurs? As far as the Minnesota experience is concerned, there appear to have been two major location factors: where entrepreneurs are bred and where they are attracted or retained.

An entrepreneurial breeding ground ought to be a place in which there is a relatively large amount of available information about labor, capital, markets, technology, and environment. It ought also to be a place where people have a relatively large amount of knowledge about how to use such information--how to put it together. And, finally, it must be a place in which people have the motivation to use their knowledge and information creatively.

Entrepreneurs, like other people, are likely to stay where they find amenity for living and encouragement to do what they do for their livelihood. What are the amenities and encouragement?

Amenities are partly natural--climate, relief, water, forest, wild fish and game. And they are partly cultural, within a wide range of tastes. To some, cultural amenities are community cohesion, traditional values of family stability; to others they are opportunities for riotous living. To some, amenities are

open spaces and natural order; to others, the excitement of crowds and the performing arts. To some, amenity is an open society; to others it is closed society with a power elite. Perhaps entrepreneurs also congregate where they find others of like tastes.

Encouragement to do business in a place is both direct and indirect. There are direct financial incentives offered by the community. To some, the greatest encouragement might be simply a fair and open system in which prices reflect real costs, and social responsibilities are determined in free and open discussion. To others, encouragement might mean special privilege. Indirect community support might be the provision of good public services and utilities and transportation. Or it might be simply public recognition and appreciation.

In Minnesota, these location factors have obviously had certain biases. They have been inclined toward amenities of water and forest, low density rural and urban settlements, many traditional family and community values, and an open society. Community encouragement or incentives have emphasized an open system and extensive public services, especially education.

On the face of it, with those amenities and incentives there appears to have been considerable success in the breeding and retention of entrepreneurial talent in this part of the nation. That appears to be the chief reason for the observed growth of employment. Considerable talent has migrated into Minnesota because the state's entrepreneurs are a part of the international information network. They are searching as well as being sought. But on balance the state has undoubtedly produced a substantial export surplus of such talent.

Given the particular amenities and incentives for entrepreneurs which have characterized Minnesota, one might expect that entrepreneurs with Minnesota roots or commitments are also biased toward the values and life styles of the

state. To what extent is Minnesota a community? To what extent do people believe they live here because they like the amenities, values, and life styles? If there is a Minnesota culture and community, the Minnesotans who have provided nearly all of the state's creative entrepreneurship are a part of that culture and community.

What Can the State Do?

If local entrepreneurship accounts for Minnesota's jobs and income today, can the supply of entrepreneurship be maintained in the future? Does state government, as the instrument of its constituent state community, have a role?

The chart in Figure 1 is an attempt to show the position of creative entrepreneurship in the larger picture that includes jobs and income, on the one hand, and state government actions, on the other. It is an attempt to diagram, or model, the process of generating and retaining entrepreneurial talent. The purpose is to try to examine more systematically what characteristics of the Minnesota community probably have influenced the emergence of creative entrepreneurs, so those characteristics might be enhanced deliberately if possible.

To achieve its aim, the chart must show the relationships among almost the full range of human activities and environmental conditions in the state. The caption at the bottom of the chart explains how those relationships are shown; and the notes which follow it define the actions or conditions which are noted in each box. In the context of this paper, the particular goal of the state community is to enhance the supply of entrepreneurs. Therefore, the collection of actions and conditions are arranged in this chart to lead from "Community Responsibility" through "Environmental Conditions" and

"Individual Actions" to "Creation of Jobs and Income". The aim is to get from what the people of the state do as a community, through their state government, to the end result: creation of jobs and income. For other purposes, those same actions and conditions would be arranged in different order and, in many cases, changed in composition.

Three major assumptions underlie the entire idea that the chart portrays. The first assumption is simply one upon which our wider society is utterly dependent: honesty on the part of the great majority of individuals and institutions at any time. Without that assumption the chart and the process it tries to describe have no meaning. The second assumption is that there is no such thing as too much creative entrepreneurship. In fact, production of an export surplus may well be the only way to have an adequate supply at a practical price in any state or region. The third assumption is that Minnesota citizens, to some significant degree, are indeed a community.

