EMPLOYMENT CREATION AND LOCAL DEVELOPMENT

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Introduction

Efforts at local economic development are primarily expended by various agencies of state and local governments. A common problem encountered is where to direct such efforts. That is, which business ventures will offer the greatest returns for any funds provided? The question is often left unanswered only because decision-makers have no tools available, or they do not know how to apply measurement tools that are available, for estimating the economic impact of new business ventures upon their local economies.

The purpose of this paper is to offer a measuring device to assess the economic impact of new business enterprises upon a local or state economy. This shall be accomplished by constructing multipliers for employment creation, income generation, and tax revenue acquisition. In the present political economy federal, state, and local government funds are spent for economic growth and economic development. It appears as if any agency that comes forth with a business plan and simply titles it as economic growth or development, it stands a good chance of acquiring funds from government coffers. The tools presented below will allow government decision-makers to measure the impact of new business on the local economy, and to rank order various proposed projects in terms of net benefit to the community.

It is important at the outset to differentiate between economic growth and economic development. Often no distinction is made or they are treated as one and the same. Economic growth refers to increases in per capita income over a specified time frame. Economic development is defined as increases in an economy's output with concomitant changes in that community's economic and social institutions. The latter is noted by changes in the economic wel-fare of the poor, the changing composition of the economy (from an agricultural base to an industrial base, for example), improved education in the community, and further technological gain. Not only is the rate of change important, but also the level of change is crucial, for economic development. The latter is what is often desired, and just as often assumed to follow the former. Such is obviously not the case. Government efforts generally strive for growth in an economy. This paper will offer a measuring device that may be used for development purposes.

Justification for a private enterprise rests upon its potential to generate revenues that exceed the costs of production, or to earn profits for the entrepreneur. If the potential for profit exists, then the entrepreneur will undertake the risk of investment in that operation. As a business prospers and grows, it has an influence upon other businesses, upon the local community, and upon a regional economy. The actual boundaries will vary from case to case.

The analysis that follows will stress the inter-relation of sectors within the economy of a mid-western city with a population base of approximately 65,000 inhabitants, and it will trace the spread of impulses originating in any one sector to all other sectors of that economy, whether they occur directly or indirectly. Such spreading in essence has a multiplying effect.

What we shall attempt to demonstrate is that short-run fluctuations within particular firms or in specific industries lead to fluctuations in local employment and income, which in turn induce fluctuations in retail sales and in various service trades, which lead to yet more indirect fluctuations in economic activity. In short, the fluctuations of basic industry have a multiplier effect.

The most simple and straightforward type of multiplier analysis is associated with economic base studies. Once the industrial composition of an area has been determined, employment and income multipliers may be derived. This allows one to forecast or predict future expansions in total employment and income based upon the existing industrial composition.

First, we shall develop this economic base model as it applies to the area briefly defined above. This will allow us to derive a "location quotient" and the resulting employment multiplier. Second, we shall derive an income multiplier to indicate the effect upon total income from increased business activity in the area. Finally, we shall review pertinent literature to offer additional insight into the job generation process for government officials perusal.

Economic Base Model

An economic base study identifies the key economic activities of a community. To begin, one must divide the local economy into two segments: (a) firms serving markets outside the immediate community; and (b) firms serving markets within the community (1).

The goods and services which the community sells outside its boundaries are considered exports and will be labeled as basic industries. The remaining goods and services go to the local market. Local is defined to mean the geographic region being studied.

Implicit in this distinction of markets are cause-effect relationships. Export (basic) markets are considered the prime mover of the local economy. If employment serving this market rises or falls, employment serving the local market is presumed to move in the same direction. A direct relationship exists. Because of this prime mover role, export employment is considered as "basic". Employment which serves the local market is considered adaptive, and it is titled "non-basic" or "service" employment.

The importance of this division between basic and service industry rests on the premise that the reason for the existence and growth of a region lies in the goods and services it produces locally but sells beyond its borders. These export activities provide the means of payments for the

items the region cannot produce itself, or what it must import. In addition, export activities support the service activities which are principally local in productive scope and market areas.

The first problem encountered at this juncture is to determine the proportion of total employment in the basic or export market and the proportion of employment in the non-basic or service sector. Location quotients provide one measure of the export industry. Alternatively, they are referred to as coefficients of localization or specialization. The underlying notion is simple. If a given community is highly specialized relative to the nation in the production of a particular commodity, then the product is presumed to be an export item.

First we assume that the residents of the area under investigation possess the same demand patterns that prevail at the national level. The question before us is, how much employment is expected in various industries if the local community is to be self-sufficient in the production of specific commodities? If local employment in a particular industry matches that of the nation, then there is just enough local employment to service local needs. If local employment exceeds national employment levels in a given industry, then the excess employment is considered to be for the export market. Finally, when local employment is less than the national employment pattern for the production of a particular commodity, the presumption is that these products are imported into the community.

