Volume I

COAL AND ECONOMIC DEVELOPMENT IN CENTRAL APPALACHIA:

A NEW FRAMEWORK FOR POLICY

Mountain Association for

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Coal and Economic Development

A Series of Reports

Volume I: Coal and Economic Development in Central Appalachia: A New Framework for Policy

Volume II: Coal Employment: Trends and Forecasts 1975-1995

Volume III: Labor Productivity Changes in Appalachian Coal Mining

Volume IV: Industry Perspective on Development: Transcripts of Interviews with Coal Industry Leaders

Volume V: The Coal Industry After 1970: Cost Internalization, Good Works, and Public Planning for Development

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Volume I

COAL AND ECONOMIC DEVELOPMENT IN CENTRAL APPALACHIA

A New Framework for Policy

MACED

Mountain Association for Community Economic Development
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by

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EXECUTIVE SUMMARY

Public policy toward the coal industry in Central Appalachian states, particularly Kentucky, is based on the assumption that promoting wider markets and facilitating the production of coal will result in improvements in the quality of life in coal-field communities. However, coal-producing areas do not automatically capture the benefits of growth in coal production. Growth leads to economic development--the process of building a resilient local economy that provides a good quality of life for the entire community--only when there is public and private reinvestment to translate that growth into local improvements.

Private reinvestment of the benefits of economic growth is a matter of linkages and multipliers--the ways increased local expenditures stimulate local business activity and increased savings stimulate investments in new businesses, both contributing to further local business expansion. Public reinvestment entails taxation and investment of tax revenues in physical infrastructure such as roads, water, sewer and solid waste systems, and in social infrastructure such as schools, clinics, and libraries. Neither the public nor private reinvestment process has worked well in Central Appalachia.

Natural resource economists recognize that natural resource industries inherently are limited in their contribution to the private reinvestment process because they have relatively small linkages and few connections with local economies. Clearly, these economic problems are exacerbated when natural resource extraction occurs in isolated mountain areas, where there is less other economic activity--suppliers, other industry, retail business--with which to link. The primary source of private reinvestment in an extractive industry is wages generated through employment. Therefore, most development economists argue that regions dependent upon natural resources must use greater levels of public reinvestment than regions dependent on other types of industries.

Until the 1970s, the Appalachian coal industry operated in such a competitive environment that there was neither the stability nor the surplus necessary to stimulate and nurture the reinvestment process that would improve public services and private economic opportunities.

External social and environmental costs associated with coal extraction were high, and there was no political pressure to force the industry to internalize these costs. The quality of life was undisputably grim in the coal fields.

The response of state and local policy makers to problems of poverty and substandard living conditions in the coal fields was to promote more coal production within their own boundaries. There was little intervention to shape the reinvestment process and ensure that coal-field communities benefited from coal production. The consequence of overcapacity in a competitive industry was underdevelopment in coal communities, but solutions would have required a level of government intervention which was politically unacceptable.

During the 1950s and 1960s conditions in the coal industry and the coal fields were depressed. The federal government recognized coal's failure to be developmental, and substantial resources were invested in infrastructure development to try to make up for the investments "never made" during coal's first century. During this period, states continued their combination of laissez-faire and promotional policies toward the coal industry. Kentucky enacted a severance tax in 1972, but state policy makers regarded it as a substitute for sales tax on food and drugs, not as a source of public revenue for coal-field investment. Neither federal nor state policy makers envisioned a larger contribution to development from an industry that was chaotic and faced declining demand.

But the Arab oil embargo gave the industry new hope in the mid-1970s. Kentucky coal production expanded dramatically, and citizens as well as operators and politicians hailed coal as Kentucky's "ace in the hole." Once again, state policy that kept costs to the industry low and promoted wider markets seemed to be an adequate response to underdevelopment problems in the mountains.

The case study analysis reported here shows that although there were substantial improvements in Kentucky coal counties between 1960 and 1980, these improvements were not proportionate to economic growth. Per capita earned income in coal counties increased 164 percent from 1960-1980, compared to only 91 percent, 93 percent, and 88 percent respectively in farm, manufacturing, and government/mix counties. The improvement in conditions in all poor Kentucky counties from 1960-1980 is striking. But the analysis suggests that economic growth in coal counties, by itself, cannot overcome the historical legacy of poor conditions. Despite a far greater rate of growth, the improvement in quality of life was only slightly greater in coal counties compared to the other county groups. Despite increases in production, employment, and income in the industry, coal-field conditions, like conditions in rural farm counties of the state, lag far behind the rest of the nation. Coal counties did not translate their high income growth into greater than average gains in the quality of life.

Several explanations for the lack of development in coal counties are explored. Demographic characteristics, such as the proportion of the population which is dependent (older people or children), either were not unfavorable in coal counties or were similar across the bases. Expanded government programs did not explain the results. However, measures of income inequality were found to be significantly different between bases: coal had the highest levels of average annual earnings and average weekly pay but also the highest proportion of low-income families. Furthermore, four indicators of employment and work distribution show that work opportunities in coal counties are distributed narrowly compared to the other bases. Private reinvestment in Kentucky coal counties probably was limited by a narrow distribution of jobs, greater inequality of incomes, few industry linkages, and low multipliers in the coal industry. Public reinvestment has been constrained by political attitudes as well as by economic conditions.

In order for improvement in the quality of life to follow growth in the coal industry, a greater share of the benefits of coal production must be reinvested in the communities where coal is mined. Coal growth, which historically generates greater levels of inequality in the distribution of income and employment, does not stimulate the needed indirect private sector reinvestment. Coal companies, however, constrained by regional and inter-fuel competition, cannot be expected to make the necessary direct contribution to reinvestment voluntarily. In coal-based mountain areas, state and local governments must initiate and coordinate reinvestment.

Recognition that there are limits to the developmental impact of growth in the coal industry is the first step toward a more constructive framework for development policy. Central Appalachian residents and politicians could begin to make decisions based on the understanding that growth in coal cannot solve the region's economic problems. But they still should see the coal industry as an economic resource that can deliver more benefit to coal-field communities. There is no point in arguing that the presence of the coal industry causes underdevelopment in the coal fields. Rather, in the 1980s, coal-field underdevelopment reflects an absence of constructive government policies to harness the industry for regional development and to develop alternative opportunities.

A new framework for policy in coal states would make public benefit the direct goal of policy. Coal-field development requires **recognition of responsibility** for coal-field development, both from the coal industry and the public sector, and **commitment to long-term effort** at all levels. These two changes would enable the public and private sector to work together to promote stability and predictability for both the public and private sectors and would permit a broad view of who pays the costs and who should benefit from coal production. Coal-field development could become the yardstick in public sector decision making about the industry. Such policy would focus on three general areas:

- o Better coal taxation, including:
  - changing the existing allocation of coal severance tax revenues so that more coal tax remains in coal-producing counties;
  - increasing coal taxes, preferably through a national severance tax or multi-state tax compact, and using the revenue to meet the present infrastructure needs of coal-producing regions;
  - stabilizing demand for coal at a price high enough to include adequate taxation of the resource; and
  - establishing a new agency to implement infrastructure investment, outside local politics.
- o Higher environmental standards and better enforcement, including:
  - holding large companies responsible for their subcontractors' adherence to laws;
  - eliminating the two-acre permit; and
  - devising a long-term solution for coal-haul road damage.
- o Public and private responsibility to workers, including:
  - establishing a comprehensive plan to train young mountain people who have not worked, to retrain structurally unemployed miners and other workers, and to retrain small operators and independent truckers who lose their jobs due to stricter enforcement of environmental laws and continued changes in industry structure; and
  - requiring advance notice of employment changes and mine shut-downs from employers.

This analysis, in conjunction with the other reports on coal and development in this series, presents an argument for a change in coal policy. While specific initiatives can only come from widespread further discussion, it is clear that promotion of increased coal production is not an adequate public response to development problems in Central Appalachia. MACED interviews with coal executives and University of Kentucky opinion survey results suggest that state policy makers have a more constricted view of policy options than the industry and the public. Both coal industry leaders and the Kentucky public may accept greater public and corporate responsibility and greater commitment to investment in a long-term effort. Coal-field

communities need not subsidize energy consumers any longer. National and state policies should require public and corporate responsibility for improving conditions and opportunities for those who produce the nation's coal.

PREFACE

Central Appalachia[1] presents formidable development problems. The region is mountainous, isolated, and lacks basic infrastructure to support industry. But there are vast coal resources in these mountains. Since the late 1800s, public officials in Central Appalachian states have promoted the coal industry, hoping that growth in mineral production would provide the foundation for a resilient regional economy. Mining jobs and company profits were expected to provide wealth that would be reinvested, stimulating further economic activity and development. Despite billions of tons of coal production over the last century, persistent poverty and underdevelopment continue to plague the region.

Why has coal mining failed to stimulate development in Central Appalachia? What is the coal industry's future in the region? Are there changes in public policy and private management that could yield more benefits to coal-field communities without jeopardizing the industry's competitive position? These questions are addressed in this series on coal and economic development.

This is the first of six reports exploring coal and development issues in Kentucky and West Virginia. It briefly reviews the history of coal's development in the region, discusses promotional policies toward the coal industry, and analyzes the developmental impact of income growth in Kentucky coal counties between 1960 and 1980. The second and third reports analyze production, productivity, and employment in the coal industry between 1975 and the present and make employment projections to 1995. MACED interviewed 17 coal leaders to understand their views on coal-field development problems and their perspectives on industry responsibility. Transcripts are published as a fourth report in the series. A fifth report discusses changes in the coal industry since 1970, assessing their implications for future coal policy. The sixth report is a "public sector income statement" for

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[1]Central Appalachia is an Appalachian subregion including eastern Kentucky, southern West Virginia, southwest Virginia, and part of northern Tennessee. In this report Central Appalachia primarily refers to the coal fields of Kentucky and southern West Virginia.

the coal industry in Kentucky which projects net gains and losses to the public sector over the 15-year period between 1985-2000. Future reports will make specific recommendations for ways that federal, state, and local governments and the industry could increase coal's developmental benefit in the coal fields.

To set the context for the series, the introduction to this first report describes MACED's view of economic development and outlines the difficult development policy choices confronting coal-field citizens and policy makers.

INTRODUCTION

What is Development and How Does It Happen?

Economic development is a slippery concept, and we often confuse what we mean by development with what we think is necessary to achieve it. Generally, people think of economic development as economic expansion and development policy as measures to encourage job creation in the private sector. Therefore, state and local policy makers try to establish fertile ground for business, offering industrial sites, publicly financed training for workers, tax incentives, and other benefits. Development policy at the state and local level becomes industrial attraction and promotion of an "improved business climate."[2]

However, economic development involves more than economic expansion. While economic growth provides the engine for development, it is not the whole story. **Development is a process of building a resilient local economy which provides a good quality of life for the whole community.** By "resilient economy" we mean a stable economy--one that offers steady employment and income.[3] Quality of life, in

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[2]During the 1960s, the federal government experimented with more substantial intervention in the economy. Development efforts included direct loans and investments under the Area Development Act of 1961, infrastructure investment under the Economic Development Act of 1965, and highway development under the Appalachian Regional Development Act of 1965. See William Miernyk, Regional Analysis and Regional Policy (Cambridge, MA: Oelgeschlager, Gunn & Hain, Publishers, Inc., 1982) for an historical overview of regional development efforts in the U.S.

[3]We do not address directly the problem of economic stability and resiliency in the sense of adaptability to changing conditions. A diverse economic base offers a place insurance against national and international shifts in markets, but many rural areas do not have the luxury of a diverse base. They must depend on a single industry, often a natural resources industry, for all their goods-producing economic activity. These are the places bypassed by the "rural renaissance" and "small town gentrification." By necessity, these places often must improve the quality of life by maximizing the benefits of economic expansion in the industry they have.

this sense, encompasses the quality of both opportunities and basic services in a community. People consider a place "developed" when men and women can find stable employment, good housing, good health care, and good schools for their children. The quality of the physical environment has emerged as a prime criterion for the quality of life--people want to live and raise families in healthful environments, and corporations want to locate plants in areas which offer their employees these benefits. An "underdeveloped" place, then, has a low quality of life and inadequate opportunities to make a living.

Business expansion is developmental when it contributes to improvements in the quality of life for the whole community--more people are employed, housing and health conditions improve, public revenue is invested in education and local infrastructure, and the physical environment is protected. But the process is not automatic. Companies can grow, producing more goods and making greater profits, without employing more people. A corporation's goal is to maximize profits for its shareholders, and business decisions are made to keep costs low. Often costs are lower if technology replaces labor. Similarly, lower taxes and minimal environmental and other social costs to the company mean greater profits. Clearly, company efforts to keep costs low can conflict with development policy goals to expand employment, generate funds for reinvestment, and improve the quality of life.

Thus development policy must do more than encourage expanded production in private industry. It must ensure that growth benefits local economies--that it not only provides employment and income, directly and indirectly, but also generates tax revenues. And public policy must take account of external social costs to ensure that the public sector has a net gain from economic activity and expansion. If the public sector absorbs high external costs, such as deteriorating infrastructure or environmental degradation, the quality of life may decline, diminishing future development potential.[4]

One way to think about the process through which economic activity stimulates development is to see it as two kinds of "reinvestment."

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[4]The public understanding that economic growth in private enterprise systems entails costs as well as benefits only emerged in the late 1960s and early 1970s. Prior to that, Americans assumed that economic growth, driven by an "unfettered, competitive, private enterprise" would guarantee social progress. As Columbia University Business professor Melvin Anshen put it, not only were private firms not expected to share costs of unemployment, retirement, or environmental degradation, "(T)he external costs of the system were not even recognized as costs. They were not accounted for." (See Melvin Anshen, "Changing the Social Contract," Columbia Journal of World Business, V, No. 6, Nov.-Dec., 1970, pp. 6-14.)

"Reinvestment" is a term used in this report to convey the process through which economic expansion is translated into a better quality of life. On the one hand, there is "private reinvestment"--the process through which growth in one industry stimulates growth in other businesses. For example, expanded production in one industry can lead to expansion in other industries that supply or use the output of the first; or local businesses that are consumer-oriented may expand sales because the first industry's workers have more wages to spend.

"Private reinvestment" of the benefits of economic growth is the economists' notions of "linkages" and "multipliers."[5] Linkages and multipliers refer to the ways increased local expenditures stimulate local business activity and increased savings stimulate investments in new businesses, both contributing to further local business expansion. Of course, the size of the multiplier and the extent to which linkages work depend upon particular characteristics of industries and the place. The extent of local investments depends partly on the availability of funds and partly on profitable investment opportunities. In other words, the multipliers and linkages that make up the private reinvestment process vary according to specific characteristics of the dominant industry and the place.

However, widespread distribution of income and employment is always an important factor in stimulating the private reinvestment process because it affects the way local expenditures circulate in the economy. When income is concentrated in the hands of a few people, it is less likely to percolate down through the local economy and cause ripple effects of further economic expansion. Both purchasing power and "investing" power at the local level are constrained by unequal distribution.[6]

The other half of the reinvestment process is in the public sector. "Public reinvestment" entails taxation and investment of tax revenues in physical infrastructure such as roads, water, and sewer and solid waste systems, as well as in social infrastructure such as schools, clinics, and libraries. Infrastructure investments determine the quality

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[5]Economists use the term "linkages" to refer to the secondary effects that accompany industrial activity. Linkages are strong when an industry uses local goods and services, and thus stimulates the expansion of supporting businesses. "Multipliers" refers specifically to the factor by which secondary income and employment are affected; for example an employment multiplier of "2" would mean that for every job directly connected to a particular industry, one more is created indirectly.

[6]Equality is important to development in ways that extend beyond the impact of widespread income distribution on local consumption patterns. Inequality in the Central Appalachian region means poverty, and poverty reflects gaps in economic opportunity. Thus greater equality stimulates development and is characteristic of a developed place.

of life in communities, thus affecting present and future economic and social opportunities for residents. For example, when a community invests public revenue in schools, it expands future opportunities for its young people. Investment in a water system not only improves the quality of water service for present residents but also broadens future opportunities to attract industry or develop local businesses that need good water systems.

Economic stability influences the reinvestment level in both the private and public sector. Steady employment and income generate steady public revenues, steady savings, and local spending, permitting long-term planning of investments by local governments and individuals.

MACED approaches development as a process of improving the quality of life in a community. Widespread distribution and stability of income and employment are critical to achieving an improved quality of life. Natural resource extraction industries inherently have lower "multipliers" and "linkages" in the local economy. Because they are essentially exporting a raw material, opportunities for secondary businesses supplying parts are limited (unlike an automobile industry, for instance). Therefore, a natural resource industry's developmental impact depends heavily upon the public reinvestment process.

Whether the issue is public or private reinvestment, government policies play an integral role in determining the developmental impact of private sector economic growth. Governments determine what forms of income and wealth are taxed, write regulations to assign infrastructure, health and environmental costs, and establish enforcement procedures. These policies are negotiated within the government among the sectors which care about their outcome--corporations, workers, environmentalists, consumers, local government officials, and citizen activists.[7] The government policies that emerge from these negotiations shape the distribution of resources and opportunities within their boundaries. Local development hinges on them, especially in isolated rural areas that do not have a diversified economic base. For example, development in rural farm and coal communities is shaped largely by government policies toward agriculture and the coal industry. These industries provide the basic employment opportunities and the tax base for public investment.

However, corporations face national and international competition outside the boundaries of a particular government. This puts a limit on how much taxation and other costs any one industry or corporation

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[7]See Martin Carnoy, The State and Political Theory (Princeton, NJ: Princeton University Press, 1984); Mancur Olson, "The South Will Fall Again: The South as Leader and Laggard in Economic Growth," reprint from Southern Economic Journal, 49, No. 4 (April 1983); and Alan Stone, Regulation and Its Alternatives (Washington, D.C.: Congressional Quarterly Press, 1982).

can absorb and still produce its products at a profit. If workers win wage increases or communities raise taxes on a company that faces competition with companies subject to different governmental policies, these additional costs can make that company uncompetitive. If it can move its operations elsewhere, as many international apparel and electronics firms can, it will do so. Otherwise, it may go out of business. Even apart from the extreme case where increased costs for developmental investment (such as taxes or environmental reclamation) determine whether companies are profitable or face bankruptcy, this competition between communities forces local and state governments to bid away what they need for local development investment and settle for only the jobs. Essentially, American workers and communities compete with workers and communities in different regions, and with those in the Third World, where standards of living are much lower. This competition between regions for companies that provide employment but want to keep their costs low makes development difficult anywhere. But the tension is heightened when the places are poor, lacking basic infrastructure and services, and the companies are marginal operations or have relatively volatile, competitive markets. The coal industry illustrates this dilemma vividly.

Development Dilemma in the Coal Fields

As an energy resource, coal production benefits the general public in ways that extend beyond the employment or income it generates. Coal has been perceived as a national asset since the days when coal provided the fuel for much of the nation's industrial production.[8] Today coal still supplies over one-fifth of the nation's energy needs. Coal production is important to national security, American industry, and the general public.

Industrial and residential consumers want low-cost energy, so public opinion supports competition among fuel producers to encourage the lowest possible cost. However, coal extraction is dirty and dangerous; external environmental and other social costs are high.[9] The national objective of producing low-cost energy, directly visible

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[8]For example, see Richard Simon, "Uneven Development and the Case of West Virginia: Going Beyond the Colonialism Model," Appalachian Journal, 8, No. 3, Spring, pp. 165-186; Duane Chapman, Energy Resources and Energy Corporations (Ithaca, NY: Cornell University Press, 1983); Stephen H. Spurr, ed., Energy Policy in Perspective--Solutions, Problems and Prospects, Proceedings of a Symposium sponsored by The Lyndon Johnson Library in cooperation with The Brookings Institution, 1982.

[9]Economists and public policy analysts use the terms "external costs" and "externalities" to refer to economic, social, physical, and biological impacts or costs engendered during the course of production or a transaction and not included in the price of the product or service.

in public utility commission policies across the nation, is a powerful force against efforts to make coal companies internalize social costs. For example, long-term contracts between coal companies and utilities often include clauses allowing the price of coal to be adjusted downward according to spot-market coal prices. In recent years public utility commissions have been requiring utilities to buy a greater proportion of their coal on the spot market. As these MACED reports on coal and economic development show, efforts to keep energy costs low for consumers can destabilize the industry, with detrimental consequences for coal-field development.

External costs can be borne by the private sector, and lead to higher costs to consumers or lower profits for producers, or they can be borne by coal-field communities and workers, in the form of increased expenses for local infrastructure and services, or greater health hazards, environmental degradation, and periodic unemployment. If most external costs are borne by the communities and workers, local development efforts are undermined.[10] However, if the costs are borne by the private sector, a region's coal may become less competitive in national and world markets, costing workers their jobs.

In the absence of clear national energy or development policy, these trade-offs are negotiated in different forums and contexts, without an overall perspective guiding policy makers at the state and local levels.[11] The underlying assumptions are that cheap energy benefits the nation and that competition among energy producers ensures cheap energy. The balance of costs and benefits that would enhance development in the coal fields receives little attention from federal or state policy makers. No local government or any single coal company has the power to change the way costs and benefits are allocated. If a local government raises coal taxes or increases coal regulations, it raises the cost of doing business. Elected officials have no way of knowing how likely disinvestment is, so they are reluctant to take action. A coal company that donated significantly more than required by law to local development would be adding to

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[10]This discussion does not address the important external cost to areas where coal is burned without adequate pollution controls. While the issue is not directly related to costs paid by coal-field communities, it does affect the demand for coal and its price. This relationship is explored in Curtis Seltzer, The Coal Industry after 1970: Cost Internalization, Good Works, and Planning for Future Development (Berea, KY: MACED, 1986), another volume in this series.

[11]Another consequence of the lack of a national energy policy and an economic development policy is that the coal fields and coal industry are affected in an uncoordinated way by national and state policies toward the railroads, utilities, and environment. See Seltzer, The Coal Industry After 1970.

its production costs while its competition did not.[12] Either its profits or its ability to compete would be negatively impacted.

Spokesmen argue that the coal industry is overburdened with social and environmental costs; competition prevents the industry from adding to those costs to improve the quality of life in the coal fields. Jack Katlic, coal purchaser for American Electric Power, put it this way:

> . . . American coals are carrying the social responsibility that no place else in the world carries. Now there are a lot [of people] in this country who think we should do more. But I want to tell you, compared to the rest of the world, we're saints. And from that standpoint, though, we're not competitive. We are performing on a world basis on a higher social level than any industry, but we can't sell our product because of it.[13]

Tom Duncan, President of the Kentucky Coal Association, made the same point:

> It is a world energy market. The companies that are in it are world players to a large extent. One of our problems in competing with Colombia and South Africa--not that they can mine coal any better than we can or that they have any better coal--it's that their labor costs are lower. They don't have the same environmental and safety regulations.[14]

Policy makers often agree. For example, in recent testimony before the U.S. Senate Subcommittee for Natural Resources, Kentucky Senator Wendell Ford and Kentucky Secretary of Natural Resources Charlotte Baldwin both argued that "it is the general public that benefits" from environmental protection, and an overburdened coal industry facing world competition cannot absorb increased surface-mining regulation costs.[15] When Congressman Hal Rogers introduced

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[12]See Seltzer, The Coal Industry After 1970.

[13]See MACED, Industry Perspective on Development: Transcripts of Interviews With Coal Industry Leaders (Berea, KY: MACED, 1986), p. 227. Future references to interviews in this volume will cite specific coal company or organization and interviewee only.

[14]Kentucky Coal Association, Thomas Duncan, p. 369.

[15]See "Federal Proposals Threaten Industry," Kentucky Coal Journal, August, 1985. Secretary Baldwin said, "Ask any coal producer about the primacy program and they will tell you not about the benefits of regulation, but about the sacrifices they have made to mine coal in an environmentally acceptable manner."

legislation to eliminate a 15 percent cut in the depletion allowances available to coal and iron ore in 1983, he said:

> We already have huge piles of coal sitting on the ground. Equipment is lying idle. Coal operators already have their backs against the wall. The last thing in the world we need is another tax "increase" [through a cut in the depletion allowance] like this one.[16]

Competition in the coal industry has been strong for over a century. Coal operators have felt and still feel they "have their backs against the wall." Although the influence of larger companies has increased, coal producers continue to face stiff competition. They compete not only with foreign coal operators, including domestic companies producing coal in foreign countries, but also with other fuels such as oil and gas, and in some areas, nuclear power. This international and inter-fuel competition puts coal-dependent states and communities in a difficult position.

Most coal executives recognize that intense competition in their industry limits community improvements. For example, Jack Katlic observed:

> I think the states and the local governments have been fairly sensitive that coal is the only thing they've got. . . . Are you getting your money back commensurate with the amount of damage being done? Then you have to watch, because if you tax too heavily then they don't sell their coal.[17]

Westmoreland Coal's Brinley said:

> I think the ups and downs of the industry, as witnessed in the last three or four years, raise a question as to what kind of fixed costs a community can build up. Or what kind of commitments it can make into the future.[18]

Many public officials also feel these constraints. In discussions about environmental damage in coal areas, a high-level Kentucky

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[16]Quoted in The Hazard Herald Voice, June 23, 1983.

[17]American Electric Power, Jack Katlic, p. 224.

[18]Westmoreland, Charles Brinley, p. 204.

official recognized that current policies force some residents to choose between jobs and clean water:

> And even in eastern Kentucky, people are saying "we don't want coal to go away, we just don't want our water taken from us . . ." If they have a job, if worse comes to worst, they can drive into town and get a bottle of water while they fight to get their water restored. It's a tough situation.[19]

One eastern Kentucky water system manager sees dirty water as the inevitable cost communities pay for coal mining:

> There's some water, some houses up there, that have got wells that, I'm not kidding, the water comes out mud. I mean I'm talking stuff that is stringy mud, and it is because of the injection from this coal mine. Coal mines are a problem. I don't want to cut the coal industry because it is the lifeblood of the area. There are some problems with coal mining. It's just a natural thing. You dig coal, you are going to have problems. And that is nothing against the coal companies, because I would say 90 percent are doing everything they can to protect everything. It's just a fact of life. My grandfather was in mining. But, I'm sorry, you just rape the land. There's nothing you can do. You need it to burn energy for New York City . . .[20]

Another coal-field native, formerly a public official with responsibility for environmental protection, expresses the same sentiment:

> My dad was a coal miner. Two of my dad's brothers were killed in a mine. Another one was crippled up. I've never worked in the mines. Don't have any desire to. But I sure as hell would rather see my relatives working in the mine than to see them on welfare. I don't want to see them kill the industry.[21]

People throughout the Central Appalachian coal states, citizens as well as officials, feel trapped by their dependency upon this volatile extractive industry with its high environmental costs and highly

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[19]MACED interview, source requested anonymity.

[20]MACED interview, Rob Nicholas, Water Resources Assistance Corporation, Big Sandy Area Development District, 1984.

[21]MACED interview, source requested anonymity.

competitive world markets. They need the jobs provided by coal. To keep their own end of the industry competitive, communities absorb more health and environmental costs and forego increased tax revenue, and workers accept periodic unemployment.

Consequently, many coal communities give up the very public tools for reinvestment that could make private sector growth more developmental.[22] Public officials feel they cannot raise taxes on coal companies, and many do not support strong enforcement of environmental regulations. Efforts to enhance the public reinvestment process appear limited by competition. The perception is that growth in coal, despite its problems, is the region's only hope. For almost a century, public officials have sponsored government policies to promote growth in the industry as a strategy for regional development.

MACED's research suggests attitudes and circumstances underlying these policies may be changing. But the process is slow because promotional policies have been shaped by the region's political and economic history. Policy makers adhered to these policies even though numerous government and academic analysts argued that the industry's instability and lack of linkages made it an unreliable base for economic development.

Promotion of Coal and Persistent Regional Underdevelopment 1870-1960

Promotional policies in Central Appalachian states began with the discovery of vast coal reserves at the turn of the century.[23] As the national economy expanded following the Civil War, governors and legislators in Kentucky and West Virginia saw coal as their mountain region's key to becoming integrated into the nation's

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[22]Natural resource specialists and international economic development scholars generally agree that increasingly capital intensive mineral extraction contributes to economic development to the extent that "host" countries or territories extract royalties and taxes for reinvestment. (See S. Sideri and S. Johns, eds., Mining for Development in the Third World: Multinational Corporations, State Enterprises and the International Economy [New York: Pergamon Press, 1980] for a summary of mineral development studies, and Albert O. Hirschman, "A Generalized Linkage Approach to Development, with Special Reference to Staples" in Manning Nash, ed., Essays on Economic Development and Cultural Change in Honor of Bert F. Hoselitz [Chicago: The University of Chicago Press, 1977]).

[23]Central Appalachian statesmen were not unique in their promotional endeavors: state policy makers throughout the nation used public policy to encourage and assist private industry in order to stimulate local development. See Louis Hartz, Economic Policy and Democratic Thought: Pennsylvania, 1776-1860 (Cambridge, MA: Harvard University Press, 1948); Paul J. McNulty, "The Public Side of Private Enterprise: An Historical Perspective on American Business and Government," Columbia Journal of World Business (Winter, 1978); and George Sternleib and David Listokin, New Tools for Economic Development: The Enterprise Zone, Development Bank and RFC (New Brunswick, NJ: Center for Urban Policy Research, 1981).

industrial economy.[24] State leaders actively promoted their coal wealth in northeastern cities and abroad, hoping to attract capital investors and an industrial labor force. Kentucky's governor urged the 1869 legislature to look abroad for labor and for capital, "to increase our population and develop our industrial and mineral wealth."[25] A 1906 issue of the Manufacturers Record, a prominent business journal of the period, summed up West Virginia's promotional activity, reporting:

> [T]he entire machinery of state government has been used to attract capital to the state to develop its railroads, its coal, and its timber interests.[26]

These efforts were successful in attracting investors and railroad companies to the mountains for coal and timber development.

During the late 1800s, at the same time that poverty and isolation in Appalachia attracted the attention of national media and missionaries,[27] coal mining began to transform the area from a subsistence farm economy into an industrial coal economy. The availability of even intermittent employment in coal mines enabled many Appalachian families to remain who otherwise would have emigrated in search of new economic opportunities.[28] Between 1870 and 1910 annual coal production in Kentucky alone rose from 282,000 tons to 14,740,000 tons (see Figure 1). West Virginia production increased from 608,878 tons in 1870 to 59,270,000 tons in 1910 (see Figure 2). Production was labor intensive, employing hundreds of thousands of miners.

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[24]Alan Banks, "Labor and the Development of Industrial Capitalism in Eastern Kentucky, 1879-1930," Ph.D. Dissertation, McMaster University, Ontario, Canada, 1979; Simon, 1981; and Ronald D. Eller, Miners, Millhands, and Mountaineers: Industrialization of the Appalachian South, 1880-1930 (Knoxville, TN: University of Tennessee Press, 1982).

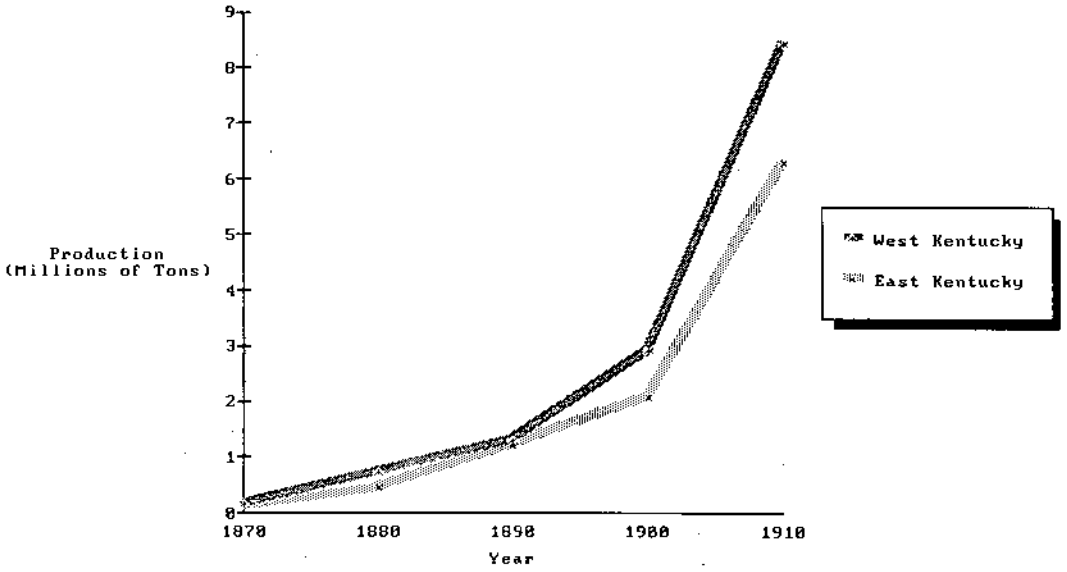
[25]Quoted in Banks, 1979, p. 58.

[26]Quoted in Eller, 1982, p. 47.

[27]See David Walls, "Central Appalachia in Advanced Capitalism: Its Coal Industry Structure and Coal Operator Associations," Ph.D. Dissertation, University of Kentucky, Lexington, KY, for a description of the "local color writers" and missionaries who became fascinated with Appalachia as a romantic and seemingly "backward" area during this period.

