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ABSTRACT

Summarizing an Economic Research Service (ERS) publication, this guide to a balanced rural-urban growth describes the results of a computer based ERS model which examined seven strategies to improve rural economic development. Based on 1960-70 trends, the model is described as asking how much would be required of each of the following strategies to close the rural-urban income gap sooner than the 1960-70 trend indicates: (1) stop out-migration; (2) reduce natural increase of population; (3) expand labor force; (4) create jobs; (5) increase productivity of resources; (6) expand capital stock; (7) expand markets. As reported here, the seven strategies were analyzed via simulation in terms of the target year 1990, and the preferred strategies were then compared with changes in economic activity observed between 1970-73. Results are presented as follows: each strategy has some potential for raising nonmetropolitan income, but in isolation each displays undesirable side effects on migration, dependency, wages, unemployment, or the level of general business activity; a mixed strategy which promotes joining the labor force, creating jobs, and increasing resource productivity can stimulate rural growth with few undesired side effects; strategies which enhance capital accumulation and expand markets have limited benefits; strategies which directly influence migration or natural population increase are not required. (JC)

STRATEGIES FOR BALANCED RURAL-URBAN GROWTH

Clark Edwards

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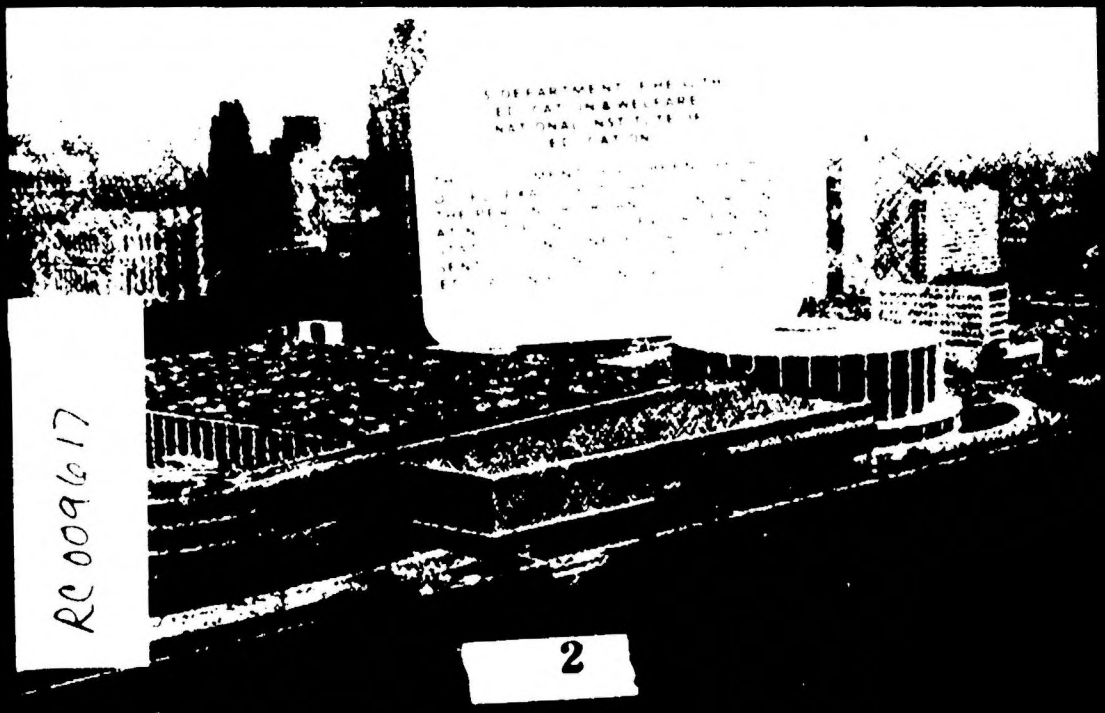

STRATEGIES FOR BALANCED RURAL-URBAN GROWTH. Clark Edwards. Economic Development Division, Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin No. 392.

HIGHLIGHTS

Trends in population, income, employment, and capital during 1960-70 were leading to equal per capita incomes between the nonmetropolitan and metropolitan sectors of the United States by the year 2000 and to abatement of the exodus of people from rural America. Changes from these trends in the early 1970's point to accelerated growth for rural areas compared to the 1960's, but suggest continued rural-urban imbalances with regard to unemployment levels and income per capita.

