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2008

## Kentucky Annual Economic Report 2008

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# Kentucky Annual Economic Report

## 2008



Center for Business and Economic Research  
Gatton College of Business and Economics  
University of Kentucky

**UK**  
UNIVERSITY OF KENTUCKY

**Gatton**  
COLLEGE OF BUSINESS & ECONOMICS  
UNIVERSITY OF KENTUCKY

# Kentucky Annual Economic Report



2008

**Center for Business and Economic Research**

**Department of Economics**

**Gatton College of Business and Economics**

**University of Kentucky**

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Center for Business and  
Economic Research

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Gatton College of  
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**Roy A. Sigafus**, *Managing Editor*



## From the Director . . .

This year marks the 36<sup>th</sup> year the Center for Business and Economic Research (CBER) has published the Kentucky Annual Economic Report. This report is one of the important ways that the Center fulfills its mandated mission to examine various aspects of the Kentucky economy. The 2008 report contains six articles. These articles cover a wide variety of topics from the expected growth of Kentucky and the national economy to the examination of changes in education spending and in insurance coverage in the state. As we have done in previous years in this annual report, we focus on important issues that face citizens and policy makers in the state such as: spending on education in the state and how it has changed since the major reforms of the 1990s, who is covered and who is not covered by health insurance, and the role that the market economy plays in increasing the income of Kentucky citizens.

In putting together this issue, we have drawn on the expertise of the faculty, staff and students at the University of Kentucky. Contributors include seven faculty members, a research associate and two graduate students. As has been the tradition for this report, we have assembled some of the best economists in the state to write about important regional and national issues.

Our lead article is by Dr. John Garen, the chair of the Department of Economics, along with Carlos Lopes, a graduate student in the Department of Economics. This article assesses the role that a market-based economy plays in increasing the income of citizens and then examines how well Kentucky makes use of the market to increase the income of Kentucky residents. One of the main findings of this article is while there is ample evidence showing that incomes are higher in areas with a more open market, Kentucky state government has not embraced many market-based incentives that would improve the standards of living in the state.

I contributed an article that looks at spending on K-12 schooling since the enactment of the Kentucky Education Reform Act (KERA) in 1991 and also examines spending on higher education since the enactment of the Post-Secondary Education Improvement Act or House Bill 1. I find since the enactment of KERA real spending on K-12 education has increased very little in the State. In contrast, there has been a rather dramatic increase in spending on higher education in Kentucky since the passage of HB1. Finally, I show that, relative to total government expenditures, total spending on education has fallen in Kentucky while the share of overall education expenditures going to higher education has risen. Kentucky is now devoting a smaller share of total government spending to education and has increased spending on higher education while decreasing the share of spending on K-12 education.

Dr. Aaron Yelowitz, an Associate Professor of Economics, examines how health coverage in Kentucky has changed from 2002 (the final full year before Governor Fletcher was elected) to 2006 (the final full year before he left office). Dr. Yelowitz finds that overall how insurance coverage has changed in the last four years is complicated. Overall, during the Fletcher administration, the number of uninsured people in the state rose by 91,000 from 13.6% of the population to 15.6% of the population. However, the number of children without coverage fell by 24,000 while the number of young

adults (age 18 to 24) without insurance increased. In addition, the number of people with private insurance rose, while the number with public insurance fell.

The fourth article in the report is by Dr. Merl Hackbart, the Associate Dean of the Gatton College of Business and Economics, Dr. Dwight Denison, an Associate Professor in the Martin School of Public Policy and Administration and Dr. Wie Yusuf, a Research Associate in the Gatton College of Business and Economics. In this article Drs. Hackbart, Denison and Yusuf examine the increasing use by state governments of electronic payments for purchasing goods and services and the increased acceptance by state governments of electronic payments by citizens for paying taxes and fees. They find that the increased use and acceptance of electronic payments by state governments has produced a substantial savings in the cost of purchasing goods and services.

The fifth article is by Dr. Jenny Minier, an Associate Professor of Economics and Dr. Christopher Jepsen, an Assistant Professor of Economics and the Associate Director of CBER. This article looks back at the performance of the national and state economies over the recent period and provides forecasts for the coming year. They conclude that while there is increased uncertainty about the future growth of the U.S. and Kentucky economies, we still expect to see positive, albeit slower, growth in 2008.

The final article in the report is written by Kylie Goggins, a research associate at CBER and a graduate student in the Department of Economics. In this article Ms. Goggins reports on the results of the annual survey of business confidence that CBER conducts for the Kentucky Association of Manufacturers. This survey asks businesses about their performance over the past year and their expectation about the coming year. Based on the results from this survey it appears that business owners have become increasingly pessimistic about the growth in manufacturing in Kentucky in the coming year.

In the past year, we have worked on a number of important projects at the Center for Business and Economic Research. One major report examines the value that the Kentucky Community and Technical College System produces for the citizens of Kentucky. In a second project, researchers at CBER worked jointly with researchers from the University of Louisville to examine the costs and benefits of various options for revising the management of jails in Kentucky. In addition, we have just completed a report comparing economic development practices in Kentucky with those adopted in some of the more rapidly growing states to the south. In the coming year, we anticipate continuing to conduct challenging new research projects.



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## Department of Economics, University of Kentucky

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The Center for Business and Economic Research (CBER) is the applied economic research branch of the Carol Martin Gatton College of Business and Economics at the University of Kentucky. Its purpose is to disseminate economic information and provide economic and policy analysis to assist decision makers in Kentucky's public and private sectors. In addition, CBER performs research projects for federal, state, and local government agencies, as well as for private-sector clients nationwide. The primary motivation behind CBER's research agenda is the belief that systematic and scientific inquiries into economic phenomena yield knowledge which is indispensable to the formulation of informed public policy.

CBER's research includes a variety of interests. Recent projects have been conducted on manpower, labor, and human resources; transportation economics; health economics; regulatory reform; public finance; and economic growth and development..

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Dr. John Garen is a Gatton Endowed Professor of Economics and Chair, Department of Economics in the Gatton College of Business and Economics at the University of Kentucky. Dr. Garen received his Ph.D. from Ohio State University in 1982. He has been a member of the University of Kentucky faculty since 1985, with a one year absence while serving as a visiting professor at the University of Chicago. During 2004-2005, he was Co-Director of the Gatton College's Center for Business and Economic Research (CBER). Dr. Garen has conducted research on a variety of human resources issues and on many applied microeconomics topics. These include studies of wage determination, schooling and higher education, labor demand and employment, job safety, unionization, executive compensation, incentive pay, franchising, self-employment, initial public offerings, and managerial stock ownership. His work has been published in many leading journals in economics including *Journal of Political Economy*, *Research in Labor Economics*, *Review of Economics and Statistics*, *Journal of Human Resources*, *Journal of Corporate Finance*, and *Econometrica*



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**Dr. Aaron Yelowitz**

Dr. Aaron Yelowitz is currently an Associate Professor in the Department of Economics at University of Kentucky. He also is a joint faculty member in the Martin School of Public Policy and Administration at University of Kentucky. He is also a Research Associate at National Bureau of Economic Research, a Faculty Affiliate at the Joint Center for Poverty Research, and a Research Associate at Institute for Research on Poverty, and the economics department liaison for the UK Center for Poverty Research. He serves as an associate editor for the *Journal of Public Economics*.



**Dr. Wie Yusuf**

Dr. Wie Yusuf received her Ph.D. in public administration from the University of Kentucky in December 2007. Her primary research interests include entrepreneurship, economic development, and public budgeting and finance applied to infrastructure and transportation policy. Her current research includes an evaluation of entrepreneurial assistance programs; examination of multistate tax administration models; and assessment of transportation financing options for states. Her work has been published in *Public Works Management & Policy* and *Applied Research in Economic Development*.

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# The Role of a Market Economy in Promoting Economic Well Being: How Is Kentucky Doing?

*John Garen and Carlos Lopes*

*This article discusses the role of a market economy in generating higher standards of living and formulates an initial assessment of how Kentucky fares in this regard. We review the familiar evidence regarding Kentucky's income and productivity, discuss important aspects of market economies that lead to greater incomes, and present an overview of evidence regarding how Kentucky does in embracing the aspects of market economies that promote material well being. Our overview suggests that Kentucky falls short of doing so in several important respects. Our tax burden is not especially low and is weighted toward income rather than property taxes. Spending authority is centralized at the state rather than local level. Control of primary and secondary education is chiefly at the state level and we have failed to adopt important reforms such as charter schools and vouchers. The income penalties for the able-bodied poor to work are quite severe for some income levels. Each of these represents a failure to adopt the income-enhancing aspects of markets and market-like incentives and likely impede Kentucky's progress in raising standards of living.*

## I. Introduction

This article addresses the role that a market-based economy plays in generating higher standards of living for its citizens and makes an initial assessment of how Kentucky fares in this regard. It is well known that the Commonwealth lags behind the nation and many neighboring states regarding its income per capita. Also, it is clear from worldwide evidence that market economies are more successful in enabling their citizens to attain greater incomes. Thus, it ought to be an important goal of policy makers in Kentucky to encourage the income-enhancing aspects of market economies in the interest of improving our material standards of living. This article reviews the familiar evidence regarding Kentucky's standard of living, discusses important aspects of market economies that lead to greater incomes, and presents an overview of evidence regarding how Kentucky does in embracing the aspects of market economies that promote material well being.<sup>1</sup>

Section II of the paper briefly reviews the data on Kentucky's status relative to the U.S. and selected other states regarding income per capita and other variables of interest. As is well known, Kentucky ranks low in per capita income. We emphasize the point that income represents the ability to acquire goods and services and that fundamentally, its

source is productivity in supplying those goods and services. On average, Kentucky falls short in this regard: labor earnings are lower, labor market skills are lower, and fewer people work in Kentucky than elsewhere. Kentucky also has a greater reliance on government transfer income, but this does not represent production of goods and services and so does not raise aggregate income.