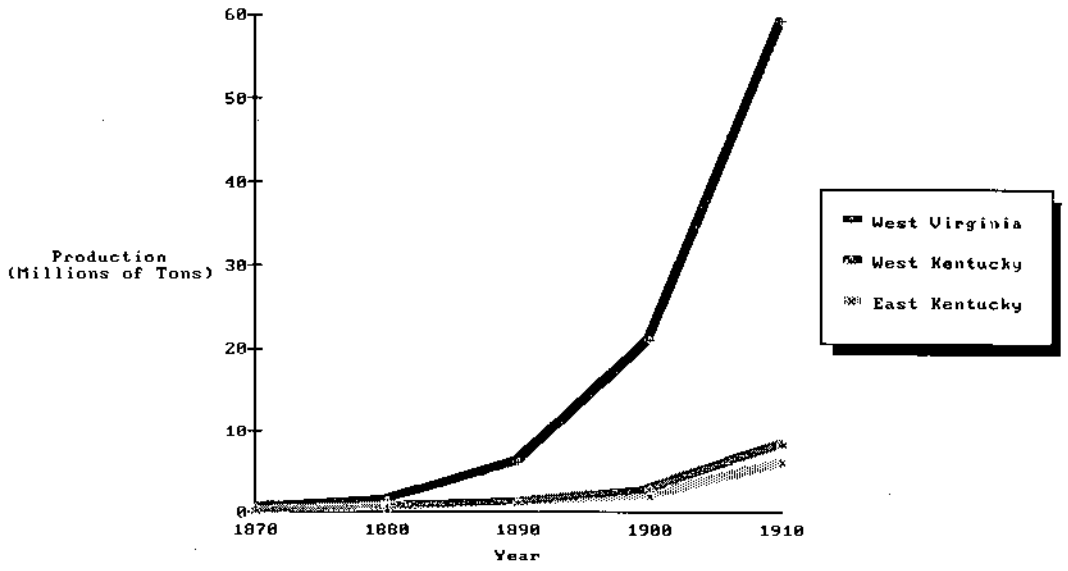
[28]United States Department of Agriculture (U.S.D.A.), Economic and Social Problems and Conditions of the Southern Appalachians, Miscellaneous Publication No. 205 (Washington, D.C.: U.S. Government Printing Office, January, 1935).

Figure 1. Coal Production in West and East Kentucky, 1870-1910



See Appendix 3 for Sources.

Figure 2. Coal Production in West Virginia and East and West Kentucky, 1870-1910



See Appendix 3 for Sources.

Production continued to rise over the next decade, and with it population grew in the coal-producing counties of eastern Kentucky and southwestern West Virginia. The period between 1870 and 1920 was the "golden age of coal." Coal resources were widespread, and mining required little capital investment. Entrepreneurs, mostly from outside the mountains, opened new coal mines for expanding Northeastern and Midwestern markets.[29]

In these early decades coal states were optimistic about coal's contribution to development. Public and private leaders throughout Appalachia expected expansion in the coal industry to usher in regional prosperity. In 1908, the editor of the Manufacturers Record exuded optimism:

> There is probably no other area of its size on earth capable of furnishing so broad a foundation for the support of a dense population under the most advantageous conditions of health and comfort and for the creation of wealth.[30]

Progress for the poor mountain region seemed imminent. In 1913, the Manufacturers Record criticized a local Kentucky paper's suggestion that outside investors were exploiting rather than developing the region:

> They [outside investors] have been turning these mountains, largely inhabited by an undeveloped and uneducated people who, because of the lack of employment, have been stagnant for generations, into centers of activity and life and civilization's progress.[31]

Despite these expectations, conditions in the coal fields represented a dismal example of "civilization's progress" for miners and their families. Even during years when production and markets were expanding for the industry as a whole, coal companies faced tight competition. Many mines were opened in remote, mountainous areas, and the mine operator had to build and maintain facilities to house his work force. Profitable mining during the period was only possible if costs were kept to an absolute minimum, which meant low wages for labor and minimal investments in coal camp infrastructure.

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[29] See Eller, 1982.

[30] Quoted in Eller, 1982, p. 131.

[31] Manufacturers Record, "Development or Exploitation," Vol. 63 (April 17, 1913), p. 52.

Many operators molded their company towns, as they did their mining operations, to increase their control and their profits.[32] Following World War I, when corporations in diverse industries experimented with forms of welfare capitalism,[33] there were scattered examples of "model" company towns built by larger companies. These companies provided good community facilities to improve the quality of employee life, expecting the investment to prevent unionism and stimulate better work performance. For example, Lewis Williams writes that Inland Steel invested in Wheelwright, Kentucky:

> . . . [N]ot in the futile hope of gratitude, but out of the sober conviction: That doing everything possible to make a wholesome, attractive community would prove to be thoroughly "good business."[34]

The Wheelwrights, of course, were exceptions among coal company towns. Wheelwright itself was made possible by Inland Steel's captive markets for its own steel mills, which sheltered the company from the competition most coal companies faced. For the great majority of producers, competition was perpetual and fierce, and when coal markets shrank, company-financed towns were squeezed further and miners faced more layoffs. Companies survived by cutting wages, in effect forcing more of the production costs on workers and communities.[35] Business conditions were so bad that, in some cases, coal companies made their only profits in company stores.[36] Miners' efforts to supplement their meager wages by planting gardens or keeping small livestock were thwarted in most

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[32]Curtis Seltzer, Fire in the Hole: Miners and Managers in the American Coal Industry (Lexington, KY: The University Press of Kentucky, 1985).

[33]For example, see Marlene H. Rikard, "An Experiment in Welfare Capitalism: The Health Care Services of the Tennessee Coal, Iron and Railroad Company," Ph. D. Dissertation, University of Alabama, Birmingham, AL, 1983.

[34]Lewis M. Williams, "Transformation of a Coal Mining Town," Mining Congress Journal, 29 (1943), pp. 93-94.

[35]Several of the coal executives interviewed in this project acknowledged that in the past coal companies explicitly discouraged economic diversification. Only one of the executives interviewed still regarded diversification as a disadvantage to the industry. All the others supported it. In general, those interviewed observed that, by and large, coal operators had not been responsible public citizens in coal's first century (see MACED, Industry Perspective).

[36]Simon, 1981.

areas because coal companies owned the wooded lands surrounding coal camps.[37] Local economies were wholly dependent upon the volatile coal industry, and neither private entrepreneurship nor public infrastructure could develop in this setting.[38] Overall, coal-town residents had limited freedom and resources to improve local conditions, and there was neither incentive nor margin for company-sponsored community improvements. Chronic poverty prevailed in the region.

Resource economists generally agree that natural resources stimulate regional development to the extent that they link the region with the national economy and build internal regional markets.[39] Most regional economists who have applied these criteria to the Appalachian coal industry have concluded that coal does not measure up. First, the industry does not "build internal regional markets" because raw coal is exported with little value added. Secondly, fierce competition in the bituminous coal industry has prevented the development of a stable economy. Since coal reserves were geologically dispersed, easily accessible, and required relatively little capital to mine, there was constant overcapacity and overproduction. Throughout the early 1900s, coal operators in the northern, central, and southern coal-producing regions vied for markets provided by railroad, steel, and other large industrial customers. These powerful monopolistic industries played coal operators against each other.[40]

Such tactics were legitimized by a national commitment to industrialization, and the notion that cheap energy was crucial to national

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[37]U.S.D.A., 1935, p. 9.

[38]Simon, 1981; and see Benjamin Chinitz, "Contrasts in Agglomeration: New York and Pittsburgh," American Economic Review, 51 (1961), pp. 279-89.

[39]Harvey Perloff and Lowdon Wingo, Jr., "Natural Resource Endowment and Regional Economic Growth," in J.J. Spengler, ed., Natural Resources and Economic Growth (Washington, D.C.: Resources for the Future, 1961).

[40]See Simon, 1981. Jack Katlic of American Electric Power commented, "Coal gets branded as one of the big guys. You remember back--the cigar-smoking stogy guys out of Pittsburgh. Steel, coal, railroads. . . . there were some big guys in there. But coal was always at the mercy of these other guys. . . . You needed somebody to take your coal." (See American Electric Power, Jack Katlic, pp. 224-25.)

growth.[41] From the vantage point of today's consensus about industrial responsibility, we can say that coal-field communities effectively subsidized cheap energy for the Northeast and Midwest. Excessive competition kept workers and communities from forcing the coal industry to pay its full costs of production. West Virginia economist William Miernyk wrote that, while competition benefited consumers by providing cheap energy to fuel urbanization, railroad development, and cheaper consumer goods, the costs of "aggressive competition" were severe for miners and their families:

> The blessings of cheap coal were less obvious to the men who mined it. Constant downward pressure on wages--and the ever present threat of unemployment in a highly unstable industry--meant lives of grinding poverty for many coal miners and their families. It also resulted in minimal expenditures on health and safety measures by the operators in the most hazardous occupation of the industrial age.[42]

Even as early as the 1920s, national policy makers were aware of extremely poor conditions in the coal fields. The Coal Commission appointed by President Warren Harding reported in 1925 that "the fundamental evils" of the soft coal industry were "overdevelopment, irregularity of operation, and consequent enforced idleness of miners and invested capital".[43] Twenty-two years later, when Justice William Douglas wrote the Supreme Court opinion on the constitutionality of the National Bituminous Coal Act in 1937, he remarked that the coal industry was set up so that:

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[41]Krutilla and Fisher point out that, "In the United States, energy commodities and services have been priced substantially below their full social costs. A national belief that intensive use of energy was a sine qua non of economic development led to preferential tax treatment for energy and mineral commodities and subsidy of energy commodities and related services, such as transmission, by public agencies." See John V. Krutilla and Anthony C. Fisher, Economic and Fiscal Impacts of Coal Development: Northern Great Plains (Baltimore, MD: Johns Hopkins University Press for Resources for the Future, 1978), p. 3.

[42]William Miernyk, Coal: Problems and Prospects in the 1980s, Reprint Series X, No. 19 (Morgantown, WV: Regional Research Institute, West Virginia University, 1979), p. 8.

[43]Quoted in Lee Balliett, "A Pleasing Tho Dreadful Sight: Social and Economic Impacts of Coal Production in the Eastern Coalfields." A report to the Office of Technology Assessment, U.S. Congress (1978), p. 28.

> Labor and capital alike were the victims. Financial distress among the operators and acute poverty among miners prevailed during periods of general prosperity.[44]

In 1935, U.S. Department of Agriculture researchers had reported that coal was not a developmental resource for the region. Setting the tone for many regional economic studies that followed, they cited intermittent demand, heavy competition among coal producers, and the fact that the resource offered virtually no secondary industry spin-offs. Although coal production drew thousands of families into the region and discouraged the emigration of thousands more by offering off-farm work, U.S.D.A. concluded:

> On the whole, the development of coal mining has not made for a satisfactory economic organization. The coal-mining camps, usually erected and owned by the owners of the mines, have often been unwholesome. The work in the mines has usually been irregular, and even before the present economic depression most mines were closed from one to several months each year.[45]

The report predicted slow growth in the industry, despite substantial reserves, because coal consumption was not increasing following World War I and gains in mining productivity were reducing the need for more miners. In 1943 the Bureau of Labor analyzed economic conditions in western Kentucky coal counties, and its report also concluded that coal offered little developmental potential.[46]

Coal production and employment in Kentucky and West Virginia were erratic over the next decades but generally followed an upward trend except during the depression years (see Figure 3 for Kentucky and West Virginia coal production). Demand and price controls during World War II brought some temporary stability to the industry. Following World War II, coal production dropped again as railroads, utilities, and many industries shifted from coal to oil and natural gas. Employment declined dramatically in the 1950s, and both labor and management regarded the industry as chaotic. Constant over-capacity and overproduction kept profits tight and contributed to

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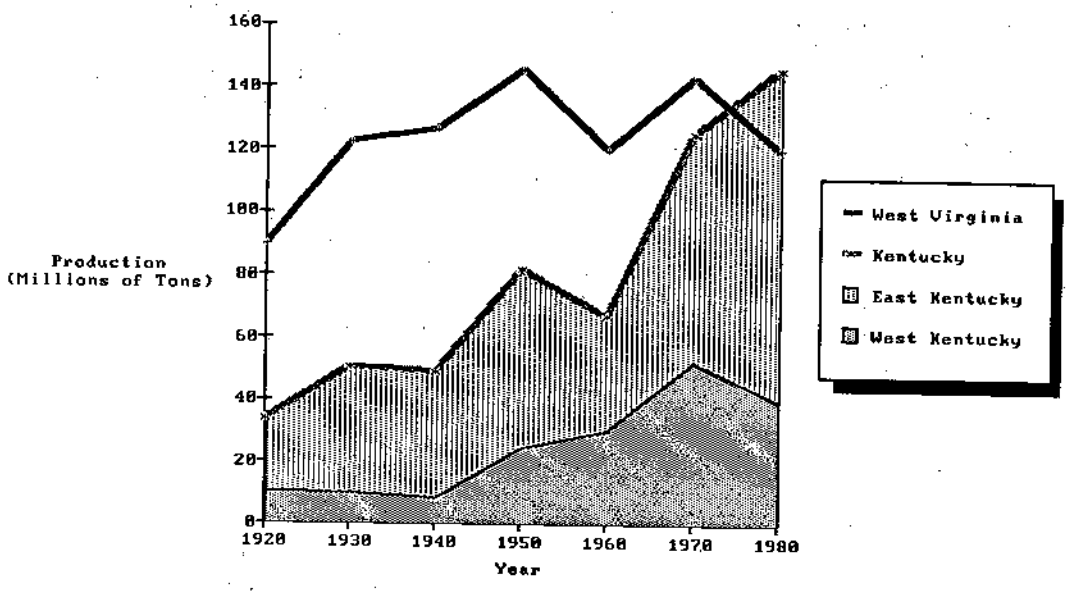
[44]Quoted in Balliett, 1978, p.28.

[45]U.S.D.A., 1935, p. 40.

[46]Bureau of Labor Statistics, Recent Economic Developments in Five Western Kentucky Counties: Butler, Hopkins, McLean, Muhlenberg, and Ohio (Washington, D.C.: Employment and Occupational Outlook Branch, Postwar Division, U.S. Department of Labor, 1943).

persistent labor problems. Both coal management and labor began to see mechanization of the mines as the best way to achieve stable production and employment.

Figure 3. Coal Production in Kentucky and West Virginia, 1920-1980



See Appendix 3 for Sources.

Note: Some experts estimate that an additional unreported 5.2 million tons were produced in Kentucky in 1920 (see Currens and Smith, Coal Production in Kentucky, 1790-1975, 1977).

In 1950 two industry leaders took steps to address these chronic problems of overproduction and instability. John Lewis of the United Mine Workers and George Love, representing the largest producers, signed an industry-wide collective bargaining contract.[47] The contract raised wages, facilitated more capital-intensive operations, and forced many marginal producers out of business. Energy analyst James Ridgeway concluded that the contract had the desired effect: it "brought an end to chaos in the coal business, and allowed for a decade of orderly growth and reorganization . . . ."[48] Sudden mechanization

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[47]The United Mine Workers represented about 80 percent of all coal miners. Before 1950 the UMWA had negotiated with three separate groups of operators.

[48]Quoted in Miernyk, 1980, p. 25.

precipitated massive unemployment in the coal fields. Coal employment in eastern Kentucky declined from 60,000 in 1949 to 27,000 in 1954.[49] Between 1950 and 1960 over a million and a half people emigrated from Central Appalachia, and most of those who remained lived in deep poverty.[50]

Although profits increased for those large coal producers which could mechanize during this low-demand period, the depression in coal-field communities deepened. Some western European nations developed programs to assist miners made redundant by technological change, but the U.S. did not.[51] Individuals, families, and communities in the coal fields absorbed the costs of these adjustments. In their extensive study of the eastern Kentucky mountain region during this depression, Bowman and Haynes made the wry observation that:

> Progress, like adaptability, is undoubtedly a good thing, and East Kentucky could benefit from a lot more of it. Yet the most undebatable evidence of progress in the coal industry, which is the rise in efficiency, especially in the large mines, is causing plenty of trouble.[52]

They could envision no way that the industry would bring real developmental opportunities to the region:

> The problems of the East Kentucky coal industry were born when the industry was born. The people who came into the coal field in the years 1910 to 1930 linked their fates and those of their children to an unstable industry that offered little else.[53]

When poverty in Appalachia attracted national attention in the 1960s, the Appalachian Regional Commission (ARC) was established to bypass the coal industry and bring development through diversifi-

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[49]Mary Jean Bowman and W. Warren Haynes, Resources and People of East Kentucky: Problems and Potentials of a Lagging Region (Baltimore, MD: Johns Hopkins Press, 1963), p. 245.

[50]James Brown, "Migration: Take It or Leave It," in David S. Walls and John B. Stephenson, eds., Appalachia in the Sixties: Decade of Reawakening (Lexington, KY: University Press of Kentucky; 1972), pp. 130-44.

[51]Seltzer, 1985.

[52]Bowman and Haynes, 1963, p. 431.

[53]Bowman and Haynes, 1963, pp. 435-436.

cation.[54] Early planning documents explained that the "natural development process" had failed to occur with coal production because "the wealth from exploiting natural resources left the region" and "investments in the community economy and social system were never made."[55]

During the 1970s regional economists conducted economic studies that demonstrated coal's failure to stimulate much other economic activity: the industry lacks multipliers and linkages in the regional economy,[56] and when profits are earned in the industry, that capital is invested largely outside the region.[57] In other words, even if coal production were steady and profitable, the industry acts independently of other businesses in the area, mostly buying supplies outside the region and selling its products outside the region, so the coal fields would not benefit from linkages and multipliers. The places where mining occurs are like outposts of production rather than economic centers. Pagoulatos and Anschel summed up the implications of their findings:

> The area is dominated by an industry which both is unstable and has weak linkages with the remainder of the economy. . . . Although employment and salaries can be expected to increase as a result of growth in the coal industry, little secondary growth is likely to occur.[58]

Like Bowman and Haynes before them, they recommended policy to stimulate economic development by diversifying into manufacturing. Most regional economists have not been able to envision a way for coal production to be a springboard for future development.

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[54]In the late 1970s ARC began several projects to promote coal markets and assist the industry as part of a development strategy, but these efforts were "too little, too late," and, of course, suffer the same drawbacks as state efforts to promote the industry.

[55]Monroe Newman, The Political Economy of Appalachia (Lexington, MA: D.C. Heath and Company, 1972), pp. 30-31.

[56]Angelos Pagoulatos and Kurt R. Anschel, "An I-O Study of the Economic Structure of Appalachian Kentucky," Growth and Change, 12, No. 4 (October, 1981) pp. 2-8.

[57]Nasser Sherafat et. al., "The Exploitation of Coal as an Engine for Growth in Eastern Kentucky--An Input-Output Study," Southern Journal of Agricultural Economics, 10, No. 2 (1973) pp. 81-86.

[58]Pagoulatos and Anschel, 1981, pp. 3-7.

The reinvestment process necessary for developmental progress in Central Appalachia failed to occur throughout the period between 1890 and 1960. Instability and overcapacity in the industry put a limit on how much taxation and regulation could be imposed on coal companies, even if there had been the public consensus that coal should absorb more external costs and share more benefits.[59] Local workers earned low wages and faced constant periods of unemployment. There was little foundation for building a local economy.

Fierce competition, industrial strife, and an absence of public development policy left a legacy of underdeveloped social infrastructure and a legacy of distrust between coal management, workers, and communities. Both legacies have exacerbated Appalachian development problems and have hindered efforts to formulate policies to address them.

Despite their history of underdevelopment and despite economic studies that have advocated diversification and public investment policies, Central Appalachian coal states consistently have promoted growth in the coal industry as their primary development strategy. The current governors of both West Virginia and Kentucky made campaign promises that their administrations would "serve" the coal industry as well as the public. Politicians and citizens alike assume that serving the coal industry serves the people in the coal fields--that if coal is healthy, these communities will be healthy.

Promotional policies persist in the Appalachian coal states for several reasons. First, and most importantly, it is easier to emphasize the importance of diversification than to implement the strategy. Isolation, mountainous terrain, and undeveloped physical and social infrastructure make industrial attraction very difficult. The quality of roads and schools in the eastern Kentucky and southern West Virginia coal fields lags far behind the rest of the nation. As the quality of life becomes a more important criterion for plant location, Central Appalachian communities that have never developed local facilities as much as other areas in the U.S. fall further down on the lists of industrial location decision makers.

Secondly, the coal industry has played a powerful role in state politics,[60] and the shape of coal policies was established before Americans expected companies to assume external environmental and

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[59] In the early 1960s Bowman and Haynes reviewed environmental problems coal brought to East Kentucky, and concluded, "Coal has most decidedly not paid its way in meeting social costs, private profits or losses aside." (1963, p. 246).

[60] See Marc Karnis Landy, The Politics of Environmental Reform: Controlling Kentucky Strip Mining (Washington, D.C.: Resources for the Future, 1976).

social costs.[61] Since coal-field residents believe they have no economic alternative, there appears to be a broad constituency in the region for policies that keep costs to the industry low and promote new markets for coal.[62]

Furthermore, even though coal has not brought development to the mountains, the industry is nonetheless vital to both the public and private sector in Central Appalachian states. Coal is the largest single industry in both Kentucky and West Virginia. In Kentucky, coal directly generates around 8 percent of earned income, about 4 percent of the employment, and 8 percent of the state's tax revenues. In the eastern region, coal provides almost 18 percent of the insured employment and about 17 percent of nonagricultural wage and salary income. In 1984, West Virginia coal accounted for around 7 percent of employment and 14 percent of wages. In many coal-field counties over half the employment and income is from the coal industry. As coal-field residents say time and time again, "Coal is all we have." As a result, policies that are good for the industry and facilitate more coal production at low cost appear to be good for the state and the coal-producing regions.

Therefore, when the Arab oil embargo prompted large increases in coal demand in the mid-1970s, Central Appalachian politicians and coal industry leaders again advocated promotional policies toward coal. Problems of underdevelopment in the past were blamed on inadequate demand for coal. They argued that adequate demand for coal would bring growth in sales, profits, jobs, and income, improving conditions in the Appalachian region. In Kentucky, coal was dubbed the state's "ace in the hole." As one Kentucky state legislator later expressed it:

> Make the industry more competitive . . . and there will be more jobs, more people with income who will be paying taxes, more people who will be buying more and paying

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[61]Western states devised far more stringent conditions under which mining could occur during the 1970s, with the explicit goal of ensuring that mining contributed to local economic development. (See Cynthia L. Duncan, "Capital and the State in Regional Economic Development: The Case of the Coal Industry in Central Appalachia," Ph.D. Dissertation, University of Kentucky, Lexington, KY, 1985.)

[62]Interestingly, however, in a statewide poll by the University of Kentucky Survey Research Center in the fall of 1984, 70 percent of the respondents favored an increase in the severance tax to fund improvements in coal-county roads, schools and water systems, 81 percent favored "stepped up enforcement of existing laws and regulations to prevent mining from damaging coal areas." Only 30 percent believed that "there should be no change in laws or policies because changes might mean the loss of coal mining jobs." Responses differed little between regions. The implications of these results are discussed in the conclusion of this report.

> more sales tax, and there will be more coal produced, increasing the dollars already being generated by the coal severance tax.[63]

As in the past, legislators, with few exceptions, proposed policies that promoted coal production and minimized regulatory costs to the industry. In 1981, Kentucky's Speaker of the House said:

> We have adopted a policy of expansion and development for our coal industry. We should now find ways to assist, promote and improve that industry.[64]

For over a century most Kentuckians appear to have accepted the idea that the state government and local officials responsible for public well-being in the coal fields should promote the coal industry. With few exceptions, the assumption has been that the industry cannot absorb more costs, either in the form of greater regulatory costs or higher taxes, because it faces tough competition. Kentucky has put all its eggs in the "growth of the industry" basket.

Between 1960 and 1980, production, employment, and prices in the Kentucky coal industry increased dramatically. This expansion provides an opportunity to examine the expectation that growth in the coal industry automatically will bring developmental improvements to the coal fields. What was the effect of this growth in the industry? Did expansion in the coal industry improve the quality of life? Can we depend upon growth in the coal industry to bring improvements to the coal fields?

The following section is a Kentucky case study analysis that directly examines the fundamental premise underlying Central Appalachian policy toward coal and the coal fields. Economic growth and developmental change are compared in coal and noncoal counties of nonmetropolitan Kentucky, using socioeconomic indicators for 1960 and 1980.

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[63]Representative Elmer E. Patrick, "Unmined Minerals Tax--It's 'Absurd'," Kentucky Coal Journal (February 9, 1984) p. 9.

[64]Speaker of the House William Kenton, quoted in the Kentucky Coal Journal, (November, 1981,) p. 7.

CHANGES IN NONMETROPOLITAN KENTUCKY, 1960-1980

Annual coal production in Appalachia increased almost 50 percent between 1960 and 1980, from 287,341,828 tons to 428,876,503 tons. Employment increased from 139,622 to 169,659, a rise of 22 percent. In Kentucky, production increased 118 percent, from 66,846,492 to 145,986,292 tons, and employment increased 68 percent, from 27,639 to 46,395. During the same period, the price of coal went from $4.69 per ton up to $24.52 per ton.[65]

In the late 1970s, optimism ran high throughout the coal industry. One coal executive described the euphoria of the mid-1970s as a feeling that "the sky is the limit."[66] Kentucky coal operators were as effusive as any: Kentucky Energy Secretary George Evans said the industry "went wild" after the Arab oil embargo.[67] Policy makers anticipated dramatically increased employment, income, and severance tax revenues. Finally, it seemed, the Kentucky coal fields would realize economic growth, and most people expected that growth to generate social improvements as well.

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[65]In constant 1972 dollars, the 1960 price was $6.83 per ton, and the 1980 price was $13.82 per ton. These are average prices for coal of various qualities and types.

[66]See AMAX, William Wahl, p. 180.

[67]George Evans, quoted in, "Coal Outlook Not as Bright as Statistics May Indicate," Lexington Herald-Leader, July 28, 1985.

This analysis examines whether that expectation was fulfilled. Conditions in coal counties are compared with conditions in rural[68] Kentucky counties that depend on the farm, manufacturing, and government sectors for income and employment. By analyzing growth and change over a 20-year period, we can begin to assess the developmental effect of growth in the coal industry. If growth in the coal industry is developmental for coal-field counties, we will see conditions in coal counties improve in proportion to income growth.

As background for this analysis, the following sections briefly review changes throughout rural Kentucky during this period.

Changes in the Economic Structure of Rural Kentucky

Changes occurred in the agriculture, manufacturing, and mining sectors between 1960 and 1980, both in rural Kentucky and in the rest of the nation. Generally, rural America shifted away from dependence upon agriculture, and, as more and more plants moved to rural areas, rural economies became more dependent upon manufacturing. The economic base of rural Kentucky followed this pattern, moving away from dependence upon agriculture and becoming more dependent upon manufacturing and mining income.

During the 20-year period between 1960 and 1980, manufacturing in Kentucky grew to the same proportion that it is in the nation, 26 percent of all earned income. Agriculture declined both nationwide and in Kentucky, and mining grew in both cases. In 1980, Kentucky still generated more income from agriculture and mining than the nation as a whole, and less from nongovernmental services, but in this respect as well, differences narrowed.

As shown in Figure 4, agriculture provided 9 percent of total earned income in Kentucky in 1960,[69] and 18 percent in rural counties; by 1980, agriculture contributed only 4 percent of earned income for Kentucky as a whole, and only 6 percent for the rural counties. Mining income as a proportion of earned income grew for Kentucky

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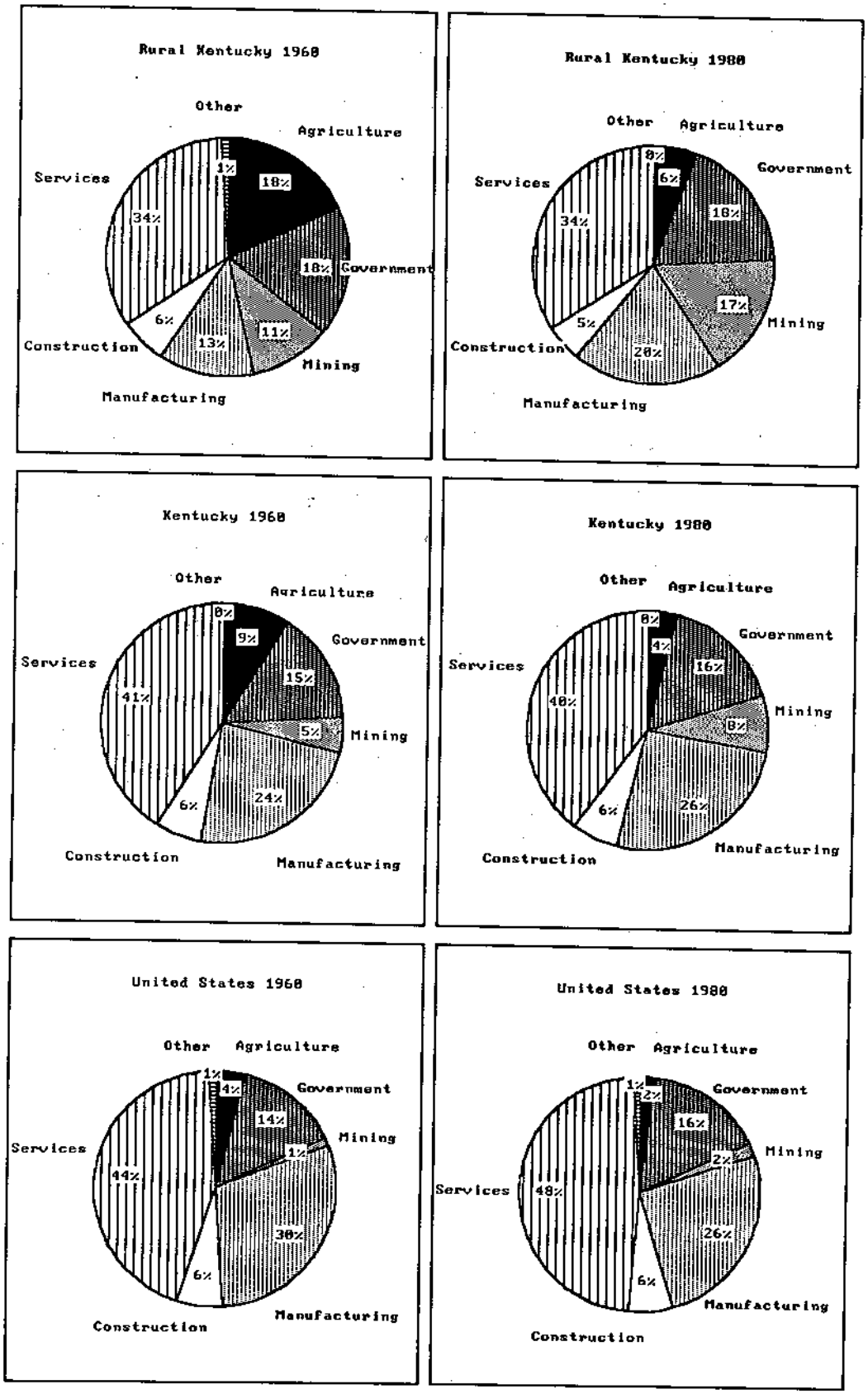
[68]Throughout this report "rural" and "nonmetropolitan" are used interchangeably to mean nonmetropolitan counties. These are the 103 counties which were considered nonmetropolitan in 1980. Following the 1980 Census, Carter County and Shelby County were designated metropolitan by the Federal Office of Management and Budget. However, consistent with the years which are the primary focus of this study, Carter and Shelby are treated as nonmetropolitan.

[69]Bureau of Economic Analysis data on income and employment by economic sector was gathered for 1959 rather than 1960. Therefore, in some cases the "1960" period is represented by 1959 data. Similarly, some Census data collected in 1960 or 1980 refers to income or employment conditions of the year preceding the Census year.

Figure 4. Distribution of Labor and Proprietor Income by Economic Sector, Rural Kentucky, Kentucky, and U.S., 1960 and 1980



See Appendix 3 for Sources.

as a whole from 1960 to 1980, but growth was more dramatic in the rural counties where it contributed 17 percent of earned income in 1980, up from 11 percent in 1960. Most of this growth was in the 1970s. The relative importance of manufacturing only grew from 24 percent to 26 percent for all Kentucky over this period, but the change was proportionately much greater in the rural counties--from 13 percent in 1960 to 20 percent in 1980. Most of that increase occurred in the decade of the 1960s when rural industrialization was in full swing nationwide. Income from employment in government and nongovernment services remained steady as a proportion of total earned income in rural Kentucky over the 20-year period, but it contributed slightly less as a percentage for Kentucky as a whole in 1980 than in 1960.

Overall Improvement in Rural Kentucky

Economic and social conditions throughout Kentucky have lagged behind the rest of the nation for decades. Map 1 indicates the extent to which rural Kentucky counties have been persistently poor and the extent to which poor counties are coal counties. Over one-third of all Kentucky counties were categorized by the U.S. Department of Agriculture as persistently poor between the 1950s and late 1970s.[70] Conditions in rural counties are still below national standards, but over the last 20 years there has been real improvement and, with the exception of educational achievement, differences have narrowed.

In 1960 over half the population in the rural counties of Kentucky lived in poverty, four-fifths of the adult population had not completed high school, and more than two-thirds of the houses lacked plumbing facilities. The quality of life for the majority of rural Kentuckians was far below national standards.