The location quotient method is derived from the following formula:

$$\frac{x}{e} = \frac{Ei}{N}$$

where:

x = number of individuals in industry i locally,
e = total local employment,
Ei = national employment in industry i,
N = total national employment.

Solving the equation for x determines the number that would be employed in industry i in an area if it had just enough to supply its own needs. Table 1 derives the location quotient (x) for local area employment.

What Table 1 indicates is the amount of employment in each industrial classification if the area were to be self-sufficient in the production of goods and services, assuming that national consumption patterns are matched at the local level. For example, actual employment in the wholesale trade industry in the county consists of 1,900 workers. To match the national pattern, 2,351 workers in this sector are required for self sufficiency. Thus local workers produce for local consumption and the county must import the remaining goods. On the other hand, the manufacturing industry employs more workers locally (10,700) than is necessary for local consumption (7,729). The difference (2,971), work for the export portion of locally based industry.

Basic-Service Ratio And Employment Multiplier

From the above analysis we are now able to derive the "basic-service ratio", and then calculate the employment multiplier. The basic-service ratio intends to describe the proportion between total employment in an economic region's basic or export activities and total employment in the area's non-basic or service activities (2). From the data required to compute this ratio, one may easily calculate an employment multiplier. The multiplier is equal to total employment in both basic and service activities divided by total basic employment.

We have indicated the number of workers in each industry and whether they are classified as basic (export) or service (local) workers. In similar analyses, the usual assumption is that all manufacturing is export and the rest is local. Obviously, error may exist in such an assumption, although its simplicity makes it an attractive assumption.

It is well known that much of the manufacturing industry's products are consumed locally. Bakeries, printing, and brick manufacturing industries are classified as manufacturers. The markets they serve, however, are largely local. With this in mind, we have decided to calculate the basic-service ratio and the employment multiplier in two ways. First we shall assume that all manufacturing is basic, plus the relevant portions of the retail and services industries as export. This will be our "conservative" estimation.

Second, we shall calculate the statistics only considering employment that is indicated as export or basic from Table 1. This shall be labeled our "liberal" estimation. Utilizing both estimations will allow us to develop a range for the basic-service ratio and the employment multiplier. Table 2 provides the appropriate statistics.

The employment multiplier is the important statistic for our purposes. Use of the employment multiplier is straightforward. For every job created in the basic sector of the local economy, employment will increase by 2.82 to 6.31 jobs, depending upon the assumption utilized. That is, new economic activity begets additional economic activity.

We have applied this employment and income expansion model to a business enterprise that is seeking financial assistance from the County and State of Iowa Economic Development Agencies. The firm, which we shall refer to as MBTM, is classified as a basic industry. MBTM is a telemarketing operation that will sell it's services to businesses outside the local community. The importance of this is that MBTM will be a prime mover of economic activity. When a new firm begins, continues, and expands operations it creates additional jobs and income. The result is a multiplier process, both direct and indirect, upon peripheral concerns. The question before the administrators of various development agencies is, what is the impact upon the economy?

Utilizing the employment multiplier for MBTM, one may estimate the number of additional jobs that are likely to be created within the community. Table 3 provides the estimations employing both multipliers over a three year period. The data indicate that 75 new employees at MBTM will generate between 211.5 jobs and 473.25 jobs in the local economy, in the first year of operation.

Additional employment generation from subsequent years of operations is noted in Table 3.

Income Multiplier

An alternative method of impact analysis relies upon the income generated by a new business enterprise. This refers to wages and salaries paid by an employer to his/her employees.

It should be obvious that such income also has a multiplier or spillover effect. One earns income in order to purchase goods and services that provide utility or satisfaction to the consumer. As that income is spent it will constitute income to another individual, who in turn will spend it on still other goods and services. Therefore, an additional dollar introduced into the spending stream multiplies into additional income.

TABLE 1: LOCATION QUOTIENT (X) FOR AREA, 1986.

INDUSTRY	COUNTY EMPLOY.	PERCENT OF TOTAL EMPLOYMENT	U.S. EMPLOYMENT (OOO)	PERCENT OF TOTAL EMPLOYMENT	X	CLASS
Mining	------	------	918	0.93%	369	local
Construction	1,200	3.04%	4,347	4.42	1,746	local
Manufac- turing	10,700	27.09	19,241	19.57	7,729	export (2,971)
Transport./ Utilities	1,600	4.05	5,278	5.37	2,120	local
Wholesale	1,900	4.81	5,853	4.94	2,351	local
Retail	7,300	18.48	17,436	17.73	7,004	export (296)
Finance/ Insurance/ Real Estate	1,400	3.54	6,071	6.17	2,439	local
Services	12,000	30.38	22,427	22.81	9,009	export (2,991)
Government	3,400	8.61	16,761	17.05	6,733	local
TOTAL	39,500	100.00%	98,332	100.00%		

Sources: "The Employment Situation," Bureau of Labor Statistics, U.S. Dept. of Labor, Washington, D.C. March 7, 1986. "Labor Force Summary, 1986" Iowa Dept. of Job Service, Des Moines, Iowa. January, 1987.