Section III of the paper describes aspects of market economies that generate higher incomes. Essentially, market economies present powerful incentives to engage in productive activity by relying on voluntary exchange, competition in markets, and on certain government institutions to support these. In this setting, there are strong rewards for being productive in the sense of producing goods and services of value. This applies to firms and workers, and also generates incentives for improvements in productivity through investment in technology as well as worker training and skills. Good government support of markets is important, too, as is the idea of competition among governments that emulate market-style incentives.

Section IV begins our overview of selected aspects of Kentucky by reviewing the evidence on state and local taxation. Because taxes diminish the reward for productive activity they are potentially a significant source of loss in economic welfare. Kentucky's tax burden is not especially low; in fact it

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is about average for U.S. states. Also, we are heavily reliant on income taxes relative to property taxes, which likely creates worse incentives for productive activity and may lessen competition among local governments.

Section V considers the extent of centralization of state and local government activities at the state level rather than the local level. Kentucky is quite centralized in this regard and forgoes the benefits of geographic mobility induced competition for government services, as well as losing a degree of local choice in government expenditure.

Section VI turns to a discussion of primary and secondary education. Similar comments apply here regarding centralization: our educational spending is highly controlled by state government. Though a reason for this may be mistrust of local politicians, the central control of spending entails forgoing competition among schools induced by residential mobility. Also, Kentucky has not adopted two increasingly popular educational reforms that enhance market incentives: charter schools and use of vouchers.

Section VII discusses work incentives among the poor. Income support programs tend to have the effect of reducing work effort among recipients because of the structure of incentives imbedded in the programs. While such programs can be a sensible aspect of government activity, their cost to the state economy is directly related to the lost work effort. We examine the work incentives for a hypothetical single parent with two children and find that the biggest issues arise at points of earned income where government benefits suddenly drop off

Section VIII presents our conclusions. We find that Kentucky has not done well in embracing market-based incentives that would improve of standards of living. Our tax burden is about average for U.S. states,

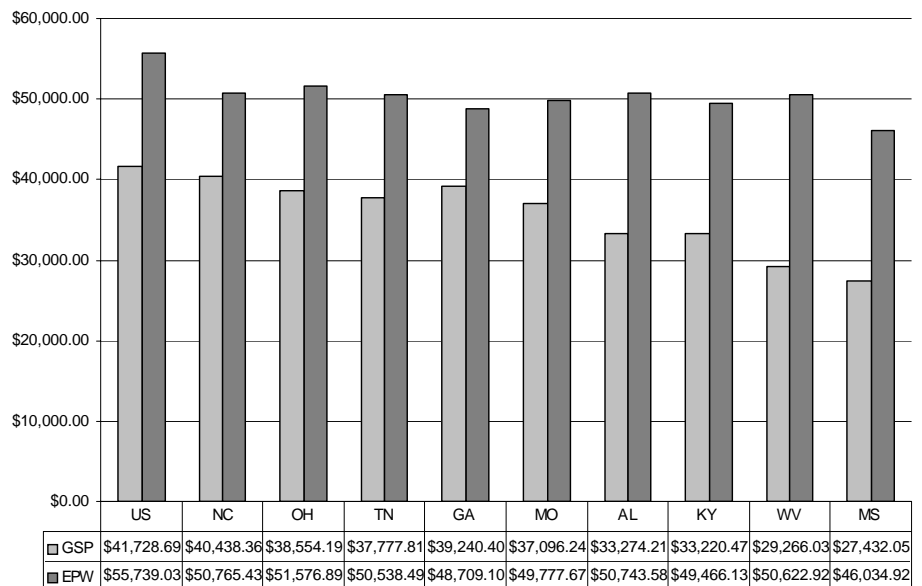
taxes are heavily weighted toward income taxation, and tax and spending power is greatly centralized in Frankfort. Kentucky has a much greater control of public schools by state government relative to local government and has not adopted any parental choice-type programs for schools. At selected levels of income, government transfer payments do not reward work activity among the poor. Each of these represents a failure to adopt the income-enhancing aspects of markets and market-like incentives.

**II. A Look and Kentucky’s Income and Work Patterns**

Chart 1 presents a familiar set of data regarding the income of Kentuckians. The light bars show 2005 per capita Gross State Product (GSP) for the U.S., for Kentucky, and a select set of other states. GSP is a broad measure of total income generated in the state. Exact values are shown just below the bars. Gross income per capita for the entire U.S. in 2005 was \$41,729 and only \$33,220 for Kentucky. Relative to neighboring states and other southeastern U.S. states, we trail all states except Mississippi and West Virginia and are about the same as Alabama.

One reason for Kentucky’s low per capita income

**Chart 1: GSP Per Capita and Earnings Per Employed Worker**



Source: Gross State Product: BEA 2005 Nominal Gross Domestic Product by State  
 Census Bureau Midyear Population Estimates  
 Earnings Per Worker: BEA State Income Series SA1-3 March 2007 CPS

## The Role of a Market Economy in Promoting Economic Well Being: How Is Kentucky Doing?

is the relatively low level of earnings for those who work. The darker bars in Chart 1 show labor earnings per working person in 2005, with the exact values shown below. Earnings per employed worker in Kentucky was \$49,466 in 2005. This is considerably below the average of \$55,739 for the entire U.S., though we are not that different in this regard from many of our neighboring states. One reason for this is that earnings tend to be lower in less urbanized areas, which characterizes many parts of the southeast U.S. Another reason is the lower level of the job market skills of many workers in Kentucky. For example, the percent of the population over 25 years old with a college degree is about 27% for the U.S. and only 20% for Kentucky. Regarding the percent with a high school degree, the figures are 84.1% for the U.S. and 79.6% for Kentucky.<sup>2</sup>

Another reason for our low per capita income is that fewer people work in Kentucky than elsewhere. Chart 2 presents information on labor force participation rates for Kentucky, the U.S., and selected states. The light bars show the labor force participation rate for all persons age 16 and over. Exact values are shown beneath the bar graph. For the U.S., this value is 65.08%. It is considerably lower at 60.88% for Kentucky. Indeed, Kentucky's is one of the lowest in the U.S. and, among the selected states

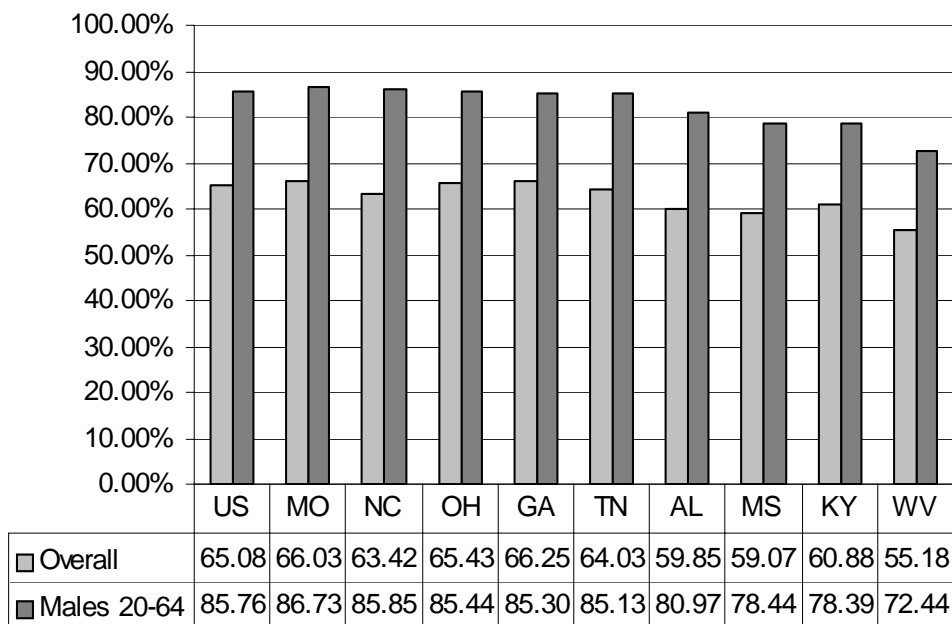
shown, is higher than just three states: Alabama, Mississippi, and West Virginia.