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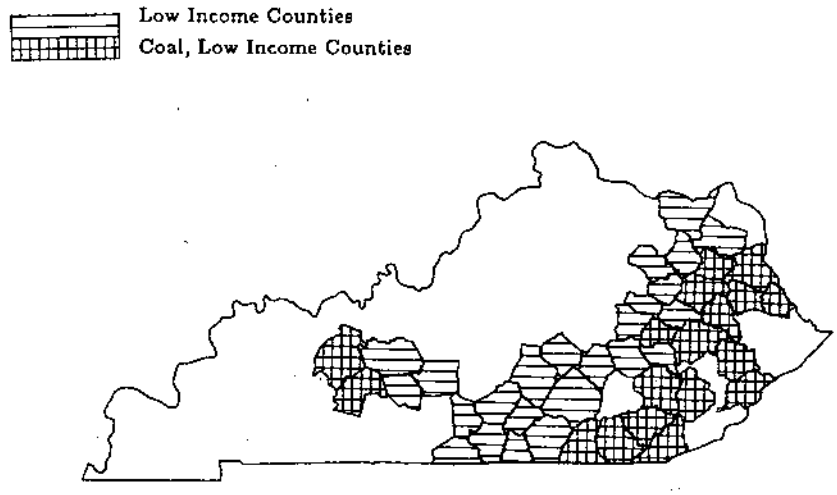
[70]The U.S. Department of Agriculture defines "persistently poor" counties as those which have been in the lowest quintile of per capita income from the 1950s to the later 1970s. See Thomas Davis, "Persistent Low-Income Counties in Nonmetro America," Rural Development Research Report No. 12 (Washington, D.C.: U.S.D.A., 1979).

Map 1. Persistently Low Income Nonmetropolitan Kentucky Counties



See Appendix 3 for Sources.

During the next two decades, however, there were dramatic changes. (Figures 5-7 present comparisons of economic and social conditions in Kentucky nonmetropolitan counties as a group with Kentucky, and the nation as a whole.) Incomes grew over 100 percent, at a greater rate than the nation overall. In 1959 per capita personal income in rural Kentucky was 51 percent of the national average, but by 1980 it had risen to 64 percent.[71]

These income changes were reflected in a general decrease in the poverty rate. Low income families made up about 54 percent of all families in rural Kentucky counties in 1959, two and one-half times the proportion in the nation, and almost one and one-half that in the state as a whole, including the metropolitan counties. By 1979, 27 percent of all rural Kentucky families were in a low income category, compared to 14 percent nationwide and 20 percent in the state as a whole.[72] Progress in housing conditions between 1960

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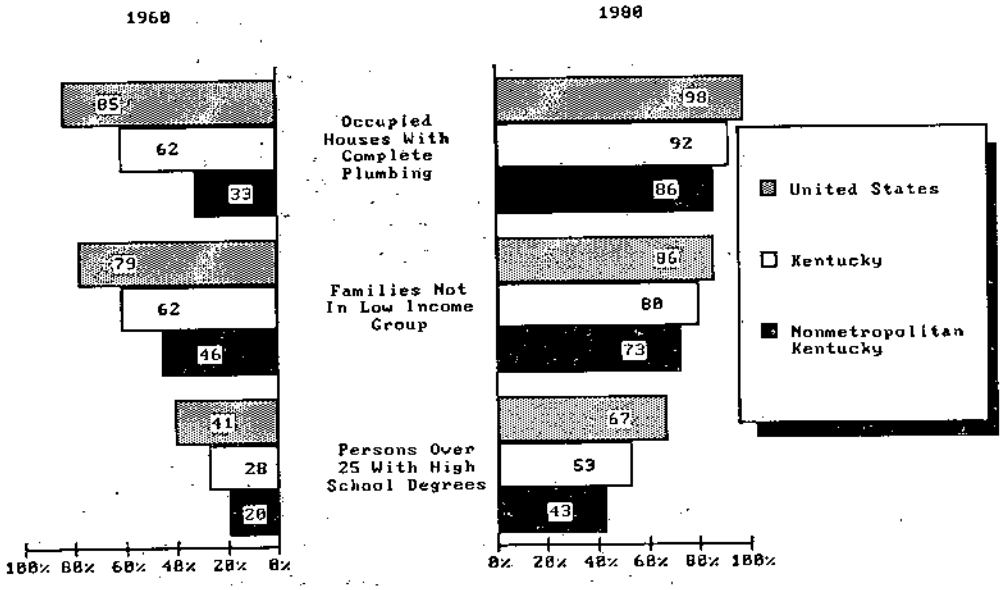
[71]Median family money income, which was 49 percent of the national level in 1959, had risen to 69 percent in 1979. The gap in median family income has narrowed in constant dollars as well as on a percentage basis, but the gap in per capita income actually widened in constant dollars.

[72]Low income families are used as a proxy for poverty in this study to ensure comparability between the two time periods. In constant 1972 dollars, the $3,000 level in 1960 is virtually the same as the $7,500 level in 1980. The difference between this measure and Census Bureau poverty figures is that poverty figures adjust for family size, while these low income figures do not. Family size does not vary significantly by economic base in Kentucky, however, so these low income figures are a good poverty measure for comparisons between the two time periods.

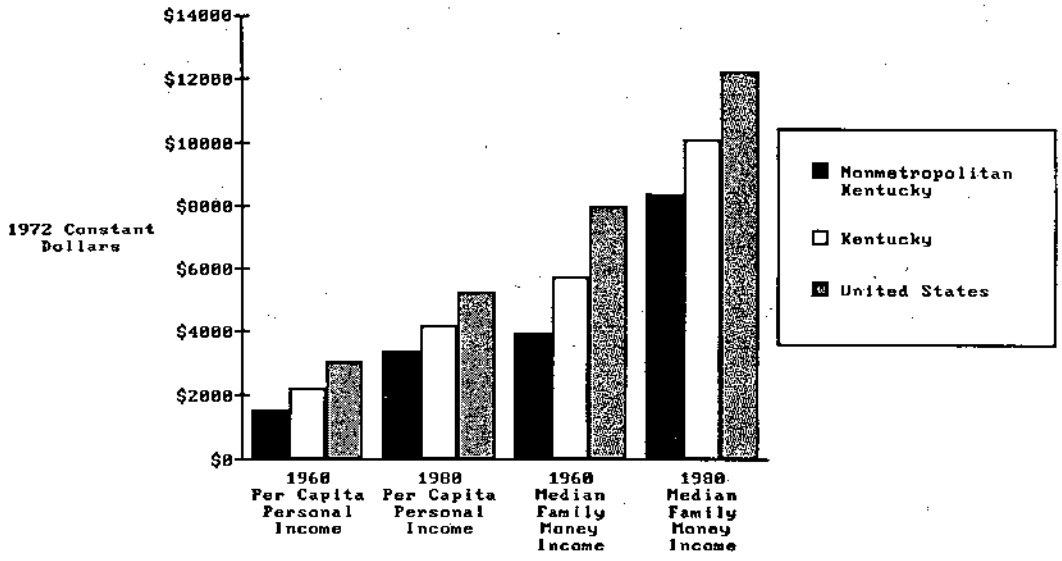
and 1980 was also dramatic. Only 33 percent of rural Kentucky houses had complete plumbing in 1960, compared to 86 percent in 1980. While rural Kentucky counties had only a third as many plumbed housing units as the nation in 1960, by 1980 rural Kentucky had reached 87 percent of the national figure.

Figure 5. Economic and Social Indicators for Nonmetropolitan Kentucky, Kentucky, and United States, 1960 and 1980



See Appendix 3 for Sources.

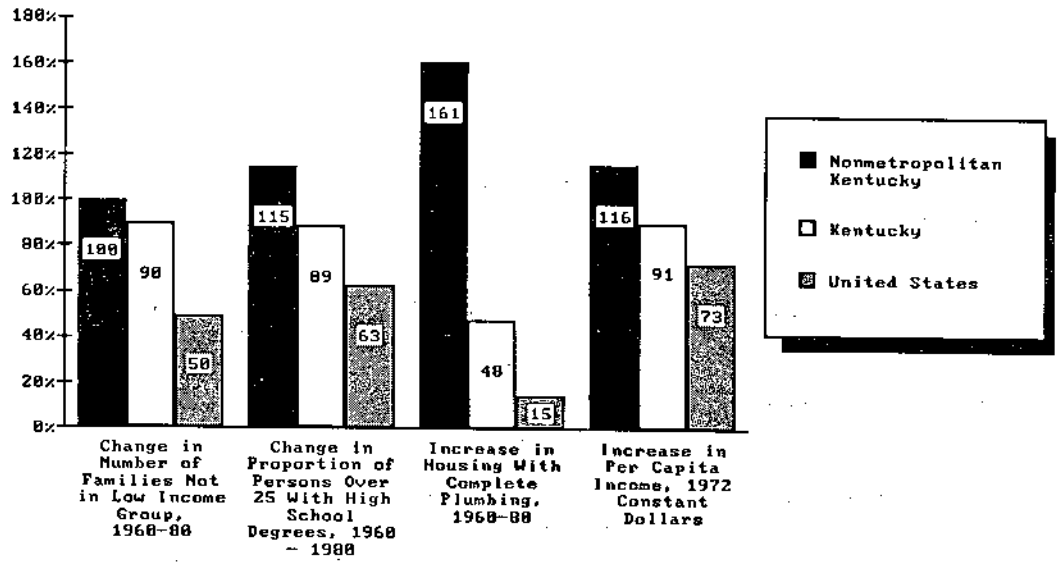
Figure 6. Per Capita Personal Income and Median Family Income, Kentucky and U.S., 1960 and 1980



See Appendix 3 for Sources.

In education, the gap with the rest of the nation has not narrowed. In 1960 rural Kentucky lagged behind national educational levels by 13 percentage points, and in 1980 the difference was 14 percentage points. Kentucky ranked 50th in the nation in adult educational attainment in 1980. However, there has been improvement within the state. In 1960 only 20 percent of rural Kentucky adults had completed high school, less than half the national figure, but in 1980, 43 percent had completed high school, representing close to two-thirds of the national figure. Figure 7 compares percentage change in rural Kentucky with the state and the nation.

Figure 7. Percent Change Economic and Social Indicators for Nonmetropolitan Kentucky, Kentucky, and U.S., 1960-1980



See Appendix 3 for Sources.

Economic Base in Rural Kentucky

In this analysis, the basic industries in rural Kentucky have been defined to include the goods-producing sectors of farming, mining, and manufacturing, and the service-producing sector of government.[73] Although nongovernment service-producing sectors (such as

[73]Charles Tiebout provides a helpful definition of economic base in his introduction to The Community Economic Base Study: "The economic base of a community consists of those activities which provide the basic employment and income on which the rest of the economy depends. An economic base study identifies the basic sources of employment and income and provides an understanding of the source and level of all employment and income in a community." (Supplementary Paper No. 16, Washington, D.C.: Committee for Economic Development, 1962.)

retail and wholesale trade, financial and real estate services) make up about one-third of all labor and proprietors' income in rural Kentucky, these sectors have not been considered key to economic growth because they usually serve internal markets and circulate money within the county rather than bringing in money from outside the area. In rural Kentucky, they are "reactive" sectors rather than initiating sectors.[74]

Most rural Kentucky counties depend heavily on a single sector of the economy.[75] Maps 2-4 show the location of the counties and their economic base.[76] COAL and FARM are shown separately because much of the following analysis treats them separately. FARM counties are those in which 20 percent or more of all labor and proprietors' income came from farming in 1980.[77]

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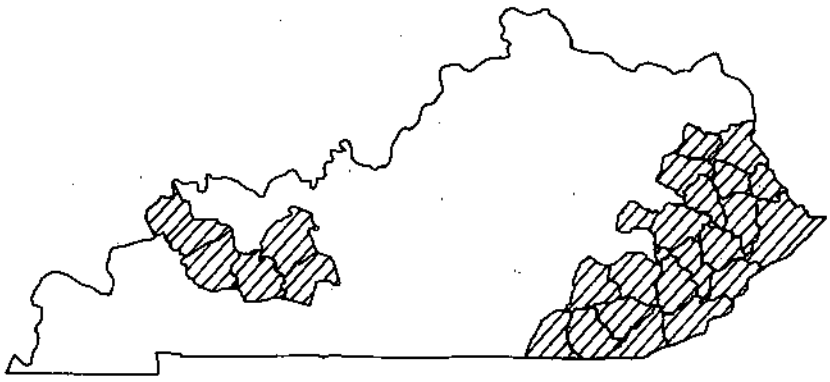
[74]While this assumption may no longer hold for urban areas, it probably is still valid for rural areas.

[75]This observation is based on exploratory analysis that indicated that most rural Kentucky counties have over 20 percent of earned income in one sector, and the balance of income scattered among six other sectors. Rural counties throughout the U.S. tend to depend heavily upon single economic sectors.

[76]Counties are categorized into particular economic bases according to the distribution of total labor and proprietors' income by place of work in 1980. The organization of the counties by economic base reflects their contemporary economic base and does not represent the categorization of counties by economic base that would result if 1959 data were used. Similarly, the analysis does not consider changes that may have occurred in the economic bases over the 20-year period. Decisions about the criteria were made on the basis of several considerations. Consistent with economic base theory, only those industrial sectors that clearly export goods or services are included as relevant for analyzing the economic base of counties (see Tiebout, 1962). The data was taken from tapes of the Bureau of Economic Analysis (BEA) in 1983, and the numbers reflect the data for 1980 as they were in 1983. BEA periodically updates and revises its numbers for previous years.

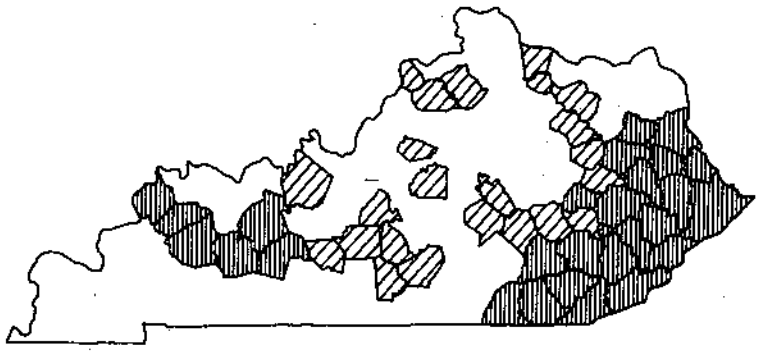
[77]The 23 farm counties are Adair, Bath, Bracken, Breckenridge, Edmonson, Fleming, Garrard, Green, Hart, Henry, Jackson, Larue, Lincoln, Menifee, Metcalfe, Owen, Owsley, Robertson, Rockcastle, Spencer, Trimble, Washington, and Wolfe. The average proportion of farm income within the farming group is 27 percent, while the average proportion over all the nonmetropolitan counties is 5.6 percent.

Map 2. Coal Counties in Nonmetropolitan Kentucky



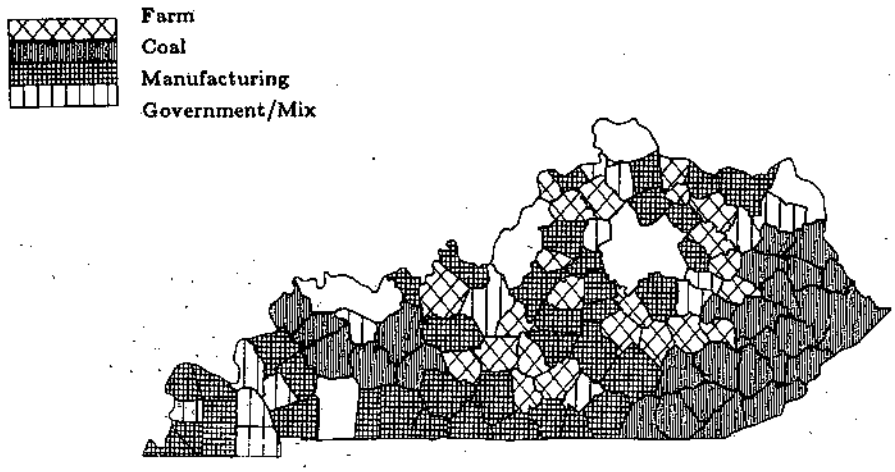
See Appendix 3 for Sources.

Map 3. Coal and Farm Counties in Nonmetropolitan Kentucky



See Appendix 3 for Sources.

Map 4. Coal, Farm, Manufacturing, and Government/Mix Counties in Nonmetropolitan Kentucky



See Appendix 3 for Sources.

COAL counties are those in which 20 percent or more of all labor and proprietors' income in 1980 came from the mining sector. There are some exceptions to this criterion. Since the coal industry is of particular interest, counties that have substantial mining activity (producing over 950,000 tons) but also have farming or manufacturing income are included in the coal group.[78] MANUFACTURING makes up a larger proportion of rural Kentucky's labor and proprietors'

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[78]This decision was made in order to ensure that the effect of mining on development was considered in all counties where mining plays a substantial role in the county economy. However, results of the base comparisons were similar when the strict 20 percent rule was followed. Therefore, those counties producing nearly one million tons of coal are included in the coal county group even if they meet the income criterion for other economic categories. Butler, Knox, Lawrence, Laurel, and Whitley counties do not fit the 20 percent criterion, but all five produced one million tons or more of coal in 1980. (Lawrence produced just under one million, at 984,630 tons.) Of these five exceptions, two meet the criterion for other economic bases: Butler has 21 percent of its income in farming, and only 16 percent in mining. But over a million tons were produced each year for the last several years. Laurel has 30 percent of its income from manufacturing, but one to two million tons of coal have been produced annually in the county in recent years. The 27 coal counties are Bell, Breathitt, Butler, Clay, Elliott, Floyd, Harlan, Hopkins, Johnson, Knott, Knox, Lawrence, Laurel, Lee, Leslie, Letcher, McCreary, Magoffin, Martin, Morgan, Muhlenberg, Ohio, Perry, Pike, Union, Webster, and Whitley. Among the coal counties, the average proportion of income from mining is 40 percent, compared to 17 percent for all nonmetropolitan counties.

income overall, so 25 percent is the proportion of manufacturing income determining that manufacturing is dominant.[79]

GOVERNMENT/MIX is a residual category comprising those counties that do not meet the criterion for farm, coal, or manufacturing. In some cases the largest proportion of labor and proprietors' income is from the government sector (e.g. in Franklin and Lyon), and in other cases there is a mix of industrial sectors without any one sector meeting the criterion for farm, manufacturing, or coal (e.g. Calloway and Carter).[80]

Figure 8 shows percent of total earned income in each sector for all of rural Kentucky and for each base, and illustrates how much a particular sector dominates in each base. Clearly the farm sector leads in FARM counties, the coal sector in COAL counties, and so forth. As can be seen from the chart, construction and services have about the same weight across all bases.

Economic Growth

The structural changes in rural Kentucky's economy indicate that rates of county economic growth probably vary according to economic base. Economic growth means expanded economic activity, or increases in activities related to the production, distribution, and consumption of goods and services. Here economic growth refers specifically to increased productive economic activity: more goods and services being produced and exchanged. Since there are no reliable "product" measures available at the county level (such as gross national product [GNP] for countries), increases in income and employment are the most accessible measures of economic growth at the county level. Here we use income earned from work or investments: economic growth is measured as the percent change in per capita total earned

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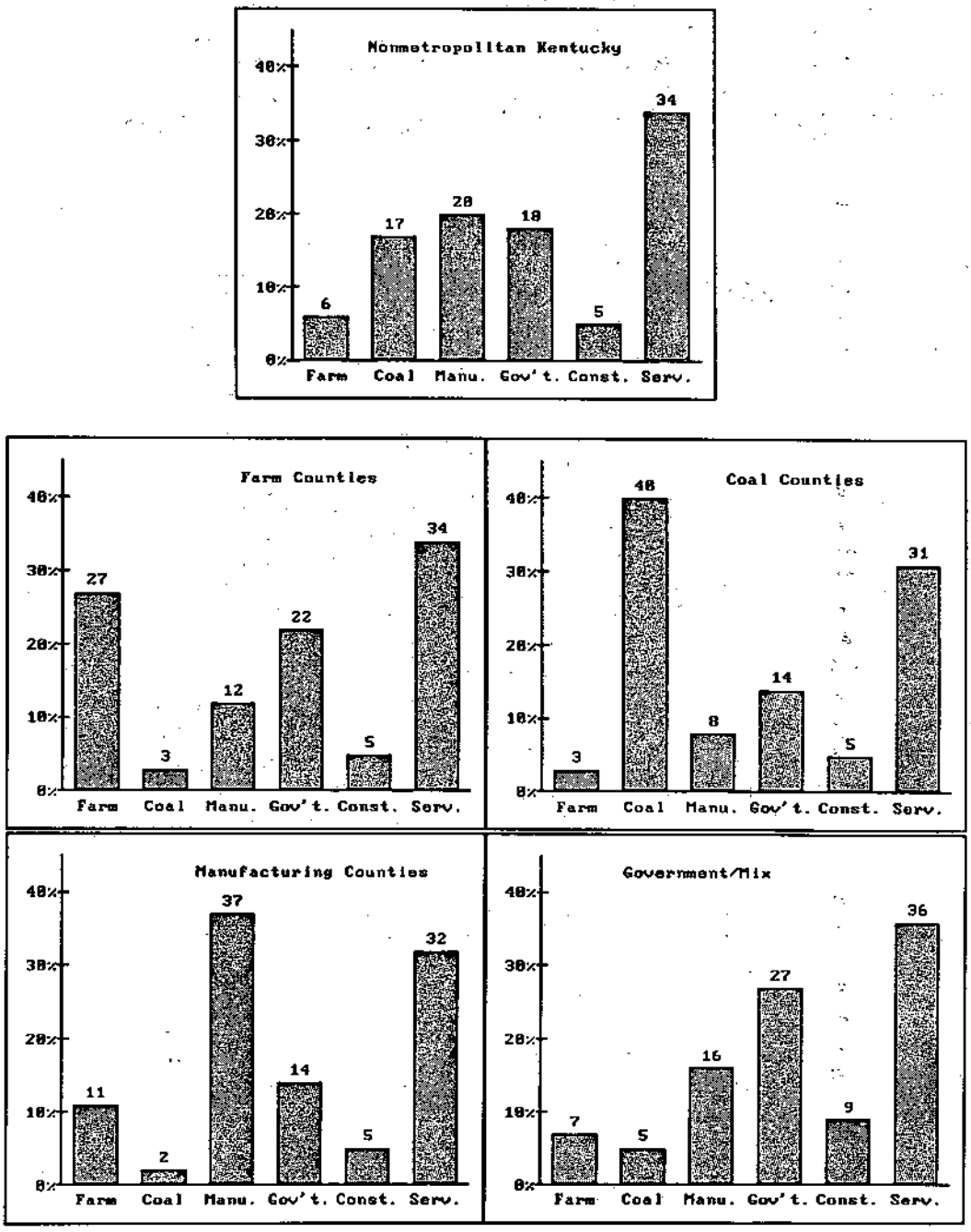
[79]The average for all nonmetropolitan counties is 20 percent, and the sector is more broadly distributed across counties than the coal and farming sectors. The 38 manufacturing counties are Allen, Anderson, Ballard, Barren, Boyle, Caldwell, Carroll, Casey, Clinton, Crittenden, Cumberland, Fulton, Graves, Grayson, Hancock, Harrison, Hickman, Lewis, Logan, McLean, Madison, Marshall, Mason, Meade, Mercer, Monroe, Montgomery, Nelson, Nicholas, Pendleton, Pulaski, Shelby, Simpson, Taylor, Todd, Trig, Warren, and Wayne. Within the manufacturing group, the percent of labor and proprietors' income from manufacturing is 37 percent.

[80]The 15 counties in the government/mix category are Calloway, Carlisle, Carter, Estill, Franklin, Gallatin, Grant, Hardin, Livingston, Lyon, McCracken, Marion, Powell, Rowan, and Russell. In this group, government makes up 27 percent of all labor and proprietors' income, and manufacturing makes up 17 percent. Government makes up 18.1 percent of income in all 103 rural counties, and manufacturing makes up 20 percent.

Figure 8. Distribution of Earned Income by Sector for Nonmetropolitan Kentucky and Each Base, 1980

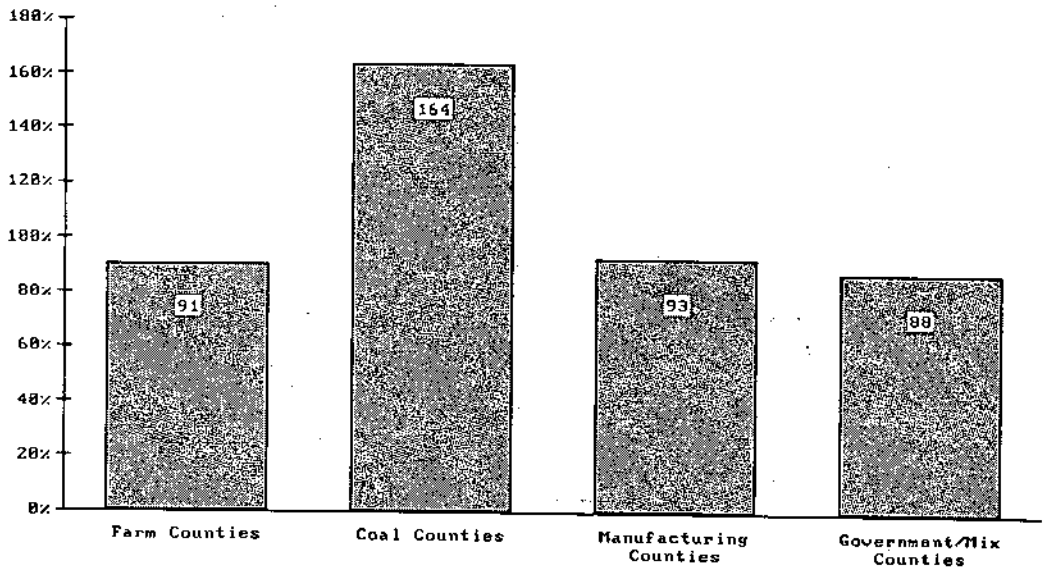


See Appendix 3 for Sources.

income--that is, income growth generated by productive activity, earned either through wages, salaries, or proprietorship, or through investment such as tangible or intangible property ownership. Earned income excludes transfer payments from the government.

Comparisons of growth across the economic base categories are presented in Figure 9. COAL counties had the greatest increase in per capita earned income, followed by MANUFACTURING, FARM, and GOVERNMENT/MIX.[81] Growth in earned income between 1960 and 1980 was 164 percent in COAL counties (in constant 1972 dollars), compared to 91 percent in FARM counties, 93 percent in MANUFACTURING counties, and 88 percent in GOVERNMENT/MIX counties.

Figure 9. Percent Growth in Earned Income by Economic Base, 1960-1980



See Appendix 3 for Sources.

Maps 5 shows that, by and large, the greatest concentration of income growth in rural Kentucky occurred in coal-field counties, especially in the eastern region.

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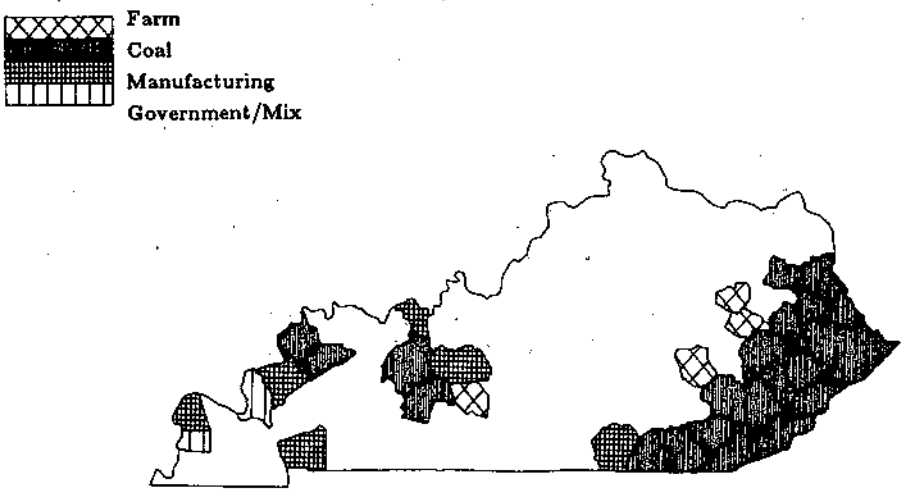
[81]Economic growth is measured on a per capita basis to adjust for variations in population size. On average, FARM counties have about half the population that the other three types of counties have: FARM population in 1980 averages 10,446; COAL 22,954; MANUFACTURING 19,247; and GOVERNMENT/MIX 21,725.

Map 5. Counties in Top Third Income Growth by Economic Base



See Appendix 3 for Sources.

Development

Conditions improved overall in rural Kentucky, but we are interested particularly in whether improvements varied between economic bases. We know that COAL counties experienced much greater rates of growth, and we know that Kentucky state policy promotes growth in coal as a strategy to improve conditions in COAL counties. This section examines whether that strategy is effective. It compares changes in socioeconomic conditions across economic base categories, looking for evidence that the greater growth in COAL counties brought commensurate improvements in COAL county conditions. In other words, we are looking for evidence that improvements in quality of life in COAL counties are due to growth in the coal industry rather than to the same factors (such as government initiatives or other societal changes) that are responsible for quality of life improvements in other rural Kentucky counties. If the rate of quality of life improvement in COAL counties were commensurate to the growth in the coal industry--or at least significantly greater than the quality of life improvement rate in other rural Kentucky counties--we would have that evidence.

Development is a dynamic process of economic expansion and social improvement that builds a satisfactory quality of life for the people living in a particular place. This study focuses on the outcome of the development process--the quality of life. Therefore, development is measured by comparing the economic and social well-being for residents of a certain community, area, or nation with conditions in other

places and in other times. Rural Kentucky communities enjoy economic and social well-being when their county has low poverty levels, good health and health care, good housing conditions, and good educational attainment and schools. Places with these economic and social conditions can be described as "developed."[82]

In Figures 10-13 we compare conditions in 1980 across economic base with conditions in 1960 across economic base. Economic well-being is measured by per capita income (total personal income to the county divided by total population) and by median family income (median level of money income to families, as reported in the 1960 and 1980 Census of Population and Housing).[83] Social well-being is represented by education, housing, and health indicators as well as

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[82]Many development theorists would argue that development entails nonmaterial factors such as freedom to choose and opportunities for self-esteem and human dignity. While these aspects of development clearly are important to the quality of life and the meaning of development, attempting to measure them is not within the scope of this study.

[83]Personal income includes current income received by persons from all sources, and takes into account unearned income, including transfer payments, nonmonetary and all imputed types of income. Money income includes total money income received by all persons 15 years and older in a family as reported on the decennial Census questionnaire. It should include all amounts received from wages and salaries, interest and dividends and public assistance, etc., but its accuracy depends upon the respondents' recollections and reporting. It does not include nonmonetary or imputed income.

Per capita personal income is an arithmetic mean, derived by taking all the personal income of residents in a county, and dividing by the county population. Among descriptive measures of income it has the advantage of using all sources of income. However, mean values are influenced by extreme scores in either direction, so that one very high score or one very low score can pull the mean up or down. For instance, the per capita personal income figure would be the same whether a million dollar increase in income was concentrated among a relatively few people or was spread evenly among residents in a county. Since income is usually skewed in its distribution, median income measures are frequently reported in conjunction with mean incomes.

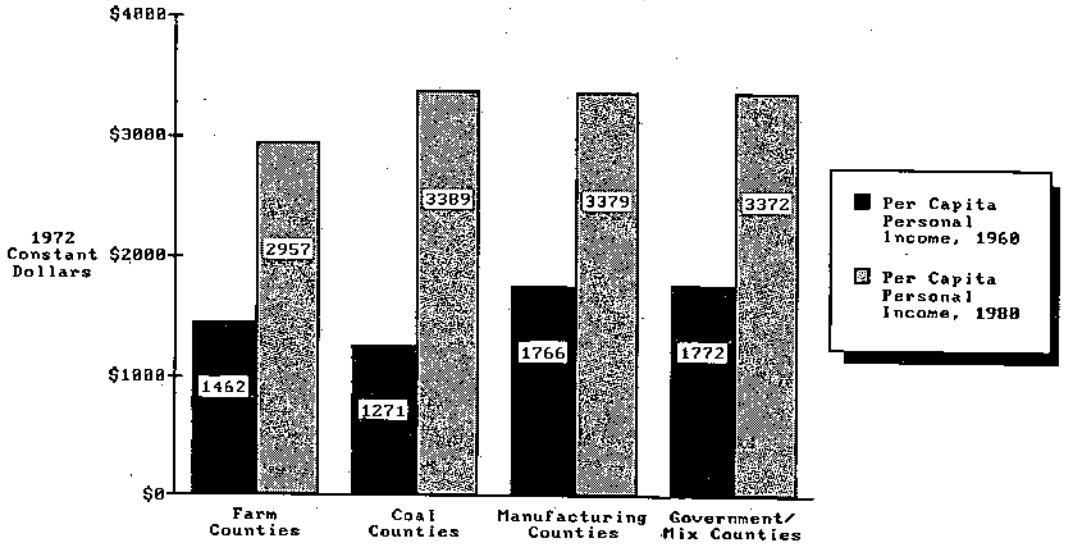
Median family income is the middle money income level for all the families in a county and does not include money income of unrelated persons in non-family households. By definition, half the families report more than this amount and half report less. Therefore, it is a descriptive measure which is not as influenced by changes concentrated among those with extremely low or high levels of income. If a million dollar increase in income were concentrated among a few people, median family income would not change because the half-way point, based upon the number of families rather than on levels of income, would still be the same. However, if that same million dollars were spread widely among residents, median family income would increase. Thus growth measured using per capita personal income illustrates aggregate increases in total income in counties regardless of how broadly they are distributed among families, and median family income gives some indication of how broadly those increases were shared. It is also important to bear in mind that not only is one income measure a mean and the other a median; the definition of "income" and the measurement (person and family) also differ as described.

the extent of community infrastructure. Educational attainment is measured as the proportion of adults who have graduated from high school and the proportion who have attended some college; housing conditions are indicated by the proportion of houses with complete plumbing, the proportion of houses which are overcrowded, and the proportion of houses which are mobile homes. Health conditions are indicated by the number of physicians per 100,000 population, and deaths from influenza and pneumonia (see Figures 13-14).[84] Finally, community infrastructure is measured by the proportion of households with some kind of water system (as opposed to using wells or carrying water), and the proportion of households with a public sewer system (see Figure 12). These last two indicators are presented for 1980 only.