TABLE 2: BASIC-SERVICE RATIOS AND MULTIPLIERS

	Basic-Service Ratio		Employment Multiplier
1. Conservative Estimation	$\frac{13,987}{25,513}$	= 1 : 1.82	2.82
2. Liberal Estimation	$\frac{6,258}{33,242}$	= 1 : 5.31	6.31

It should be recognized, however, that the additional income will not be entirely local in nature. From Table 1 we can see that a portion of local consumption is imported. That is, a part of any incremental income is spent outside the local community and, therefore, does not become a part of the local income base.

One may calculate a local income multiplier by determining the share of income accounted for by basic and non-basic industry, and substituting into an income multiplier formula:

$$dY = (dy) \times \cfrac{1}{1 - \cfrac{s}{Y}}$$

where:

dY = total income increase,
dy = increase in basic income,
s = non-basic income,
Y = total community income.

In order to calculate this income multiplier we must turn to information collected by the Bureau of the Census, 1980 Census of the Population. In the above multiplier formula, the following definitions apply: total income is equal to 1979 mean household income multiplied by the number households (3). Non-basic income was calculated as the percentage from employment in local industry divided by total employment and multiplied by total income. It should be noted that two income multipliers were derived: one reflecting the assumption that all manufacturing is export, and the second assuming only that employment indicated as export is such (see Table 1). The first shall again be called the conservative estimate and the second the liberal estimate.

The mean 1979 income of households in the community was equal to $21,182, and 21,140 households were counted. Total household income amounts to $448 million in 1979. Non-basic employment amounts to approximately 65 percent of total employment (under assumption 1 in Table 1). Therefore, non-basic income is assumed to equal 65 percent of total income or approximately $291 million. Substituting the appropriate figures into our multiplier formula we may calculate the first multiplier to be 2.86. Utilizing the second assumption of Table 1, we find that approximately 84 percent of local employment is in the service or non-basic industries. Thus non-basic income equals approximately $376 million. This will yield a multiplier of 6.25. Table 4 provides the economic impact on the community with the additional income generated by the employees of MBTM.

A Long-Run Analysis And Local Investment

In addition to the income generated by the employees of MBTM, the enterprise will make direct purchases from area businesses, such as accounting services, consulting services, equipment, furniture, rent, and parking. Such expenditures in turn will generate additional spending cycles and yet more income. Increases in spending by employees and the business enterprise constitute increases in demand. After some period of time, local businesses must respond to this increased demand by producing and offering for sale more goods and services. An expansion in goods and services is brought about by increased expenditures on additional investment items or capital goods (i.e., machinery, equipment, tools, factories).

Over a longer period of time the level of local investment, and the resultant income de-

TABLE 3: EMPLOYMENT GENERATION PROCESS FROM MBTM

Year	1	2	3
Number of			
New Employees	75.00	129.00	184.00
Conservative Multiplier	2.82	2.82	2.82
Employment Created	211.50	363.78	518.88
Liberal Multiplier	6.31	6.31	6.31
Employment Created	473.25	813.99	1,161.04

rived therefrom, tends to be responsive to the level and rate of growth of local income. If local income increases between $3 million and $6.5 million in one year (see Table 4), new plant and equipment must be added in order to produce this additional output.

The obstacle to deriving an investment multiplier is lack of knowledge regarding the local propensity to invest from additional income. That is, how much of an additional dollar of income will be used for investment purposes? Data is not readily available to derive such a figure. Suffice it to say that the intended level of spending by MBTM will generate additional rounds of spending in the local community for investment goods.

It should also be pointed out that additional jobs with their associated income imply a broader tax base. Increased individual income means greater federal and state income taxes collected, larger excise tax revenues, increased local and sales tax revenues and all with multiplier impact.

According to estimates from the Iowa Department of Economic Development, each additional dollar of revenue generated by a business firm will generate approximately six cents in state tax revenues and three cents in local tax revenue. Utilizing the income expansion data derived earlier, we may estimate the additional tax revenue generated by MBTM. Table 5 offers the relevant information.