The labor force participation rate for all individuals may be somewhat misleading, though. States with a larger portion of their population who are retirees, in school, or stay-at-home spouses will show up as lower labor force participation. An approximate way to control for these issues, and consequently a better measure of the extent of work effort in the state, is the labor force participation of males aged 20 to 64. This group is the least likely to be affected by child rearing duties and the schooling and retirement issues that affect labor force participation. The dark bars in Chart 2 show labor force participation rates for this group (with values given below).

The values are much higher for this group, with labor force participation in the entire U.S. at 85.76%. However, the patterns are similar to those for the overall labor force. Kentucky's labor force participation rate for this segment of the population is only 78.39%. Relative to the comparison states in the chart, Kentucky is similar to Alabama and Mississippi in this regard and substantially higher than only West Virginia.

As is evident, two of the chief reasons for Kentucky's lower per capita income are

**Chart 2: Labor Force Participation Rates**



Source: March 2007 CPS

straightforward: on average, we work less and those that do work earn less. The latter is due, in part, to lower labor market skills.

It is important to remember that income represents the power to purchase goods and services. Therefore, the only way for aggregate income to rise is for the production of goods and services to rise. The above data imply that Kentuckians, on average, produce less and so we end up with lower income.

Raising our aggregate level of productivity will mean raising our aggregate level of income.

One reason for Kentucky’s lower work effort may be higher rates of ill health, disability, spells of unemployment, or other unfortunate life events that might disrupt work. These, in turn, may lead to greater reliance on government transfer payments. Indeed the income of Kentuckians shows a higher proportion of government transfer payments than for most of the U.S. Chart 3 summarizes this information. For the nation as a whole in 2005, the proportion of all personal income individuals received that consisted of government transfers was 14.7%. For Kentucky, this proportion was much higher at 19.1%. This also is higher than all of the comparison states except Mississippi and West Virginia.

Government transfer income is income not

production of goods and services, arising from greater productivity.

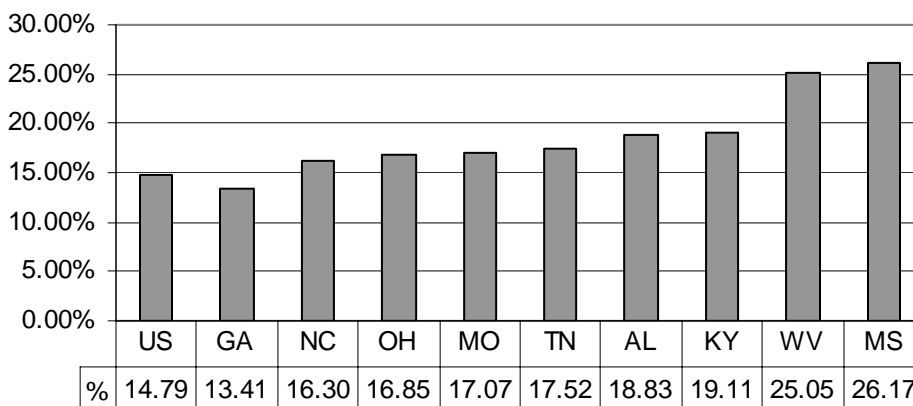
### III. The Income-Enhancing Effects of Market Economies

The fact that economies based on the free market increase the income of individuals in those economies should not surprise many. The high standards of living in North America, Western Europe, Japan and selected other parts of Asia are in no small measure due to market-based economies. Similarly, much of the misery of the former Soviet Union, its satellite nations, and authoritarian regimes in Africa, Asia, and Latin American can be traced to their rejection of market economies and those institutions that support market economies. This casual empiricism is

supported by more careful econometric study<sup>3</sup> and the ideas apply to states and localities as well as nations.

In this section, we discuss the aspects of market economies that generate this outcome with an eye toward assessing how well Kentucky embraces them. As indicated above, income simply represents command over goods and services. Thus, an

**Chart 3: Percent of Personal Income Received from Federal Transfers**



Source: 2005 BEA State Personal Income Series SA1-3

earned via work. Thus, the goods and services the recipients purchase with this income comes out of someone else’s production. If it comes from another Kentuckian, then it does not raise aggregate income of our state. If it comes from outside the state, it does. However, it does not seem like wise policy to focus our income-enhancing efforts on seeking transfers from elsewhere.

It is the case that much of the transfer income represents a social safety net, i.e., an income source for those with low earnings or minimal earnings power. Having a social safety net is a sensible and compassionate thing to do. However, this will not raise the state’s aggregate income. This will come only from earnings that represent a greater

equivalent formulation of this is to discuss the aspects of market economies that generate high levels of productivity. Note that, while our focus is on income, we recognize that human welfare depends on other things in addition to material goods and services. For example, individuals care about their health and about the environment. However, the evidence suggests that these things are strongly correlated with income. In effect, greater productivity that causes higher incomes also enables a society to acquire better health and an improved environment. Therefore, we concentrate our discussion on income.

Broadly speaking, market economies establish a very strong incentive system for productivity. The bases of a market economy include the following:

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reliance on voluntary exchange of goods and services between individuals; the freedom to compete in the buying and selling of these goods and services; and protection of property, contracts, and the rights of individuals. These create powerful incentives for people to produce goods and services that are of value. In a system like this, one achieves a high level of income by producing and selling a greater quantity of goods and services, producing those goods and/or services more efficiently, or producing goods and services that customers consider to be better. The role of voluntary exchange is critical in this regard. Since exchange is voluntary, customers do not buy things they feel do not add to their welfare and are not forced to accept items they do not want. Consequently, sellers have a strong incentive to sell goods and services that consumers desire. Selling more and/or better products and doing so more efficiently increases the income of the seller and provides buyers with goods and services that the latter value.

These comments apply to firms that sell products to consumers as well as workers supplying labor services. Just as firms can succeed in raising profitability by providing consumers with more and better products, workers raise their income by providing their employers with greater capabilities in the production process. This may be as simple as working more hours or more conscientiously, or by bringing a better set of skills to the labor market, enabling greater productivity per hour worked. In effect, employers are the workers' "customers" and workers raise their incomes by providing more and better labor services.

The fact that exchanges are voluntary also means that buyers must compensate sellers adequately enough to induce the sale of the good or service in question. Generally, this means the price paid must cover the seller's cost. For firms, the cost includes the opportunity cost of invested funds. For the sellers of labor services, it includes the opportunity cost of forgone time. Buyers therefore bear the full cost of producing the good and this encourages them to purchase it only if they value it at least as great as the cost. Again, this leads to the outcome that only goods of value are produced.

Competition plays an important role in market economies in several ways. One is that it intensifies the incentives to provide goods and services of value. Not only must the product a seller offers add value to

the buyer, it must compete with the products offer by other sellers. Customers will choose to support the seller who, in their eyes, adds the most value. This further induces value creation by sellers. Competition also occurs among buyers, as buyers bid up the prices of superior good and services, inducing a higher return to sellers who provide a greater value. Thus, higher quality products carry higher prices. This works in the labor market, too. Competition among employers bids up the price for the more skilled workers, enabling the more productive to earn higher wages.

Investment, technological advance, and skill acquisition are also induced by the market system described above. Each generates greater productivity in providing a greater and improved quality of goods and services. Investment in equipment, better technologies, and more highly skilled laborers all allow more to be produced. Because of the rewards for greater productivity, firms and workers have an incentive to engage in these productivity-enhancing activities.

Prices play an important role in competitive market economies. Prices emerge from the competitive interplay of market participants and represent the terms of mutually agreed upon trade for the scores of buyers and sellers in the marketplace. They also underlie much of the incentives for economic activity in a market and provide valuable information. To the suppliers of a good, the price naturally is what the consumer will pay. To the consumer, paying this price indicates sacrifice of something else of equal dollar amount. By purchasing it, the consumer signals value. When the firm can fetch a price high enough to cover its cost, profits are made and firms have incentive to make the product. Thus, the price provides information about what is valuable to consumers and a reward for acting upon it. This analysis applies to workers as well. High wage activities and skills signal value to employers, which ultimately comes from value to consumers. This, in turn, provides incentives for individual workers to undertake the activities and acquire the skills that produce value. To buyers, the price is a cost and gives an incentive to refrain from purchasing goods whose value is less than cost. Accordingly, the signal consumers give via their purchasing patterns truly reveals added value.

Though the focus of the foregoing discussion is on markets, governments have important functions

in the creation and support of market economies. Voluntary exchange relies on well-defined property rights and rules of exchange. Thus, clear and strong property and contract law are crucial underpinnings of a market economy. Protection of individuals and their property from violence and theft also are important, indicating thus the role of criminal law. Collectively, these imply a well-functioning legal system.

Government may have a role in other categories of activities as well. This may include goods that are collectively consumed, goods with large scale economies of production that may be produced more efficiently by a single supplier, and goods that cause “neighborhood” effects on parties not involved in their transaction. These are goods such as fire protection, road repair, streetlights, primary and secondary education, sewage and water services, and pollution abatement. The provision of many of these goods can be thought of as providing a physical infrastructure for markets to operate while the items discussed in the previous paragraph provide the institutional infrastructure. Both are important.