Income Levels

Figures 10-11 show that COAL counties were the lowest income counties in 1960, both in terms of overall per capita income and in median family income. FARM counties were in a middle area between the very low income COAL counties and the better off MANUFACTURING and GOVERNMENT/MIX counties. By 1980, FARM and COAL counties had switched positions: FARM counties were the lowest income counties, and COAL ranked second lowest, between the FARM group and the MANUFACTURING and GOVERNMENT/MIX group.

Figure 10. Per Capita Personal Income by Economic Base, 1960 and 1980
(1972 Constant Dollars)



See Appendix 3 for Sources.

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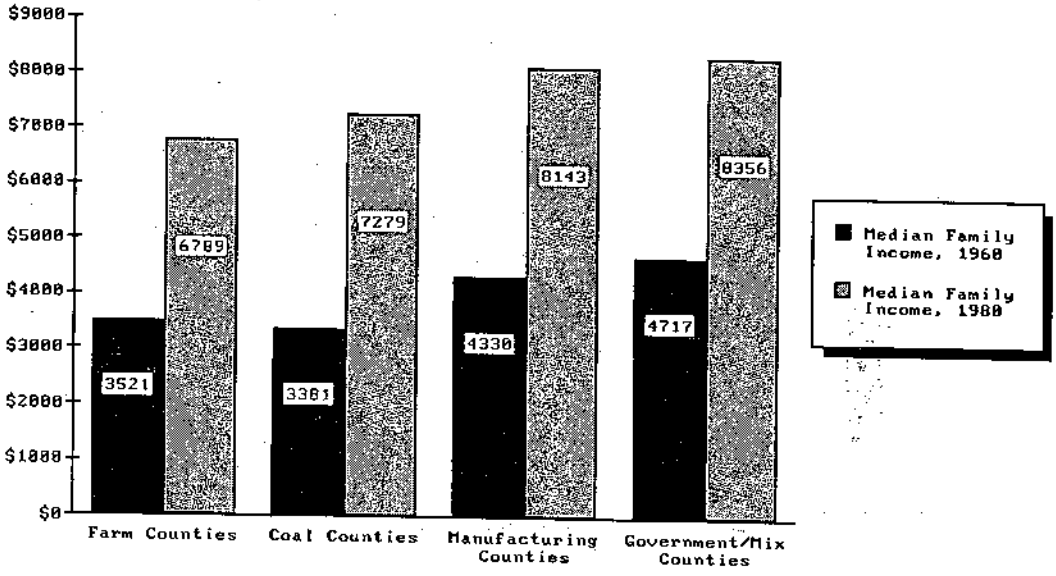
[84] Although the infant mortality rate has long been regarded as a measure of social well-being, this analysis showed that by 1980 there was little variation in infant mortality in rural Kentucky. Reports that infant mortality rates are rising in poor urban areas since the 1980 Census indicate that conditions may be deteriorating in poor rural areas as well. In this comparison, however, 1980 conditions are compared using deaths from influenza and pneumonia and the physician rate.

Figure 11. Median Family Income by Economic Base, 1960 and 1980
(1972 Constant Dollars)



See Appendix 3 for Sources.

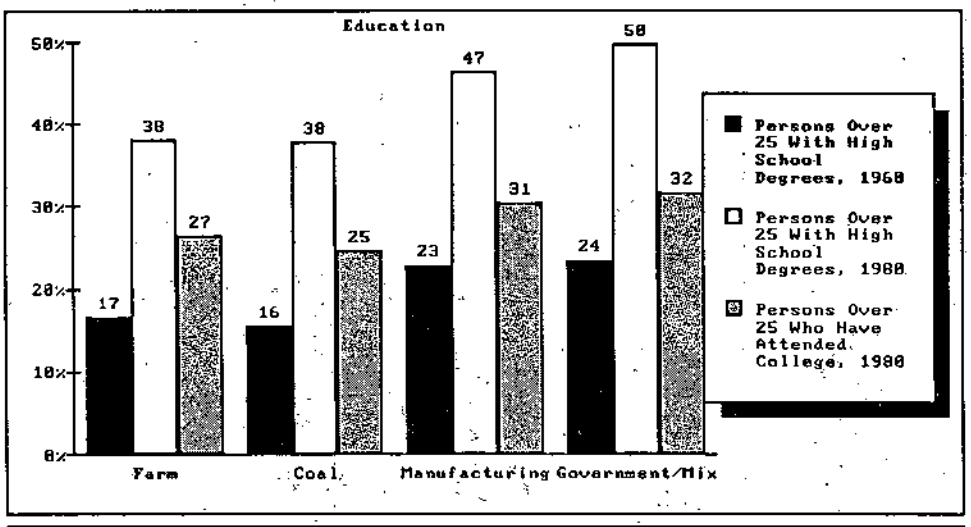
These results reflect the overall changes in agriculture and the coal industry. As Figure 4 indicated, between 1960 and 1980 the proportion of earned income in rural Kentucky derived from farming declined from 18 percent to 6 percent. During the same period, the proportion of earned income derived from mining grew from 11 percent to 17 percent. The decline in farm income and the rise in mining income are evident in the changed ranking in income levels between FARM and COAL counties. Manufacturing's relative importance also grew 7 percentage points, but the relative position of MANUFACTURING counties did not change. As the comparison of growth indicators showed, COAL counties had far greater income growth than any of the other bases. While this growth did not mean COAL counties caught up with MANUFACTURING and GOVERNMENT/MIX counties, it did mean they "switched places" with FARM counties.

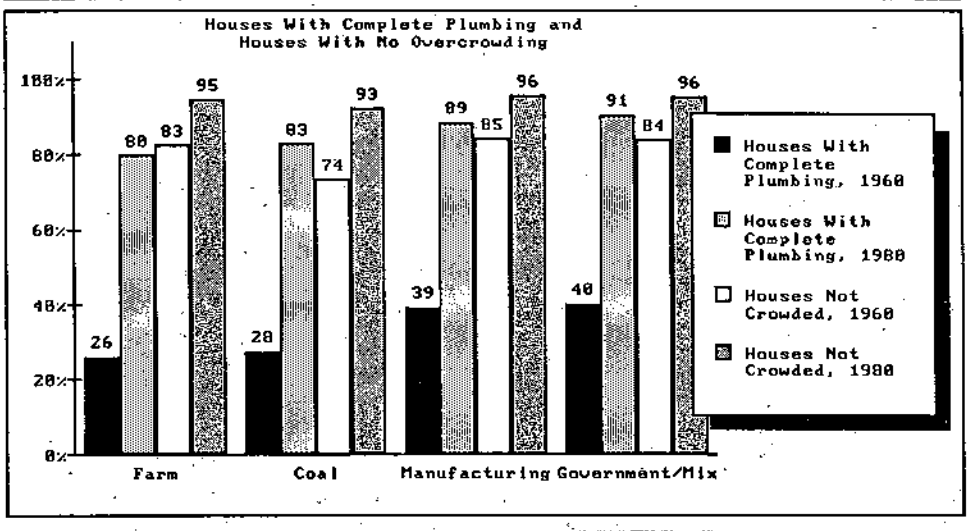
Education, Housing, and Health Conditions

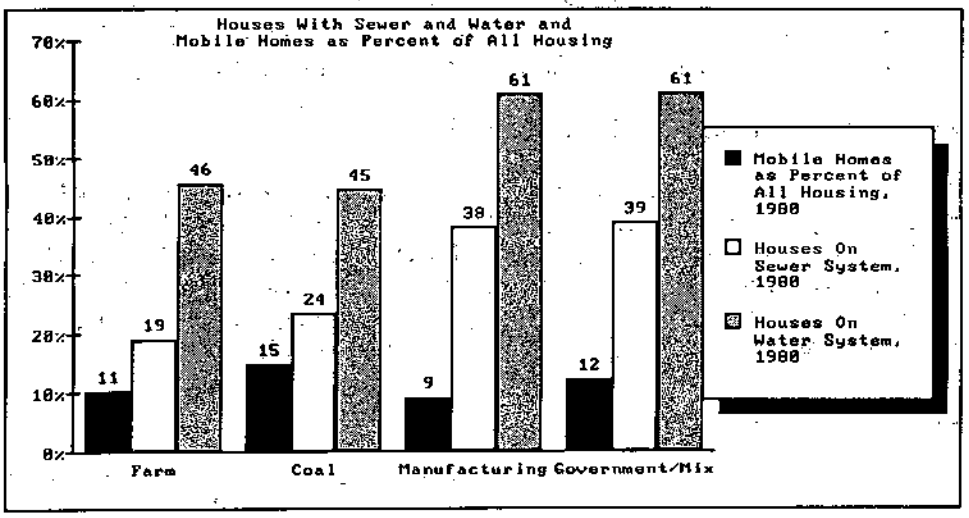
The two education measures used here (high school graduates and some college) are very similar, and, as shown in Figure 12, they reflect the same pattern: FARM and COAL counties lag behind the MANUFACTURING and GOVERNMENT/MIX counties on both measures, with only 38 percent of adults being high school graduates, compared to 47 and 50 percent in the other counties.[85] While about one-

[85] A low proportion of high school graduates is sometimes attributed to high proportion of older people who did not go to high school. This point does not affect the relative education achievement reported here because all four bases have the same proportion of elderly population.

Figure 12. Education, Housing, and Community Infrastructure in Nonmetropolitan Kentucky by Economic Base, 1960 and 1980







See Appendix 3 for Sources.

fourth of the adults in FARM and COAL counties have had some college education, almost one-third in the MANUFACTURING and GOVERNMENT/MIX counties have attended college. Since Kentucky ranks 50th over all in high school graduates,[86] the lower ranking in FARM and COAL counties represents a substantially lower educational attainment level than the national average.[87]

Patterns in housing variables vary according to the measure under investigation, as shown in Figure 12. Houses with complete plumbing are widespread among all bases in 1980: 80 percent of FARM county housing units have complete plumbing, 83 percent of COAL county housing units, and 89 and 91 percent of MANUFACTURING and GOVERNMENT/MIX counties' housing units are plumbed. (Fifteen percent of all housing units in COAL counties are mobile homes, compared to only 10 percent in FARM counties, and these mobile homes come with complete plumbing). Water and sewer systems repeat the pattern: FARM and COAL lag behind the other two bases by 15-20 percentage points in the proportion of houses with public or private sewer systems, and they lag by around 15 percentage points in the proportion of housing units on some kind of water system.

In 1960, COAL counties had more crowded housing (26 percent compared to 15-17 percent in the other counties).[88] In this respect, COAL counties have had greater improvement. Both COAL and FARM lag behind other rural counties and the nation on high school graduates and the proportion of houses with complete plumbing.

Health measures do not follow the same pattern as other indicators of social well-being (see Figures 13-14). In 1980 there was almost no difference in death from influenza and pneumonia in the various

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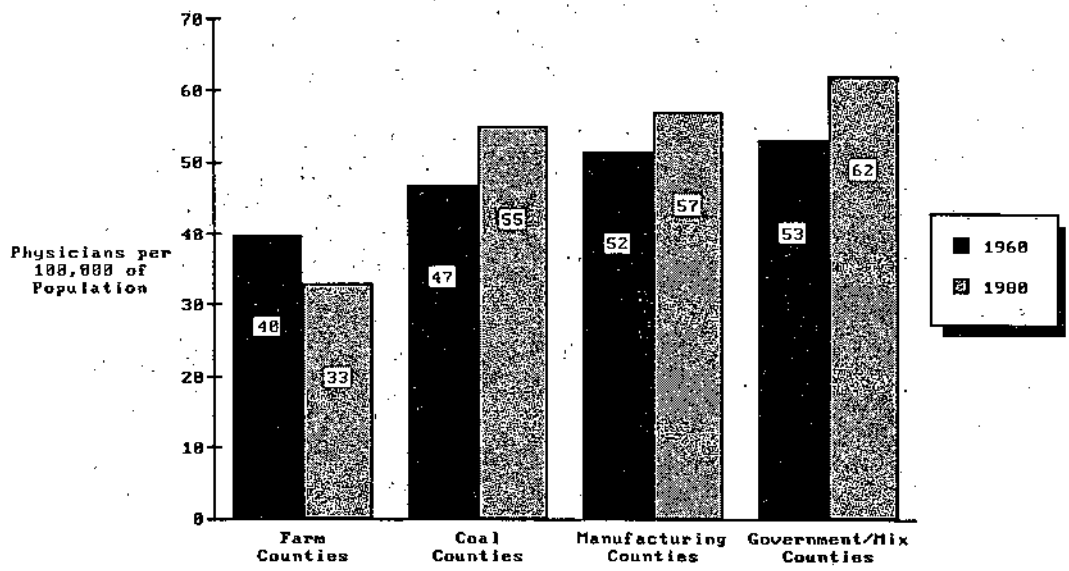
[86]Kentucky overall ranks 49th in school expenditures per capita and 46th in expenditures per pupil.

[87]Many education studies have pointed to the high correlation between income and educational attainment levels. In nonmetropolitan Kentucky counties, the correlation between the proportion of low income families and high school graduates is -.86, and the correlation between median family income and high school graduates is .85. (If the two indicators followed one another exactly--a certain proportion of low income families always meant a certain level of high school graduates--the correlation would be 1.0.) Interestingly, the correlation between high school graduates and per capita income is lower, .72. The first two income measures reflect distribution of income among families in the county, while per capita is an average. The relatively high per capita income levels in COAL counties combine with the relatively low high school graduate level to bring the correlation down.

[88]Crowded conditions are defined as more than one person per room.

bases,[89] and the physician to population ratio was much lower in FARM counties (33 per 100,000) than in the other bases (58 per 100,000 in MANUFACTURING, 55 in COAL, and 63 in GOVERNMENT/MIX counties). In 1960 COAL counties had more deaths from influenza and pneumonia. In general, the analysis of health indicators examined in this study turned up little interesting variation, outside the COAL counties' improvement in deaths from the flu. Health conditions in 1980 appear to have equalized overall, although FARM county residents have a lower physician to population ratio. Since a large proportion of FARM county residents commute outside their county of residence for work, they may also "commute" outside a county for health care.

Figure 13. Physician Rate by Economic Base, 1960 and 1980



See Appendix 3 for Sources.

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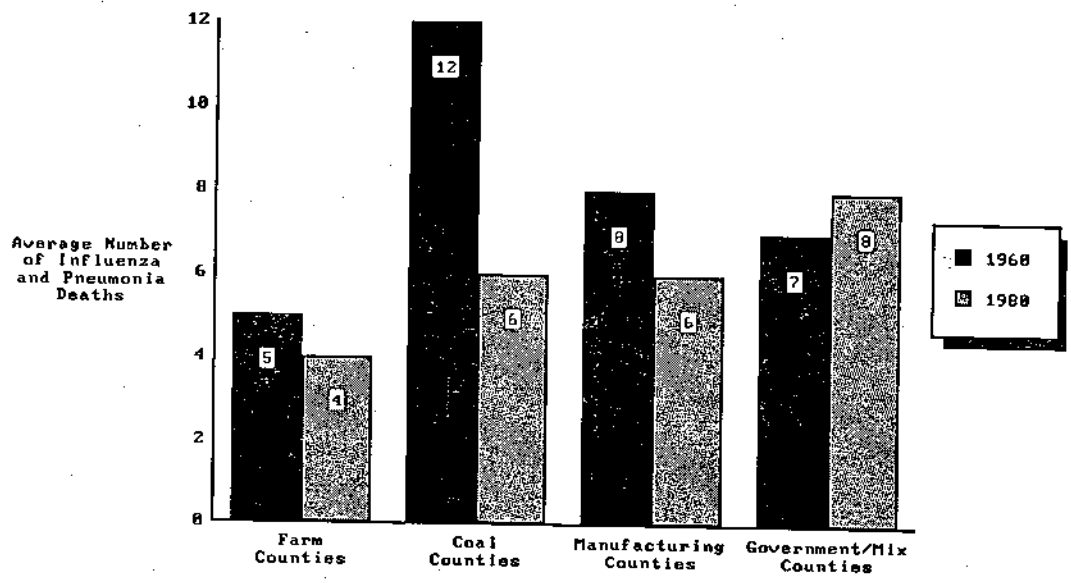
[89]Neither the Social Indicators III (1980) nor the County City Data Book (1983) of the U.S. Bureau of the Census publish mortality rates by cause as indicators of well-being. Deaths caused by flu and infant mortality have declined over the whole country, and no longer represent a measure of relative welfare. Larry Busch ("Carving Up the Social World: The Impact of Geographic Units on Research Results," Sociological Focus, 11, No. 4 [October, 1978], pp. 289-299) points out the difficulties in assessing health care quality at a county level using numbers of physicians, and those apply here.

Figure 14. Deaths from Influenza and Pneumonia by Economic Base, 1960 and 1980



See Appendix 3 for Sources.

An Index to Summarize Changes

To summarize these changes in conditions, MACED constructed a development index made up of a poverty measure, an educational attainment measure, and a housing quality measure. Using this index, development is examined twice--first, as economic and social conditions in 1980, and then as change in conditions between 1960 and 1980. Using both concepts illustrates development more completely because it captures both the relative improvement of conditions over the last 20 years and the absolute conditions in 1980. Conditions could be poor in 1980 but nonetheless represent significant improvements over the 20-year period; or, in other words, conditions could show large improvement rates and still be far below the state or national average or acceptable standards.[90] These differences between change, rates of change, and conditions at any one period of time have important implications for how we interpret social progress. We use "change" to mean the difference between conditions in 1960 and conditions in 1980, rather than focusing upon percent change, so that gains by counties which lagged the farthest behind in 1960 do not appear greater than changes in other counties.

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[90]These issues of relative versus absolute improvements and deprivation are common problems in development and social policy analysis. For example, much was made of the rate of change in black incomes in the late 1960s and early 1970s, but the absolute levels of income were still far below the income levels of whites.

Specifically, the level of development in the years 1960 and 1980 is represented by two summated scales, "DEVELOPMENT in 1960" and "DEVELOPMENT in 1980." Each includes three indicators: (1) the percent of all families with incomes over $3,000 in 1959 and over $7,500 in 1979; (2) the percent of all persons 25 years and older with a high school degree; and (3) the percent of all houses with complete plumbing.[91] The percent of high school graduates and the proportion of houses with complete plumbing frequently are used to represent a whole range of education and housing conditions.[92] Using the three measures--education, income, and plumbing--we have summarized three dimensions of the quality of life in one measure. A very undeveloped place might have a development score of zero--all low income families, no high school graduates, and no houses with complete plumbing. A place with a high quality of life might have a score of 300, with all of its families enjoying income over $7,500, all of its adults having graduated from high school, and all its houses equipped with complete plumbing. Actually, the lowest 1960 development score was 117 (out of 300) in Wolfe County, and the lowest 1980 score was Owsley County, with 193 (out of 300). The highest score in 1980 was Hardin County's 263.

Each of these measures indicates a distinct aspect of the quality of life--economic well-being, education levels, and housing quality--but they are highly correlated. A place with less poverty is likely to have higher educational attainment and a greater proportion of "plumbed" houses. Figure 15 compares the 1980 development index in rural Kentucky with Kentucky overall, some states contiguous to Kentucky, the rural U.S. as a whole, and the U.S. overall. Rural Kentucky has an index score of 201 out of the possible 300, while the U.S. as a whole has a score of 251. The development index offers a summary measure of 1980 conditions and another of change between 1960 and 1980.

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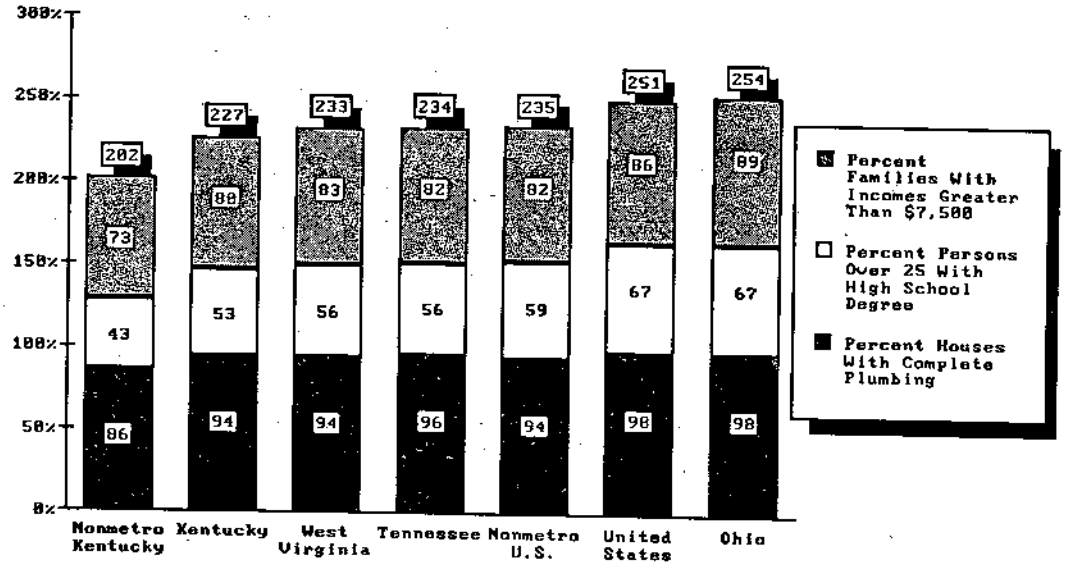
[91]Extensive exploratory analysis, including factor analysis, a statistical technique which searches for patterns or groupings in data, was used to determine the appropriate variables for a development index. The indicators chosen represent a whole array of social indicators (see Duncan, "Capital and the State").

[92]See P.P. Karan and Cotton Mather, eds., Atlas of Kentucky (Lexington, KY: University Press of Kentucky, 1977).

Figure 15. 1980 Development Indices in Kentucky, Contiguous States, and the U.S.

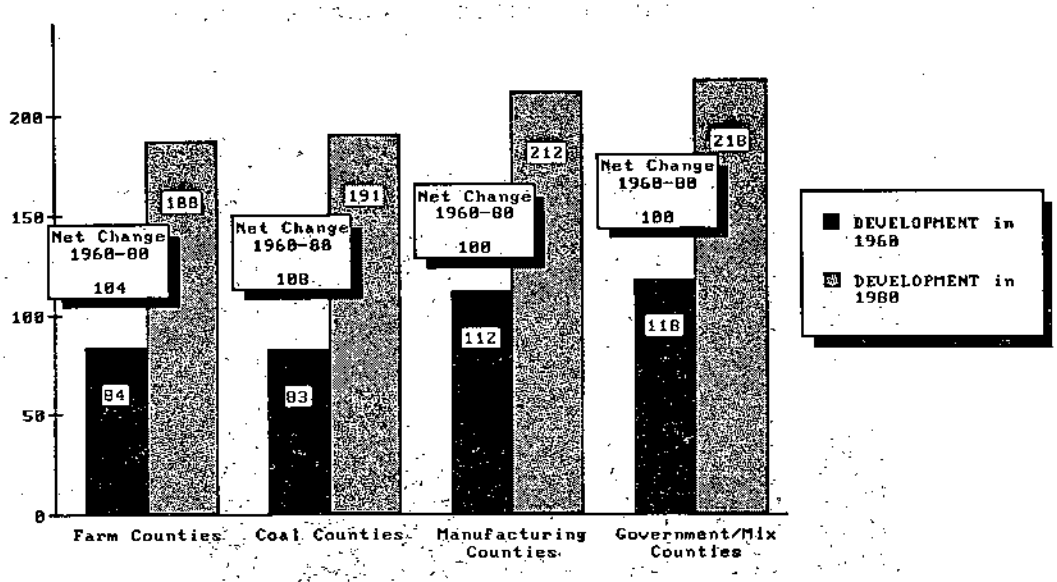


See Appendix 3 for Sources.

Comparisons of Changes Across Different Economic Bases

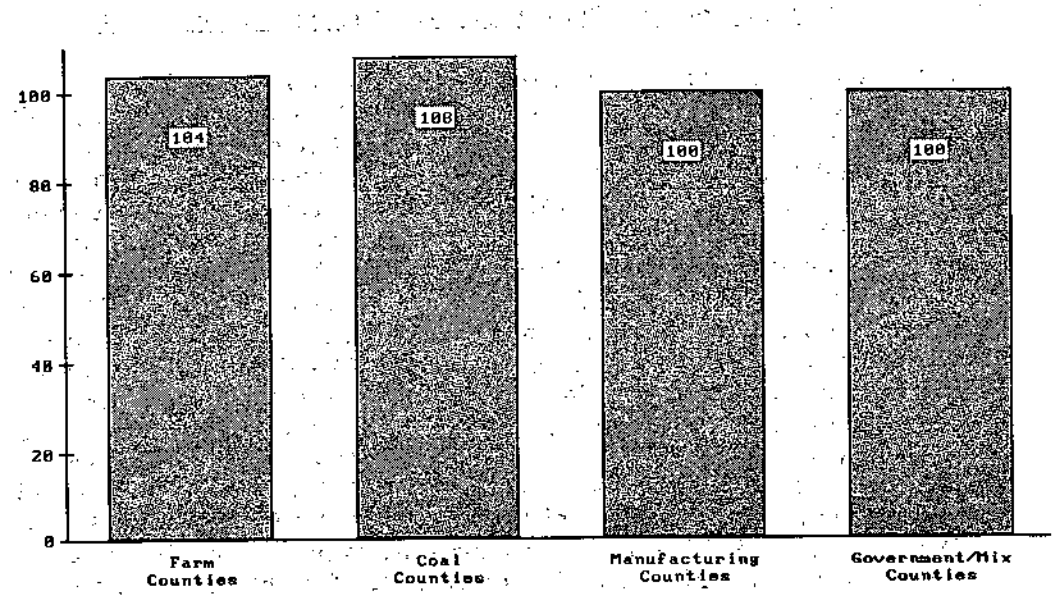
Figures 16-17 present comparisons of the development indicators--"DEVELOPMENT in 1980," "DEVELOPMENT in 1960" and "CHANGE"--according to economic base. In 1960 the quality of life in both COAL and FARM counties lagged behind the quality of life in MANUFACTURING and GOVERNMENT/MIX base counties. The development score for FARM counties in 1960 was 84 out of a possible 300; in COAL counties it was 83; in MANUFACTURING counties it was 112, and in GOVERNMENT/MIX counties it was 118. Between 1960 and 1980, as our summary discussion of rural Kentucky showed, conditions improved across the Commonwealth. FARM counties "increased their quality of life" from 84 to 188, a net change of 104 points. COAL counties also improved, going from 83 in 1960 to 191 in 1980, a net change of 108 points. MANUFACTURING and GOVERNMENT/MIX counties improved 100 points: MANUFACTURING went from a 1960 score of 112 to 212 in 1980. GOVERNMENT/MIX went from 118 in 1960 to 218 in 1980. All four economic bases had about the same improvement in conditions. The difference of eight points between greatest and least improvement is not significant.

Figure 16. Development Indices for 1960 and 1980 by Economic Base



See Appendix 3 for Sources.

Figure 17. Net Change in the Development Index by Economic Base, 1960-1980



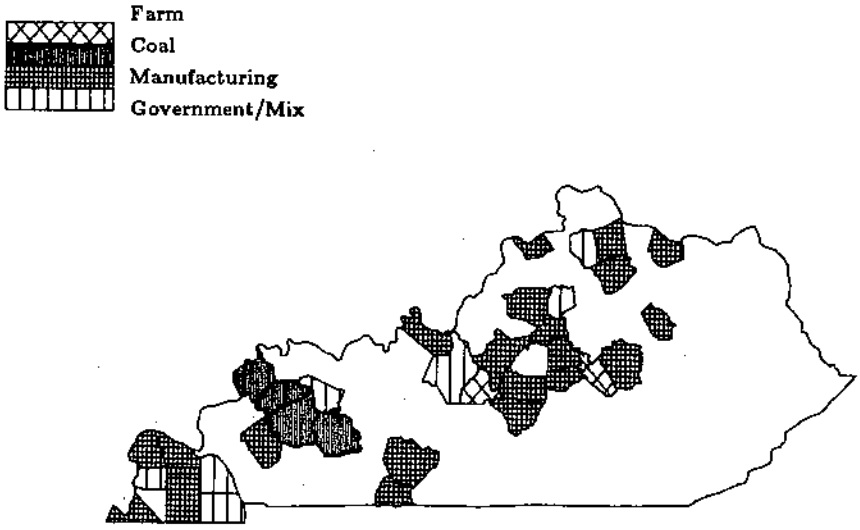
See Appendix 3 for Sources.

Both the FARM and COAL counties lagged behind the others in 1960, and, although the gap narrowed over the 20 years, they still have poorer conditions in 1980. As Map 5 showed, generally the greatest economic growth occurred in the state's coal regions. However, in spite of COAL counties' greater income growth, they

still lag with FARM counties behind the more "developed" MANUFACTURING and GOVERNMENT/MIX counties in 1980. As Figures 10-14 show, there was broad improvement in conditions, regardless of growth patterns. Overall, a county's conditions in 1980 mirror its conditions in 1960.

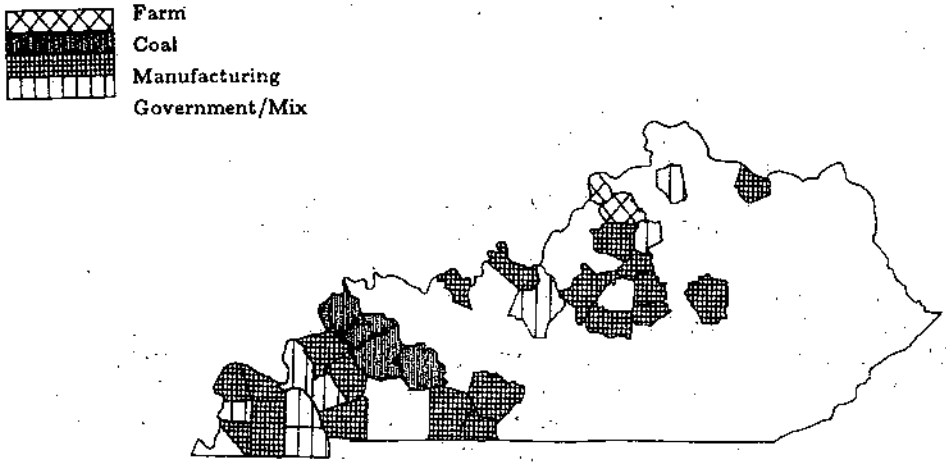
In summary, these economic and social indicators show that rural Kentucky improved across the state and across economic bases between 1960 and 1980. In 1960 people living in FARM and COAL counties were poorer, less educated, and less well-housed than people living in MANUFACTURING or GOVERNMENT/MIX counties. Since all types of counties had about the same average improvement, FARM and COAL counties still lag behind in 1980. Map 6 shows the counties with the best conditions in 1960, and Map 7 shows those in 1980. There are not many differences between 1960 and 1980. Poor counties experienced greater rates of improvement than other counties because a 100 point improvement in a place with worse conditions results in a greater percentage change. In other words, the rate of improved conditions was the greatest in the poorest counties, narrowing the gap between counties with the best conditions and those with the worst. FARM and COAL counties improved together, suggesting that economic growth in COAL counties cannot, by itself, overcome the historical legacy of poor conditions.

Map 6. Counties in Top Third on Development Index in 1960 by Economic Base



See Appendix 3 for Sources.

Map 7. Counties in Top Third on Development Index in 1980 by Economic Base



See Appendix 3 for Sources.

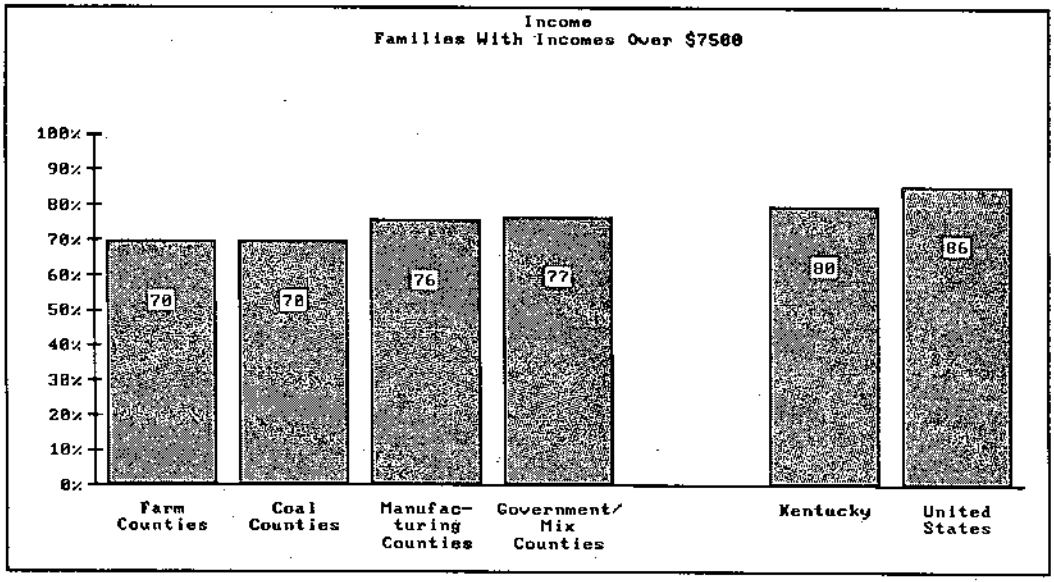
One of the more interesting findings of the base comparisons of conditions in 1960 and 1980 is that conditions have improved so much across the state. As Figure 18 shows, FARM and COAL counties have grown closer to the other bases and to the state average on these measures.