Analyzed are seven types of development strategies directed at achieving rural-urban balance by 1990. Each strategy explored has some potential for raising nonmetropolitan income; but each in isolation displays undesirable side effects on migration, dependency, unemployment, wages, or the level of general business activity. A multifaceted problem requires a mixed strategy. A mixed strategy which promotes joining the labor force, creating jobs, and increasing resource productivity can stimulate nonmetropolitan growth with few undesired side effects. Strategies which enhance capital accumulation and expand markets have limited benefits. Those which directly influence migration or natural population increase are not required.

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This publication summarizes the recently published **Alternative Futures for Nonmetropolitan Population, Income, Employment, and Capital** (AER 311) by Clark Edwards and Rudolph DePass. Single free copies of the full report are available from ERS Publications, Rm. 0054-S, U.S. Department of Agriculture, Washington, D.C. 20250.

"Rural development requires a multifaceted approach which relies heavily on creating jobs in rural areas as well as on expanding the labor force to fill these jobs."

STRATEGIES FOR BALANCED RURAL-URBAN GROWTH

Clark Edwards

For a generation after the depression of the 1930's, urban America gained population at the expense of rural areas. People were leaving a relatively disadvantaged sector of the U.S. economy the rural areas where incomes were lower, unemployment was higher, and poverty was more pervasive.

Recently, however, the migration tide appears to have turned and there has been a net flow to nonmetropolitan areas (see footnote 2, p. 9). Just as the past flow toward cities was associated with limited rural economic opportunity, so the recent turnaround appears to be accompanied by expanding opportunity.

Seeds of change were germinating in the 1960's and appeared in our projections of the 1960-70 trends in population, income, capital, and employment which show an approach toward urban and rural growth balance. Rural incomes were rising, unemployment falling, labor force participation increasing, and outmigration abating. But, those trends indicate that improvement would have come at a snail's pace, early in the next century when, in fact, positive changes were occurring at a much more rapid pace during the early 1970's.

A recent ERS study examined several growth strategies which could improve the rural economy without dampening urban growth. The study looked at strategies which could have accelerated the trend of the 1960's to achieve rural-urban balance by 1990. Actual changes of the early 1970's were compared with the preferred strategies. The result was (1) an explanation of what happened to rural growth during the early 1970's and (2) some insight into strategies to follow for rural growth during the latter part of the 1970's.

The growth strategies relate to changes in economic structure which would influence rural population, labor force, employment, and capital. The analysis identifies what these strategies are and what their impacts would likely be. It does not identify persons or institutions responsible for such strategies or assess the costs of implementation. For example, one of the seven strategies is to create more jobs in rural areas. Such job creation is influenced by both private and public actions at the Federal, State, and local levels. This study evaluates the impacts of alternative attainments in, for example, job creation in rural areas and focuses attention on which of the several strategies are likely to be more important for achieving rural-urban balanced growth during the late 1970's and early 1980's. Attention is paid, in the subsequent discussion, to the role of Federal involvement in each of these strategies, but the results of the study are relevant to both private and public policymakers as well as to responsible and informed citizens concerned with rural development

The study found that isolated rural development strategies by single agencies or institutions toward specific objectives are likely to fail, because of unwanted side effects, even though specific goals are met. Instead, improved economic prospects for rural areas depend on a balanced mix of development strategies.

TOWARD BALANCED GROWTH

Through use of a computer-based model, researchers sought to describe, explain, and predict trends of nonmetropolitan population, income, employment, and capital. The idea was to test strategies in the computer which might accelerate nonmetro growth and create a balance between the nonmetro and metro sectors.[1]

Seven strategies, singly or in combination (some corresponding to Federal programs), were tested to reach these targets:

1. **Stop outmigration**
2. **Reduce natural increase of population**
3. **Expand labor force**
4. **Create jobs**
5. **Increase productivity of resources**
6. **Expand capital stock**
7. **Expand markets**

The model operated from conditions existing between 1960 and 1970. The model was asked how much it might require of each strategy to close the income gap sooner than would have been expected from the 1960-70 trend.