Note, too, that the model has no intended bias toward any particular result. It certainly does not lead automatically to the conclusion that Minnesota is a great place or that Minnesotans are less fallible than other humans. The definition of an action or condition in each box is meant to be a brief, straight-forward, neutral description. The chart is a condensed model of the state "system" as it operates to influence the production of jobs and income. What the system puts out depends upon what is put in.

It is my judgement that the output up to this point has been above the national average level because of the effort the state community has put in. If future community input lacked any effort to maintain justice or information in the social environment, for example, the model would say that the resulting influence on the creation of jobs and income would be disastrous.

Analysis of the chart in Figure 1 leads me to the following inferences.

(1) The production of entrepreneurs in society is a very complex process.

(2) The Community (the people of the state as a whole, in this case) can act through their state government to try to influence the entrepreneur-development process.

(3) Community actions can <u>directly</u> influence the social and physical environment.

(4) Community action can influence individual behavior <u>indirectly</u> through influence on the environment.

(5) A large and very important part of the entrepreneur-development process is accomplished in the minds of individuals and cannot be controlled by the Community. The path from state Community action to creative entrepreneurship must pass through a wide and deep field of individual filters.

(6) The production of entrepreneurs, jobs, and income from this complex process feeds back into initial Community actions and is recycled through the "system". Hence, employment and income generated by entrepreneurial action eventually provide the fiscal resources for state Community action. Also, some of the entrepreneurs feed back into the governmental arena, where they organize public action by the Community, itself.

(7) In order to know, as far as possible, how this complex system is actually performing, it is necessary for the state to monitor the actions of the state, the condition of the physical and social environment, and the status of income, employment, and entrepreneurial activity. In other words, in terms of the chart in Figure 1, the state should

monitor (a) its own performance in the things it can do to influence the environment, (b) the condition of the environment it is attempting to influence, and (c) the system's output of jobs, income, and entrepreneurship. The regular, frequent, accurate production and dissemination of such information is a very high order routine responsibility which the state government has to its constituent Community.

In summary, the basic importance of entrepreneurship, and the complex nature of its development, seem to lead to one general conclusion: To maintain adequate employment and income in the long run, the state's first priority probably is continued investment in improving the social and physical environment, with increased monitoring and evaluation of that effort.

NOTES

Definitions for Terms Used in Figure 1

(1) Basic jobs and income come from goods and services produced for the national and international markets. They provide exchange for purchase of goods and services produced elsewhere in the international system which are essential to maintain the acceptable national level of living.

(2) Number of basic jobs is determined by economic location, local human skills, and historical lag.

(a) Locational limits on job development are externally determined by physical distance, related transportation costs and technology.

(b) A unique concentration of specialized human skills within the state may localize investment of outside capital and job formation there. Entrepreneurship is the highest order skill (in this context); since it serves to create multiple jobs and income. Entrepreneurship is the application of skills to organize available resources and labor and to overcome distance-costs by specialized production. In the Minnesota experience, entrepreneurs usually have been local people, at least in the initial stages of development of firms. Human skills, including entrepreneurship, can be significantly enhanced by the state, in contrast with the externally-determined "economic location" factors.

(c) Historical lag results in basic employment which reflects past rather than present economic location. When there is such a lag, the resulting jobs are likely to be uncertain because present conditions are causing firms to reduce or relocate or to adapt by changing production lines.

(3) Non-basic goods and services are produced within the state for the market within the state. They do not earn credit in the national market. The number of non-basic jobs depends upon the income from basic jobs. The number of non-basic jobs supported in the state depends on wage scales and human skills in local industry and services.

(a) The lower the wage scales, the more jobs can be supported by income from export production, other things being equal.

(b) The higher the level of human skills - especially entrepreneurship - the greater the number of goods or services that can be produced locally, for the local market, which can compete with goods and services offered from the outside.

(4) The level of human skills depends on the level of information and motivation in the people of the state.

(a) Information is defined in the two lines left hand block. "Basic knowledge and basic skills" are taught initially in the schools and embellished at all levels of formal education. But those subjects, along with "current data" are conveyed by countless institutions, programs, and media - both formal and informal, public and private, to people of all ages and circumstances.

(b) Motivation to acquire and apply information and skills is assumed to result from one's observation of his environment and observation of himself. Observation of the environment reveals opportunities to try to change one's own position within society or to influence change in the environment, itself. Observation of one's self leads to an appraisal of one's own chances of success if he pursues those opportunities.