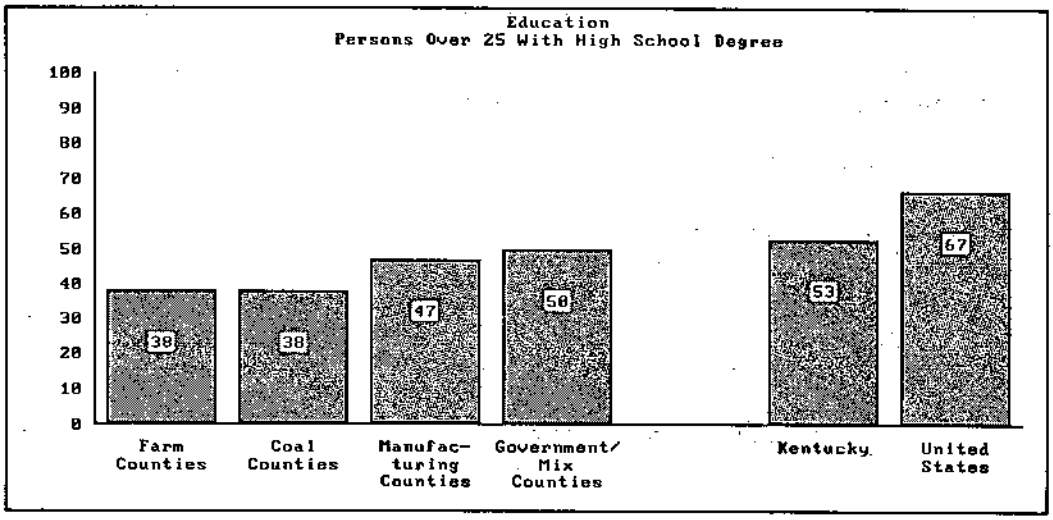
Digging Deeper for Explanations About Differences

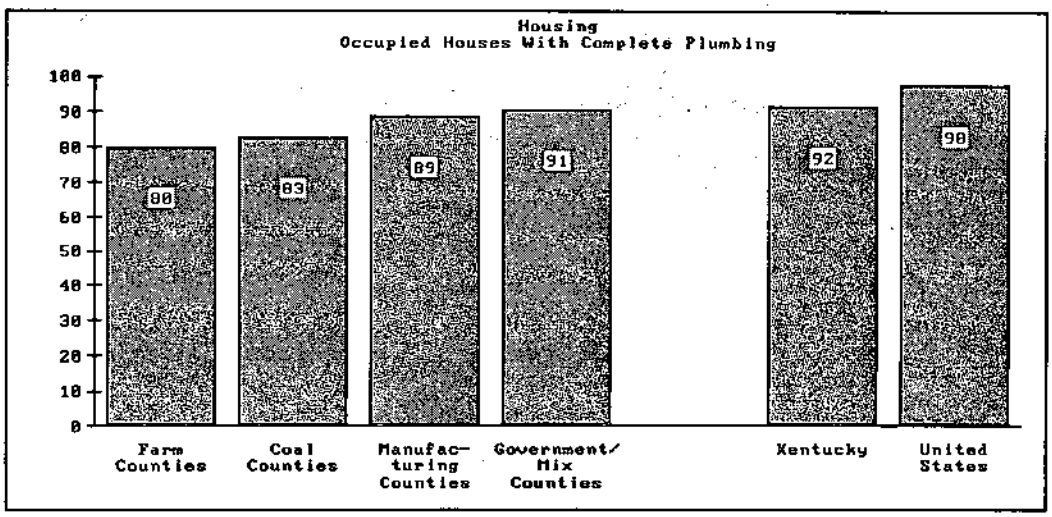
The results of these comparisons raise fundamental questions about change in rural Kentucky. For example, why did FARM counties experience the same level and rate of improvement as COAL counties, even in poverty levels, when COAL counties had a rate of economic growth so much greater? Two possible explanations are that: (1) the improvement is tied to government programs that affect all the counties; or (2) more narrow distribution of income and work in COAL counties hinders the public and private reinvestment process.

A second set of questions addresses what happens to the larger incomes in COAL counties. Perhaps the reinvestment process occurs differently in different economic bases. Perhaps we are seeing the result of the regional economists' conclusion that the coal industry lacks the linkages and multipliers that can turn economic expansion into development. Perhaps we can trace the impact of higher incomes and higher economic growth rates in COAL counties by examining investment and consumption patterns of households and institutions in the counties.

Figure 18. Income, Education, and Housing Conditions by Economic Base, 1980







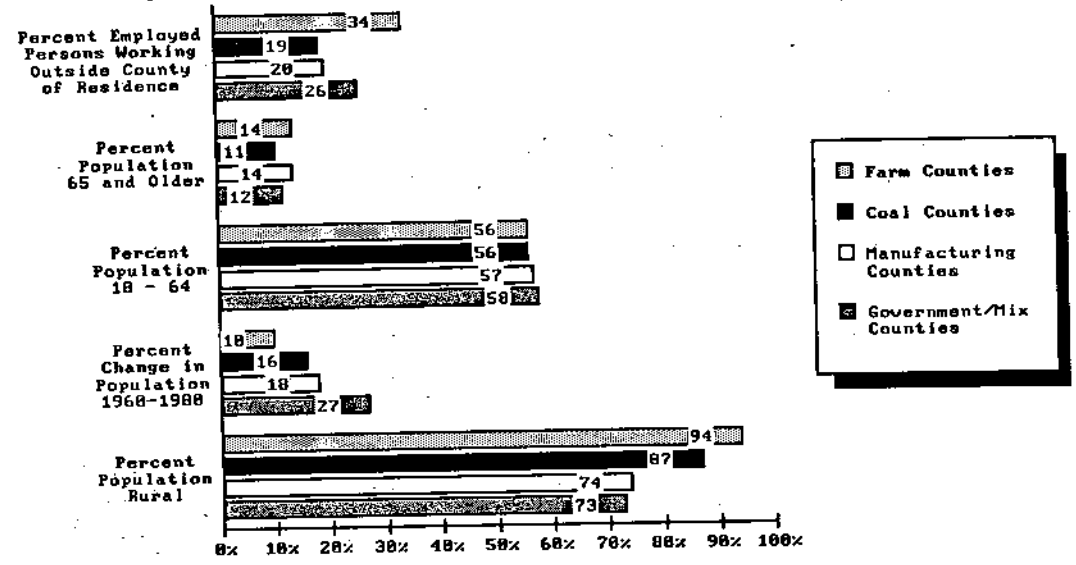
See Appendix 3 for Sources.

However, before we look for differences between bases in government programs, economic distribution, and reinvestment patterns, we should examine possible differences between bases in the make-up of the population. For example, the extent to which a county's population is "rural," as opposed to "urban," may make a difference in socio-economic conditions. Extensive changes in migration patterns during the study period could influence patterns of change. Other demographic factors that may affect conditions include the proportion of the population with jobs, as opposed to dependent older people or children, or the extent to which residents commute outside the county for work. The next section is a brief review of such demographic factors.

Demographic Differences

There are basic rural-urban differences among counties according to economic base. Figure 19 compares characteristics of the population by base. FARM and COAL counties are "more rural"--that is to say that they have fewer people living in urbanized areas with populations over 2,500. Analysts associate rurality with poorer socioeconomic conditions. Less urbanized places usually are more isolated, making provision of public services more expensive because there are fewer economies of scale. These constraints on public infrastructure development are exacerbated in mountainous regions.[93]

Figure 19. Population Differences by Economic Base, 1980



See Appendix 3 for Sources.

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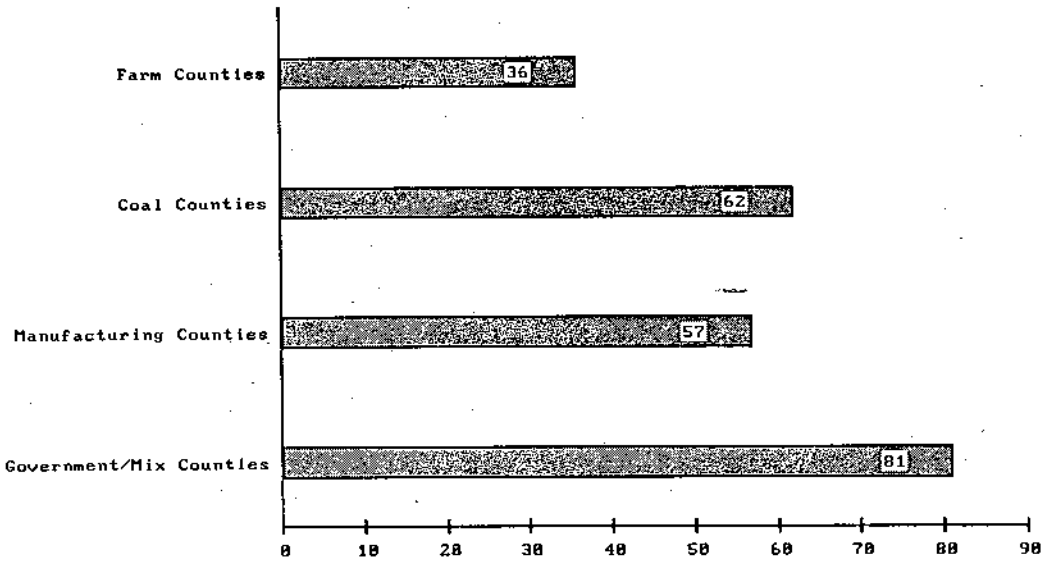
[93]Several coal executives interviewed by MACED observed that the terrain hampered infrastructure development, and felt that more state revenue, on a per capita basis, should be devoted to these difficult areas. See MACED, Industry Perspectives.

Despite their rurality and mountainous terrain, however, COAL counties in Kentucky are densely populated: they average 62 people per square mile, higher than the MANUFACTURING counties' population density of 57 persons per square mile (see Figure 20). This high density in COAL counties has not meant better public infrastructure services. On the contrary, as Figure 17 showed, the proportion of houses with public sewer and water systems is not comparable to that in MANUFACTURING or GOVERNMENT/MIX counties.

Figure 20. Population per Square Mile by Economic Base, 1980



See Appendix 3 for Sources.

One explanation for the similarity in changed conditions between COAL and FARM counties might be that population growth prevented economic benefits in coal counties from being reinvested to meet old social needs.[94] Figure 19 shows that population growth, or percent change in total population between 1960 and 1980, does not correspond to patterns of economic growth. Some COAL counties had substantial inmigration during the 1970s coal boom, but, on the average, COAL counties' population grew about 16 percent between 1960 and 1980, compared to 18 percent in MANUFACTURING counties and 27 percent in GOVERNMENT/MIX counties.[95] FARM counties had the lowest population growth rate, at only 10 percent. However, it seems unlikely that a population growth rate higher by six percentage

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[94]Inmigration could also bring more educated adults.

[95]1970-1980 net migration rate was 9 in FARM counties, 16 in COAL counties, 10 in MANUFACTURING counties and 13 in GOVERNMENT/MIX counties (see Lori Garkovich and Carol Straus, Population Change in Kentucky During the Seventies, No. 1 [Lexington, KY: University of Kentucky College of Agriculture, Sociology, September, 1982]).

points in COAL counties absorbed the difference between FARM and COAL county economic growth.

Greater dependency is frequently cited to explain poor conditions in the coal fields--COAL counties are thought to have a greater proportion of people who are either too young or too old to work. A larger dependency ratio would diminish the ability of the county population to support itself, since fewer workers would carry financial responsibility for more children and older people. Figure 19 also shows that COAL counties have about the same proportion of working age population as the rest of rural Kentucky: 56 percent, compared to 56 percent in FARM counties and 57 and 58 percent respectively in MANUFACTURING and GOVERNMENT/MIX counties. The MANUFACTURING and FARMING counties have the greatest proportion of older residents (14 percent), while in COAL counties 11 percent of the population is over 65, and in GOVERNMENT/MIX 12 percent.

Commuting is an important factor in comparing economic conditions in rural Kentucky. The economic base categorization is made on the basis of labor and proprietor income by place of work, while the economic growth and economic development indicators reflect place of residence. Therefore, if residents of a county with one type of economic base commute to work in a county with another type of economic base, their work-derived income will not actually be dependent upon the economic base of the county in which they live and "experience a certain level of development." This is particularly relevant in FARM counties where 34 percent of workers commute to jobs outside their county of residence, earning money which they presumably bring back into the FARM county. This phenomenon does not change the rate of growth in FARM counties, because income earned outside the county is included in the economic growth measure. Nor does it change the quality of life in FARM counties. It does, however, reduce the actual economic dependence upon farming as a source of income in FARM counties. Thus, if we did not realize that a third of the workers in FARM counties commuted, we might give "farming," as an economic sector, more "credit" for improved conditions in that economic base than it strictly deserves. FARM counties' commuting level of 34 percent compares to 26 percent in GOVERNMENT/MIX, 20 percent in MANUFACTURING and 19 percent in COAL.

This difference in the proportion of commuting may explain, in part, why FARM counties improved parallel with COAL counties without greater economic growth. To some extent FARM counties appear to act like suburban counties, although basic conditions certainly do not reflect the affluence associated with suburban living.

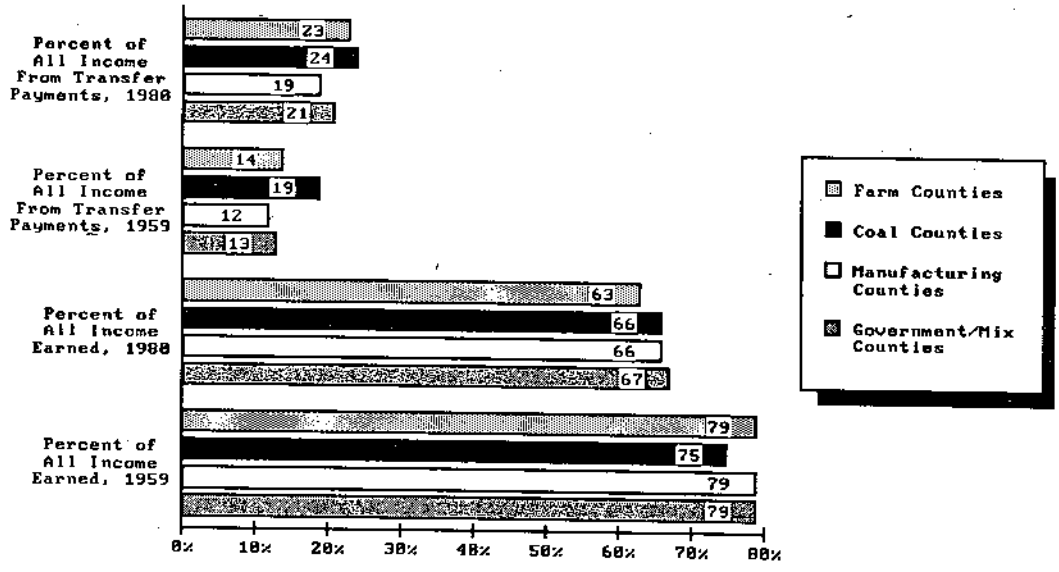
Government Programs

Could government programs have boosted the improvement in FARM counties, making up for its lack of economic growth compared to COAL counties? Recent studies have suggested that transfer payments,

especially social security benefits, have had an important impact on reducing poverty.[96] Peter Gottschalk, researcher with the Institute for Research on Poverty, testified before the House Ways and Means Committee in the fall of 1983, that ". . . big-term growth in public transfer payments has been at least as important as economic growth in explaining past reductions in poverty." In fact, the role of transfer payments in the local economy increased throughout rural Kentucky counties, for poor and nonpoor households alike.

During the 20 years between 1960 and 1980 there were interesting shifts in the proportion of income derived from earnings and from transfer payments (see Figure 21). In 1959 COAL counties stood apart from the others: slightly less income came from earnings (75 percent, compared to 79 percent in all the other counties), and more income came from transfer payments (19 percent in COAL, compared to 12-14 percent in the other economic bases). By 1980 all the counties derived more income from transfer payments (21-24 percent), and less from earnings (63-67 percent). Furthermore, differences have narrowed. Although both COAL and FARM counties receive a slightly greater proportion of total income from transfer payments, the differences are small given their larger proportions of low income families.

Figure 21. Percent Personal Income Earned and Percent Transfer Payments by Economic Base, 1959 and 1980



[96]Alice Rivlin, Economic Choices 1984 (Washington, D.C.: Brookings Institution, 1984); John L. Palmer and Isabel V. Sawhill, The Reagan Experiment: An Examination of Economic and Social Policies Under the Reagan Administration (Washington, D.C.: Urban Institute Press, 1982).

These changes probably do reflect the economic growth in COAL counties--although they did not achieve better conditions than other counties over that period, they did become less dependent, relatively, upon transfer payments. Although, as we shall see in the next section, the earnings and income are concentrated, earned income makes up a greater proportion of total 1980 income in COAL counties than it did in 1959. Like the improvement in health conditions, the decline in transfer payments dependence is a marked improvement in COAL counties. However, the greater proportion of income derived from work overall reflects the same phenomenon as income growth--it does not account for whether that income is well-distributed in COAL counties or whether it can be depended upon to improve local conditions.

Census statistics for household income sources shed further light on the role that government transfer payments play as a source of income in the various bases. Census interviewers ask householders whether they received any income from various specific sources, for example earnings from work or from investments, or income from the government such as social security or income assistance payments. One household could, of course, receive income from several sources. The answers to these "sources of income" questions vary by base.

Inspection of Figure 22 indicates that while 72 percent of all households in MANUFACTURING and GOVERNMENT/MIX counties receive some income from wages or salaries, 68 percent of FARM households and 66 percent of COAL households do. A greater proportion of COAL households receive some government income (15 percent), with FARM at 13 percent and the others at 11 and 10 percent. Black lung payments represent about one-sixth of all transfer payments in COAL counties.[97] Importantly, the proportion of households reporting that they receive social security income is about the same in all bases, ranging from 31 to 33 percent.

Generally, there are few differences between bases on transfer payments in other areas. The role of government money assistance is spread fairly equally across rural Kentucky counties. Therefore, it does not appear that COAL counties' income growth is balanced by greater transfer payments in other areas. Next we examine differences in income and work distribution by base, looking for ways these differences might be reflected in the private and public reinvestment process.

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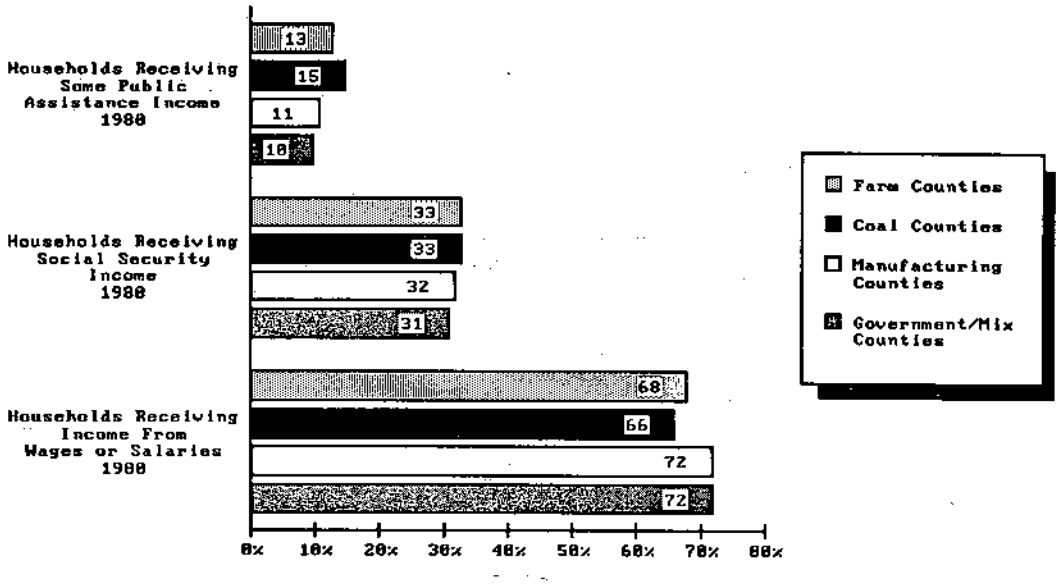
[97]When we take all the transfer payment income received in a county and divide that amount by the population we get per capita transfer payments, a measure that might reflect relative dependence upon government payments in a given place. The per capita dollar amount of transfer payments to individuals is higher in coal counties ($1,238 in COAL, $998 in FARM, $1,034 in MANUFACTURING and $1,084 in GOVERNMENT/MIX counties). Black lung payments may offer an explanation for the higher per capita amount in COAL counties.

Figure 22. Percent of Households Receiving Income from Various Sources by Economic Base, 1980



See Appendix 3 for Sources.

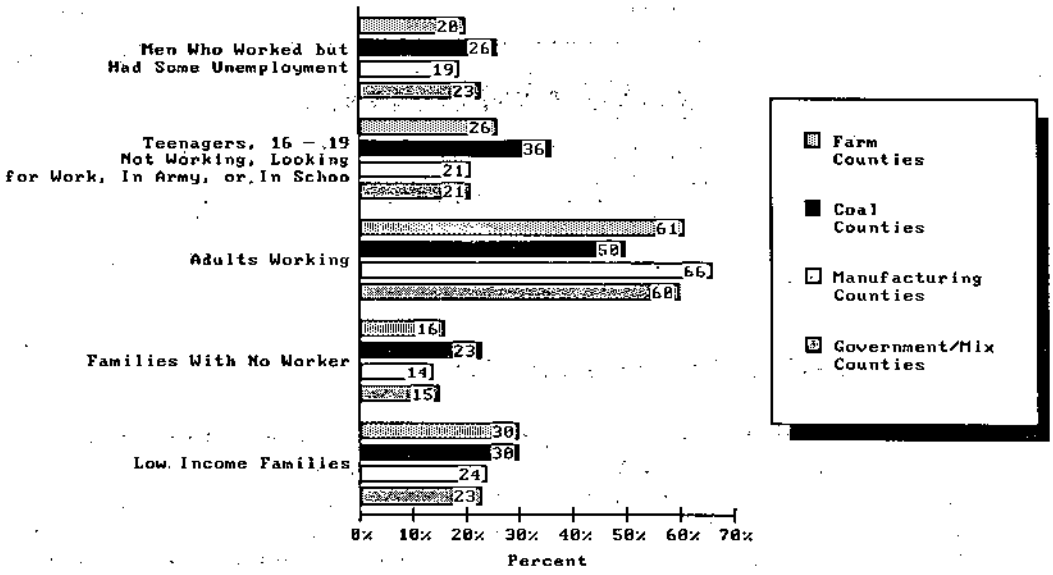
Income, Work, and Earnings Distribution

Many development scholars argue that income growth alone, even when controlled for population size, is not an adequate development indicator. After World War II, when international development efforts were initiated throughout the Third World, economists assumed increased economic growth indicated that development was underway. However, over the next two decades it became clear that increased economic activity (GNP), or increased per capita income, did not necessarily mean that places were achieving development gains. Development scholars and practitioners began to emphasize the importance of widespread distribution of economic benefits. Per capita income growth is an aggregate figure--growth in all income divided by the population--and it does not reflect how much income is concentrated in any particular group. Per capita income can disguise substantial poverty and inequality.

If income gains in rural Kentucky are concentrated in a few households or individuals, and a large proportion of the population remains poor, these gains cannot be heralded as evidence that income brought development. The proportion of families with low incomes, which we used as a quality of life indicator, also indicates income distribution. In 1959 over half of all families in rural Kentucky had incomes below $3,000. As we saw in previous figures, the proportion of low income families was highest in COAL and FARM counties, at 61 percent and 59 percent, compared to almost 10 percentage points less in MANUFACTURING (50 percent) and almost 15 percentage

points less in GOVERNMENT/MIX (46 percent). By 1979, GOVERNMENT/MIX and MANUFACTURING counties had about 23 percent low income families, while FARM and COAL had about 30 percent low income families. GOVERNMENT/MIX and MANUFACTURING counties had about "22 percent fewer" poor families in 1979 than they did in 1959, and COAL and FARM counties had about "30 percent fewer" poor families (see Figure 23).

Figure 23. Distribution of Income and Work by Economic Base, 1980



See Appendix 3 for Sources.

These are surprising results. Since COAL counties had an income growth rate of 164 percent, compared to 91 percent in FARM counties, one would expect greater improvement in COAL county poverty levels than in FARM counties. The failure of income growth in COAL counties to alleviate poverty indicates that gains were concentrated among families at the upper end of the income ladder.[98] These patterns of inequality in COAL counties also appear in work distribution and wage differences across the economic bases.

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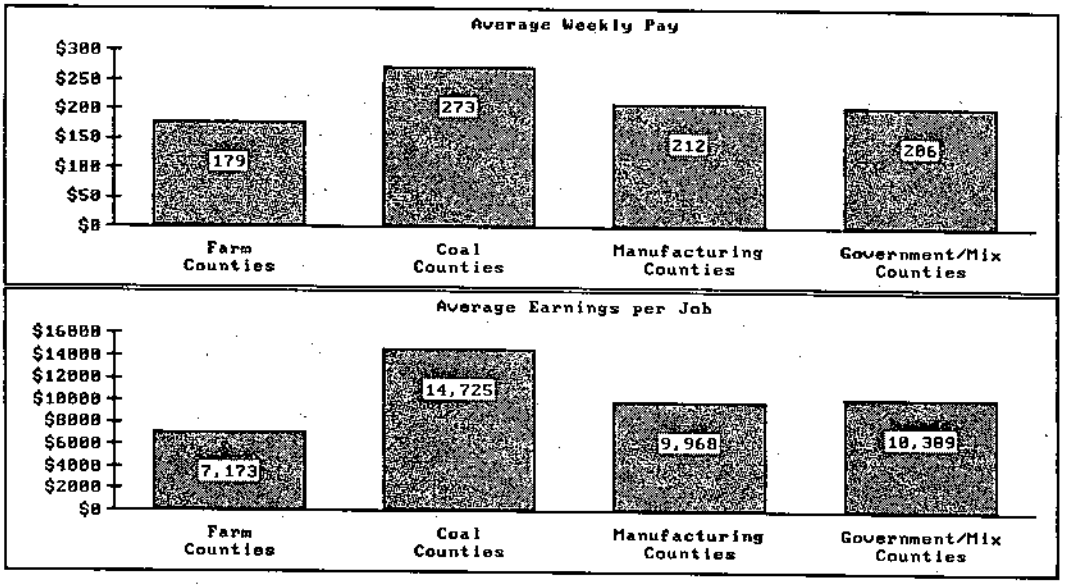
[98]The Gini coefficient of concentration is a common measure of inequalities in the distribution of wealth or income. The Gini coefficient of concentration of household income in 1980 is highest in COAL counties, at .440, compared to .427 in FARM counties, .416 in MANUFACTURING counties, and .415 in GOVERNMENT/MIX counties. Generally Gini coefficients of .300 to .350 indicate a relatively equal income distribution.

Average annual earnings and average weekly pay in 1980 reflect the economic growth patterns: COAL county annual earnings average $14,725, while FARM county earnings average $7,173, MANUFACTURING $9,968, and GOVERNMENT/MIX earnings average $10,389. Similarly, COAL counties stand apart from the others on average weekly pay levels in 1980: $273 compared to $212 in MANUFACTURING counties, $206 in GOVERNMENT/MIX counties, and $179 in FARM counties (see Figure 24). In 1960 average pay levels were about the same in all types of counties, even though the counties differed on other income-related measures. Average 1960 pay in FARM counties was $54, $64 in COAL counties, and about $60 in the MANUFACTURING and GOVERNMENT/MIX counties.

Figure 24. Average Annual Earnings and Weekly Pay by Economic Base, 1980



See Appendix 3 for Sources.

Corresponding to this income inequality, four indicators of employment and work distribution for 1979-1980 show that work opportunities in COAL counties are distributed narrowly compared to the other bases. Looking again at Figure 23, we see that 23 percent of all COAL county families have no family member working, compared to 14-16 percent in the other bases. Only 34 percent of COAL county families have two workers in the family, compared to 47-51 percent in the other bases. Comparisons of employed workers as a proportion of working age residents indicate that COAL counties have a smaller

proportion of adults actually working (50 percent), compared to 61 percent in FARM counties, 60 percent in GOVERNMENT/MIX counties, and 66 percent in MANUFACTURING counties.[99]

Limited work opportunities extend to teenagers as well: 36 percent of COAL county teenagers have no regular work or school activity--they are not in the military, not in school, not looking for work, and not working--compared to 26 percent in FARM counties and 21 percent in MANUFACTURING and GOVERNMENT/MIX counties. And, finally, work is less stable over time in coal counties also: 26 percent of the men in the labor force who worked in 1979 in COAL counties had some unemployment during that year, while only 19-23 percent in the other bases had some unemployment (see Figure 23).

Is there evidence that income and work inequality in COAL counties hinders the crucial reinvestment process--both private and public--that turns economic benefits into an improved quality of life? The next section examines some indicators of this process.

Private Reinvestment

By "private reinvestment" we mean the whole complex process through which the benefits of economic production get turned into community improvements through the private sector. That is, we consider things like personal savings, institutional lending, and local business activity to be indicators, in a broad sense, of how the private reinvestment process is working. Since people and businesses spend, save, and lend outside of county boundaries, these measures are only a rough approximation of actual reinvestment, but, nonetheless, they convey something about how much is going on in the local economy.

The greater income growth in COAL counties might be visible in the private economy, either as more savings or more investment. Actually, however, COAL counties lag behind the others somewhat in private investment. For example, there is an interesting difference in the proportion of households receiving income from personal investments, such as rents, interest or dividends. Thirty-one percent of households in MANUFACTURING and GOVERNMENT/MIX bases receive some income from these sources, compared to 26 percent of FARM base households and only 21 percent of COAL county households (see Figure 25). This lower figure in COAL counties may reflect a lack of local savings and investment emanating from historical economic instability that has discouraged long-term saving and investment and encouraged either consumerism or depletion of savings during strikes and periods of unemployment.

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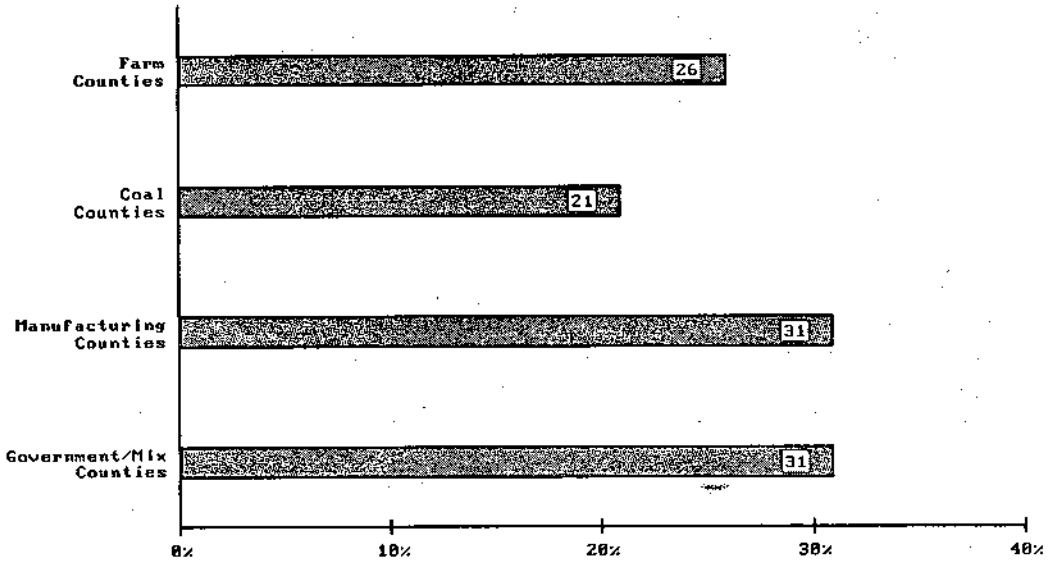
[99]Proportion of working-age adults employed is a labor force participation rate created from 1980 Census data. It is more accurate than the seven step estimate available from the Bureau of Labor Statistics. Of course, it is only good for the year of the Census.