The target year was 1990. Most of the single strategies to modify the 1960-70 structure were capable of attaining the income per capita target by 1990. But, in each simulation, a single strategy led to unwanted side effects. The income target might be met. But, at the same time, for example, nonmetro unemployment might rise or the pace of outmigration might accelerate. To eliminate unwanted side effects, additional computer runs set simultaneous population, income, labor force, employment, and capital targets in order to examine consequences of mixed nonmetro development strategies which would achieve rural growth without penalizing the urban sector.

Preferred strategies based on 1960-70 conditions were then compared with changes in economic activity observed between 1970 and 1973. The analysis provides insights into possible strategies, both public and private, at the Federal, State, and local levels for balanced rural growth during the rest of the 1970's.

1. Stop outmigration

"Stop outmigration or reverse it." Many have used this phrase, most may not have intended to have it taken literally. Rather, they probably intended "o

[1] The term metropolitan (or metro) is used as a synonym for Standard Metropolitan Statistical Area (SMSA). An SMSA is a county or a group of contiguous counties containing at least one city of 50,000 inhabitants or more for which the included counties meet certain criteria of metro character and social and economic integration with the central city. In this study, the computer was given this precise definition. However, in interpreting results of the analysis one will not be far amiss in substituting the concept of rural for nonmetro.

promote development through new nonmetro jobs, for example, in order to reduce incentives to migrate. Such a policy really falls under another category job creation In that sense, stopping outmigration is considered to be an end rather than a means

When outmigrat on was simply blocked in the simulation, population built up faster in the nonmetro areas Many in the added population failed to find jobs, and many more were discouraged from entering the labor force. There was an increase in dependency on those who had jobs and an increase in unemployment With more mouths to feed and with little improvement in employment, income per capita was reduced below the level associated with that of the 1960's. But metro conditions improved. The reduced population pressure on the cities allowed for increased employment per capita and improved incomes there

Adam Smith discussed such a result 200 years ago. The British law of settlements restricted the poor to their parish of residence so they could not become wards of other parishes. Smith noted that . . "It is often more difficult for a poor man to pass the artificial boundary of a parish than an arm of the sea or a ridge of high mountains"

To close the metro-nonmetro income gap using only direct migration policies, outmigration needs to be accelerated rather than reduced in order to relocate potential rural workers near prospective urban jobs. In the simulation, an acceleration of outmigration which reduced the 1990 nonmetro population to about 5 percent below the trend level achieved the target income. This helped the nonmetro sector but increased population pressures on the cities.

If we are to have direct migration policy as a Federal strategy for rural development, it needs to spur migration rather than retard it by helping nonmetro families relocate in places of greater economic opportunity. The Federal Government has sponsored several experimental mobility assistance projects which relocated unemployed and underemployed workers from areas of high unemployment to areas of labor shortages and relatively low unemployment.

The simulation of direct migration policy suggested that such policy treats symptoms, not causes, of rural development problems. A reduction in net migration is better treated as an end rather than as a means.

2. Reduce natural increase of population

Zero population growth is frequently proposed as a means of achieving economic balance. A reduction in nonmetro population growth which brought rural population nearly 5 percent below trend by 1990 closed the income gap, according to the simulation.

The smaller population limited the labor force and the number of jobs, thus reducing general business activity. However, there was an increased proportion of the population in the labor force and an increased proportion with jobs. A smaller dependent population resulted. More capital was available per worker which led to increased labor productivity and higher wages. The improved economic situation resulted in a decrease in the pace of outmigration. Population pressures on the cities eased, which allowed for increases there in the output per worker and in the proportion of the population employed These findings suggest that reduced population growth might decrease general business activity but may improve per capita income.

During the 1960's, there was little difference between metro and nonmetro

natural increase rates. Federal programs for family planning have been implemented to provide education, medical, and social services to individuals. Private and public policies have led to a decline in the U.S. birth rate since 1970, but the major impact has been in metro areas; there is little evidence of change so far in the rate of natural increase of the nonmetro population.

The simulation model appears to lend support to the zero population growth approach. However, it does not contain information concerning natural resource use, energy availability, and environmental impact needed for evaluating optimal population levels. A population explosion in rural areas could also be accommodated by the computer model if other strategies to be considered below were adopted to offset the undesirable side effects. Consequently, further consideration of population policies was set aside.