With this as background, we now turn to selected aspects of the Kentucky economy to make a preliminary assessment of the state’s support of market-based mechanisms and incentives that will raise our per capita income.

#### **IV. The Level and Structure of State and Local Taxation**

##### **A. The Level of Taxes**

Some level of taxation is necessary in a modern society, even in a predominantly market-based one. Resources used to establish the institutional and physical infrastructure needed for effective markets must be raised by taxation. Yet it also is the case that taxation has a productivity-reducing effect which translates into reduced income. Essentially, taxation interferes with the incentives of the marketplace discussed above. Generally speaking, the burden of a tax is shared by the seller and buyer of the taxed activity in that it reduces the price sellers receive and raises the price consumers pay. Individuals selling goods and services (including labor services) no longer receive all the benefits of their efforts since part of the return is taxed away. Because sellers base their decision making on the

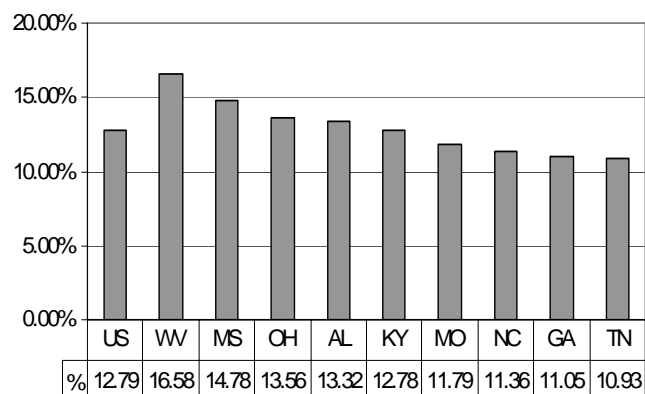
price they receive, this will reduce productive activity. Buyers pay a higher price than sellers receive and their willingness to pay a higher price signals value that sellers ignore. Thus, production of goods and services that are valuable to consumers are no longer produced. This leads to reduced production and causes a lower level of income.

Given this outcome, one hopes that the revenue collected by governments is spent on things that offset this loss in productivity. This would be accomplished by government engaging in the activities discussed above, e.g., rights protection, contract enforcement, and physical infrastructure. However, when government stretches beyond these, it becomes value reducing.

Thus, it is worth examining the level of taxation in Kentucky and in other states. It is likely to be strongly correlated with the degree of departure from the incentives established in a market economy and with the income loss associated with taxation. It is more difficult to assess the extent of productivity-enhancing expenditures by state governments and is beyond the scope of this article to do. Nevertheless, it is still a useful exercise to examine the level of taxation by the states since it will give a sense of the forgone productivity from taxation. To the extent that government activities reach beyond those discussed above to support the market, taxation will induce a reduction in income.

Chart 4 provides a look at the overall level of state and local taxation in Kentucky, other states, and the U.S. as a whole for the year 2005. The values are the total state and local taxes collect as a percent of Gross State Product (GSP).<sup>4</sup> The latter is one measure

**Chart 4: Tax Revenues as a Percentage of GSP**



Source: 2004-2005 Census State & Local Government Finances  
BEA 2005 Nominal Gross Domestic Product by State

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of gross income in a state. The average for all states in the U.S. is 12.8%. Kentucky is almost exactly at this national average. Though not a high-tax state, we certainly cannot claim to be a low-tax state.

In making comparisons to a selection of other states, we do have lower taxes than our neighbor to the north, Ohio. However, consider those states in the southeastern U.S. that have grown much more rapidly than Kentucky and are often held up as good examples: Tennessee’s tax collections are 10.9% of GSP, Georgia’s are 11.1%, and North Carolina’s are 11.4%. These states have succeeded in attaining faster growth and higher levels of income than Kentucky with a lower tax burden on their citizens. We have a much lower tax burden than West Virginia’s 16.6% of GSP and Mississippi’s 14.9%, but these are states that have had historically low rates of economic growth which we presumably do not wish to emulate nor boast about being “ahead of.” Compared to other states, Kentucky is pretty average in its efforts to maintain a low tax burden.

There is an argument that low population states may be expected to have higher per capita state and local taxes due to economies of scale in the provision of government services. This argument may be correct but there are certainly some important examples where this does not hold, e.g., New York, California, and New Jersey are all high population and high tax. A thorough econometric evaluation of this is beyond the scope of this article.

It also might be argued that Kentucky’s low income population and resultant higher receipt of government transfers puts upward pressure on our taxes, making it difficult to be a low-tax state. Again, this may be true but this realization does nothing to enhance productivity and income of individuals in the state. As noted above, greater transfers supported by higher taxes simply shifts income from one group to another. It does not increase our collective wealth. In fact, the higher

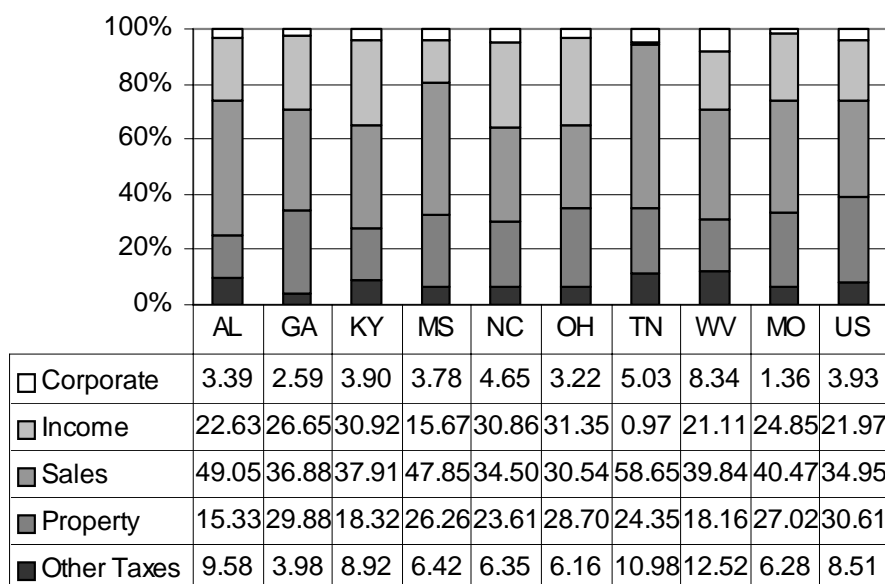
taxes will act to reduce it. Income redistribution programs have an appropriate place in society, but they do not serve to raise the aggregate level of income.

### B. The Structure of Taxes

Another important dimension of state and local taxation is the share of different types of taxes collected. Chart 5 displays some data on this for the year 2005. For all U.S. states and localities, property taxes account for 30.6% of tax revenue, sales taxes are 35.0% of revenue, personal income taxes are 22%, and corporate taxes 0.4%. This is quite different from Kentucky’s tax structure. For Kentucky, there are two striking differences: property taxes account for only 18.3% of revenue and income taxes 30.9%. The former is much lower and the latter is much higher than for the typical state. A good deal of this is due to many Kentucky localities’ use of payroll taxes in lieu of property tax revenue.

Most analysts consider the property tax to be the best option for raising revenue for local government services. One important reason for this is that it helps emulate the incentives of the market. The consumers of local government services are primarily those who live there. Thus, taxing property to pay for these services is an approximate way for those who receive the services to be the ones who pay for them. As with market exchange, this means that consumers of the

**Chart 5: Tax Revenues by Source**



Source: 2004-2005 Census State & Local Government Finances



services pay their full cost and presumably will take full account of the cost before eliciting government services. Only those government-provided goods that residents truly value will be “demanded.”

A further, market-like incentive operates here, too. If local governments provide particularly valuable services for the taxes collected, more individuals seek to live there and competition bids up the price of the land, making it easier to fund government services with a given property tax rate. Generally, this makes the local government officials more popular and more likely to retain office and therefore providing them with an incentive for instituting better government.<sup>5</sup>

The link between rewards and value created is not as close for the payroll tax. When localities rely on payroll taxes, many of those working and paying taxes may live in other locations. In their place of residence, these individuals do not bear the cost of local government services and do not take account of them in eliciting government services. Additionally, local governments that provide a good set of services will attract residents, but this need not translate into more funding for those services since the tax is not residence based. Thus, local governments are not rewarded with easier funding and the concurrent popularity for providing good government. The link between payment and cost is broken as well as the link between value provided and rewards. The incentives are very much in contrast to those of the marketplace; instead of working to favor the provision of goods and services that people value, they work against them. Of course, this implies that fewer goods and services of value are provided, translating into lower income.

That Kentucky’s local governments rely so heavily on payroll taxes instead of property taxes is problematic in this regard. Of the sampling of states shown in Chart 5, only Alabama and West Virginia have a lower reliance on property taxes than Kentucky. We would be well advised to shift our tax structure to take advantage of market-like incentives.