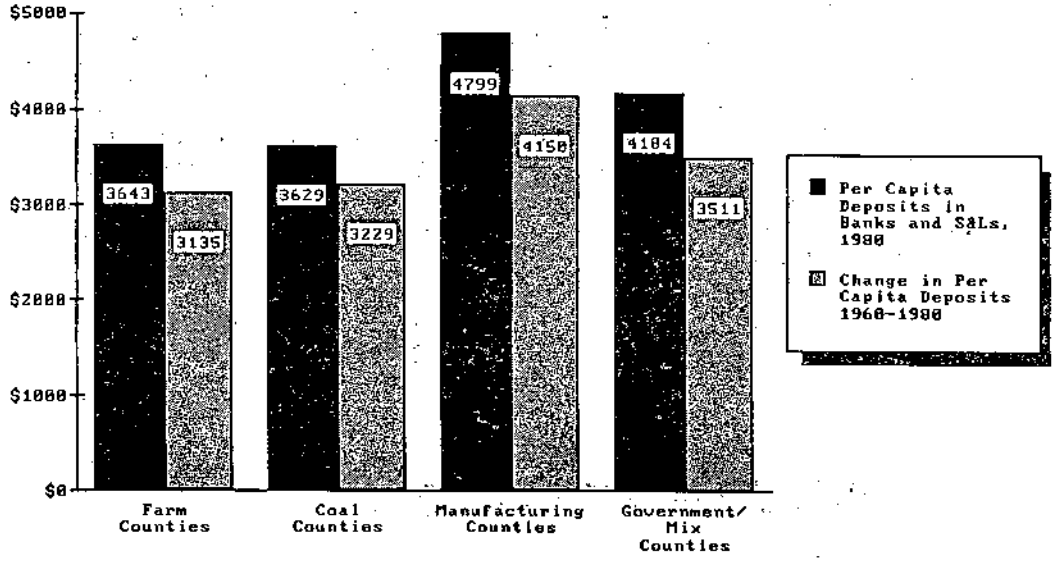
The pattern is repeated for savings in local banks and savings and loan associations. In both 1980 and 1960 COAL counties had the lowest bank and savings deposits per capita. COAL county average savings were $3,629 in 1980, compared with $3,643 in FARM counties, $4,184 in GOVERNMENT/MIX counties, and $4,799 in MANUFACTURING counties (see Figure 26). These figures are surprising, once again, given the higher earnings in COAL counties. Even though the average earnings in COAL counties are twice that in FARM counties, per capita deposits are virtually the same. Furthermore, per capita deposits increased about the same amount in both FARM and COAL counties, even though COAL counties had both greater earned income growth and greater average earnings. Concentration of income and the historical instability of income in coal counties may thwart the private investment process.

Figure 25. Percent Households Receiving Dividend/Rental Income by Economic Base, 1980



See Appendix 3 for Sources.

Figure 26. Per Capita Deposits 1980, and Change in Deposits by Economic Base, 1960-80



See Appendix 3 for Sources.

The lending patterns of county banks do not reflect dramatically different investment patterns (see Figure 27).[100] Some banks in MANUFACTURING and GOVERNMENT/MIX counties make more loans relative to deposits (the indicator here, "highest ratio," represents the highest loan-to-deposit ratio in the county over a five-year period, 1978-1982). But the average lending of all the banks shows little variation between bases. ("Average all banks" represents an average loan-to-deposit ratio for all the banks in the county over a five-year period.) That means that there are a few more aggressive banks in the MANUFACTURING and GOVERNMENT/MIX counties, but overall there are few differences in lending patterns.[101]

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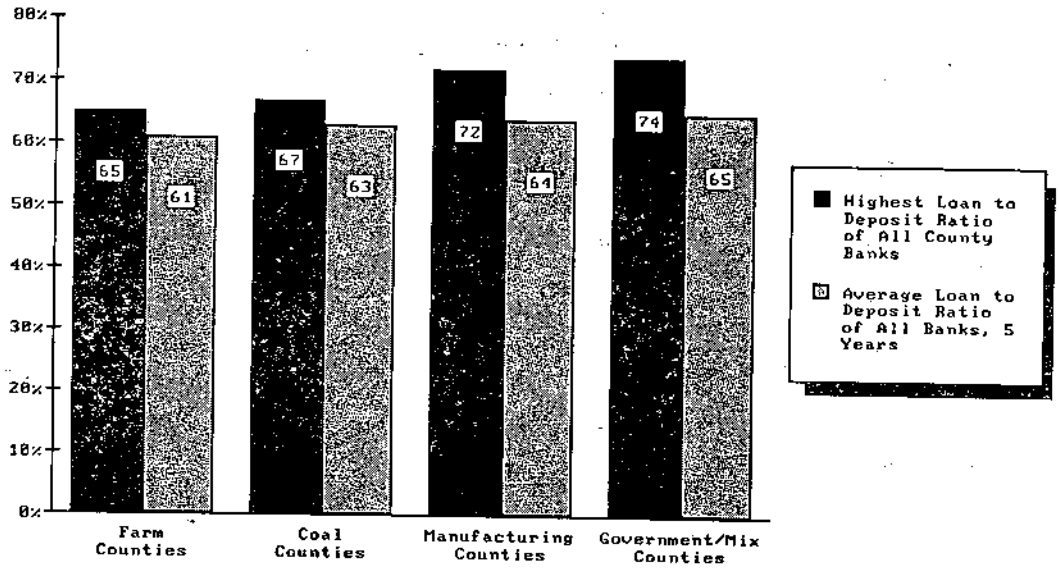
[100]Financial institutions can and do lend outside county borders, and borrowers can and do borrow outside county borders. Lending patterns by county are compared here to show that there are few differences across economic bases, even though economic and social well-being differs.

[101]The loan-to-deposit ratio is the indicator most often used to assess banks' responsiveness to community credit needs. While there are numerous reasons that this ratio must be interpreted with care (including the fact that it does not include loans resold on the secondary market), it is "useful as a first test" (Calvin Bradford, Pilot Project on Rural CRA Use [Milwaukee, MN: University of Minnesota, under contract with Rural America, 1980]; and Richard D. Dreese, "Banks, Bankers and Economic Growth in Appalachia," West Virginia University Bulletin, Series 76, No. 7-4 [1973]).

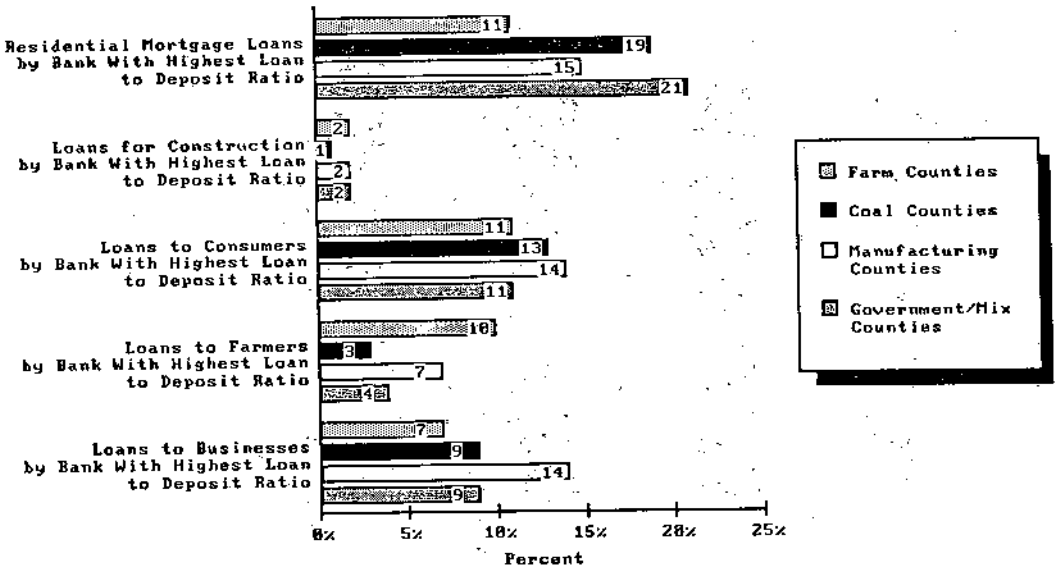
Figure 27. Bank Loan-to-Deposit Ratios by Economic Base, 1978-1982



See Appendix 3 for Sources.

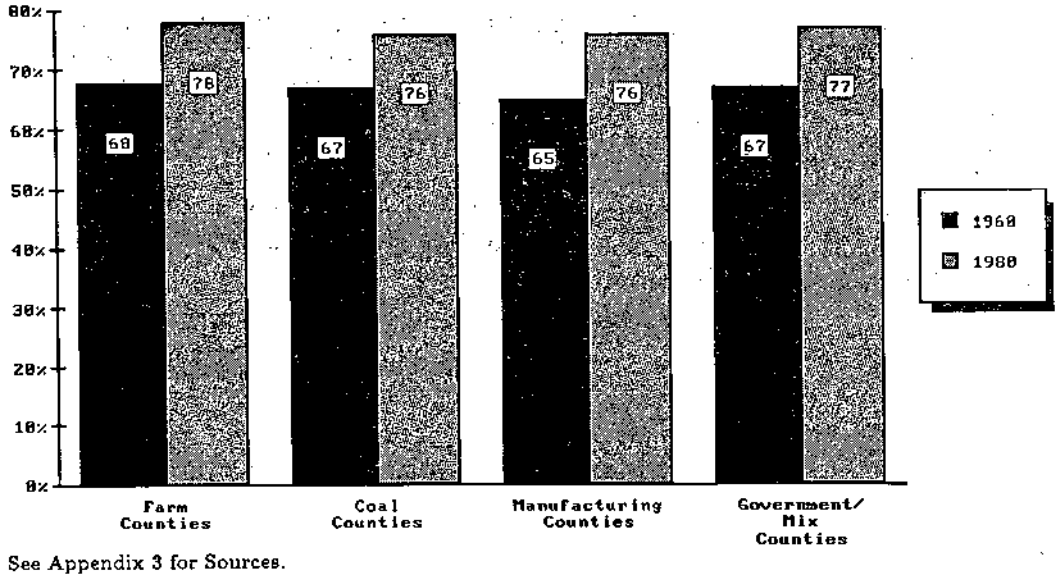
As Figure 28 shows, a larger percentage of business loans are made in MANUFACTURING counties (14 percent of all loans are business loans, compared to 9 percent in COAL and GOVERNMENT/MIX counties and 7 percent in FARM counties), and a larger proportion of farm loans are made in FARM counties (10 percent compared to 3, 7 and 4 percent in the other bases). Consumer and construction loans make up about the same proportion of loans in all economic bases. FARM county banks lend a smaller proportion for residential loans (11 percent compared to 19 in COAL, 15 in MANUFACTURING and 21 in GOVERNMENT/MIX). However, the same proportion of houses are owner occupied in all bases (76 to 78 percent), and similarities existed in 1960 as well (see Figure 29).

Figure 28. Distribution of Bank Loans by Type Loan by Economic Base, 1982



See Appendix 3 for Sources.

Figure 29. Owner Occupied Housing Units by Economic Base, 1960, 1980

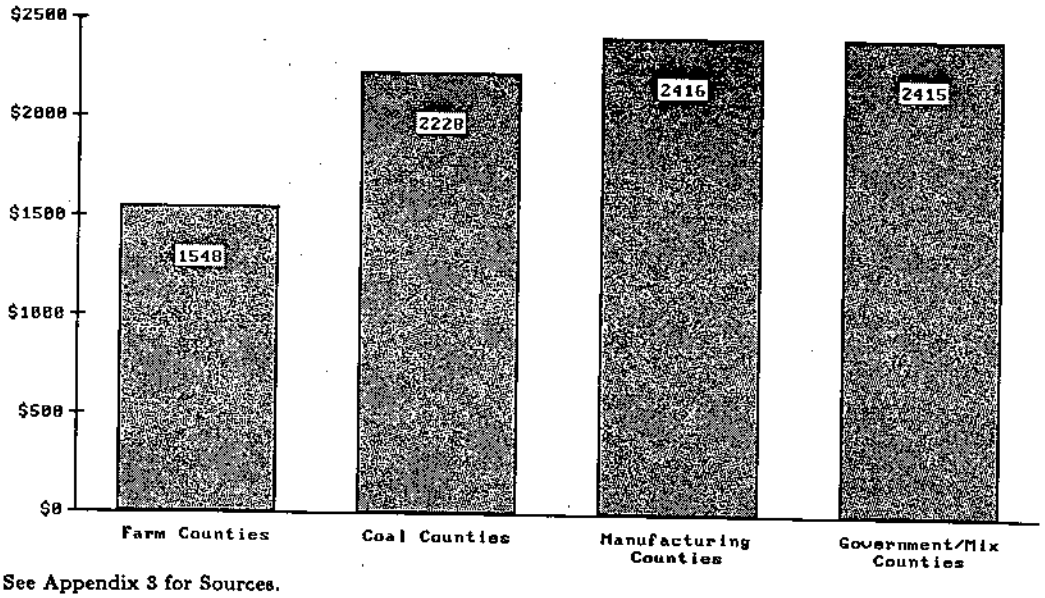


See Appendix 3 for Sources.

COAL counties do not appear to lag particularly far behind on indicators of local business activity indicators, such as retail sales per capita, sales and use tax per capita, or manufacturing, wholesale and retail establishments per 1,000 people. As Figure 30 indicates,

COAL county retail sales per capita are $2,228, compared to a low of $1,548 in FARM counties, and $2,415 in the MANUFACTURING and GOVERNMENT/MIX counties.

Figure 30. Per Capita Retail Sales by Economic Base, 1977



See Appendix 8 for Sources.

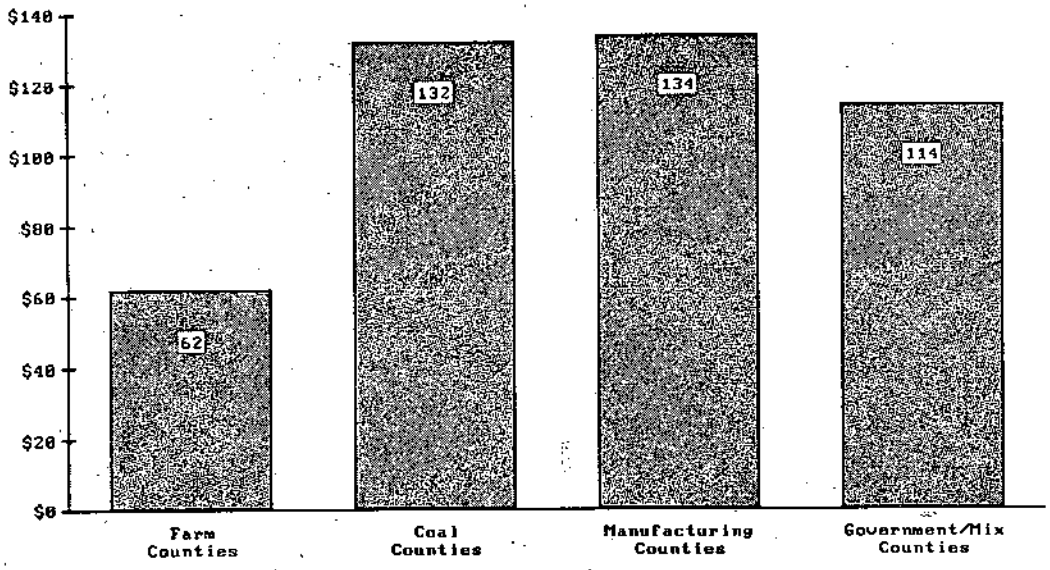
Similarly, Figure 31 shows that per capita revenue collected as sales and use tax is lower in FARM counties (at $62), and over $100 in the other bases, COAL included (COAL is $132 per capita, MANUFACTURING $134 per capita, and GOVERNMENT/MIX $114 per capita). These two indicators of local business sales suggest that FARM county residents may shop outside their county of residence more than people living in other bases, resulting in a relatively lower level of sales per capita. Or these statistics may reflect income inequality in COAL counties again--although the total money spent exceeds that in FARM counties on a per capita basis, it may be spent by a relatively smaller proportion of county residents. Interestingly, there is little variation in business establishments per 1,000 people: the number of manufacturing, wholesale and retail establishments per 1,000 people is 10 in FARM counties, 10 in COAL counties, 12 in MANUFACTURING counties and 11 in GOVERNMENT/MIX counties (see Figure 32).

In summary, we see some difference in private investment and savings between COAL counties and the others, but not differences in aggregate consumer spending at the county level. Our limited data suggests that the "circulation" process is not different overall, but patterns of investment may lag in COAL counties.

Next we examine the public reinvestment process to see whether revenues and expenditures differ in COAL counties. If there are differences, do they explain why FARM and COAL counties have similar conditions,

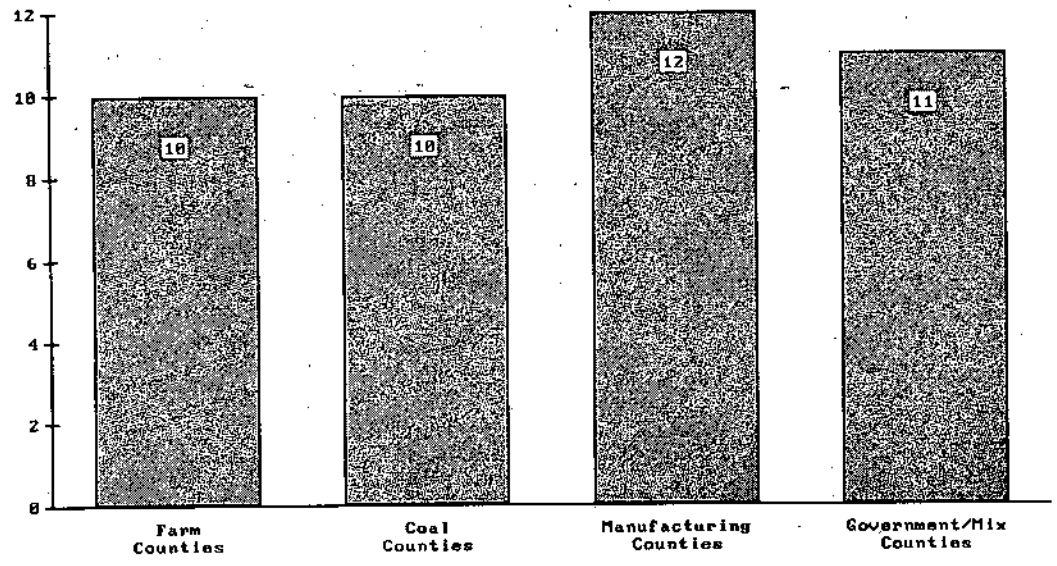
even though COAL counties had greater income growth? Is there evidence that local governments in COAL counties do less than FARM counties to harness income growth for public improvements?

Figure 31. Per Capita Sales and Use Tax by Economic Base, 1981



See Appendix 3 for Sources.

Figure 32. Manufacturing, Wholesale, and Retail Trade Establishments, per 1,000 by Economic Base, 1977



See Appendix 3 for Sources.

Public Reinvestment

Public sector reinvestment is manifested partly in the revenues and expenditures of county governments. However, county governments are limited in the types of taxes they can impose on businesses, workers, and households. Property taxes make up the majority of locally raised revenues, and counties cannot levy excise taxes on particular businesses. House Bill 44, passed by the Kentucky Legislature several years ago, limits county increases in the property tax rate. Furthermore, the state reduces its subsidy of public education in direct proportion to the increase in county revenue for education. Counties can impose occupational taxes, which are essentially taxes on wages, but only two nonmetropolitan counties in Kentucky do so (Rowan and Hancock Counties).[102] Low income counties in the state depend heavily upon state and federal intergovernment transfers. A large proportion of severance tax revenues from coal production goes into the Kentucky General Fund, rather than funding county-level needs.

These restrictions notwithstanding, county level public revenue and expenditures do indicate patterns of "public reinvestment"--the process through which the public sector harnesses the benefits of economic activity to improve the quality of life. If COAL counties are maximizing their opportunity to benefit from growth in COAL, we should see per capita revenue and expenditure levels that correspond with per capita income levels. COAL county per capita income in 1980 was $6,066, compared to $5,293 in FARM counties, and $6,408 and $6,304 in MANUFACTURING and GOVERNMENT/MIX. In other words, COAL county per capita income is 15 percent higher than FARM county per capita income.

Inspection of Figures 33-37 indicates that COAL counties have neither more revenue nor greater expenditures on a per capita basis than FARM counties. Per capita total county revenues (all the revenue the county received in fiscal year 1981-1982) are highest in MANUFACTURING counties ($182 per person), and lowest in GOVERNMENT/MIX counties ($121 per person). COAL counties had per capita total revenue of $135, 16 percent lower than the $157 in FARM counties.

COAL counties generate the least revenue locally ($35 per capita), but they do not differ from FARM counties on state and federal revenue per capita. Clearly MANUFACTURING counties do the best job of generating local revenue.

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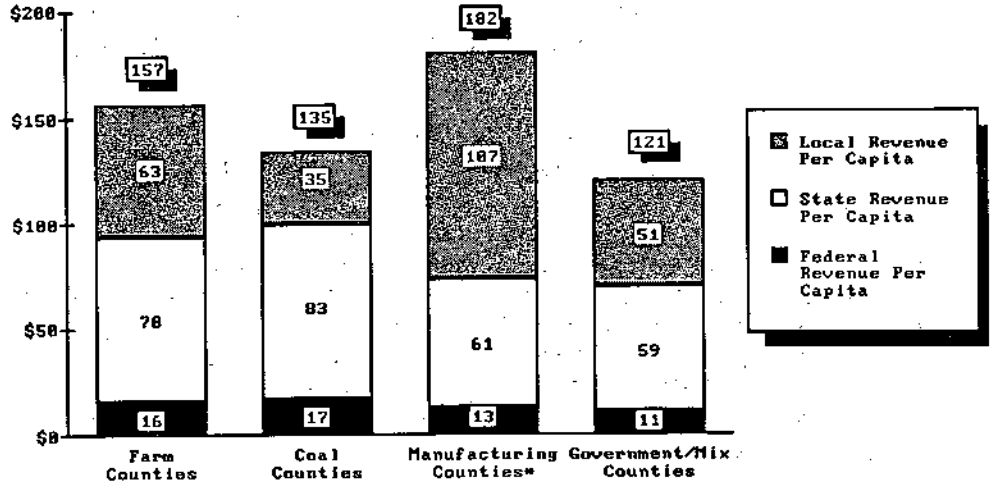
[102] In every COAL county in Kentucky an occupation tax of 1 percent would generate more revenue for the county than the severance tax revenue received in 1982. In the larger counties, such an occupation tax would generate the same level of revenue as the property tax, thus virtually doubling the county's annual revenue. An occupation tax in COAL counties may be one of several ways that COAL counties can increase their tax revenues.

Both COAL and FARM counties depend less proportionately on locally generated revenue than MANUFACTURING and GOVERNMENT/MIX counties. Twenty-six percent of all COAL county revenue is locally generated, and 34 percent of FARM revenue is locally generated. MANUFACTURING counties, on the other hand, generate 43 percent of their county revenue, and GOVERNMENT/MIX counties 40 percent (see Figure 34). (Nationally, counties generate an average of 56 percent of their revenue locally, and 34 percent of that revenue is generated from taxes.)

Figure 33. Per Capita Total County Revenue by Source by Economic Base, 1980

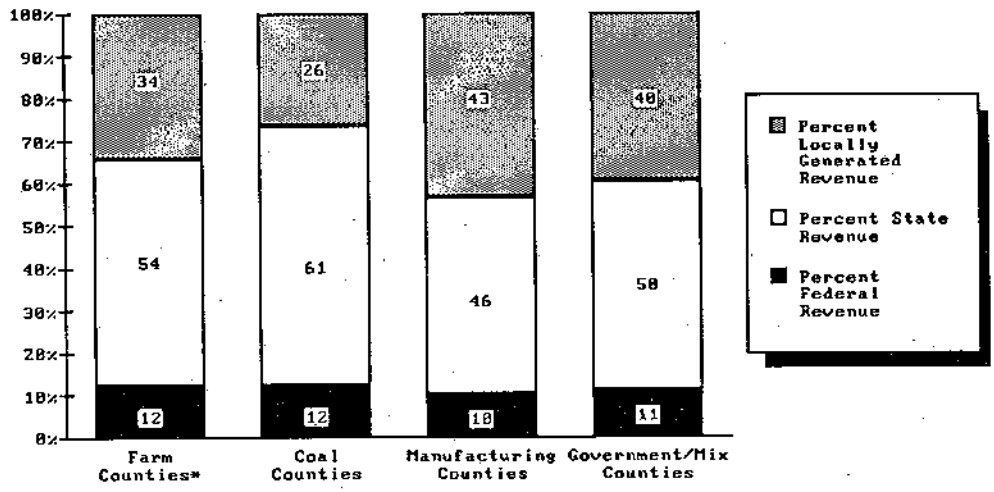


*Local Revenue for Manufacturing Counties is only $86 if Hancock County is excluded.

See Appendix 3 for Sources.

The proportionate difference is made up by the state government, since all four groups of counties depend upon the federal government for about 11 percent of county revenue. Sixty-one percent of COAL county revenue is from the state, compared to 54 percent of FARM revenue, 46 percent of MANUFACTURING county revenue, and 50 percent of GOVERNMENT/MIX county revenue. The relatively larger portion of COAL county revenue from the state in 1980 reflects the contribution to county revenue made by the return of severance tax revenue to coal-producing counties.

Figure 34. Percent Distribution of County Revenue by Source by Economic Base, 1980



*Data for Bracken County not available.

See Appendix 3 for Sources.

Per capita tax revenues are lowest in COAL counties, at $20 per person, although FARM and GOVERNMENT/MIX counties only differ slightly, at $22 per person. MANUFACTURING counties generate the highest per capita tax revenue, at $26 per person (see Figure 35). This tax revenue indicator includes all tax revenue the county collects (not including city and school districts' tax collections), and thus may reflect low tax collections or a low tax base.[103]

Per capita property assessments for state taxes show a greater discrepancy however: FARM counties had per capita property assessments of $17,274, and COAL counties had a similar level, at $17,341. MANUFACTURING counties, however, have a higher level, at $25,287 assessed per person, and GOVERNMENT/MIX counties fall in between at $19,258 (see Figure 36).

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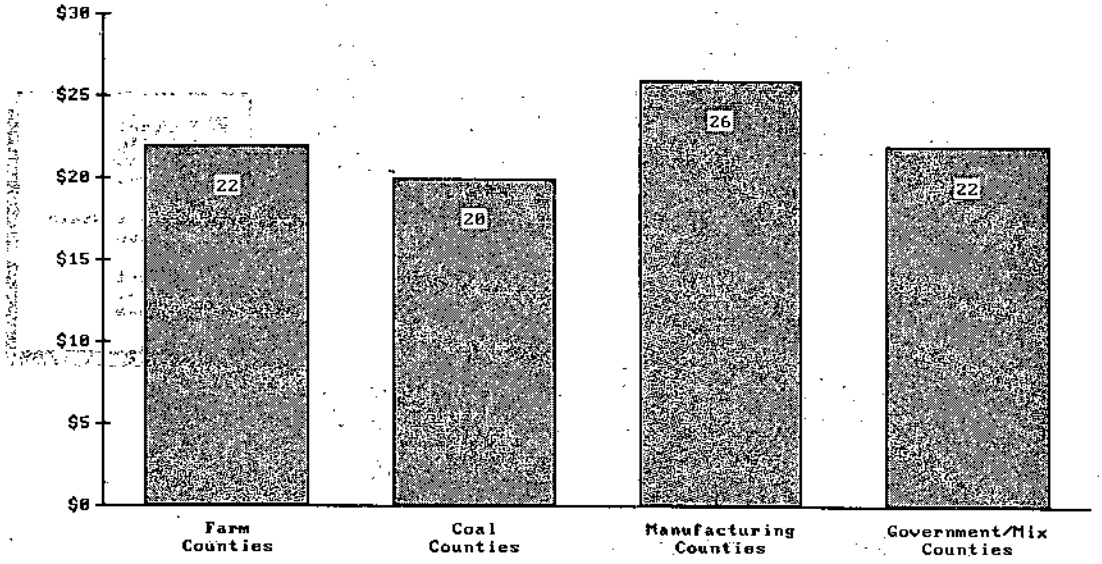
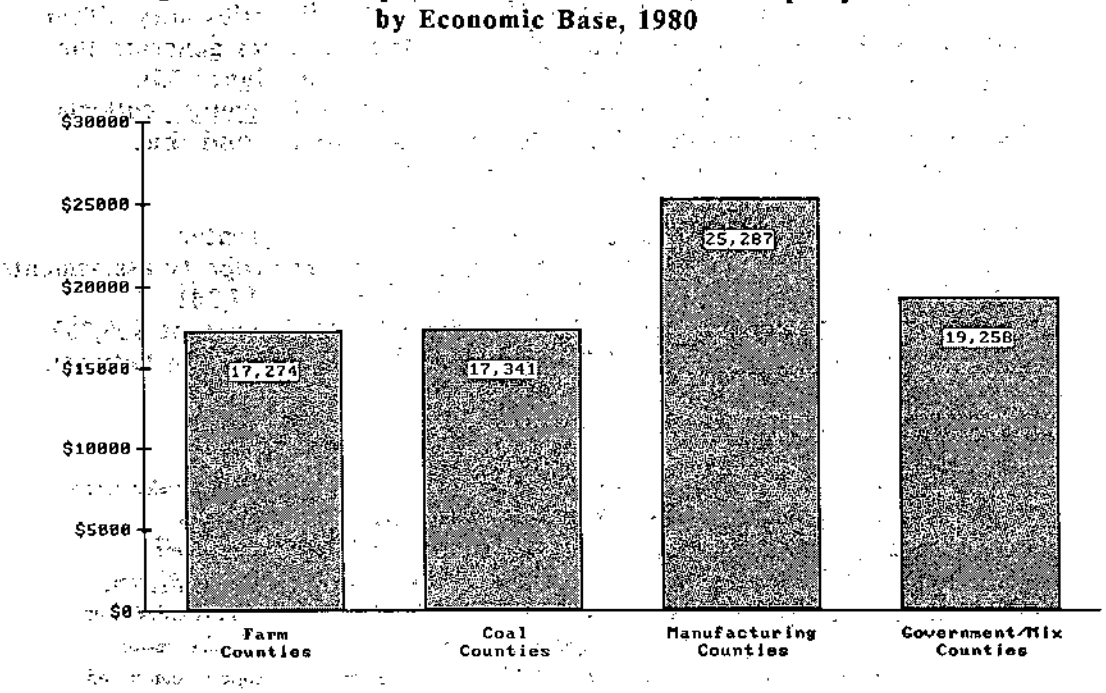
[103]The county newspaper in Knott county, a COAL county in eastern Kentucky, wrote an editorial in the fall of 1983 chastising the tax collectors for failing to collect taxes that were legally due. While assessment may have been a problem before 100 percent valuation became the law, a study by Douglas Dotterweich, Property Tax Effort in Eastern Kentucky Counties: Implications for Financing Public Services (Morehead, KY: Appalachian Development Center, Morehead State University, 1982), and the author's own observation of assessment/sales ratios suggest that COAL counties do not underassess property compared to its sales value. Nonetheless, both the value of property and the rate of actual collection may differ in COAL counties.

Figure 35: Per Capita County (Locally Generated) Tax Revenue by Economic Base, 1980



See Appendix 3 for Sources.

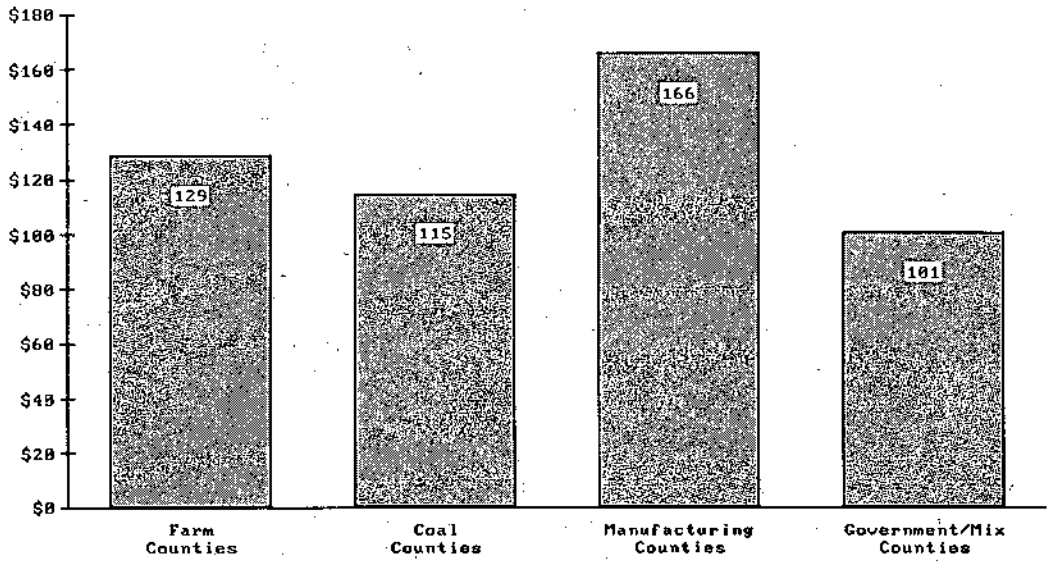
Figure 36: Per Capita Assessment for State Property Taxes by Economic Base, 1980



See Appendix 3 for Sources.

Not surprisingly, per capita expenditures follow the pattern set by per capita revenues: GOVERNMENT/MIX counties had the lowest per capita revenue ($121), and they spend the least as well ($101). COAL counties follow, with $135 per capita in revenue and $115 per capita in public spending. FARM counties had per capita revenue of $157, and they spend $129 per capita.[104] MANUFACTURING counties have the greatest public sector activity, with per capita revenue of $182 and per capita expenditures of $166 (see Figure 37).[105]

Figure 37. Per Capita Expenditures by Economic Base, 1980



See Appendix 3 for Sources.