(5) Both the level of information and the level of motivation depend upon social interaction. That is the exchange of information and ideas among members of the society, both within and beyond the state. Social interaction is assumed to be the chief process through which a person observes his position in the society and his chances of successfully changing either his position or the society. The amount and effectiveness of social interaction increases directly in response to the basic knowledge and current data possessed by the people who interact, plus the efficiency of the communication and transportation network.

(6) Wage scales for non-basic jobs depend on the mobility of those working. The greater their mobility, the wider the range of opportunities to earn, and the higher the rewards must be to keep them within the state.

(7) Mobility of the work force depends on motivation and attractiveness of the home state. If the social environment in the state encourages all human skills, it will also inevitably encourage mobility. Thus the only positive way to affect mobility is to influence the result of a consideration to move, through attractiveness of the home state.

(8) Attractiveness of the home state depends in part on creative entrepreneurship and in part on environmental quality.

(a) Creative entrepreneurship determines in part the variety and number of opportunities which are developed in the state to enrich the choice of ways of life.

(b) Environmental quality embraces both the physical and social environment. The social environment is the sum of social conditions under which social interaction takes place. The physical environment is the sum of natural resources and man-made settlement features.

(9) A set of basic environmental elements or conditions combine to define the social and physical environments and to facilitate social interaction.

(a) Basic knowledge of the environment (social, physical-biological), technology, and personal behavior, plus basic skills are the common content of education in the schools, colleges, and a multiplicity of institutes and programs. Basic knowledge provides the framework on which a person or an organization can place current data so that data can be quickly classified, analyzed, and used.

(b) Current data are supplied by the mass media, specialized publications, and countless business or social institutions. They enable a person to modify his basic knowledge with the passage of time, and to apply it to problems as they arise.

(c) The communication network includes not only the mass media but also the two-way facilities for individuals or small groups - telephone, and other electronic media, public assemblies, schools, organizations.

(d) Transportation and usually shelter provide the basis for face-to-face interaction.

(e) Health is defined for this purpose as the physical and mental condition essential for the social interaction of an individual.

(f) Justice is defined as equality of opportunity to enter the arena of social interaction and equality of treatment within it.

(g) Order means logical, predictable patterns of procedure or of physical form and process (for example, consistent traffic regulations, compatible land uses, or a treatment plant between the lower end of a sewer system and a clean river).

(h) Variety in the social environment depends largely on the amount of social interaction, and the pre-conditions of social interaction. But in the physical environment it depends mainly on the depth of historical legacy, the richness of the natural resources, and the extent to which these are preserved.

(i) Natural resources include the full array of climatic, land, vegetation, and water elements and the processes which relate those elements to one another.

(10) A Community Action is one that is taken by all of the people who live in a given area. The area is defined as the community. The State is a Community. Governments are the only organizations which include all of the people in the nation or all within any geographical subdivision of the nation. When everyone needs to act on an issue, all must do so as members of a governmental community. The "level" of government appropriate depends upon the geographic extent of the issue. Special interest groups include parts of the population within one or more communities.

(11) Community Action is applied to any of the basic elements of the environment. Hence it indirectly determines environmental quality and social interaction. Community actions fall commonly into four classes:

(a) Production and distribution of goods and services (examples: public education, roads, waste treatment, prisons)

(b) Regulation of the environment and interaction process (laws, regulations, licenses, permits)

(c) Aids, or income transfers, to redress inequities which are perceived to develop in the operation of the society (welfare, school aids, gas tax redistribution).

(12) The action taken by a community depends upon decisions its members make in four major areas of community responsibility.

(a) Setting standards for goods and services produced. These may be standards with respect to quality, availability, or price of goods or services. Quality standards are applied to food, drinking water, some professional certification, lakes and streams, for example. Availability standards are set for public education, 9-ton highways, minimum food, clothing, and shelter. Maximum prices are set for few consumer goods. Where services or goods that meet quality standards are not available to all who are supposed to have them, then the community has usually defined the deprived group and paid the difference for them (examples: food stamps, medicaid, subsidies to commuter train service).

(b) Policing. Requires decisions about what actions to monitor and what standards to enforce.

(c) Priorities. What elements of the environment to try to influence to affect what ends?

(d) Plans. Projected actions in keeping with the priorities and standards.