## **V. The Centralization of State and Local Taxation and Spending**

The ideas of market competition and incentives also apply to the centralization or decentralization of government taxation and spending decisions. Many government services are local in nature and individuals, in their choice of residence, often can

select among several municipalities to live in. For example, in central Kentucky, there are six counties that surround Fayette County that are thought by many to be reasonably viable options to locate in. Thus, to some degree, local governments compete for residents via the provision of things such as police and fire protection, schools, road repair, sidewalks, streetlights, sewage and garbage disposal, water, utility rights of ways, and drainage. Like the marketplace, when this competition is more robust the incentives for good outcomes are sharpened. With competition, those local governments providing a valuable set of services for the taxes collected gain more residents, find it easier to raise the tax revenue needed for those services, and local officials improve their odds of reelection.<sup>6</sup>

This type of competition requires a heavy reliance on local initiatives to collect taxes and provide government services. This implies a good deal of decentralization of taxing and expenditure power. Greater centralization has the converse effects.

There is another aspect of competition that changes with the centralization of tax and spending power; the political competition for funding. When expenditure decisions are made by political entities, the link between services received and payment made is weakened or non-existent. In other words, those paying the taxes may not be the ones receiving the government services. Individuals and groups compete for government funding via soliciting or lobbying for various programs and services. However, they will not account for the full cost of their proposals since others will be paying most of the bill. To be successful in the competition for political office, politicians have the incentive to craft programs that serve only the group they represent while passing off the tax bill to others. This is because individual taxpayers only pay a small fraction of the cost for each of a large number of government programs and services. This creates a strong incentive for some groups to lobby for new programs by promising to support these politicians, even though the true value of these services may be less than the cost of provision. The average taxpayer has only a limited interest in opposition to these new programs as it would be very costly to spend resources fighting each and every new proposal. As a result, we get boondoggle and pork barrel projects that serve a very small constituency at a high cost, the latter of which is paid by taxpayers at large.

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While needed programs do come at a cost the incentives are structured to induce provision of many, low-value government services and programs. This problem generally is much less severe for expenditure and tax decisions made at the local level, especially when property taxes are used as the funding mechanism. Here, the benefits of local projects are local and are paid for by residents via the location's property tax. There is likely to be a reasonably close link between services received and taxes paid, thus maintaining incentives for soliciting only government services of value. While this link will not hold exactly, there generally is less room at the local level for one group to obtain the benefits of a government project that they do not pay for via taxes.

This is not the case if most government services are provided via state government. Many government services are local in nature, e.g., drainage, sewer services, parks, streetlights, and schools. Thus, services provided in one location benefit only those in that location. Yet state income and sales taxes, which comprise much of state government revenue, are paid by people throughout the state. This setting lends itself to the above described political competition: one group lobbying for benefits for itself to be paid mostly by citizens scattered across the state. More low-value government projects are expected in this setting, reducing the economic welfare of the citizenry.

To gain a sense of the possible extent of this problem, consider the degree of centralization of state and local government functions. The more

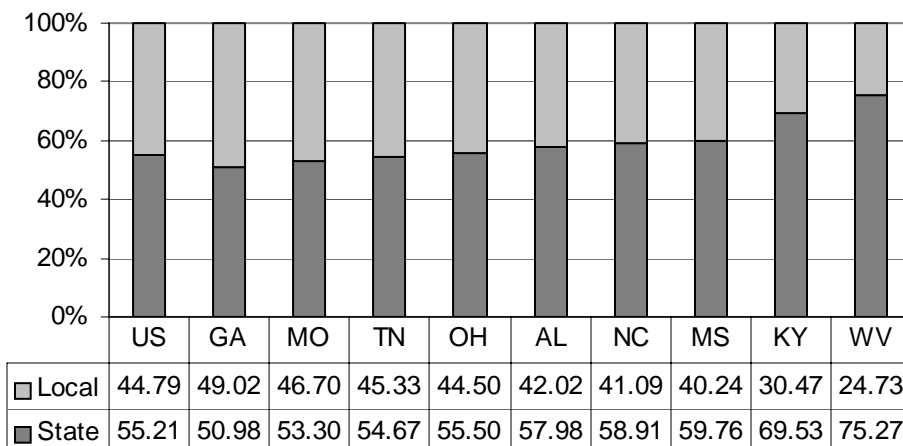
centralized in state government these functions are, the lower is the potential for market-like incentives to be present in the provision of government services. Chart 6 presents data on the share of state tax revenue in the total of state and local revenue. Local revenue is 100% minus the state share. Data are again for the year 2005 for U.S. states as a whole and for Kentucky and selected other states.

For states in the U.S. as a whole, state tax revenue as a share of state and local revenue is 55.2%. Kentucky's is well above that at 69.5%. In fact, Kentucky's is one of the highest in the nation. Of nearby states, only West Virginia's is higher at 75.3%. Our high growth neighbors in the southeast all have lower state percentages: Tennessee's is 54.6%, Georgia's is 50.1%, and North Carolina's is 58.9%.

Perhaps Kentucky's heavy reliance on state government reflects a mistrust of local politicians and the resultant political pressure to move power out of their hands. While this may be true, it likely comes at a significant cost. In order to initiate local projects, counties and municipalities often must seek dollars and permission from Frankfort. This means localities must now compete for funds with interest groups from across the state rather than determining their own fate. Naturally, this engenders outcomes determined by Frankfort, with dollars directed to local interests pleasing to state government. Local residents would seem to have minimal political control of statewide decisions and do not have the mobility option of moving away from bad government as they would if more control were in local hands.

There are clearly things that are appropriately done by state-level government, such as provision of state police, a court system, and contract and property law. However, Kentucky's reliance on state government to provide such a large share of its government

**Chart 6: State and Local Tax Revenue Shares**



Source: 2004-2005 Census State & Local Government Finances

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services suggests that we are forgoing an important source of incentives for good government.

### VI. Education

Education plays an especially important role in advancing the economic well-being of individuals. It has proved to be one of the most fundamental and effective ways that individuals enhance their productivity and earning power. Education also is a very sizable part of state and local budgetary commitments, easily accounting for one-fifth to one-fourth of the total of state and local government expenditure. Thus, it is particularly critical to carry out the provision of educational services well; providing quality schooling and education of the types that are highly valued and doing so efficiently. Harnessing market-like incentives in this undertaking is vital.

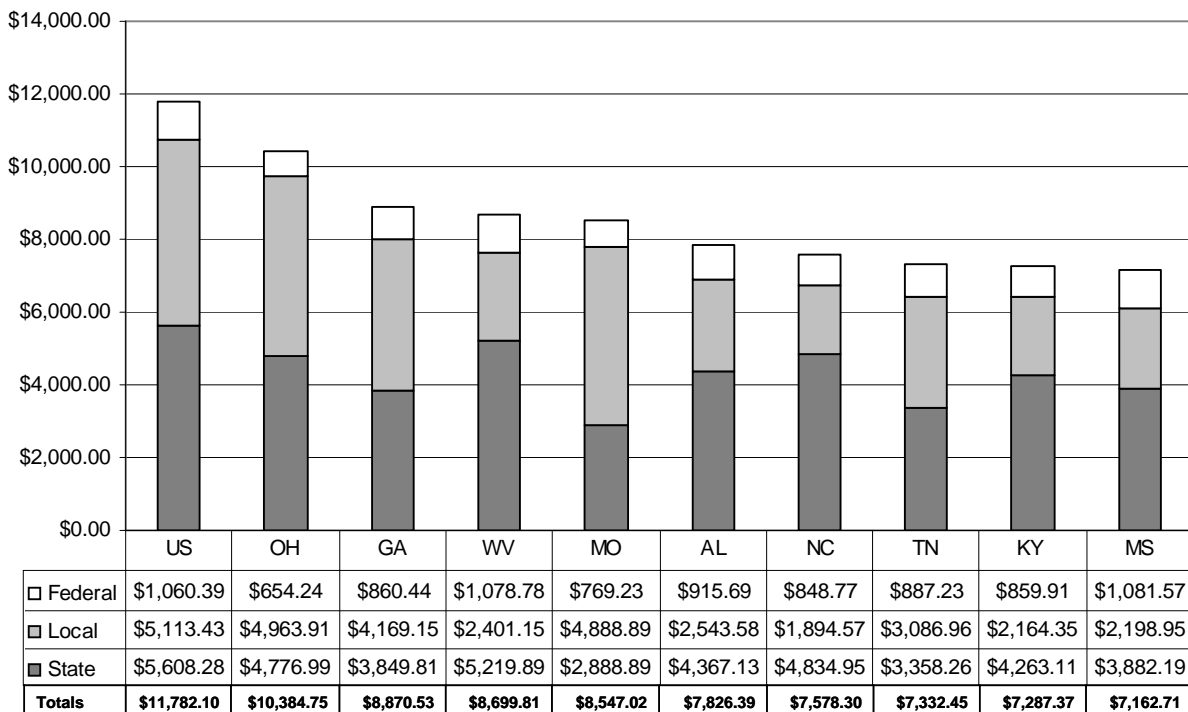
It is quite peculiar that we rely heavily on market provision of so many goods and services, yet rely so little on it regarding schooling. From life's essentials such as food, housing, clothing to intangibles such as music, art, and film that touch deep emotional chords, to the most sophisticated products, such as

automobiles, jet engines, digital cameras, and complex legal cases, we rely largely on free markets. Though not perfect, the market has served us well in the provision of these goods for reasons outlined above. Nevertheless, we seem hesitant to depend on it for primary and secondary schooling. Given the considerable dissatisfaction with our public schools, it is appropriate to consider this alternative.