What about public investment in education? COAL and FARM counties lag far behind other rural counties in school achievement levels. Do they also lag behind in revenues per pupil? Actually, FARM counties have the highest revenue per pupil, with an average of $1,882 per pupil (see Figure 38). MANUFACTURING counties follow, with $1,830 per pupil, the GOVERNMENT/MIX counties at

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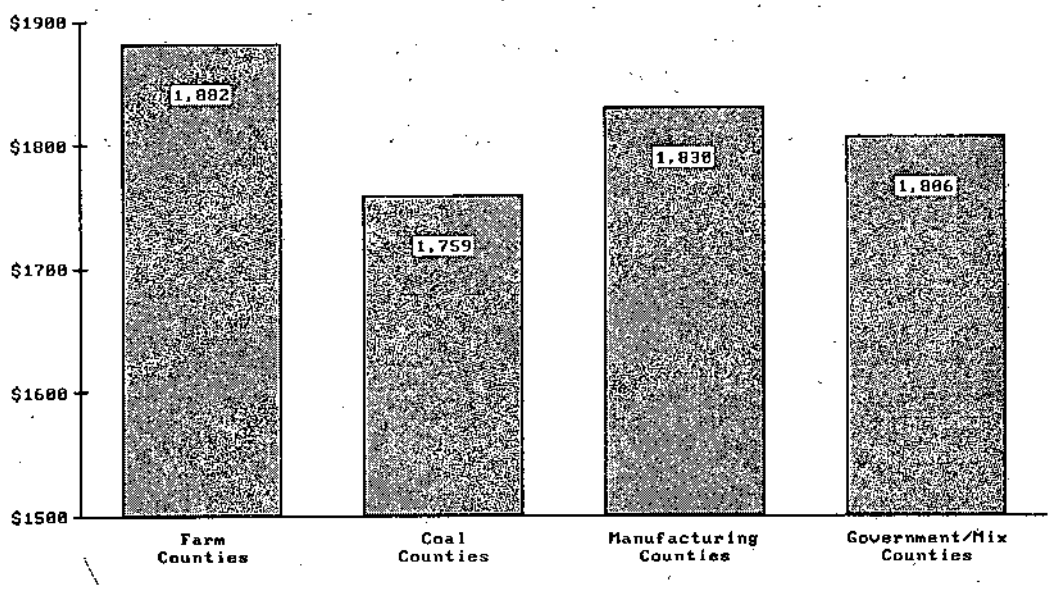
[104]Both FARM and COAL counties spend 33 percent of their total expenditures on highways, compared to 28 and 27 percent in the MANUFACTURING and GOVERNMENT/MIX counties.

[105]It should be noted that Hancock county has extraordinarily high tax revenue, and it is in the MANUFACTURING group. Total per capita revenue in Hancock was $1,088, and per capita tax revenue was $173. Hancock has an occupation tax, and since they have a net gain in workers through commuting, some portion of this tax is paid by nonresidents. Hancock County also showed the greatest improvement in the development index between 1960 and 1980.

$1,806, and lagging behind, COAL counties school revenue per pupil is $1,759.

Figure 38. School Revenue by Economic Base, 1980



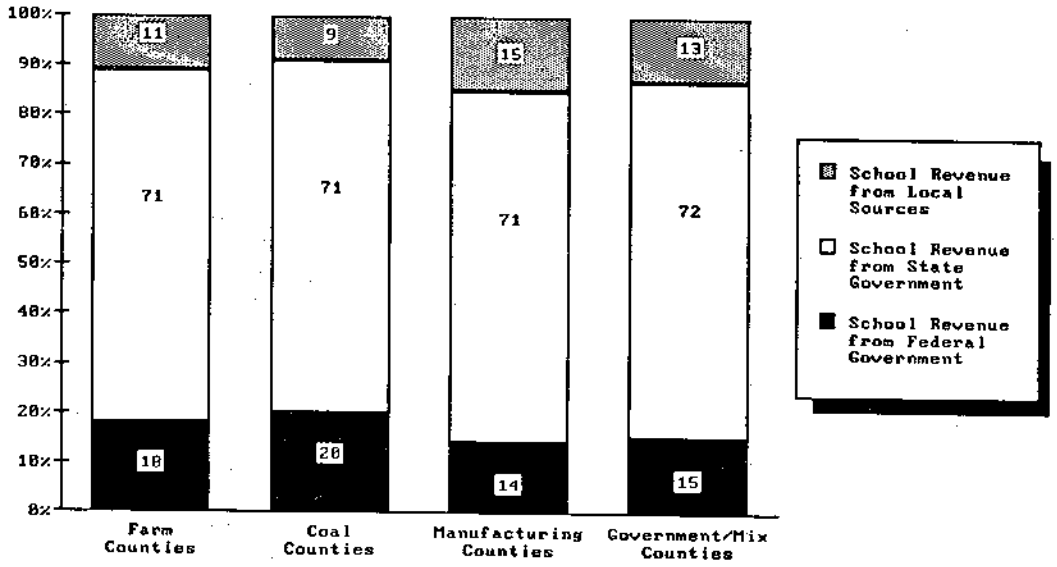
See Appendix 3 for Sources.

All the counties get about 71 percent of their school revenue from the state, but there are differences in local and federal funds. Federal funds for schools are allocated according to the number of economically deprived children in the county schools. Therefore, the poorer FARM and COAL counties receive a larger share of their revenue from federal sources: 18 and 20 percent, compared to 14 and 15 percent in MANUFACTURING and GOVERNMENT/MIX counties. FARM counties raise 11 percent of their school revenue locally, while COAL counties raise 9 percent locally. MANUFACTURING and GOVERNMENT/MIX counties raise 15 and 13 percent of their school revenue from local sources (see Figure 39).

These issues of levels and sources of general revenue and tax revenue are complex, and this brief discussion barely scratches the surface. Future research by MACED and others should probe more deeply and more systematically into fiscal efforts and fiscal resources. Such analyses could better explain why local per capita revenue is so low in COAL counties and why it is so high in MANUFACTURING counties.

COAL counties generate the least revenue locally. Future research should explore the reasons for this lower proportion of locally generated revenue, because it has important implications for state policy. Policy makers need to know whether COAL counties have less valuable property than FARM counties, or property that is subject to lower tax rates, or poorer collection procedures. For example, FARM counties can tax tobacco in warehouses, while COAL

Figure 39. School Revenue by Source by Economic Base, 1980



See Appendix 3 for Sources.

counties have no way to levy taxes on coal for county purposes. They are virtually denied tax revenues from unmined minerals and cannot impose county severance taxes. A full analysis of these revenue differences would help resolve persistent questions about fiscal resources, fiscal responsibility, and fiscal policy in rural counties. With the exception of variations in locally-generated revenue, these comparisons of public revenue and expenditure across the bases did not identify great differences between FARM and COAL counties. Basically, the indicators reflect the patterns of lower income and quality of life in both FARM and COAL counties compared to the more prosperous MANUFACTURING and GOVERNMENT/MIX counties. The private reinvestment analysis showed that COAL counties have higher per capita retail sales, but since FARM county residents commute at a greater rate, they may shop outside their county of residence. We do not know whether they actually spend less, although they may. They do appear to save about the same amount as COAL county residents.

Summary

The preceding analyses compared the rate of economic growth, distribution of income and work, and developmental conditions and improvements in four different economic bases in rural Kentucky. COAL counties had a far greater economic growth rate, but not a correspondingly higher level of social improvement. COAL counties

also had more income inequality and narrower work distribution than the other counties. Perhaps the quality of life in COAL counties did not improve in proportion to economic growth because the economic benefits, both income and employment, were narrowly distributed in those counties. Although the private and public reinvestment analysis did not disclose pronounced patterns differentiating FARM and COAL counties, we still may speculate that greater inequality in COAL counties depressed the positive impact economic growth could have on development.

From the standpoint of coal-field development, however, the results are not ambiguous. Promotion of economic expansion alone is not a sufficient remedy for underdevelopment. Current policies do not capture the benefits of economic growth for coal-field development.

The next section explores the implications of these findings. If a growing coal economy is not enough to remedy the underdevelopment problems in the coal fields, what are the alternatives? Are there ways that COAL counties can capture more local benefits from growth? What government policies--federal, state and local--could improve the return to COAL counties? What, if anything, could coal companies do to improve the "reinvestment" process? What would a new framework for policy look like?

CONCLUSION

The Central Appalachian coal fields are underdeveloped in the 1980s. Kentuckians and southern West Virginians who live in the mountains have fewer economic opportunities than people elsewhere in the U.S.--their quality of life, the end product of development activities, lags far behind. For over a century these coal states have followed economic policy that promotes coal production, assuming and then, as the decades passed, hoping that increases in the region's primary economic activity would yield social progress. For a number of reasons, many of them discussed in this report, promotional development policy has not worked. Central Appalachian coal states need a new framework for development policy--one that goes beyond promotion.

In this section MACED will argue that coal states should take a more active role in development, guiding and stimulating the reinvestment process so that those living in the coal fields realize as much benefit as possible from hosting the coal industry. Policy makers should make improvement of life in the coal fields the criterion for coal policy. It is not sufficient to assume that promotion of the coal industry will result in public benefits in the coal fields.

Economic Development Depends on Reinvestment

Economic development is a long-term process of improving the quality of life in an area. Economic growth is crucial to that process, but development depends on public and private reinvestment of the benefits from economic expansion. Our analysis of rural Kentucky supports the general findings of international development scholars that private reinvestment works best when there is widespread distribution of employment and income. Natural resource economists recognize that natural resource industries inherently are limited in their contribution to the private reinvestment process because they have relatively small linkages and few connections with local economies. Clearly, these economic problems are exacerbated when natural resource extraction occurs in isolated mountain areas, where there is less other economic activity--suppliers, other industry, retail business--with which to link. The primary source of private reinvestment in an extractive industry is wages generated through employment. Therefore,

most development economists argue that regions dependent upon natural resources must use greater levels of public reinvestment than regions dependent on other types of industries.

Historical Lack of Reinvestment

Until the 1970s, the Appalachian coal industry operated in such a competitive environment that there was neither the stability nor the surplus necessary to stimulate and nurture the reinvestment process which would improve public services and private economic opportunities. External social and environmental costs associated with coal extraction were high, and there was no political pressure to force the industry to internalize these costs. The quality of life was indisputably grim in the coal fields.

The response of state and local policy makers to problems of poverty and substandard living conditions in the coal fields was to promote more coal production within their own boundaries. There was little intervention to shape the reinvestment process and ensure that coal-field communities benefited from coal production. The consequence of overcapacity in a competitive industry was underdevelopment in coal communities, but solutions would have required a level of government intervention which was politically unacceptable during this period.

During the 1950s and 1960s conditions in the coal industry and the coal fields were depressed. The federal government recognized coal's failure to be developmental, and substantial resources were invested in infrastructure development to try to make up for the investments "never made" during coal's first century.[106] During this period, states continued their combination of laissez-faire and promotional policies toward the coal industry. Kentucky enacted a severance tax in 1972, but state policy makers regarded it as a substitute for sales tax on food and drugs, not as a source of public revenue for coal-field investment. Neither federal nor state policy makers envisioned a larger contribution to development from an industry that was chaotic and faced declining demand.

But the Arab oil embargo gave the industry new hope in the mid-1970s. Kentucky coal production expanded dramatically, and citizens as well as operators and politicians hailed coal as Kentucky's "ace in the hole." Once again, state policy that kept costs to the industry low and promoted wider markets seemed to be an appropriate response to underdevelopment problems in the mountains. The case study analysis reported here shows that although there were substantial improvements in Kentucky coal counties between 1960 and 1980, these improvements were not proportionate to economic growth.

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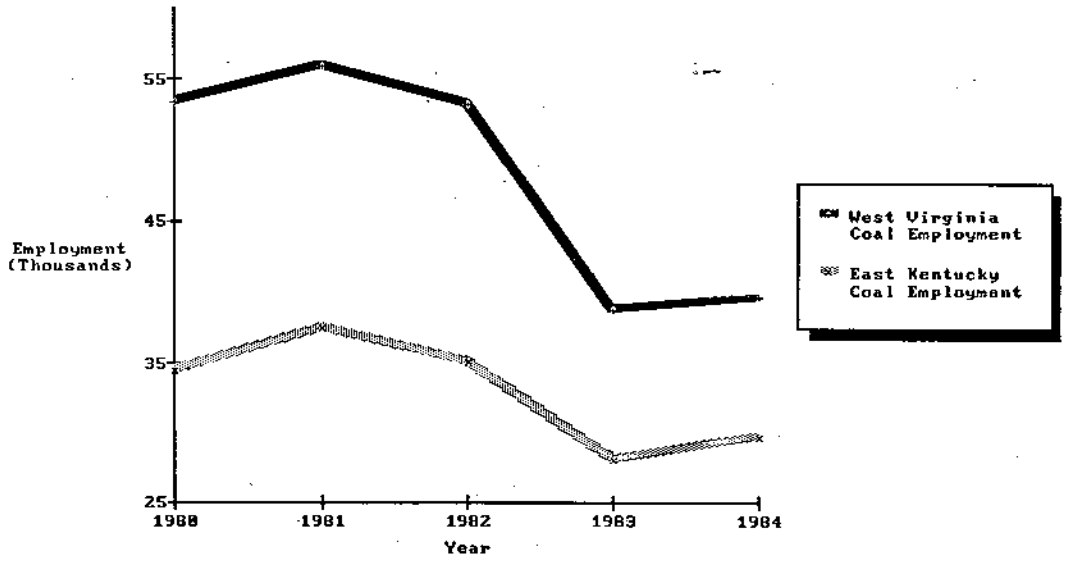
[106]Monroe Newman, The Political Economy of Appalachia (Lexington, MA: D.C. Heath and Company, 1972), p. 30.

Despite increases in production, employment, and income in the industry, coal-field conditions, like conditions in rural farm counties of the state, lag far behind the rest of the nation. The reinvestment process that translates economic expansion into economic development does not appear to happen naturally in the coal fields. Whether this failure is a result of income inequality in coal counties, low multipliers, and weak linkages in the coal industry, the difficulties of building new industry and infrastructure in a mountainous terrain, or a combination of all three factors, the implication for policy is the same. The analysis challenges the efficacy of promotional policies toward the coal industry followed by Central Appalachian states for over a century. It is not enough for the public sector to promote wider markets for their states' coal and help coal operators produce more coal. There must be more planned government intervention in the reinvestment process to increase the benefits communities can realize from coal production and to build alternative economic opportunities for residents.

The need for public policy intervention is made more urgent because coal employment has declined dramatically since 1980 (see Figure 40). Coal employment is unlikely to grow in Central Appalachia, even though production will increase over the next 15 to 20 years. In 1980 the U.S. produced 819,715,766 tons of coal. In 1984 the U.S. produced 890,519,723 tons of coal, an increase of over 70 million tons. Fewer mines produced that coal in 1984, and fewer people mined coal.

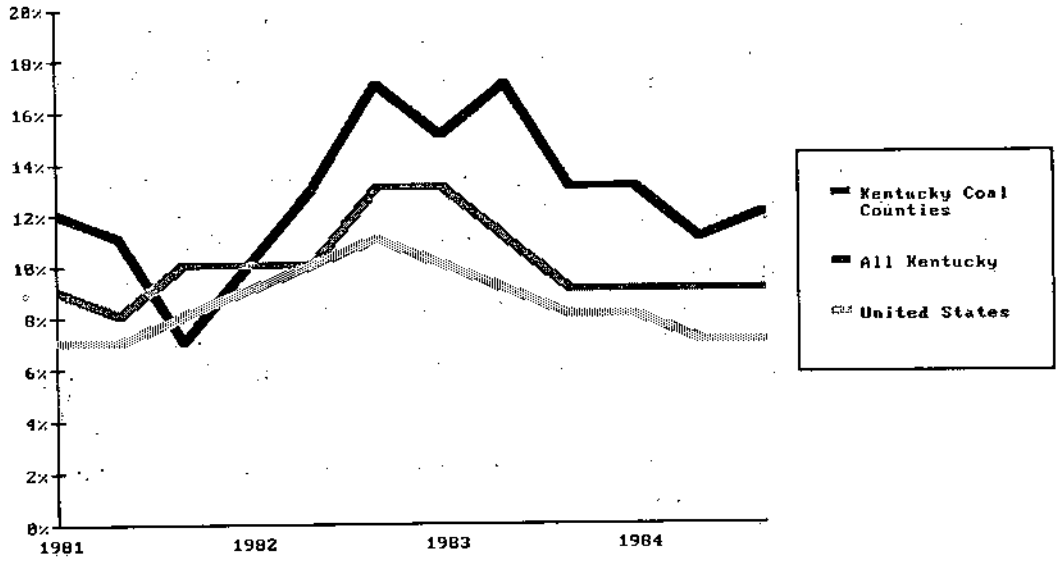
Figure 40. Employment, 1980-1984
(East Kentucky, West Virginia)



See Appendix 3 for Sources.

In 1980, the Bureau of Labor Statistics (BLS) reported that there were 246,000 people employed in the coal industry, and 23,000 (or 8.6 percent) unemployed. In 1984, BLS reported only 168,000 employed in the coal industry. Figure 41 shows quarterly Kentucky coal county unemployment compared to unemployment in the state and the nation. Clearly, coal counties face more serious unemployment problems than the rest of Kentucky. West Virginia coal counties are equally hard hit.

Figure 41. Unemployment in Kentucky Coal Counties, Kentucky, and U.S., 1981-1984 by Quarters



See Appendix 3 for Sources.

Industry executives, coal experts, and labor analysts do not believe these unemployed miners will be rehired. Productivity is likely to increase at a greater rate than production, so coal employment cannot be expected to grow.[107] Coal-field communities are likely to have even less opportunity to benefit from private reinvestment through employment in the future.

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[107]Generally, coal experts forecast a 2-3 percent production increase, and MACED forecasts a 3.3 percent annual increase in productivity. These trends are discussed in more detail in Seltzer and Robinson, Coal Employment: Trends and Forecasts 1975-1995 Berea, KY: MACED, 1986); and Energy Ventures Analysis, Inc., Labor Productivity Changes in Appalachian Coal Mining (Berea, KY: MACED, 1986).

New Opportunities for Reinvestment

Recognition that there are limits to the developmental impact of growth in the coal industry is the first step toward a more constructive framework for development policy. Central Appalachian residents and politicians could begin to make decisions based on the understanding that growth in coal cannot solve the region's economic problems. But they still should see the coal industry as an economic resource that can deliver more benefit to coal-field communities. There is no point in arguing that the presence of the coal industry causes underdevelopment in the coal fields. Rather, in the 1980s, coal-field underdevelopment reflects an absence of constructive government policies to harness the industry for regional development and to develop alternative opportunities.

Changes described in this report, and in other MACED reports in this series on coal and economic development, suggest there are new opportunities for more developmental policy toward the coal fields. Both the coal industry and residents of the coal fields are better able to make coal benefit the region in the 1980s than at any previous time. First, the great improvements realized throughout rural Kentucky since 1960 demonstrate that greater "modernization" and better linkages between the mountain areas and the rest of the nation have already begun to take place.[108] Transportation improvements link once-isolated coal counties with larger metropolitan areas, and communication advances bring national trends instantly to the mountains. Persistently high poverty levels, low education levels, and growing structural unemployment indicate that severe problems continue, but modernization and improvements in communication make addressing these problems less formidable in the 1980s than previously. With appropriate state and federal policy, mountain residents can make changes at the local level.

Secondly, during the 1970s the coal industry changed in ways that offer coal-state policy makers more opportunities to increase developmental returns from the industry. Federal policies forced the industry to internalize many environmental and other social costs previously absorbed by communities. Severance taxes were levied in many states. Public expectations of the industry increased, and, for the most part, the industry's ability to meet those expectations increased. Exercising responsibility to workers and communities is now an accepted part of the job of producing coal. Coal leaders interviewed by MACED repeatedly expressed a sense of responsibility to coal communities and an interest in facilitating local development.[109] To

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[108]We have not made specific analyses of changes in southern West Virginia, but trends in Kentucky and the nation indicate this area probably improved in similar ways.

[109]See MACED, Industry Perspective.

increase the developmental benefits of coal production to coal-producing counties, Central Appalachian states can build on the achievements of policies and regulations devised during the 1970s and tap coal companies' greater sense of responsibility and ability to be responsible.[110]

Third, despite the expected downturn in coal employment, coal production will probably grow moderately. A steady pattern of growth suggests the potential for greater stability and reinvestment in coal communities. Coal has not been a highly profitable business. In January of 1985, Forbes magazine reported an average return on investment of around 7 percent for the coal industry, compared to an all-industry average of 15 percent.[111] Coal company annual reports typically show significant annual variation in profitability.[112] Currently, coal prices on the spot market are low, which affects all coal prices because most long-term contracts can be reopened and adjusted for spot market price changes. Many coal producers in eastern Kentucky and southern West Virginia feel that "their backs are against the wall" now more than ever.

However, analysts predict steady growth in coal demand--around 3 percent--over the long-term. Increased productivity in an industry that anticipates stable, if modest, growth over the next 10 to 15 years bodes well for coal companies. Coal supplies one-fifth of the nation's energy, and 85 percent of its market is the steady electrical utility market. As the nation's economic conditions go, so goes coal.[113]

In this context, changes in the structure, behavior, and political needs of the industry offer greater opportunity to generate development benefit for the coal fields. The Appalachian coal industry has good

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[110]These changes and appropriate policy approaches are discussed in detail in Seltzer, The Coal Industry After 1970.

[111]Forbes Magazine, January 14, 1985, p. 121.

[112]However, since many coal companies are subsidiaries of diversified companies, it is often very difficult to determine profitability of coal operations separately.

[113]All coal forecasts are predicated on current conditions holding steady--that is, no radical change in environmental legislation, no sudden shift in the availability of world oil supplies, and so forth. For planning purposes, it is practical to follow the general consensus that coal production will grow about 3 percent annually. Acid rain legislation, depending on its shape, could shift coal production negatively for some parts of Appalachia and positively for others. Further development of fluidized bed combustion technology, which allows coal to be burned more cleanly without expensive scrubbers or switching to low-sulfur coals, could expand different coal markets in the region.

and bad corporate citizens in it, profitable and break-even companies, small and large operators, and local and outside ownership. Ownership and size are important factors in coal-field development to the extent that they affect companies' ability to absorb the full costs of production, including environmental protection and taxation. Large companies dominate the coal industry in the 1980s. Even in eastern Kentucky, where smaller operations have been an important part of the industry, many independent operators have gone out of business or become subcontractors.[114] MACED interviews and observations suggest that there is a particularly strong opportunity to gain additional developmental benefit from large companies employing regional managers who know local communities, care about local communities, and have the authority to make company decisions to benefit local communities.[115] Large companies have the capacity to be better corporate citizens because they have both the material and human resources to devote to cost internalization. Furthermore, because they are more susceptible to public pressure through the political system, large companies can be more sensitive to public opinion. In both cases, of course, these advantages are realized only when public pressure is brought to bear on these companies.

A New Framework for Policy

A new framework for coal policy in Appalachia should be built on greater public and corporate responsibility for coal-field development. Just as coal companies are now required to absorb environmental, health, and safety costs associated with production, they also should

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[114]In recent years contract miners have begun to play a much greater role in coal production. Some industry analysts estimate that up to 50 percent of Central Appalachian coal is now produced by contract miners. Large coal companies hire contract miners to mine coal they own or have leased. In some cases, subcontractors are hired because seam characteristics lend themselves to mining by a small team of workers. In other cases, large companies want to benefit from the greater mining efficiency a small team sometimes brings. In still other cases, it is a way for large companies to avoid high labor costs and other expenses during uncertain markets because subcontractors absorb these costs. Many independent coal operators have become subcontractors in recent years. (See "Contract mining seen independents' future," Coal Outlook, May 3, 1982, pp. 4-5; also "Cost control key to producers' survival," Coal Outlook, May 9, 1983, pp. 8-9.) The larger company provides the lease and the market, and sometimes the equipment, while the subcontractor handles the mining itself. This shift in mining management and operations requires attention from federal and state policy makers. State and federal policy makers must hold these larger companies responsible for subcontractors--both to protect the subcontractors and to ensure that they obey laws and regulations.

[115]Interestingly, Energy Ventures Analysis' analysis of productivity changes in the coal industry indicates that companies using this management technique may be more profitable as well. See Energy Ventures Analysis, Inc., Labor Productivity Changes.

make positive contributions to the quality of life in the coal fields. Laws and regulations established during the 1970s hold coal operators accountable to workers and communities for health and environmental conditions. This accountability can be extended to bring more benefit to coal communities.

This study of coal-field development points to three directions for better policy. These policy areas emerge from MACED's familiarity with Kentucky's coal fields, but we expect they apply to West Virginia as well.[116] First, more tax revenue must be invested in coal communities. More severance tax can be invested in Kentucky counties if the severance tax is raised and the allocation formula is changed.[117] Secondly, environmental standards in the region should be stricter and enforced better. Currently, even with the substantial cost internalization that occurred in the 1970s, coal communities in Kentucky put up with lower environmental quality than other areas of the state. This degrades the quality of life in the coal fields and hampers future development potential. Finally, shifts in the structure of the coal industry are causing massive dislocation among coal miners and those operating small, independent mines. Kentucky should assist these unemployed workers and operators to retrain and, if necessary, relocate to other places in the state where there are greater work opportunities. Coal-field residents should not bear, as individuals, the full costs of transitions in the regional economy. With planning, Kentucky can prevent a repeat of the distress endured in the coal fields in the 1950s and 1960s. These policy recommendations are discussed briefly below.

Better Coal Taxation

International studies of mining and development generally report constraints similar to those faced by Central Appalachian coal communities. The mineral sector in a developing country usually is described as an "enclave," because multipliers within the national economy are limited and minerals most often are extracted by multinational companies headquartered in developed nations. Operations tend to be capital intensive, using imported technology and employing a relatively small, highly skilled labor force. Products are subject to volatile prices on world commodity markets, resulting in instability for the host country. Resources are nonrenewable, so they will be depleted

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[116]Southwest Virginia coal fields appear to enforce stricter environmental and road regulations. Since coal has never had a dominant role in Virginia's economy, policies may require the industry to bear more community-level costs there than in coal-dependent states like Kentucky and West Virginia.

[117]Raising the severance tax is more likely to be feasible if federal and state policies are devised both to stabilize demand for coal and to tie purchasing to coal companies' compliance with laws and regulations.

over time. And, finally, mineral extraction entails large environmental costs. Consequently, development analysts conclude that mineral production primarily contributes to economic development through fiscal measures: the host country extracts royalties and taxes from mining companies and reinvests the revenue in public infrastructure and alternative economic enterprises.[118]

Several western coal states adopted aspects of this general approach to coal development when the energy crisis of the 1970s prompted heavy new production. The rationale for severance taxation in western states is two-fold: first, natural resources like coal are considered valuable, nonrenewable assets of the states for which the state should be compensated; and secondly, since there are heavy external costs to natural resource extraction, severance taxation is a way for states to make the private sector pay those costs. In addition to providing "impact assistance" to host communities, Montana uses a substantial portion of its severance tax to invest in future alternative economic activity. In Kentucky, the severance tax has never been regarded as a resource for coal-field development. Therefore, the majority of the severance tax revenue in Kentucky is consumed as part of Kentucky's general revenue, rather than reinvested in future economic development.

The politics surrounding the allocation of severance tax revenue in Kentucky are complex and have resulted in changes in the allocation of severance tax funds from administration to administration. Currently the first $177 million dollars is put into the state's General Fund, and half the balance, if there is any, is allocated to coal-producing and coal-impacted counties. Coal counties, with limited revenue sources of their own, consume whatever severance tax revenue they receive to repair roads damaged by coal trucks and to finance their ongoing county expenses, such as salaries and maintenance of basic county government. Therefore, current severance tax allocation contributes little to development in coal-field communities. Furthermore, when coal production is low in the state as a whole, even areas still producing coal (and sustaining damage for roads) do not receive any severance tax funds unless the state's receipts go over $177 million. Coal mining could contribute more to development if local governments receive and invest more coal-generated revenues, and if they can count on receiving at least some revenues as long as mines are operating.

Public services and the overall quality of life in these counties lag far behind the rest of Kentucky and the nation. When the severance tax is consumed by general state revenue needs, coal-field residents are subsidizing other areas of the state. Coal counties have bad roads, polluted water, fewer water and sewer systems, and more substandard housing than other counties in the state, despite hosting

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[118]See especially Sideri and Johns, Mining for Development for a summary of mineral development studies.

the industry that provides 8 percent of Kentucky tax revenue. The first step to more developmental use of coal within Kentucky is to change the allocation of existing severance tax revenue, raise the severance tax, and use the revenue as a resource to invest in the present infrastructure needs of the coal-producing counties.

Every coal executive MACED interviewed who oversees Kentucky operations said the state should return more severance tax revenue to coal-producing counties. Some state coal leaders have said they could support an increase in the severance tax if revenue were invested in coal-producing areas. Several independent coal operators MACED interviewed in eastern Kentucky also support an increased severance tax if there were some way to ensure it was spent well on local school, road, or water needs.[119] Seventy percent of Kentuckians polled by the University of Kentucky Survey Research Center in the fall of 1984 favored an increase in the severance tax to improve schools, roads, and water systems in coal-producing counties. Seventy-six percent of those polled in eastern coal-producing counties supported an increase for these purposes. These results suggest that these proposed changes in current tax revenue levels and allocations within Kentucky would find support among the people of the state. Elected officials may lag behind their constituents on these issues.

Coal producers say that, in a competitive marketplace, they open mines and produce coal in the places that require the lowest taxes and least environmental expenses. Several coal executives with larger companies said that West Virginia and Montana lost coal investments because they did not have the "right political climate" relative to other coal-rich states. Differences in taxes paid and environmental costs incurred are only one aspect of the calculation of where to open a mine. Location of customers, location of a company's existing operations, availability of transportation, potential productivity of a given seam of coal, and other factors can be expected to weigh more heavily in the decision. Nonetheless, state policy on issues like taxation must be seen as a factor in the medium to long-term planning of some large coal companies. As a result, state governments feel that their latitude on taxation and other coal policy issues is constrained by competitive pressure.[120]

To counteract this interstate competition which bids down resources for development, the best policy would be a national severance tax to equalize the publicly imposed costs of coal extraction for producers and to stabilize funds for public infrastructure development in

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[119]MACED will publish a report on the perspectives of independent coal operators in late 1986.

[120]Significantly, the Governor of Montana recently proposed a "moratorium" on the state's high severance tax in order to see whether the tax rate indeed impedes production.

coal-field communities. This would require cooperation from public utilities commissions. Currently, consumer advocates work for cheap energy, which has the effect of forcing coal-field communities to absorb higher costs of production and forego public revenue necessary for reinvestment. When the price of coal is kept down, there is little room for additional social costs. Each ton produced has certain costs--labor, return to capital, transportation, black lung payments, existing taxes, and others. A national severance tax could make coal-field infrastructure investment part of the cost and price of coal. Such a policy would help end the subsidy coal communities have given coal consumers for decades.

Federal policy makers and consumer advocates would have to work together to stabilize coal demand at a price high enough to include adequate taxation. A national energy policy that required that coal be used to generate a certain amount of energy would encourage stability. A national energy plan also could encourage long-term contracts with regional coal producers, based on compliance with laws and regulations. Long-term contracts offer utilities, companies, workers, and communities the opportunity to plan for the future. To some extent, the benefits of long-term contracts have already permitted such planning and enhanced local development in a few coal areas.[121] As might be expected, many coal leaders MACED interviewed expressed support for a national energy plan that stabilized coal utilization by requiring utilities to use a certain amount of coal. These proposals are discussed in more detail in Coal Industry After 1970, Volume V in this series.

While a national severance tax, perhaps with tax rates set at a regional level, would be the most stable source of coal revenue, a multi-state coal compact tax may be more feasible politically. Appalachian coal states could benefit from a multi-state severance taxation compact, in which producing states agree to equalize the tax burden on coal companies at a higher level. In 1981, Curtis Harvey, coal economist at the University of Kentucky, recommended that Appalachian coal states collaborate and raise severance tax rates to increase revenues in the face of federal cutbacks.

Higher Environmental Standards and Better Enforcement

Development will be enhanced when environmental laws are respected and strictly enforced. To the extent that large companies contract with independent miners, they should be held responsible for contract miners' adherence to laws. Enforcement of environmental laws pertaining to coal production in Kentucky is weak. One reason is that inadequate funds are budgeted to hire inspectors, but another is the state's political responsiveness to small operators. The governor of Kentucky describes the mandate of the Natural Resources Cabinet

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[121]See Seltzer, Coal Industry After 1970.

as enforcement of environmental laws and "service" to coal operators.[122] This policy manifests itself in numerous ways. For instance, state elected officials have supported the coal industry's desire for state primacy over enforcement of strip mining legislation, at substantial cost to the state.[123] And the Natural Resources Cabinet continued to grant permits to mine coal based upon broadform deed rights, even though the legislature passed a law repealing those rights.[124]

Kentucky also has made special allowances to reduce the expense and requirements of two-acre mining permits in an effort to support smaller miner operations. The less stringent rules are often justified as a way to keep coal-field residents "off the welfare rolls."[125] These special permits led to an increase in the number of small mines between 1979 and 1983, contributing to further overcapacity in the industry, and increased enforcement costs. Even before the two-acre permit was devised, a former Secretary of Natural Resources estimated that 85 percent of the state's enforcement resources were spent on operators producing two percent of the coal in Kentucky.

Eighty-one percent of the Kentuckians polled by the UK Survey Research Center agreed that "we should step up enforcement of existing laws and regulations to prevent mining from damaging coal areas." Coal leaders MACED interviewed frequently deplored the damage and abuse which accompanies the special arrangements for two-acre permits. More constructive coal policy in Kentucky would include a long-term commitment to environmental regulation and enforcement. Such a commitment would not only improve the quality of life in coal-field counties, but also reduce overcapacity because small operators (and independent truckers) who cannot afford to comply with environmental and other regulations would no longer be able to

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[122]Kentucky Governor Collins quoted in Kentucky Coal Journal, Vol. 9, No. 11; Kentucky Coal Journal, Vol. 10, No. 1.