3 and 4. Expand the labor force and create jobs.

When programs to expand the labor force, or to create jobs, were simulated independently of each other, adverse side effects occurred. When coordinated in a tandem strategy, the programs achieved income targets with only moderate side effects. It makes no sense to train a welder (or other type of worker) to join the labor force in a county where no such jobs exist. These two strategies are so closely related that we chose to discuss them together.

The model's expansion of the labor force without creating jobs resulted in extensive nonmetro unemployment. The increase in unemployment served as a stimulus to outmigration. The per capita income target was met only because accelerated outmigration reduced the number of people dependent on those with jobs. Resulting population pressure on the cities made problems there worse.

Creating jobs independently of other programs sent out a signal that rural conditions were improving. The signal was in the form of a reduced unemployment rate. This, in fact, created an over-reaction on the part of potential job seekers. Outmigration was reduced and the dependent population increased. Per capita incomes began to fall. It was found, perversely, that incomes increased by abolishing, rather than creating, nonmetro jobs. Job abolishment drove nonmetro residents into the stream of outmigration. It improved the average level of income for those remaining in the nonmetro sector but created added population pressures in the metro sector.

A mixed rural development strategy coordinating job creation with labor force expansion helped the nonmetro sector considerably, yet the pace of migration slowed only moderately and there was little improvement in the well-being of the metro sector.

Side effects in the nonmetro sector related to capital. The amount of capital available per worker in 1990 fell below trend, which reduced productivity per worker. In addition, the rate of utilization of plant capacity dropped slightly. A mixed strategy of coordinating job creation with an increased labor force showed much promise for reaching income targets, yet there were some minor side effects noted in both sectors.

Federal programs helping people enter the labor force cover such services as health care, medical services, child care, residential support, counseling, labor market information, assistance in securing bonds, and payments of allowances for persons in training programs.

Direct loans and grants have been made through a number of Federal programs to finance public and private investments and create jobs. Many of these

programs specifically target funds to create jobs in rural areas, in areas of unusually high unemployment, or areas with low incomes. Many communities offer tax advantages to plants locating in their areas. Job creation programs seek to bring jobs to people rather than people to jobs.

During the 1960's, participation of the nonmetro population in the labor force was at a lower rate than in the metro sector, and the capacity to create jobs was smaller. Even so, relative to population, the labor force and employment in the nonmetro sector grew more rapidly than in the metro sector. The increase in the nonmetro labor force relative to population growth reflected, in part, a substantial increase in participation of nonmetro females in the labor force. It also reflected an advance in the proportion of persons attaining working age. The expansion in jobs reflected a nonmetro capacity to create jobs which was only moderately below metro capacity.

Policies enhancing the labor force or creating new jobs are distinguished in the simulation model from policies enhancing productivity of persons with jobs.

5. Increase productivity of resources

During the 1960's, there were extensive public and private efforts to modernize nonmetro plants, provide on-the-job training, reduce underemployment, and improve productivity of those already at work. These efforts were abetted by Federal programs to provide orientation, counseling, education, skill training, and other services to help qualify individuals for more productive jobs. Productivity gains in the nonmetro sector during the 1960's were far greater than those in the metro sector.

This improvement in nonmetro resource productivity was the primary factor contributing to the prospect of balanced rural-urban growth by the turn of the century. In the simulation, it was found that further acceleration of productivity gains for employment and capital in the nonmetro sector could attain the income target by 1990. To do so required pushing nonmetro output per worker to a level some 5 percent above trend by 1990 and pushing the productivity of capital nearly 4 percent above trend.

A simulated increase in productivity of resources enhanced efficiency of employment without necessarily increasing the number of jobs. Increased economic activity added to aggregate income and investment, and resulted in an increase in the accumulation of capital stock. A rising ratio of capital to employment further augmented the increase in productivity per worker. Increased earnings influenced many potential migrants to remain in the nonmetro sector. Consequently, net outmigration declined.

Improved resource productivity increased the population but it did not create many new jobs. Only a small portion of the potential migrants who stayed behind because of prospects of higher wages actually obtained jobs. The rest became dependent on those already at work. In the absence of accompanying programs to create jobs or train entrants to the labor force, unemployment rose and the labor force participation rate declined below trend. An increased proportion of plant capacity became idle.