As background, consider the data presented in Chart 7. This chart summarizes the per pupil expenditure on education for Kentucky, selected states, and for the entire U.S. Kentucky's is \$7,287, well below the U.S. average of \$11,782. However, our expenditure is not that different from many other southeast U.S. states: North Carolina's is \$7,578, Tennessee's is \$7,332, Alabama's is \$7,826, and Mississippi's is \$7,163. Our expenditures are below other states in region, though. For example, Georgia's is \$8,871, West Virginia's is \$8,700, and Ohio's \$10,385.

It would seem that expenditures on schooling ought to correlate with school quality. Yet the sampling of the above states does not show any obvious connection between the reputation of the state's school system and their schooling

### Chart 7: Expenditures Per Pupil on Education



Source: NEA 2005 State Rankings

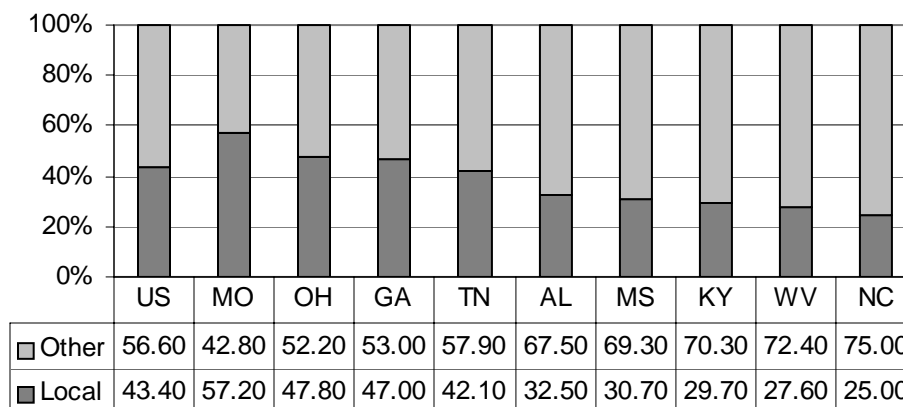
expenditures. Indeed, there is a lively discussion in the economics literature regarding how effective greater funding is for public schools.<sup>7</sup> An important conclusion to be drawn from this literature is that the way schooling resources are utilized is just as important as the amount of resources.

The level of funding is not the focus of this article, rather is it on the effective and efficient use of the resources that market incentives bring.

There typically are incentive problems with the public provision of any good or service which apply to education, too. Recall that two important bases for markets are voluntary exchange and competition. Sellers must supply something that others want and it must be at least as good as the competition. This induces the seller to provide goods of value and to do so efficiently. These mechanisms are largely absent with government provision of goods as with public schools. Public schools are assigned their customers based on the neighborhood that the family lives. As a result, competition is diminished. While families can choose schools for their kids by moving to a new residence, competition is still likely to be impeded depending on the ease of residential mobility. As a result, competitive pressures on schools are reduced. Also, public schools automatically receive funding from state and local governments. There is less reason to satisfy the customers – parents with kids at the school – and more reason to please the political “masters” who control the funding. This also reduces the need to be cost efficient since funding is approximately the same regardless of school efficiency.

The degree of competitive pressures on schools depends on population mobility and on the availability of options different from the local one. However, greater funding and uses of funds directed from the state government reduces the available

**Chart 8: Percentage of Expenditures on Education from Local Sources**



Source: NEA 2005 State Rankings

options. Poor decisions made by state educational administrators could only be escaped by moving to a different state. The attractiveness of mobility is reduced and therefore limits this source of competition among public schools. Indeed, there is evidence that geographic mobility of residents across school districts has been an important source of competition among schools that has improved their performance.<sup>8</sup>

This implies that the greater the share of educational funding outside of local control, the lesser is the beneficial effect of competition due to residential mobility. Chart 8 presents data on the share of educational expenditures in the state that from local sources. It is likely that a larger share of local funding translates to greater local control.

Nationwide, local funding accounts for 43.4% of primary and secondary schooling expenditures. For Kentucky, the figure is considerably lower at 29.7%. We have much less local control than is typical for the nation. Of the selected comparison states, the degree of local funding is similar to West Virginia (27.6%), Mississippi (30.7%), Alabama (32.5%), and North Carolina (25%) but below Tennessee (42.1%), Georgia (47%), Ohio (47.8%), and Missouri (57.2%).

These data suggest that we have much less opportunity for mobility-induced competitive pressure on public schools. Much of our centralization of public school spending perhaps stems from dissatisfaction with and mistrust of local school boards. One outgrowth of this was the Kentucky Education Reform Act (KERA) of 1990 that

moved us further away from local control. While one understands these frustrations, moving toward state control likely comes at considerable cost. Greater state control leaves most local citizens with little say in state-directed school policies and with a much less meaningful mobility option.

There are good alternatives to introducing competition for public schools that deals with the problem of ineffective local schools while still leaving a good measure of local control. A step in this direction is for the state to allow opening of charter schools. Charter schools are privately-run schools that are “chartered” by education officials that are allowed to enroll any student who wishes to do so. The public funding for the student is credited to the school. Parents dissatisfied with the neighborhood public school can apply to the charter school. The charter school succeeds only if it can attract and retain enough students to cover its costs. As in markets, it succeeds only by satisfying voluntary buyers. Also, the public schools are forced to compete with the charter school option and incentives to satisfy families and students suddenly emerge.

A bigger step in the direction of market-based incentives is a full-fledged voucher system. This is where families are awarded funding for each of their children to be spent at a school of their choice. The funding can be used at public or private schools. The funding can be topped off so that parents can add their own money to the voucher if they wish to send their kids to more expensive schools. This system is

essentially the equivalent of the Food Stamps program for education.

Charter schools and vouchers are not untried schemes but are among the latest ideas implemented for education reform. They are in place and functioning in many locations. Chart 9 provides some data in this regard. Nationwide, charters are becoming increasingly common, now accounting for 2.3% of enrollment. Some states (outside of our region) have embraced charters quite strongly, accounting for 7.4% of enrollment in Arizona, 4.5% in Michigan, and 4.4% in Colorado. Each of the comparison states in Chart 9 has some charter schools except Alabama and West Virginia. Kentucky also has none. Once thought to be at the forefront of education reform with the passage of KERA in 1990, we simply have dropped off the radar screen in this regard.

In summary, Kentucky ranks very low regarding its market-style incentives in its public school system. Our system is highly centralized and therefore limited in the extent of mobility-induced competition and we have not adopted any charter school or voucher-type reforms that generate competition more directly.

**VII. Incentives for the Poor**

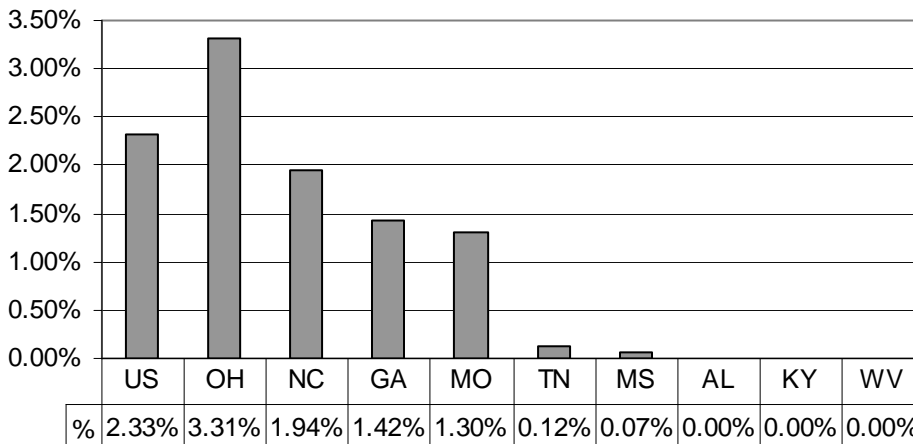
Government transfer programs for the poor and those with limited earning power are basic features of a social safety net. Such a safety net is an important part of society. Yet it is equally important to realize that it comes at a cost. As noted above, transfer

payments do not increase the production of goods and services and are simply one person’s use of another’s productivity. While some sort of an income transfer program is appropriate, they do not serve to improve a population’s per capita income.

Additionally, it is sensible to ask what the work incentives are for those receiving transfer payments.

Encouraging work effort of the able-bodied

**Chart 9: Percent of Students in Charter Schools**



Source: [www.uscharterschools.org](http://www.uscharterschools.org)

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recipients of these payments is a way to offset the cost of the programs – they will be producing part of their income – and it may provide a pathway off public assistance. Indeed, this was one of the intents of welfare reform. This idea is embodied in the time limits on receipt of cash assistance and the rules that promote job training and work activity.