Sources of Data in Tables:

Tables 1 and 2: Fortune, July 1961 and July 1975.

Tables 3 and 4: Newsfront 30000 Leading U.S. Corporations (N.Y.: Year, Inc., 1974) and Statistical Abstract of the U.S. (US Dept. of Commerce, 1974).

Tables 5 and 6: County data from U.S. Census of Manufacturing. Data for manufacturing firms from Directory of Minnesota Manufacturers, 1951 and 1975-76, published by Minnesota Department of Economic Development, St. Paul. Number of employees of individual firms estimated from the class groups shown in the directories, using the following assumptions:

Directory Class Group	Assumed number of employees
1-8	5
9-24	15
25-49	35
50-99	70
100-249	150
250-499	350
500-999	750
500-749	600
750-999	800
1000-1999	1300
2000 or more	Actual plant employment

Table 7: Directory of Minnesota Manufacturers 1974-75 (St. Paul: Minnesota Dept. of Economic Development, 1974); Corporate Report Fact Book, 1975 Edition (Mpls: Corporate Rept., Inc., 1974); Greater Minneapolis (Mpls Chamber of Commerce, April 1975).

Table 1. Minnesota-based firms in Fortune magazine list of 500 largest U.S. industrial corporations, ranked according to sales.

Corporation	Rank 1974	Rank 1960
3M	59	81
Honeywell	68	50
General Mills	94	83
Land O'Lakes	183	unlisted
Control Data	187	unlisted
Pillsbury	202	125
Hormel	215	126
International Multifoods	256	unlisted
Bemis	290	unlisted
Peavey	339	unlisted
Hoerner-Waldorf	357	unlisted
Green Giant	423	unlisted
American Hoist	469	unlisted
Archer Daniels Midland	(moved)	201
Minnesota & Ontario Paper	(merged)	439
Total Firms	13	7
Mean Rank	242	158
Firms in Top 100	3	3
Firms in Top 200	5	5

Table 2. Minnesota-based firms listed in Fortune "top 50" corporations in five non-industrial categories, 1960 and 1974.

Type of Business	Firm	Hq. Location	Rank 1960	Rank 1974
Commercial Banks	NW Bancorporation	Mpls	unlisted	19
	First Bank System	Mpls	unlisted	20
Life Insurance Co's.	NW National	Mpls	39	42
	Minnesota Mutual	St. Paul	unlisted	41
Diversified Financial	IDS	Mpls	*	23
	St. Paul Companies	St. Paul	*	21
Merchandising Firms	Dayton Hudson	Mpls	unlisted	22
	Gamble Skogmo	Mpls	unlisted	24
	Red Owl	Hopkins	35	**
	Super Valu	Hopkins	48	unlisted
Transportation & Utilities	Burlington Northern	St. Paul	≠	≠
	GN Ry	St. Paul	18	≠
	NP Ry	St. Paul	25	≠
	NW Airlines	Mpls-St.P.	33	18
	NSP	Mpls	32	28
	Soo Line	Mpls	unlisted	37
	NC Airlines	Mpls-St.P.	unlisted	45
	Total Firms		7	13
	Mean Rank		33	27

Notes:

* This class of business was not included in the 1961 Fortune tabulations.
** Included with Gamble Skogmo in 1974.
≠ GN and NP Rys. merged to create BN.

Table 3. Relative strength of business headquarters development. Number of publicly-held corporations with revenues of $10 million or more compared with metropolitan area population, 1972, for major metropolitan areas.

Metro Area	No. of Corporations	Population (millions)	Ratio Corps./Pop.	Ratio as % of N.Y.
Boston	363	3.42	106	112
Mpls-St. Paul	211	2.00	105	112
Dallas-Ft. Worth	239	2.45	98	104
New York	1602	17.09	94	100
Kansas City	116	1.30	89	95
Houston	200	2.29	87	93
Chicago	667	7.79	86	91
Cleveland	175	2.31	75	80
Columbus	79	1.06	75	80
Milwaukee	123	1.71	72	77
Atlanta	118	1.68	70	74
Portland	71	1.04	69	73
St. Louis	163	2.40	68	72
Denver	86	1.32	65	69
San Francisco	278	4.26	65	69
Seattle-Tacoma	115	1.81	64	68
Miami	124	2.02	61	65
Cincinnati	95	1.62	59	63
New Orleans	62	1.08	57	61
Los Angeles	570	10.11	56	60
Baltimore	108	2.13	51	54
Detroit	272	4.49	51	54
Phoenix	41	1.05	49	52
Buffalo	56	1.35	41	44
Washington	118	2.99	39	41
San Diego	38	1.44	26	28

