

ESTIMATING INTERCOUNTY BENEFITS FROM RURAL DEVELOPMENT PROGRAMS¹

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An economic accounting model was constructed and estimated for a south central Oklahoma planning region. The model estimated county and intercounty employment multipliers based only on trade relationships. For several counties, expansion or decline of the economic base significantly affects the employment benefits in other counties.

A tendency exists for communities to believe that unless new firms locate in their community, rather than in a neighboring town, no benefits will accrue to them. This may be true if the community is not a higher order trade center or if the firm does not provide jobs for their labor force. It may also be true if more of the costs of community services are passed on to them, due to the plant location, than they receive in community benefits.

The association of costs and benefits from rural development is becoming more important as more is learned about the actual processes of economic growth. Measurement of the geographic distribution of benefits may be important in creating incentives for further development and growth. It may be necessary in part because certain jurisdictional groups are unaware of the benefits and, hence, do not show initiative in investing in or bearing the costs of rural development.

An example may be used to clarify this point. A local community is considering subsidizing the location of a private industrial firm. Negotiations have reached a point where the subsidy cost is greater than the breakeven point for local community benefits. However, because of hierarchical trading patterns or labor commuting patterns, a nearby community or the larger development authority of an Economic Development District stands to gain additional benefits from the location of the industrial plant. If the neighboring community or the larger authority bears part of the subsidy cost, the local community may be able to stay within the breakeven point and invite the firm to locate.

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The problem has been that of developing methodology and estimation procedures to measure intercommunity economic linkages and, hence, establish a basis for determining the distribution of benefits from rural development programs. The same procedures may serve also to assess penalties associated with certain development programs or to plan the provision of area-wide public services.

The objectives of this paper are (a) to express some of the intercommunity linkages in an economic accounting model and describe the estimation procedure, and (b) to provide the results of estimated intercounty linkages for a multi-county planning region in south central Oklahoma.

ACCOUNTING MODEL AND ESTIMATION PROCEDURE

People who reside in one community frequently commute to jobs in another community. Trading patterns of households tend to follow a hierarchical system of trade centers which are distinguished by differences in availability of goods and services. Production firms may also follow a hierarchical system of trade centers for purchases. Local government financing of community services is usually determined by political jurisdictions and decisions rather than by locational demand for the services.

Frequently it is difficult to allocate the benefits and costs of economic development programs without specifying an economic accounting model that captures in- and out-commuting of labor, consumer trading patterns, and local government financing procedures. An accounting model similar to an interregional input-output model is suggested here.

Primary data were collected, by mail and personal interview questionnaires, from a sample of firms and businesses in south

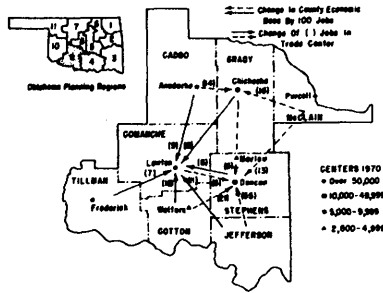


FIGURE 1. Intercounty employment dependence upon change in export base employment.

central Oklahoma (Figure 1). The questionnaire, patterned after those of Kalter (1) and Tiebout (2), was designed in a manner to distribute individual firm gross receipts on a percentage basis to other businesses and final market sources. Business firms, especially in rural areas, are very cognizant of who their customers are. Rough estimates of the distribution of their gross receipts by market source appear to be easily ascertained. The question to be asked is merely one of "Who are your customers, and what percentage of your total gross receipts does each account for?" Firms were then aggregated with employment used as weights.

Output of the firms and businesses was measured in terms of persons employed. Employment control totals were estimated on a county basis. Distribution of gross receipts were then applied to county control totals to give an employment transaction flow table.

In addition to being asked who their customers are (market distribution), firms in south central Oklahoma were also asked where their customers came from (intercounty business patterns). In order to construct a complete interregional employment transaction flow table, it was necessary to assume that the distribution of the types of customers a business firm has is the same whether sales are within the county or in other counties within the planning region.

Corrections in the accounting model for net commuting effects were not made at this time. Hence the in- and out-commuting coefficients were assumed to be zero. For a new plant to be added in any one of the counties with a known commuting pattern for its labor force, a comparative static analysis for the region can be performed on the basis of before and after plant location, where the in-commuting coefficients are included for the latter case.

INTERCOUNTY DEPENDENCE RESULTS

Table 1 contains the intercounty multipliers for additions to employment serving the final demand markets of regional exports, federal government, and capital formation. Viewing the coefficients for Caddo county, if employment serving the export base for that county increases by 100 jobs, total employment in Caddo county is expected to increase by 198 jobs. Furthermore, employment in Grady county is expected to increase by 14 jobs due to trading relationships directly and indirectly with Caddo county.

Similarly, employment will increase directly and indirectly by eight jobs in Comanche county and by three jobs in Stephens county. All other counties are affected marginally. The employment multiplier for the total planning region equals 2.25, of which 87.9 percent of the employment benefits accrue within the county where the increase in final demand employment occurred, and 12.1 percent of the benefits accrue to other counties of the region.

By looking at each row of coefficients, it is possible to identify the importance of certain trade centers and to measure the impact a change in the export base within the trading region has on the center. Figure 1 identifies the two sub-regional trade centers of Chickasha in Grady county and Duncan in Stephens county. It also identifies the regional trade center of Lawton in Comanche county. As an example, employment in Duncan is expected to increase (decrease) by 55 for an increase (decrease) of 100 in the export base of Jefferson county, by 21 for a comparable increase (decrease) in Cotton county, by five for Comanche county, by six for Grady county, and by 13 for McClain county.

The multipliers in Table 1 represent

TABLE 1. *Intercounty employment multipliers for delivery to final demand markets of regional exports, federal government and capital formation, south central Oklahoma, 1970.*

County	Caddo	Grady	McClain	Comanche	Stephens	Tillman	Cotton	Jefferson
Caddo	1.9776 ^a	0.1217	0.1100	0.0343	0.0222	0.0409	0.0981	0.1286
Grady	0.1387	2.4910	0.1597	0.0191	0.0346	0.0040	0.0384	0.0346
McClain	0.0178	0.0231	2.8235	0.0011	0.0018	0.0004	0.0013	0.0018
Comanche	0.0858	0.0473	0.0138	1.9549	0.0579	0.0679	0.1847	0.1131
Stephens	0.0278	0.0643	0.1255	0.0459	2.1345	0.0232	0.2108	0.5471
Tillman	0.0003	0.0005	0.0003	0.0059	0.0036	2.4939	0.2213	0.0765
Cotton	0.0006	0.0029	0.0014	0.0055	0.0202	0.0160	2.0063	0.0638
Jefferson	0.0003	0.0006	0.0011	0.0010	0.0192	0.0006	0.0444	2.6444
Total ^b	2.2489	2.7514	3.2353	2.0677	2.2940	2.6469	2.8053	3.6099

^a Each coefficient represents the employment change in the county (at left) for each additional person employed for delivery to the final demand markets of the county heading the column.

^b Total direct, indirect and induced employment multiplier for Planning Region Nine.

static conditions and full capacity use of all resources. If local economies in rural areas tend to have excess capacity in some of the service sectors, the multipliers will over-inflate the expected secondary employment benefits from the additions to employment in those sectors serving the export base. In a similar manner, if productivity increases, such as through larger class sizes in local schools (perhaps through school consolidations), the size of the multipliers will be biased upwards.

For long-run planning purposes more dynamic models can be constructed to recognize changes in relative labor productivities, capacity utilization rates, or other changes that more fully reflect growth or decline in regional economies (3).

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