The metro sector gained some from the improvement in nonmetro resource productivity. Population pressures on the cities decreased through declining migration, and the market for metro exports to the nonmetro sector expanded through rising nonmetro income.

Enhancement of resource productivity through improvement in the quality of the labor force and adoption of new technology is an important basis for growth. It contributed much to gains in the rural economy during the 1960's and additional progress was observed during the early 1970's. Further efforts in this direction, in the absence of companion strategies, would likely lead to imbalances relating to dependency, unemployment, and idle capital.

6. Expand capital stock

Federal programs to influence accumulation of capital stock include incentives to consume less, save more, and invest. Programs to maintain existing capital, minimize wear and tear, and utilize available capital more fully are often associated with technical assistance and management training. Loans and grants stimulate both public and private investment. Low-interest and guaranteed loans help rural businesses. Many local areas subsidize plant and equipment through gifts and tax advantages. Proposals have been made for Federal tax advantages to plants locating in nonmetro areas.

In the simulation, two types of capital enhancement strategies were examined. The first aimed at spending more frugally, maintaining plant and equipment more efficiently, or utilizing available capital more fully. Such programs made more capital available per worker and thereby increased labor productivity and earnings. This induced a slow-down in the rate of outmigration; nonmetro population, labor force, and employment increased. The result was an increased general level of business activity as well as an improved level of income per capita. The difficulty was that the quantity of "outside capital" required to reach the income target was relatively large and not considered feasible. On average, each dollar of capital added to the nonmetro stock by the year 1990 had increased the current income stream by only 4 to 4½ cents.

The second type of capital enhancement strategies for the nonmetro sector depended on taxes and transfers from the metro sector. One strategy taxed and transferred capital stock, another taxed and transferred income flows. In both cases, it was found that subsidies helped the nonmetro sector, but these gains were achieved directly at the expense of the metro sector. While an income transfer or a capital stock transfer appeared to solve the rural problem, it directly created a comparable urban problem.

These various capital accumulation programs appeared to be either technically infeasible or politically unacceptable to the urban sector. They offered small benefits in return for a relatively large cost. The simulations suggest that a rural development strategy that relies exclusively on capital accumulation is not likely to work. However, in a subsequent discussion, it will be demonstrated that capital accumulation should be part of an overall mixed strategy.

7. Expand markets

Expansion of the metro market for nonmetro products and/or a reduction in the use of metro products by the nonmetro sector is often suggested as a basis for growth. Most Federal programs to expand markets are concerned with foreign market exports and imports. Many commodities benefitting from these programs are produced in nonmetro areas. But, in the simulations, the domestic economy was treated as a closed system; the foreign aspect was ignored. Policies to accelerate exchange between the metro and nonmetro sectors were evaluated. Programs to promote products within the United States tend to be operated at the State or local level; few explicit Federal policies address this issue.

During the 1960's, the nonmetro sector imported from the metro sector a greater value of goods and services than it exported. This negative balance of trade drained capital from the rural sector. Inducements to expand nonmetro exports or reduce imports eased this negative balance, reduced capital drain, and thereby increased nonmetro capital accumulation. The nonmetro sector benefitted, but at the expense of the metro sector. Further, it took very large import/export programs to produce only small improvements in rural population, income, and employment.

For significant improvements, import/export policies must operate in tandem with specific programs to insure that changes in flows of trade are accompanied by specific increases in jobs and the labor force. Import/export policies might become a meaningful component of a mixed strategy for rural development

MIXED STRATEGIES

Each of these separate strategies can narrow the per capita income gap. But, each alone was accompanied by negative side effects such as increased unemployment, a larger dependent population, or reduced earnings.

In one of the above simulations, in which labor force and job creating strategies were operated in tandem, it was found that a mixture of two strategies helped to reach desired goals while averting some unwanted side effects. This property of the simulation is representative of real world programs directed toward a single objective through a single means—they are apt to leave undesirable side effects for other programs to cope with. It suggests that solutions to interrelated problems must be holistic rather than piecemeal.