Notes: All places defined as U.S. Census Standard Metropolitan Areas (SMSAs) except following:

Boston: State Economic Area (SEA).
Chicago: Includes Gary-Hammond-E. Chicago SMSA.
Cincinnati: Includes Hamilton-Middletown SMSA.
Cleveland: Includes Lorain-Elyria SMSA.
Houston: Includes Galveston SMSA.
Los Angeles: Los Angeles-Long Beach, Anaheim-Garden Grove-Santa Ana, Riverside-San Bernardino, and Oxnard-Ventura SMSAs.
Miami: Includes Ft. Lauderdale-Hollywood SMSA.
Milwaukee: Includes Racine and Kenosha SMSAs.
New York: Includes Newark, Jersey City, Patterson-Clifton-Passaic, New Brunswick-Perth Amboy-Sayreville, Nassau-Suffolk SMSAs and Bridgeport SEA.
San Francisco: San Francisco-Oakland and San Jose SMSAs.

Table 4. Metropolitan concentration of "$10-million" corporations within selected states or regions, 1972.

Metropolis and Region	Ratio: Corporations/million population		
	Region	Metro	Non-Metro
Mpls-St. Paul/Minn-ND-SD	57	105	26
Dallas-Ft. Worth-Houston/Texas	53	93	24
Chicago/Ill-Iowa	57	86	26
St. Louis-Kansas City/Mo-Kans	57	75	29
Portland/Oregon	48	69	30
Seattle-Tacoma/Washington	43	69	30
Omaha-Lincoln/Nebraska	49	100	11
Oklahoma City-Tulsa/Okla.	44	78	11
Memphis-Nashville-Knoxville-Chattanooga/Tenn.	42	57	21

Table 5. Post-World War II industrial employment gains in five major growth centers outside the Twin Cities.

Urban Area	Mfg. Emp. Gain in county 1947-1972	Gain 1952-1975 by firms w/ >100 emp. 1975	Number of Such Firms in 1975	Number of Such Firms new since 1952
St. Cloud	4100	3900	17	6
Hutchinson-Glencoe	3700	3200	4	2
Mankato	2600	2400	15	5
Owatonna	2000	2000	8	3
Rochester	5700	5400	10	2
Winona	2400	2500	18	7
	20900	19400	73	25