In this section, we examine the work incentives among the poor. Naturally, purely market-based pay provide strong incentives. For each increment to work effort that leads to a dollar more of income, the individual receives a dollar and, conversely, each reduction in work effort leading to a dollar less of income, the individual receives a dollar less. The government tax and transfer system causes deviations from this and generally results in lower work effort. Those receiving transfers receive some income without work. The amount received generally falls as earned income rises, implying that total income rises by less than dollar-for-dollar with earned income. This implies an implicit tax rate on earnings for this group of the population. We investigate the extent of this implicit tax rate for Kentucky. The higher it is, the worse job we are doing in providing market work incentives for the poor.

To investigate the government assistance available to low income families in Kentucky and the work incentives therein, we examine the benefits available to a single mother with two children in 2005. Chart 10 illustrates this. We show the benefits available from Temporary Assistance for Needy Families (TANF), Food Stamps, and Medicaid.

Columns 1 and 2 show various levels of earned income on an annual and monthly basis, respectively. The next three columns show the government benefits for each level of earned income and the final column shows total income from earnings and public assistance.

At low levels of income, this family is eligible for the maximum TANF benefit of \$262 per month. This benefit is phased out, after deductions for child care and work expenses, at a rate of 55 cents for each additional dollar of earned income, though there is still a 60 month lifetime limit on this benefit. This family will also receive almost \$4,800 annually in Food Stamp benefits. Eligibility for Food Stamps continues up to 130% of the poverty level, which was \$20,917 in 2005 for a family of three. These benefits are phased out based on the assumptions that a family of three will spend \$399 per month on food, and that 30% of income (after deductions for child care expenses) is spent on food. Medicaid coverage is the largest benefit in terms of dollars spent. The dollar value of the benefit is based on the average annual Medicaid utilization for a single adult and children. This was \$3321.17 for adults and \$1767.51 per child for 2004, which is the most recent year for which data are available.

With \$6000 of earned income, work disincentives begin to appear as TANF payments begin to fall. These disincentives are strongest, however, at \$8,977, as the single mother loses her medical coverage. When combined with losses of TANF and Food Stamp benefits and averaged over the \$8,000 to \$10,000

**Chart 10: Gross Income and Transfers**

Income	Income Per Month	TANF	Food Stamps	Medicaid	Gross Income and Transfers
\$0.00	\$0.00	\$3,144.00	\$4,788.00	\$6,856.19	\$14,788.19
\$2,000.00	\$166.67	\$3,144.00	\$4,788.00	\$6,856.19	\$16,788.19
\$4,000.00	\$333.33	\$3,144.00	\$4,788.00	\$6,856.19	\$18,788.19
\$6,000.00	\$500.00	\$3,075.60	\$4,788.00	\$6,856.19	\$20,719.79
\$8,000.00	\$666.67	\$1,975.60	\$4,610.40	\$6,856.19	\$21,442.19
\$10,000.00	\$833.33	\$875.60	\$4,130.40	\$3,535.02	\$18,541.02
\$12,000.00	\$1,000.00	\$0.00	\$3,650.40	\$3,535.02	\$19,185.42
\$14,000.00	\$1,166.67	\$0.00	\$3,170.40	\$3,535.02	\$20,705.42
\$15,000.00	\$1,250.00	\$0.00	\$2,930.40	\$3,535.02	\$21,466.42
\$16,000.00	\$1,333.33	\$0.00	\$2,690.40	\$3,535.02	\$22,225.42
\$18,000.00	\$1,500.00	\$0.00	\$2,210.40	\$3,535.02	\$23,745.42
\$20,000.00	\$1,666.67	\$0.00	\$1,730.40	\$3,535.02	\$25,265.42
\$22,000.00	\$1,833.33	\$0.00	\$0.00	\$3,535.02	\$25,535.02

Source: Medicaid: <http://chfs.ky.gov/dms/apply.htm> Medicaid Statistical Information System State Summary FY2004  
 Food Stamps: USDA Characteristics of Food Stamp Households, 2006  
 TANF: KY TANF Title IV-A State Plan, FFY 2006-2007  
 KY State Taxes and EITC: National Bureau of Economic Research

Chart 11: Income and Transfers Net of Taxes and EITC with Implicit Tax Rates

Income	Gross Income and Transfers	Implicit Tax Rate Before EITC	Federal Tax Liability (EITC)	State Tax Liability	Total net of taxes and EITC	Implicit Tax Rate After EITC
\$0.00	\$14,788.19	—	-\$50.00	\$0.00	\$14,838.19	—
\$2,000.00	\$16,788.19	0.00%	-\$850.00	\$0.00	\$17,638.19	-40.00%
\$4,000.00	\$18,788.19	0.00%	-\$1,650.00	\$0.00	\$20,438.19	-40.00%
\$6,000.00	\$20,719.79	3.42%	-\$2,450.00	\$0.00	\$23,169.79	-36.58%
\$8,000.00	\$21,442.19	63.88%	-\$3,250.00	\$0.00	\$24,692.19	23.88%
\$10,000.00	\$18,541.02	245.06%	-\$4,050.00	\$0.00	\$22,591.02	205.06%
\$12,000.00	\$19,185.42	67.78%	-\$4,691.00	\$0.00	\$23,876.42	35.73%
\$14,000.00	\$20,705.42	24.00%	-\$4,991.00	\$0.00	\$25,696.42	9.00%
\$16,000.00	\$22,225.42	24.00%	-\$5,048.81	\$0.00	\$27,274.23	21.11%
\$18,000.00	\$23,745.42	24.00%	-\$4,927.61	\$205.74	\$28,673.03	30.06%
\$20,000.00	\$25,265.42	24.00%	-\$4,806.41	\$481.08	\$30,071.83	30.06%
\$22,000.00	\$25,535.02	86.52%	-\$4,385.21	\$825.97	\$29,920.23	107.58%

Source: Medicaid: <http://chfs.ky.gov/dms/apply.htm> Medicaid Statistical Information System State Summary FY2004  
 Food Stamps: USDA Characteristics of Food Stamp Households, 2006  
 TANF: KY TANF Title IV-A State Plan, FFY 2006-2007  
 KY State Taxes and EITC: National Bureau of Economic Research

income range, this amounts to being charged \$2.45 for each additional \$1 earned. It would not be unreasonable to assume that an individual might choose to decrease earnings in order to obtain Medicaid coverage. In fact, as Chart 10 shows, an individual would need \$15,000 in earned income in order to match the level of income and benefits received by a similar individual with only \$8,000 of earned income.

Chart 11 calculates the implicit tax rates based on these government programs. Columns 1 and 2 are replicated from Chart 10 and show earned income and total income (inclusive of benefits), respectively. Column 3 shows implicit marginal tax rates implied by these programs. They are minimal for the first \$6000 of annual as this income represents mostly deductions for child care and work expenses. Implicit tax rates are very high for earnings from \$8,000 to \$12,000, ranging from 63.88% to 245.06%. This is due to the combined phase out of TANF, Food Stamps, and the loss of the adult’s Medicaid coverage. The implicit tax rate is fairly low (24%) for income beyond this level until one reaches about \$22,000 where all Food Stamp benefits drop off, yielding a marginal rate of 86.52%.

Columns 4 and 5 of Chart 11 show Federal and Kentucky tax liabilities, respectively. The former is

negative due to the Earned Income Tax Credit (EITC). Column 6 shows total income, including earnings, benefits, and taxes. The last column presents the computations for the overall implicit marginal tax rate.

The EITC adds considerable work incentives for low levels of income. Marginal tax rates begin at negative values, implying that each additional \$1 of earnings adds more than \$1 of income. In the \$8,000 to \$12,000 range of income where government benefits yield very high marginal tax rates, EITC offsets some of this. Rather than implicit tax rates ranging from 63.88% to 245.06%, EITC acts to reduce this range from 23.88% to 205.06%. However, as earnings rises above \$16,000, EITC is phased out, increasing the marginal tax rate.

Overall, this suggests that, for this family size, the income ranges that are most problematic regarding work incentives are the following: \$8,000 to \$12,000 and \$20,000 to \$22,000. The former is partly to lost TANF and Food Stamps benefits but mostly to the drop off of Medicaid coverage and the latter to the loss of Food Stamps. Kentucky state government does not have control of the Food Stamp program, but it does control TANF and Medicaid benefits. The phasing out of Medicaid would certainly improve work incentives around the \$12,000

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income level. However, this would generate higher implicit tax rates for income levels below and above \$12,000, reducing work incentives. Also, it may add expenditures to the already expensive Medicaid program. This would make Medicaid an even riper target than it already is for market-based incentives to improve efficiency.

### VIII. Conclusion

On several important aspects of public policy, Kentucky does not do well in embracing market-oriented ideas that would improve the material standards of living in the Commonwealth. The overall level of state and local taxation is about average for U.S. states and we certainly cannot be judged to be a low-tax state. Local taxes are heavily weighted toward income taxes and away from property taxes. More reliance on the latter would bring about a closer alignment between local benefits with local tax payments and generate market-like incentives for better local government. Kentucky government is very centralized in Frankfort rather than at the county level, inducing less local control of government taxation and services and limiting incentives due to cross-county competition. The centralization of government at the state level may reflect mistrust of local politicians, but it likely comes at the cost of reducing local choice and of limiting the incentives from competition.