[123]There are reasonable arguments for state primacy. State officials and coal operators argue that they support state primacy over surface mining enforcement because the costs of permitting and the time required to process a permit would be greater if these functions were carried on by the federal government. Federal officials agree. Also, under current policies, state primacy allows the state to receive more federal money to recover land abused by abandoned mines. However, the cost and benefits of state primacy deserve close scrutiny under a policy framework that goes beyond coal promotion.

[124]At the time of this writing, a judge had placed a restraining order on issuing permits in situations where the broadform deed law applied.

[125]See Mike Brown, "Two-acre Mines Give Rise to Problems," The Courier Journal, Vol. 259, No. 141, 1984, pp. A1 and A24.

operate. State policy could be devised to ease the transition for these unemployed workers, but it appears to be a false economy to continue to subsidize them through lax enforcement of environmental and other regulations.

Public and Private Responsibility to Workers

The analysis reported here underscores the importance of spreading available jobs and income as widely as possible throughout the population. As the coal industry improves labor productivity over the next 20 years, coal employment will decrease. Development might be enhanced if coal employment were distributed more widely by reducing or eliminating overtime in the employed work force. This would probably increase labor costs if done unilaterally by coal companies. With the cooperation of labor and the public sector, however, it could be made feasible. Some industries in western Europe are experimenting with work sharing as a strategy to distribute employment more broadly. Existing policies and labor agreements work against such arrangements, but the developmental impact of coal in the mountains might be enhanced if these arrangements are encouraged by all sectors. It is one of several employment strategies that deserves further consideration.

Coal miners are younger, more educated, and more skilled today than they were 10 years ago.[126] Therefore, laid-off miners are a resource for development. Unemployment in the coal fields should be seen as the responsibility of management and labor in the coal industry and the governments of coal states. Displaced workers could be assisted to find new employment by cooperative programs undertaken by state government in conjunction with coal companies and the United Mine Workers. Heavy equipment operators and repair workers, for instance, are still in demand in many coal-producing regions, according to Bureau of Labor Statistics reports and to the coal executives with whom we talked.

Strategies to assist displaced workers require more open dialogues between coal corporations, labor, and coal communities. Coal companies could be required to advise the state, communities, and workers in advance of plans to increase or decrease employment.[127] Companies should be prepared to negotiate community problems as well as company problems--essentially extending their willingness to 'share the gain,

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[126]Although the 1970s boom in production brought in a large number of new miners (knows as "red hats" in the industry), inexperienced miners no longer make up a large part of the work force.

[127]This strategy depends partly on more predictability in coal demand. See Seltzer's Coal Industry After 1970, Volume V in this series.

share the pain' to community development.[128] Recent negotiations between Peabody and TVA to reopen a mine in western Kentucky indicate that negotiating employment changes can be a reasonable response to community and worker problems. Coal states should work to expand and formalize the mechanisms for such negotiations.

The comparative analysis of rural Kentucky counties showed that 36 percent of coal-county teenagers have nothing to do. Their future employment should be the objective of specially designed regional training programs. For years, many rural analysts have argued in favor of development policy directed toward "people" rather than "places"--social investment, especially in education, is what many call "human capital development." The only advantage poor Appalachian communities have had to offer "footloose" corporations in the past was hard-working labor. Today they compete, like their well-paid and skilled coal-mining neighbors, with even lower cost labor in Third World Nations. Development policy for depressed regions should include new investments in the education and skills of individuals, even if many available jobs may be in other areas. Severance tax revenues could be used for this kind of comprehensive education and training programs in the coal fields.

Summary

These ideas are not new. They resemble ideas that have been offered since the 1960s. New proposals can come only from a dialogue in which elected officials, citizens, labor, and corporations are fully engaged. A change in coal policy would require strong commitment to coal-field development from state and national policy makers. Only 30 percent of Kentuckians polled by the UK Survey Research Center believed that "there should be no changes in laws and policies related to the coal industry because changes might mean the loss of coal mining jobs." Fifty-four percent disagreed with that statement. In spite of the current federal government's inclination to back away from social policy, Kentucky residents appear ready to support initiatives to improve coal-field conditions.

A new framework for policy in coal states would make public benefit the direct goal of policy. Coal-field development requires **recognition of responsibility** for coal-field development, both from the coal industry and the public sector, and **commitment to long-term effort** at all levels. These two changes would enable the public and private sector to work together to promote stability and predictability for

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[128]Several coal executives described successful dialogues with workers in which management and labor worked together to keep certain mines competitive, and they saw the natural extension of these agreements as a more general willingness to "share the gain" during good times and "share the pain" when times are tough for the industry (see MACED, Industry Perspective).

both the public and private sectors and would permit a broad view of who pays the costs and who should benefit from coal production. Coal-field development could become the yardstick in public sector decision making about the industry.

This analysis, in conjunction with the other reports on coal and development in this series, presents an argument for a change in coal policy. While specific initiatives can only come from widespread further discussion, it is clear that promotion of increased coal production is not an adequate public response to development problems in Central Appalachia. MACED interviews with coal executives and University of Kentucky opinion survey results suggest that state policy makers have a more constricted view of policy options than the industry and the public. Both coal industry leaders and the Kentucky public may accept greater public and corporate responsibility and greater commitment to investment in a long-term effort. Coal-field communities need not subsidize energy consumers any longer. National and state policies should require public and corporate responsibility for improving conditions and opportunities for those who produce the nation's coal.

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APPENDIX 1
Social and Economic Indicators

Table 1
Data for Figures 1 - 3
Decennial Coal Production, 1870 - 1980
West and East Kentucky, Kentucky, West Virginia

Year	West Kentucky	East Kentucky	Kentucky	West Virginia
1870	157,135	125,245	282,380	608,878
1880	742,710	458,105	1,202,815	1,568,000
1890	1,315,128	1,217,398	2,532,526	6,321,218
1900	2,933,502	2,087,184	5,020,686	21,153,341
1910	8,448,752	6,291,259	14,740,011	59,274,353
1920	10,715,626	22,957,176	38,886,126	89,590,271
1930	10,440,347	40,457,380	50,953,910	122,429,767
1940	8,559,794	40,823,509	49,383,303	126,619,825
1950	24,669,296	57,507,645	82,177,941	145,563,295
1960	30,403,814	36,848,213	67,252,027	120,107,994
1970	52,803,000	72,502,000	149,429,968	143,132,284
1980	40,423,174	105,563,118	216,681,995	120,349,159

Table 2
Data for Figure 4
Distribution of Labor and Proprietors' Income.
Rural Kentucky, Kentucky, United States,
1960, 1980.

Industry	Rural Kentucky 1960	Rural Kentucky 1980	Kentucky 1960	Kentucky 1980	United States 1960	United States 1980
Agriculture	18.3%	5.6%	9.2%	3.9%	4.3%	2.0%
Government	18.1%	18.2%	14.9%	16.4%	14.2%	16.4%
Mining	10.6%	17.0%	4.9%	7.7%	1.3%	1.8%
Manufacturing	13.1%	20.1%	23.5%	25.7%	29.9%	25.8%
Construction	5.5%	5.4%	6.3%	5.9%	6.0%	5.9%
Services	33.7%	33.7%	41.0%	40.0%	43.8%	47.6%
Other	0.7%	0.0%	0.2%	0.4%	0.5%	0.5%
Coal Mining			3.9%	7.1%	0.4%	0.5%

Table 3
Data for Figure 5
Economic and Social Indicators for Nonmetropolitan Kentucky, Kentucky and the United States.
1960, 1980

	Nonmetropolitan Kentucky	Kentucky	United States
1960 Percent Families Not in Low Income Group	46%	62%	79%
1960 Percent Persons Over 25 With High School Degree	20%	28%	41%
1960 Percent Houses With Complete Plumbing	33%	62%	85%
1980 Percent Families Not in Low Income Group	73%	80%	86%
1980 Percent Persons Over 25 With High School Degree	43%	53%	67%
1980 Percent Houses With Complete Plumbing	86%	92%	98%

Table 4.
Data for Figure 6
Per Capita Personal Income and Median Family Money Income
(1972 Constant Dollars)
Nonmetropolitan Kentucky, Kentucky, United States,
1960, 1980

	1960 Per Capita Personal Income	1980 Per Capita Personal Income	1960 Median Family Money Income	1980 Median Family Money Income
Nonmetropolitan Kentucky	$1,569	$3,382	$3,957	$8,422
Kentucky	$2,214	$4,227	$5,738	$10,091
United States	$3,059	$5,298	$8,017	$12,251

Table 5
Data for Figure 7
Percent Change in Economic and Social Indicators for Nonmetropolitan Kentucky, Kentucky and the United States.
1960 - 1980

	1960-80 Percent Change Low Income Families	1960-80 Percent Change High School Graduates	1960-80 Percent Change Houses With Complete Plumbing
Nonmetropolitan Kentucky	59%	115%	161%
Kentucky	29%	89%	48%
United States	9%	63%	15%

Table 6
Data for Figure 8
Earned Income Distribution, by Sector, for Nonmetropolitan Kentucky and Each Base, 1980

	Farm	Coal	Manufacturing	Government	Construction	Services
Nonmetropolitan Kentucky	6%	17%	20%	18%	5%	34%
Farm Counties	27%	3%	12%	22%	5%	34%
Coal Counties	3%	40%	8%	14%	5%	31%
Manufacturing Counties	11%	2%	37%	14%	5%	32%
Government/Mix Counties	7%	5%	16%	27%	9%	36%

Table 7.
Data for Figures 9 and 10
Percent Growth in Earned Income, 1960-80 and
Per Capita Personal Income, (1972 Constant
Dollars), 1960, 1980, by Base.

	Earned Income Growth	1960 Per Capita Personal Income	1980 Per Capita Personal Income
Farm Counties	91%	$1,462	$2,957
Coal Counties	164%	$1,271	$3,389
Manufacturing Counties	93%	$1,766	$3,379
Government/Mix Counties	88%	$1,772	$3,372

Table 8.
Data for Figure 11
Median Family Income,
(1972 Constant Dollars)
1960, 1980

	1960 Median Family Income	1980 Median Family Income
Farm Counties	$3,521	$6,709
Coal Counties	$3,381	$7,279
Manufacturing Counties	$4,330	$8,143
Government/Mix Counties	$4,717	$8,356

Table 9
Data for Figure 12
Education, Housing and Community Infrastructure in Nonmetropolitan Kentucky, by Economic Base, 1960, 1980.

	1960 Percent Persons Over Age 25 With High School Degree	1980 Percent Persons Over Age 25 With High School Degree	1980 Percent Persons Over Age 25 Attended College	1960 Percent Houses With Complete Plumbing	1980 Percent Houses With Complete Plumbing	1960 Percent Houses Not Crowded	1980 Percent Houses Not Crowded	1980 Mobile Homes as Percent of All Housing	1980 Percent Houses On Sewer System	1980 Percent Houses On Water System
Farm Counties	17%	38%	27%	26%	80%	83%	95%	11%	19%	46%
Coal Counties	16%	38%	25%	28%	83%	74%	93%	15%	24%	45%
Manufacturing Counties	23%	47%	31%	39%	89%	85%	96%	9%	38%	61%
Government-Mix Counties	24%	50%	32%	40%	91%	84%	96%	12%	39%	61%

Table 10
Data for Figures 13 and 14
Physician Rate and Deaths from Influenza and Pneumonia, by Economic Base, 1960, 1980

	1960 Physicians per 100,000 of Population	1980 Physicians per 100,000 of Population	1960 Deaths from Influenza and Pneumonia per 10,000 of Population	1980 Deaths from Influenza and Pneumonia per 10,000 of Population
Farm Counties	39.9	33.0	5.1	4.2
Coal Counties	46.9	55.0	12.2	6.4
Manufacturing Counties	51.6	57.0	8.2	5.9
Government/Mix Counties	53.1	62.0	7.4	7.5

Table 11
Data for Figure 15
Development Indices for Kentucky, Nonmetropolitan Kentucky, U.S., Nonmetropolitan United States, Selected States, 1980

	1980 Percent Houses With Complete Plumbing	1979 Percent Persons Over 25 High School Degree	1979 Percent Families With Incomes Greater Than $7,500	1980 Development Index
Nonmetropolitan Kentucky	86.0%	43.0%	73.0%	202
Kentucky	93.5%	53.1%	80.0%	227
West Virginia	94.3%	56.0%	83.2%	233
Tennessee	96.3%	56.2%	81.5%	234
Nonmetropolitan U.S.	94.0%	59.0%	82.0%	235
United States	98.0%	67.0%	86.0%	251
Ohio	98.3%	67.0%	88.5%	254

Table 12
Data for Figures 16 and 17
Development Indices for 1960, 1980, Net Change 1960 - 1980, by Economic Base.

	DEVELOPMENT 1960	DEVELOPMENT 1980	Net Change 1960 - 1980
Farm Counties	84	188	104
Coal Counties	83	191	108
Manufacturing Counties	112	212	100
Government/Mix Counties	118	218	100

Table 13
Data for Figure 18.
Income, Education and Housing Conditions by Economic Base, 1980

	Families With Incomes Over $7,500	Persons Over 25 with High School Degree	Occupied Houses With Complete Plumbing
Farm Counties	70%	38%	80%
Coal Counties	70%	38%	83%
Manufacturing Counties	76%	47%	89%
Government/Mix Counties	77%	50%	91%
Kentucky	80%	53%	92%
United States	86%	67%	98%

Table 14
Data for Figures 19 and 20. Population Differences and Density, by Base, 1980

	1980 Percent Workers Working Outside of Residence	1980 Percent Population 65 and Older	1980 Percent Population Over 18	Percent Change in Population 1960-1980	1980 Percent Rural Population	Population Per Square Mile
Farm Counties	34%	14%	56%	10%	94%	36
Coal Counties	19%	11%	56%	16%	87%	62
Manufacturing Counties	20%	14%	57%	18%	74%	57
Government/Mix Counties	26%	12%	58%	27%	73%	81

Table 15
Data for Figures 21 and 22.
Percent Personal Income Earned and Percent Transfer Payments by Economic Base, 1959, 1980 and Percent of Households Receiving Income from Various Sources, by Economic Base, 1980.

	1980 Percent of All Income From Transfer Payments	1960 Percent of All Income From Transfer Payments	1980 Percent of All Income Earned	1960 Percent of All Income Earned	1980 Percent Housholds Receiving Some Public Assistance Income	1980 Percent Housholds Receiving Social Security Income	1980 Percent Housholds Receiving Income From Wages or Salaries
Farm Counties	23%	14%	63%	79%	13%	33%	68%
Coal Counties	24%	19%	66%	75%	15%	33%	66%
Manufacturing Counties	19%	12%	66%	79%	11%	32%	72%
Government/Mix Counties	21%	13%	67%	79%	10%	31%	72%

Table 16
Data for Figure 23
Distribution of Income and Work, by Base, 1980

	Percent of Men Who Worked but Had Some Unemployment	Teens not Working, Looking for Work, in Military or in School	Adults Working	Families With No Worker	Low Income Families
Farm Counties	20%	26%	61%	16%	30%
Coal Counties	26%	36%	50%	23%	30%
Manufacturing Counties	19%	21%	66%	14%	24%
Government-Mix Counties	23%	21%	60%	15%	23%

Table 17
Data for Figure 24
Average Annual Earnings and Weekly Pay by Economic Base, 1980

	Average Weekly Pay	Average Earnings per Job
Farm Counties	$179	$7,173
Coal Counties	$273	$14,725
Manufacturing Counties	$212	$9,968
Government-Mix Counties	$206	$10,389

Table 18
Data for Figure 25
Percent Households Receiving Dividend or Net Rental Income by Economic Base, 1980

Farm Counties	26%
Coal Counties	21%
Manufacturing Counties	31%
Government-Mix Counties	31%

Table 19
Data for Figure 26
Per Capita Deposits, 1980 and Change in Deposits by Economic Base, 1960 - 1980

	Per Capita Deposits in Banks and S&Ls, 1980	Change in Per Capita Deposits 1960-80
Farm Counties	$3,643	$3,135
Coal Counties	$3,629	$3,229
Manufacturing Counties	$4,799	$4,150
Government-Mix Counties	$4,184	$3,511

Table 20
Data for Figures 27 and 28
Bank Loan to Deposit Ratios, 1978 - 1982 and Distribution of Bank Loans by Type of Loan, 1982, by Economic Base.

	Highest Loan to Deposit Ratio of All County Banks	Average Loan to Deposit Ratio of All Banks, 5 Years	Percent Loans to Businesses by Bank With Highest Loan to Deposit Ratio	Percent Loans to Farmers by Bank With Highest Loan to Deposit Ratio	Percent Loans to Consumers by Bank With Highest Loan to Deposit Ratio	Percent Loans for Construction by Bank With Highest Loan to Deposit Ratio	Percent Residential Mortgage Loans by Bank With Highest Loan to Deposit Ratio
Farm Counties	65%	61%	7%	10%	11%	2%	11%
Coal Counties	67%	63%	9%	3%	13%	1%	19%
Manufacturing Counties	72%	64%	14%	7%	14%	2%	15%
Government/Mix Counties	74%	65%	9%	4%	11%	2%	21%

Table 21.
Data for Figure 29
Percent Housing Owner Occupied, 1960, 1980

	1960 Percent Houses Owner Occupied	1980 Percent Houses Owner Occupied
Farm Counties	68.0%	78.0%
Coal Counties	67.0%	76.0%
Manufacturing Counties	65.0%	76.0%
Government/Mix Counties	67.0%	77.0%

Table 22.
Data for Figures 30 and 31
Retail Sales and Sales and Use Tax Per Capita, by Economic Base, 1981.

	Retail Sales per Capita	Sales and Use Tax per Capita
Farm Counties	$1,548	$62
Coal Counties	$2,228	$132
Manufacturing Counties	$2,416	$134
Government/Mix Counties	$2,415	$114

Table 23
Data for Figure 32
Number of Manufacturing Wholesale and Retail Establishments per 1000,
1977

Farm Counties	10
Coal Counties	10
Manufacturing Counties	12
Government/Mix Counties	11

Table 24
Data for Figure 33
Per Capita Total County Revenue by Source and Economic Base,
1980

	Federal Revenue Per Capita	State Revenue Per Capita	Local Revenue Per Capita	Total Revenue per Capita
Farm Counties	$16	$78	$63	$157
Coal Counties	$17	$83	$35	$135
Manufacturing Counties	$13	$61	$107	$182
Government/Mix Counties	$11	$59	$51	$121

Table 25
Data for Figure 34
Percent Distribution of County Revenue by Source and Economic Base,
1980

	Percent Federal Revenue	Percent State Revenue	Percent Locally Generated Revenue
Farm Counties	12%	54%	34%
Coal Counties	12%	61%	26%
Manufacturing Counties	10%	46%	43%
Government/Mix Counties	11%	50%	40%

Table 26
Data for Figures 35 and 36
Per Capita County (Locally Generated) Tax Revenue and Assessment for State Property Taxes, by Economic Base, 1980.

	Per Capita County (Locally Generated) Tax Revenue	Per Capita County Assessment for State Property Taxes
Farm Counties	$22	$17,274
Coal Counties	$20	$17,341
Manufacturing Counties	$26	$25,287
Government/Mix Counties	$22	$19,258

Table 27
Data for Figures 37 and 38
Per Capita Governmental Expenditures and School Revenue per Pupil, by Economic Base, 1980.

	Governmental Expenditures Per Capita	School Revenue per Pupil
Farm Counties	$129	$1,882
Coal Counties	$115	$1,759
Manufacturing Counties	$166	$1,830
Government/Mix Counties	$101	$1,806

Table 28
Data for Figure 39
School Revenue by Source and Economic Base, 1980

	Percent School Revenue from Federal Government	Percent School Revenue from State Government	Percent School Revenue from Local Sources
Farm Counties	18%	71%	11%
Coal Counties	20%	71%	9%
Manufacturing Counties	14%	71%	15%
Government/Mix Counties	15%	72%	13%

Table 29
Data for Figure 40
Eastern Kentucky and West Virginia
Coal Employment,
1980 - 1984

Year	East Kentucky Coal Employment	West Virginia Coal Employment
1980	34,521	53,403
1981	37,505	55,921
1982	35,101	53,262
1983	28,100	38,783
1984	29,801	39,636

APPENDIX 2
Growth and Development, by County, 1960, 1980

County Name	Growth	Dev. 1960	Dev. 1980	County Name	Growth	Dev. 1960	Dev. 1980
ADAIR	99	76	182	LETCHER	132	87	192
ALLEN	103	78	198	LEWIS	104	82	175
ANDERSON	84	127	227	LINCOLN	88	88	186
BALLARD	118	115	230	LIVINGSTON	162	103	224
BARREN	108	107	213	LOGAN	93	108	216
BATH	106	77	182	LYON	113	100	232
BELL	174	91	189	MCCRACKEN	123	166	246
BOYLE	85	147	231	McCREARY	91	56	166
BRACKEN	45	107	206	MCLEAN	92	120	218
BREATHITT	225	56	171	MADISON	59	134	224
BRECKINRIDGE	102	86	199	MAGOFFIN	237	62	172
BUTLER	192	64	190	MARION	75	118	209
CALDWELL	117	123	224	MARSHALL	49	141	237
CALLOWAY	55	137	237	MARTIN	446	70	193
CARLISLE	131	116	223	MASON	57	139	218
CARROLL	59	121	214	MEADE	63	186	242
CARTER	107	91	193	MENIFEE	146	50	176
CASEY	96	59	165	MERCER	82	137	225
CLAY	165	53	153	METCALFE	70	67	175
CLINTON	93	57	164	MONROE	111	70	177
CRITTENDEN	212	103	218	MONTGOMERY	71	134	214
CUMBERLAND	85	66	168	MORGAN	100	69	169
EDMONSON	118	70	192	MUHLENBERG	103	115	219
ELLIOTT	172	60	170	NELSON	90	135	229
ESTILL	111	87	187	NICHOLAS	85	97	199
FLEMING	89	86	193	OHIO	154	91	211
FLOYD	122	96	204	OWEN	73	100	195
FRANKLIN	88	181	249	OWSLEY	85	41	141
FULTON	81	126	212	PENDLETON	74	117	215
GALLATIN	45	112	207	PERRY	154	89	194
GARRARD	83	115	207	PIKE	185	97	208
GRANT	88	119	219	POWELL	88	81	193
GRAVES	85	132	227	PULASKI	109	95	205
GRAYSON	123	78	193	ROBERTSON	47	74	178
GREEN	93	99	192	ROCKCASTLE	110	68	175
HANCOCK	153	89	231	ROWAN	81	115	214
HARDIN	26	170	244	RUSSELL	65	75	187
HARLAN	145	97	196	SHELBY	66	139	230
HARRISON	63	141	212	SIMPSON	95	116	224
HART	78	85	185	SPENCER	72	110	206
HENRY	70	114	218	TAYLOR	75	135	213
HICKMAN	55	114	226	TODD	102	95	206
HOPKINS	105	136	227	TRIGG	151	83	221
JACKSON	128	43	151	TRIMBLE	61	111	218
JOHNSON	206	93	205	UNION	123	138	239
KNOTT	209	59	183	WARREN	75	147	239
KNOX	153	73	179	WASHINGTON	77	105	205
LARUE	85	120	208	WAYNE	124	62	164
LAUREL	78	89	207	WEBSTER	177	116	219
LAWRENCE	162	76	182	WHITLEY	123	89	193
LEE	90	62	167	WOLFE	158	37	157
LESLIE	173	49	164				

APPENDIX 3
Sources of Data

1) Bureau of Economic Analysis, (BEA), U.S. Department of Commerce. Data used in this analysis were taken from computer tapes provided to the Kentucky Economic Information Service (KEIS), with the assistance of KEIS staff Margaret Adams and Roy Segafus. BEA statistics for 1959 are definitionally comparable to 1980 statistics.

   a) Per capita total personal income, 1980

   b) Per capita total personal income, 1959

   c) Percent change in per capita total earned income (total personal income minus total transfer payments, divided by population, 1959 to 1980)

   d) Counties with more than 20 percent of total earned income derived from agriculture

   e) Counties with more than 20 percent of total earned income derived from mining, (with the exception of Livingston County which mines limestone), or counties in which over 950,000 tons of coal were produced in 1980

   f) Counties with more than 25 percent of total earned income derived from manufacturing

   g) Counties with more that 20 percent of total earned income derived from employment in government, or counties which meet none of the above criteria

   h) Percent of total personal income in 1980 derived from wages, salaries, proprietors' income or other labor income

   i) Percent of total personal income in 1959 derived from wages, salaries, proprietors' income or other labor income

   j) Percent of total personal income in 1980 derived from transfer payments

   k) Percent of total personal income in 1959 derived from transfer payments

   l) Average earnings per job, 1980

   m) Average earnings per job, 1959

n) Distribution of total labor and proprietors' income, selected industries (agriculture, government, coal mining, manufacturing, construction, services, other, mining)

2) 1980 Census of Population and Housing, Bureau of the Census. Data used in this analysis were pulled off Summary Tape Files 1 and 3, with the assistance of Carol Straus and Bruce Gage of the U.K. Sociology Department.

a) Median Family money income, 1979

b) Workers 16 and older, as percent of adults 18 and older

c) Percent of families with no worker in 1979

d) Percent of families with one worker in 1979

e) Percent of families with two workers in 1979

f) Percent of 16-19 year olds not in school, army, working or looking for work, 1980

g) Percent of employed men in labor force who were unemployed for some period of time in 1979

h) Percent of adults 25 years and older who have completed high school, 1980

i) Percent of adults 25 years and older who have attended college, 1980

j) Percent of all housing units which have complete plumbing for exclusive use, 1980

k) Percent of housing units with 1.01 or more persons per room, 1980

l) Percent of housing units which are mobile homes, 1980

m) Percent of housing units connected to city, county, sanitary district, neighborhood or subdivision sewer system, 1980

n) Percent of housing units with water source from a public system or private company, 1980

o) Percent families with incomes below $7,500 in 1979

p) Gini coefficient of concentration of household incomes, 1979 (calculated with the assistance of Steve Thomson, University of Kentucky Computer Center.)

q) Percent of population living in places with fewer than 2,500 inhabitants, 1980

r) Population density, 1980

s) Total county population, 1980

t) Percent of total population 18 years and older, 1980

u) Percent of population 65 years and older, 1980

v) Percent of workers working outside county of residence, 1980

w) Percent of households receiving wage or salary income, 1979

x) Percent of households receiving public assistance income, 1979

y) Percent of households receiving social security income, 1979

z) Percent of households receiving income from interest, dividends, royalties or net rental income, 1979

aa) Percent of all housing units which are owner occupied, 1980

3) 1960 Census of Population and Housing, Bureau of Census. Data are from the County City Data Book, 1967, which were extracted from the County City Data Book Tapes originally by Lawrence Busch, Cornelia Morgan, and Carolyn Sachs. Data used in this analysis were pulled from the Busch et. al. tape with the assistance of Bruce Gage, U.K. Sociology Department.

a) Median family money income, 1959

b) Percent of adults 25 years and older who have completed high school, 1960

c) Percent of all housing units which have complete plumbing for exclusive use, 1960

d) Percent of housing units with 1.01 or more persons per room, 1960

e) Percent of housing units which are mobile homes, 1960

f) Ratio of physicians to population, multiplied times 100,000, in 1980

g) Percent families with incomes below $3,000 in 1959[129]

h) Total county population, 1960

i) Percent of all housing units which are owner occupied, 1960

j) Ratio of physicians to population, multiplied times 100,000, in 1980

4) Kentucky Vital Statistics, produced by the Kentucky Department of Human Resources from records they collect.

a) Mortality rate from influenza and pneumonia, 1980

b) Mortality rate from influenza and pneumonia, 1960

5) Census of Government Finances, 1977, Bureau of the Census. Data used in this study were retrieved from the Census tapes, with the assistance of Bruce Gage.

a) Total tax revenue, 1977, divided by total population, 1977

6) Kentucky Deskbook, 1981, Kentucky Department of Commerce; Kentucky Department of Human Resources, Average Weekly Wages Covered by Unemployment Insurance Law.

a) Per capita bank and savings deposits, 1980

b) Average weekly pay, 1980

c) 1981 sales and use tax per capita

d) Per capita county assessment for state property taxes

7) Federal Home Loan Bank Board, Cincinnati, 1981 Annual Report.

a) Deposits in Savings and Loan Associations

8) Sheshunoff, Banks of Kentucky, 1983. Austin, Texas: Sheshunoff & Co., Inc.. Data is compiled by Sheshunoff

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[129]In constant 1972 dollars, an income of $3,000 in 1959 is comparable to an income of $7,463 in 1979.

from the preliminary year-end Report of Condition and Report of Income from the Federal Reserve Bank Board.

a) Average loan-to-deposit ration of all banks in the county, averaging years 1978 to 1982

b) Average five year (see above) loan-to-deposit ratio of bank with highest loan-to-deposit ratio

c) Percent of commercial loans of all loans made by bank with highest loan-to-deposit ration (LDR), 1982

d) Percent of farmer loans of bank with highest LDR, 1982

e) Percent of consumer loans of bank with highest LDR, 1982

f) Percent of construction loans of bank with highest LDR, 1982

g) Percent of residential loans of bank with highest LDR, 1982

9) Kentucky Department of Mines and Minerals Annual Report, 1981, 1982

a) Coal production, 1870 - 1980

10) West Virginia Department of Mines, Annual Report and Directory of Mines, 1983

a) Coal production, 1870 - 1980

11) County and City Data Book, 1983, Bureau of the Census

a) 1977 number of manufacturing, wholesale and retail establishments per 1000

12) Finances of County Governments, 1982 Census of Governments, Bureau of the Census

a) Local government revenue sources per capita in nonmetropolitan Kentucky, by economic base, 1980
b) Percent revenue federal

c) Percent revenue state

d) Percent revenue generated locally

e) Per capita county tax revenue

f) Per capita expenditures

13) Receipts and Expenditures, Fiscal Year 1981-82, Office of Computer Services, Kentucky Department of Education

   a) Total school revenue per pupil

   b) Percent school revenue from federal government

   c) Percent school revenue from state government

   d) Percent school revenue from local sources

14) Kentucky Legislative Research Commission, Research Report #210: First Annual Report on the Financial Condition of County Governments in Kentucky.

   a) Percent local taxes, license permits

   b) Percent excess fees

   c) Percent local government economic assistance

   d) Percent other state transfers

   e) Percent revenue sharing

   f) Percent miscellaneous revenues

APPENDIX 4
Kentucky Survey:
Proposals to Improve Conditions in Coal Communities

Kentuckians have expressed wide support for proposals to improve conditions in coal mining regions of the state. These results indicate that Kentuckians are ready for policy proposals that return more of the benefits of mining to coal communities. The survey was conducted by the University of Kentucky Survey Research Center between October 15-26, 1984. A total of 743 Kentucky citizens eighteen years of age and older were interviewed by telephone. The margin of error for all questions was plus or minus 4 percent at the 95 percent confidence interval. This means that the results reported can be expected to vary by no more than 4 percent in either direction from what would have been obtained if every residential telephone number in the state had been called.

Actual questions and responses follow.

Now I'd like to change the subject just a bit and talk about issues related to coal mining in Kentucky. People have suggested a number of changes to help solve problems in coal counties such as bad roads, water pollution, and inadequate funds for schools. I'd like to ask you about some of these.

Do you think we should stabilize coal production with a national energy plan that would require utilities to use a certain amount of coal as opposed to other fuels?

Yes	419	57%
Yes, depends	26	4
No	163	22
Don't know	129	18
Refused	3	-
Not asked	3	-

Do you think we should step up enforcement of existing laws and regulations to prevent mining from damaging coal areas?

Yes	601	81%
No	73	10
Don't know	66	9
Refused	1	-
Not asked	2	-

Communities in western states like Colorado and Wyoming have negotiated with coal companies for help in paying for roads, schools, and other community services. Do you think coal communities in Kentucky should do the same thing?

Yes	609	83%
No	49	7
Don't know	80	11
Refused	2	-
Not asked	3	-

Right now, the tax on coal production in Kentucky is about 4 percent. Some states have no severance tax at all. Others have tax rates that are five to six times higher than Kentucky's. If the money were to be used for the improvement of schools, roads, and water systems in coal-producing counties, would you favor or oppose increasing Kentucky's coal severance tax?

Favor	515	70%
Oppose	108	15
Don't know	115	16
Refused	1	-
Not asked	4	-

Some people think that a portion of the money obtained from coal taxes should be set aside to attract new industry to coal counties, even if it means that there is less to spend on other programs. Do you agree or disagree?

Agree	352	48%
Disagree	290	40
Don't know	93	13
Refused	2	-
Not asked	6	-

Some people also say we should make no changes in laws and policies related to the coal industry because changes might mean the loss of coal mining jobs. Do you agree or disagree?

Agree	217	30%
Disagree	396	54
Don't know	118	16
Refused	3	-
Not asked	9	-

The Mountain Association for Community Economic Development (MACED) is a regional organization which combines research and policy analysis with technical assistance and financial investments to stimulate development that benefits low income households in Appalachia. Since 1977, MACED has worked with community groups and local leadership on economic development projects. Over the past three years, the program has concentrated on "sectoral interventions," attempts to stimulate incremental change in an important industry to benefit poor people and poor places. Currently MACED has projects or investments in housing financing and banking, the hardwood lumber industry, water system management, and the coal industry. The staff of 13 people works on research, technical assistance, investment, or policy analysis, as the issue requires.