As a single strategy, increased productivity of resources showed promise. Increasing either the size of the rural labor force or the number of rural jobs in isolation entailed severe side effects but the two as a mixed strategy showed considerable promise. Capital accumulation strategies moved the economy in the desired direction but with small impacts and relatively large costs. Import/export policies operated singly were also of limited use.

Population growth policies showed some promise when operated alone. However, when population was a component of a mixed strategy, the model was unable to determine population policy because population growth was not limited by constraints on space, energy, or the environment. And, it was possible in the simulation to meet income per capita targets for any simulated population growth given an appropriate mix of other strategies. Therefore, the model provided a basis for judging the efficacy of other policies, given a population trend. Migration served better as an indicator of whether the ends of rural development were met rather than as a means of achieving other rural development goals.

Analysis of the individual, isolated strategies suggested that mixed strategies for rural development should combine elements of labor force participation, job creation, productivity improvement, capital accumulation, and, possibly, export markets while excluding policies related directly to population growth and migration.

A mixed strategy combining labor force expansion with job creation showed promise as a core for a rural development strategy—it attained income targets without an adverse impact on unemployment. However, productivity per

worker declined slightly below trend, utilization of plant capacity decreased, and outmigration abated only moderately.

A simulation which coordinated an increase in nonmetro resource productivity and an increase in capital accumulation with programs to expand the nonmetro labor force and create more jobs was found to reach population, income, and employment targets with fewer undesirable side effects.

Four targets were set for the nonmetro sector to examine this mix of four strategies. First, nonmetro income per capita was to reach, by 1990, the trend level of metro income. A population target was set for zero net outmigration. A labor force target was set so that the nonmetro rate of participation of the population in the labor force would rise to the trend level of the metro sector. An employment target was set for the nonmetro sector to achieve the 1990 metro trend rate of unemployment. Then, a mixed strategy was sought which would have reached these targets operating from 1960-70 trends.

To reach these targets, employment programs were required which created an average of 177,000 new jobs per year above the trend rate in the nonmetro sector. In the metro sector, where population growth slowed due to reduced migration, fewer jobs were required and an average of 101,000 per year fewer jobs were created there. Hence, the net program for U.S. job creation required an average of around 76,000 added jobs per year above trend together with a transfer of 101,000 jobs to the nonmetro from the metro sector.

Labor force generating programs were required to add around 79,000 new entrants to the national labor force each year above the trend rate. These manpower programs carried the major burden of the mixed strategy.

In order to offset side effects on earnings per worker, programs were required which increased productivity of nonmetro resources by around 6 percent. In addition, the total quantity of capital available was increased about 4 percent above trend in 1990. The rate of utilization of this expanded plant capacity was close to the trend rate.

Side effects of this rural development strategy on metro population, income, employment, and capital were generally favorable. There was reduced migration, the rate of unemployment decreased, the level of dependency of people not at work on people at work decreased, more capital was available per worker, nonmetro markets for metro products expanded, earnings per worker rose, and income per capita was higher.

The nonmetro sector could be better off without making the metro sector worse off even if some of the initiative for growth were transferred to the nonmetro from the metro sector. For example, trend levels of economic activity per capita in the metro sector could have been maintained, rather than exceeded, if the metro sector had slightly reduced its propensity to join the labor force, its capacity for creating jobs, its gains in resource productivity, and its pace of capital accumulation. If such transfers were not made, side effects on the metro sector of the mixed nonmetro growth strategy generally exceeded trend levels.

An unwanted side effect of the mixed strategy for nonmetro growth was that capital per employee accumulated more slowly than in the trend run; the mixed strategy created jobs faster than it accumulated capital. This relative scarcity of nonmetro capital resulted in a higher than trend productivity of capital in 1990, but a slightly lower productivity of labor. That means wages might be slightly below trend.

An additional mixed strategy was assessed which added a target equating the nonmetro capital/employment ratio with the metro ratio in the target year. This added target required an added strategy. A capital transfer based on a tax on metro capital stock was added to the four strategies discussed above.