Albeit the latter two phenomena (investment spending and tax revenues collected) are not easily calculated, it should not be difficult to recognize the positive impact MBTM will have upon the economy. In fact, to truly complete the model developed here, one may wish to estimate the level of increased spending generated by the basic or export sector upon the "outside" community. That is, jobs and income generated in one area have an impact, perhaps, in Des Moines, Chicago, and/or St. Louis. While conceptually a good deal can be said, it is less satisfactory at the empirical level. What we have attempted to demonstrate, however, is that

TABLE 4: INCOME MULTIPLIER PROCESS FROM MBTM
(millions of dollars)

Year	1	2	3
Total Compensation paid by MBTM	$1,050	$2,501	$4,469
Change in income paid by MBTM	1,050	1,450	1,968
Conservative multiplier	2.86	2.86	2.86
Conservative expansion	$3,004	$4,148	$5,629
Liberal multiplier	6.25	6.25	6.25
Liberal expansion	$6,564	$9,066	$12,302

TABLE 5: TAX REVENUES GENERATED

Year	1	2	3
Conservative income estimate	$3,004,000	$ 6,649,000	$10,098,000
MBTM - direct taxes	$ 13,381	$ 358,867	$ 933,798
State tax revenue (5.8%)	$ 174,220	$ 385,655	$ 585,697
Local tax revenue (3.3%)	$ 99,125	$ 219,424	$ 333,241
Liberal income estimate	$6,564,000	$11,556,000	$16,771,000
MBTM - direct taxes	$ 13,381	$ 358,867	$ 933,798
State tax revenue (5.8%)	$ 380,725	$ 670,853	$ 972,694
Local tax revenue (3.3%)	$ 216,619	$ 381,692	$ 553,429

expansion by a new business has an expanding impact upon the local community, the region, and the nation.

Additional Comments And Conclusions

Our economic system is becoming more complicated. The shifting sands of the U.S. economy indicate the demise of basic manufacturing industry, the rise of services, increasing globalization of markets, and a changing focus regarding government intervention. We attempt to gain an understanding of the inner workings of the economic system to better control either its journey or to alter its destination.

Much of our effort has been focused in one of two directions: either we view the aggregate economy and its fluctuations (macroeconomic considerations), or the individual firm becomes the point of analysis (microeconomic considerations). But the true operation of the economy is a function of how firms interact. The above analysis indicates the impact of one firm upon others, either directly or indirectly.

Few studies have been conducted in an attempt to bridge the gap between micro and macro. The implication is that policy responses to stimulate economic activity have taken a shotgun approach. The drawbacks should be obvious.

One such study attempting to bridge the aforementioned gap collected data on 5.6 million business establishments that account for 82 percent of all private sector employment (4). We shall review, briefly, some of the findings of the "Birch" study simply to add to the conceptual nature of the above multiplier analysis.

Most development strategies target the large, "known" corporations for the job generation process (e.g., the GM Saturn plant in Springhill, Tn.). The results of such a strategy have left some communities in disarray and distressed when their location was not chosen. This strategy also pits communities against each other in a bidding war for a proposed facility.

A majority of net new jobs in a community are traced to firms that are small, dynamic, and young. (These are also the firms that banks feel the least comfortable with, which creates further problems in their attempts to acquire capital.) According to the Birch study, about one-half of the total new jobs generated in a community are from free-standing entrepreneurs.

Further results of the Birch study are worth mentioning. Small firms generated two-thirds of all new jobs in the U.S.; and the small, independent firms accounted for over one-half of the total jobs. In addition, small firms are four times more likely to expand than to contract.

The above is offered as support for the economic impact analysis. The major point to be drawn from this is that economic development efforts should attempt to target the appropriate audience for employment generation. The firms that grow are small, dynamic, and independent. Such firms offer the most promising future for economic growth and development.

Other studies attempt to demonstrate the multiplier process, with much the same results as provided above (5). New jobs mean more jobs. New businesses mean more businesses. These may also be reversed (or extended) to state that more jobs and businesses mean new jobs and businesses. This may come about trough a process of "import substitution." That is, as a community begins to grow and develop, it eventually produces for itself those commodities formerly imported. By becoming self-sufficient, additional jobs are generated as supplier industries are developed.

The ability of prediction is rather tenuous, accuracy in prediction nearly impossible. What we have attempted to demonstrate is the economic impact of MBTM upon a local economy. Employing standard statistical techniques and economic modeling, we have derived a reasonable assessment of expanded economic activity. Jobs and income follow new jobs and new income. Development strategies should not ignore the impact of small, independent businesses.

As we stated at the outset, justification for private enterprise rests upon its potential to earn economic profits. Entrepreneurial activity will seek out such potential. What is obvious here is that unintended benefits accrue to a larger community from successful operations. State and local government officials, in development pro-