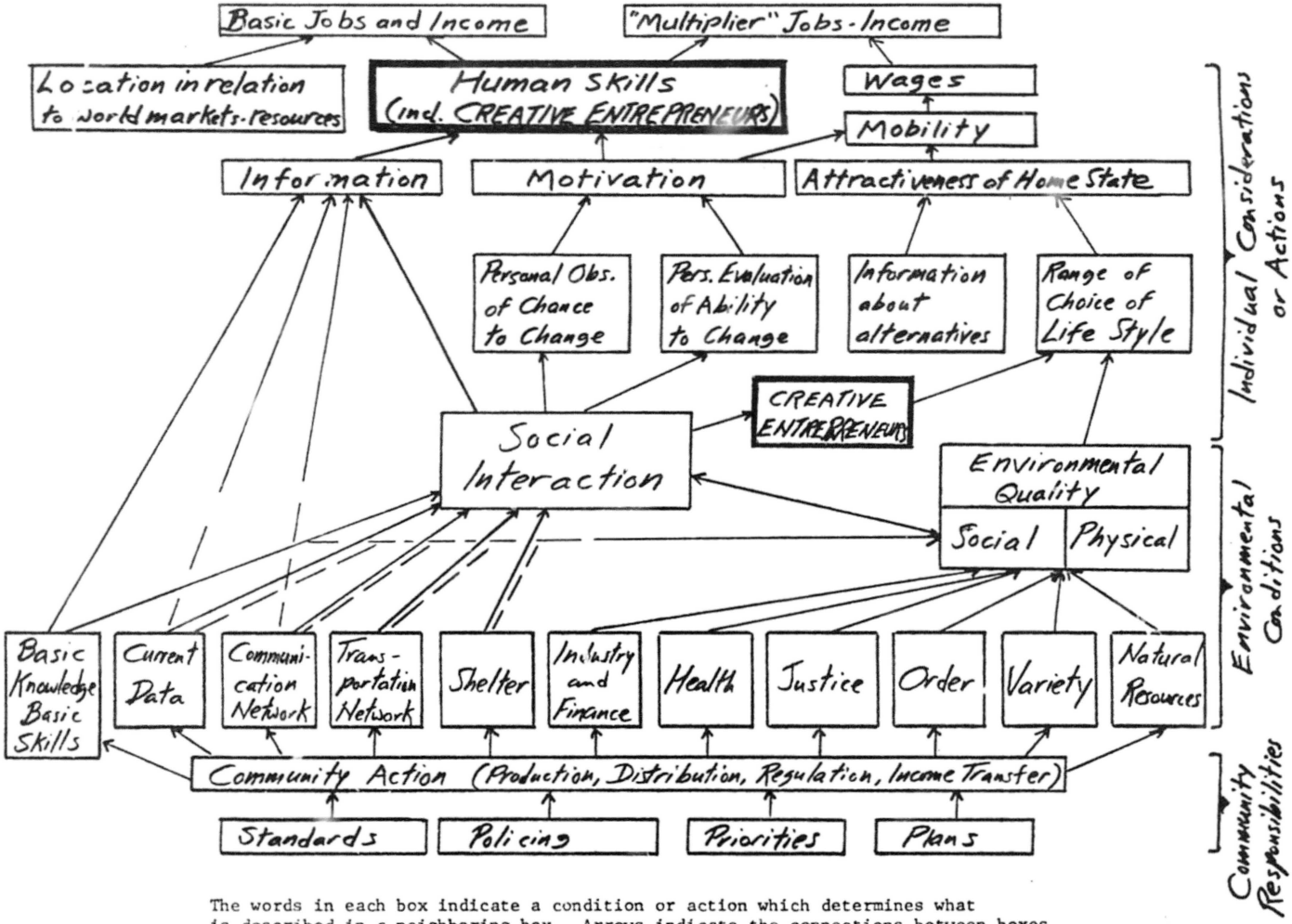
Table 6. Number of new manufacturing jobs in five non-Twin Cities urban areas, divided according to location of headquarters of the job-providing firms.

Urban Area	Hq. for jobs added by firms new since 1952			Hq. for jobs added by firms est. pre-1952		
	Local	M-StP	Outside	Local	M-StP	Outside
St. Cloud	400	900	200	900	100	1400
Hutchinson-Glencoe	0	0	600	0	2600	0
Mankato	800	200	0	1400	0	0
Owatonna	600	0	0	1400	0	0
Rochester	0	0	4700	600	0	100
Winona	800	0	400	400	0	900
	2600	1100	5900	4700	2700	2400

Table 7. Age of firm compared with revenue, total employment, and local employment, 1973-74, for 87 Twin Cities-based corporations with revenue $10 million or greater and founding dates reported in publications consulted.

Decade of Founding	Age of Firm in 1970 (Yrs)	No. of Firms	$Million Total Annual Revenue 1973 or 1974	Thousands of Jobs		% of Jobs Local
				Twin Cities	Total	
1850s	111-120	3	2094	7.0	29.9	23
1860s	101-110	2	2500	8.6	74.6	12
1870s	91-100	4	2339	5.1	17.0	30
1880s	81-90	8	1984	8.2	28.7	29
1890s	71-80	7	1580	7.7	22.4	34
1900s	61-70	8	4907	38.0	115.5	33
1910s	51-60	8	561	3.5	12.6	28
1920s	41-50	10	6104	13.8	92.2	15
1930s	31-40	8	2190	5.1	21.1	24
1940s	21-30	5	437	5.9	8.3	71
1950s	11-20	11	1677	15.2	62.6	24
1960s	1-10	10	545	2.6	7.1	37
1970s	< 1	3	101	0.5	0.8	63
		87	27019	121.2	493.0	25

Figure 1. The place of entrepreneurship among the factors which determine the amount of employment and income located within the state.



The words in each box indicate a condition or action which determines what is described in a neighboring box. Arrows indicate the connections between boxes and the direction of determination - which box is influencing which other box.