When the tax and transfer was included, policies in the nonmetro sector toward labor force, job creation, and capital utilization were little changed from the mixed strategy discussed above. However, incentives to increase the productivity of resources were weakened by the subsidy of capital. Nonmetro objectives were met by accepting the subsidy and allowing resource productivity to fall to a level 4 percent below the trend. On the other hand, if the metro sector was to avoid negative effects of the tax and meet its targets, it was required to increase the pace of resource productivity 4 percent above trend. The adjustment required little metro change with respect to creating jobs, joining the labor force, and accumulating capital. The tax and transfer dimension of the mixed strategy had the effect of inducing a decrease in productivity in the sector being subsidized. In view of this result, the tax and transfer component of the mixed strategy was rejected.

Here is the preferred strategy arising from the analysis: Rural development requires a multifaceted approach which relies heavily on creating added jobs in rural areas as well as on expanding the labor force to fill these jobs. This strategy needs to be coupled with some improvement in the productivity of resources and in the rate of accumulation of capital to offset possible undesirable side effects. Expanding capital in rural areas was a useful adjunct to a balanced rural development strategy but was not an adequate basis for a single strategy. Capital enhancement depending on a tax and transfer tended to benefit one sector at the expense of the other. Strategies to extend markets for local products were found to make positive but minor contributions for which the gains in one sector were at the direct expense of the other sector unless exports were directly coupled with the creation of new jobs. Strategies to directly inhibit outmigration from a lower-income sector were found to further depress the average level of income in that sector.

SINCE 1970

Since 1970, observed changes in the nonmetro sector were, to some extent, akin to preferred changes noted in the mixed strategy above. The nonmetro sector rapidly increased its labor force since 1970, created enough jobs to keep unemployment rates slightly below metro, and experienced a rapid increase in income per capita. The productivity of rural resources increased further during the early 1970's compared to the 1960's. These changes were accompanied by an apparent reversal in the direction of flow of net migration.[2]

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[2] See Calvin L. Beale **The Revival of Population Growth in Nonmetropolitan America**, U.S. Dept. Agr., Econ. Res. Serv., ERS-605, June 1975. Population in some larger cities declined during the early 1970's; there now appears to be a net flow toward nonmetro places of residence. Nonmetro areas, according to Beale, gained 4.2 percent in population during 1970-73, compared to only 2.9 percent for metro areas. This is a reversal of the common pattern of population movement since the depression of the 1930's.

Participation of the population in the nonmetro labor force held up; overall, the number of added persons looking for work was proportional to the added population. To the extent that a share of the added population was seeking, for example, a retirement site, this was about offset by increased labor force participation of the prior population. Nonmetro unemployment rates dipped generally lower than metro area unemployment, suggesting that jobs were being created for those seeking them. And, these added jobs carried relatively good pay; per capita income rose faster in nonmetro areas. The migration reversal was supported by a solid economic base of persons seeking work, of new jobs being created, and income levels being maintained. But, rural areas remained the lower income sector.

Projections operating with the 1970-73 economic structure displayed a trend toward higher income per capita in the metro than in the nonmetro sector when extrapolated in the computer for a few decades. This is a reversal from the projected 1960-70 trend which pointed to approximately equal incomes around the turn of the century. A primary reason for the divergence of the two trends was that the rate of gain in the productivity of resources in the metro sector rose sharply since 1970 to a level about equal to the nonmetro rate.

However, unlike the trend of the 1960's, that of the early 1970's appeared inherently unstable. Projections of the trend of the early 1970's of the metro rise in earnings led to an eventual return of the direction of the flow of migration toward the city where incomes are higher. This potential re-reversal in flow is further supported by a projection of the post-1970 trend which displays more capital available per worker in the metro sector. On the other hand, the post-1970 trend points to increased metro unemployment because labor force entry increased more rapidly than job creation. This, coupled with the observation that job creation was stronger during 1970-73 in the nonmetro than in the metro sector, supports the contention that the flow of net migration may continue toward nonmetro areas for a while longer.

The inherent conflict in the trend of the early 1970's suggests that further changes in rural-urban balance can be anticipated during the late 1970's. Some of the changes since 1970 in economic structure appear to be consistent with equilibrium and others do not. The recent surge in nonmetro participation in the labor force, job creation, and resource productivity probably appear consistent with stable equilibrium. If these changes are sustained and coupled with some improvement in utilization of capital in nonmetro areas, they will be consistent with the preferred mixed strategy discussed above.

The gap during the early 1970's between labor force participation and job creation in the metro sector does not appear consistent with stable equilibrium because it results in increasing unemployment. One would expect either that participation in the labor force would decrease or that job creation would increase in response to rising metro unemployment.

The above changes in economic structure relating to rural labor force participation, job creation, and productivity improvement go a long way toward explaining the apparent resultant changes in population, income, and employment since 1970. However, they do not completely explain it. The reversal in relative unemployment rates favoring the nonmetro sector in the early 1970's is consistent with the recent reversal in migration flows. Similarly, the reversal in the relative capacity to create jobs favoring the nonmetro sector in the 1970's

is consistent with the migration reversal. However, the average level of wages and of income per capita remained lower in the nonmetro sector during the early 1970's, as it was during the 1960's, and the net flow of migration turned toward the lower income sector. This result was not according to expectations; it supports the idea that there are some noneconomic motivations in the recent reversal in the flow of net migration, such as cultural dissatisfaction with cities, reactions to congestion and pollution, environmental considerations, a heightened interest in a rural setting for retirement, and a decline in the number of farmers remaining in rural areas to migrate.

A CONTEXT FOR INTERPRETING THE RESULTS

Our model provides an opportunity to experiment with simulated computer programs instead of with actual Federal programs until some likely alternative development strategies are identified. The model treats broad aggregates, not detail. It describes the metro and nonmetro sectors in terms of total population, income, employment, and capital in order to evaluate alternative mixes of rural growth strategies.

Aggregative models are not designed to answer questions about details. For example, there is no provision to analyze population in terms of age, race, sex, or income distribution. Nor is there provision to analyze labor and capital in terms of industry and occupation. The framework looks for long-term growth trends rather than short-run cycles and hence abstracts from certain cyclical relationships impacting on the rural-urban balance during the early 1970's. These relationships include the rapid inflation, the recession with its consequent substantial increases in both metro and nonmetro unemployment rates, and the energy crisis. Each of these have differential impacts on the two sectors and may have contributed to the reversal in the direction of flow of net migration observed during the early 1970's. Our model identifies growth strategies but does not identify those responsible for such strategies or evaluate the cost of adopting the strategies.

The model relates to several bases for growth identified in the social sciences, but abstracts from others. Economists tend to concentrate on ***availability of resources*** as a basis for growth. The logic of the present ERS model focuses on expansion in the supply of labor and the accumulation of capital. Growth in the rural sector was found to be relatively more responsive to additions of labor than of capital, given the structure of the rural economy of the 1960's. The availability of natural resources as a limit to growth was not examined and no constraints were incorporated which would function as an ultimate limit to growth in the rural population.

Technology, or an increase in the level of output per unit of input, was demonstrated to have been an important basis for rural growth during the 1960's and early 1970's.

Expansion in *aggregate demand* as a basis for growth is treated partially in the model. An increase in the supply of rural products created its own demand in the rural sector, according to the logic of the model, so local demand was not analyzable as a limit to growth. But the model did assess the response of the rural economy to demand for exports to the metro sector. It was found that

expanding demand for rural products in urban markets was not a strong basis for growth unless accompanying policies were implemented to insure that this was translated directly into added jobs.

Spatial relationships have implications for growth, only some of which were included in the study. The analysis did not address the importance of access of rural areas to central city services or the impact of improved transportation. However, in treating the economy as two sectors, one urban-oriented and the other relatively rural, the model indicates that the national level of general business activity is influenced by whether added jobs or plants are located in a rural or an urban setting.

Institutional arrangements for evaluating goals and enabling a community to cope with change or respond to adversity are not explicit in the model. However, the proposed strategy for balanced rural growth derived from the analysis cannot be implemented except through Federal, State, and local institutions, both public and private. The computer-based model assumed the required institutions would arise as needed. Implementation may require some institution building. If public purpose with appropriate institutions—is stated with respect to the rural-urban distribution of population, income, employment, and capital, then a mixed strategy of public programs can be designed to reach desired targets.

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The ERS model summarized here treats of only certain aspects of rural development and rural-urban balance. The study looked at a handful of descriptive variables: population, income, employment, and capital. Analysis of these economic aggregates suggested a mix of strategies for balanced rural growth. The analysis, as well as the method, should prove useful in future evaluations of prospects for balanced growth between two sectors, one of which is considered to be relatively disadvantaged.

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