Similar comments apply to primary and secondary education. Control is predominantly at the state level rather than at the local level, reducing the effectiveness of competition across school districts which several studies have shown to improve school performance. Furthermore, Kentucky has failed to adopt the reforms that most directly bring the incentives of competition to schools: charter school and vouchers. Incentives for the able-bodied poor to work are in place for some levels of income but are absent or perverse for other income levels.

To make progress in improving in Kentucky's per capita income, it is important that we increase our productivity in producing goods and services, both in the private and public sectors. The market mechanism has proven to be successful in generating such increases in productivity. Before turning to more

government programs from Frankfort to deal with our problems, we ought to embrace market-based ideas to move Kentucky forward.

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### Endnotes

- 1 For a more detailed treatise on similar topics regarding our neighboring state of West Virginia, see Sobel (2007).
- 2 See the U.S. Census website at [http://factfinder.census.gov/servlet/ACSSAFFacts?\\_event=Search&\\_state=04000US21](http://factfinder.census.gov/servlet/ACSSAFFacts?_event=Search&_state=04000US21)
- 3 For a summary of the literature on the importance of market-supporting institutions, see International Monetary Fund, *World Economic and Financial Survey, World Economic Outlook, Growth and Institutions*, Chapter 3, April 2003 (<http://www.imf.org/external/pubs/ft/weo/2003/01/pdf/chapter3.pdf>).
- 4 For an earlier and more detailed review of taxation in Kentucky, see Hoyt (2000).
- 5 This discussion relates to a long literature began by Tiebout (1956) on competition among local governments. For current issues in that literature, see Fischel (2006).
- 6 See supra note 5.
- 7 See, for example, Burtless (1996).
- 8 See Hoxby (2000). This is another aspect of competition among local governments. See supra note 5.



# Changes in Educational Spending in Kentucky Since KERA and HB1

Kenneth R. Troske

*The decade of the 1990s saw major new legislation in Kentucky designed to improve public schooling in the state – the Kentucky Education Reform Act (KERA) and the Kentucky Post-Secondary Education Improvement Act or House Bill 1 (HB1). In this study I examine how spending on education in Kentucky changed over time using data that spans the period over which the legislation was enacted. I also compare spending in Kentucky with spending in other states to see whether Kentucky is “catching-up” with these other states. I find since KERA real spending on K-12 education has increased very little in the State and that spending on primary and secondary education in Kentucky remains below spending in states that border Kentucky and below spending in the typical state in the country. In contrast, there appears to have been a rather dramatic increase in spending on higher education in Kentucky since the passage of HB1. Currently Kentucky is spending at least as much as the average state in the country on higher education and is spending more than the average of four border states. Finally, I find that, relative to total government expenditures, total spending on education has fallen in Kentucky while the share of overall education expenditures going to higher education has risen. Kentucky is now devoting a smaller share of total government spending to education and has increased spending on higher education while decreasing the share of spending on primary and secondary education.*

## I. Introduction

The decade of the 1990s saw major new legislation in Kentucky designed to improve public schooling in the state. First, in response to the Kentucky Supreme Court ruling that the state financing of public primary and secondary schooling was unconstitutional, the Kentucky legislature passed the Kentucky Education Reform Act (KERA) in 1990. The decision by the Supreme Court was prompted by the inequality of spending across the state; the purpose of KERA was to address this inequality. As part of KERA the legislature increased sales taxes in the state in order to finance the additional spending necessary to even out spending across the state while not cutting the funding to any single district. In addition, there was hope that KERA would lead to improvements in student achievement, such as the number of high school graduates in the state who pursued a post-secondary education.

Second, the Kentucky legislature passed House Bill 1 (HB1), the Kentucky Post-Secondary Education Improvement Act, in 1997. The goal of HB1 was to change the structure of public post-secondary

education in the state in order to develop a preeminent public post-secondary schooling system. This legislation explicitly set a goal of increasing the number of adults in Kentucky with a college degree.

Implicit in both pieces of legislation is the recognition that one of the most important measures of well-being for a group of people is their level of education. People with more education are wealthier, healthier, less likely to receive public assistance, and less likely to commit crimes. The relatively low level of education in Kentucky, in particular the percent of adults in the state with a college degree, is one of the primary reasons why Kentucky remains one of the poorest states in the nation.

One obvious set of questions to ask is, “How has spending on K-12 education changed since the passage of KERA, and how has spending on post-secondary education changed since the passage of HB1?” While these seem like fairly straight forward questions, there are a number of different complicating factors which make answering these questions difficult. As a result, a well-informed answer to these questions requires careful and detailed analysis.

## *Changes in Educational Spending in Kentucky Since KERA and HB1*

One complicating factor is that it is unlikely that any single measure of education spending will completely capture all of the changes in spending that resulted from the legislative changes. To begin with, both of these pieces of legislation changed the way education is financed in the state, so any measure of education spending used needs to incorporate these changes. In addition, there are a number of different possible measures of spending which emphasize different parts of education spending and, therefore, can tell somewhat different stories about how spending has changed. Also, in an ever changing world, both the demand for education and a state's ability to invest in education are constantly in flux, and our measures need to capture these movements. Finally, since one objective of these reforms is for Kentucky to increase its level of education relative to other states, it is important to compare changes in spending in Kentucky with changes in spending in the rest of the country.

While I focus on spending in the study, it is important to keep in mind that increases in spending do not always translate into increases in educational attainment. However, it is clearly the case that there is a positive relationship between the amount of money a state spends on education and the level of education of residents in the state. It is also the true that state taxes were increased by KERA in order to increase spending on primary and secondary education in Kentucky. Therefore, it is appropriate to look at spending on education as one measure of the effect of both KERA and HB1.

The goal of this study is to provide a complete picture of how education spending in Kentucky has changed in the recent past. I will examine changes in spending in primary and secondary education as well as post-secondary education. In the next section of the report I review a number of the different measures of education spending used in previous studies and discuss the strengths and limitations of each measure. In the third section I use the most appropriate measures to examine how spending on K-12, higher education and total education spending in Kentucky have changed over time. For K-12, the data for Kentucky cover the period 1988 to 2004, while for post-secondary schooling, the data cover the period 1991 to 2005, ensuring that we will be able to compare spending both prior to and after the passage of reform legislation. Finally, I compare changes in

spending in Kentucky to changes in other states so I can measure the progress Kentucky has made relative to the rest of the nation.

## **II. Measuring Spending on Education**

One of the objectives of most studies of education spending is to compare education spending both over time and across states and regions; this study is no exception. In order to achieve this objective most researchers use data collected by federal government agencies because these data have a number of important advantages. First, they are available for a number of years, and they are collected in a consistent fashion both over time and across states. This means that observed differences in spending likely reflect actual differences and not simply differences in the way in which the data are measured or collected. In addition, data compiled by federal government agencies are readily available in a single location, making it much easier to obtain long data series for multiple states. The main limitation of these data is that they may miss alternative sources of education spending or funding that are specific to an individual state. However, these sources are likely to be small relative to total spending and are also unlikely to change much over time. Therefore, they produce only small differences in the level of spending in a state and are unlikely to affect changes in spending over time. Since the advantages of data collected by federal government agencies outweigh the disadvantages, these are the primary data I will use in this study.

### ***A. Measuring Spending on Primary and Secondary Education***

The main source for data on education spending is the U.S. Department of Education's National Center for Education Statistics (NCES). The primary measure used by most researchers who examine education spending at the primary and secondary level is current expenditures on education. Current expenditures show the total amount spent on goods and services within a given academic year. This includes teacher salaries, books, other teaching materials, salary for administrators and staff, and spending on other educational services. The advantage of this measure is that it captures expenditures on the items that many experts believe

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are the more important inputs into a student's education—teachers, books and supplies. The disadvantage of this measure is that it does not reflect any debt that is owed by a school system that eventually must be repaid, nor does it reflect spending on capital equipment such as buildings. However, since these latter two measures tend to occur infrequently and in large amounts, they are not viewed as reflecting the overall commitment to education in a state.<sup>1</sup>

In a changing world it is important to measure spending relative to the demand for education services and the potential supply of educational services. One measure of demand used in a number of studies is the number of students in a state attending a public school. When measuring the number of students, the appropriate measure to use is the average daily attendance in the state, which is collected by the NCES. The advantage of using average daily attendance is that this is the measure used by the federal government for determining federal funding for schools, so it will be an accurate and uniform measure of the demand for education.

One commonly used measure of the supply of education, or a state's ability to pay for education, is total personal income in a state. One view of education spending is that it is an investment in the future productivity of workers, so measuring education expenditures as a share of total personal income has the appealing interpretation of showing how much of their current income residents in a state are investing to increase future output. Information on total personal income comes from the Bureau of Economic Analysis Regional Economic Information System (REIS).

A second measure of a state's ability to pay for education is total state and local government expenditures. Total state and local government expenditures are the total amount state and local governments spend on programs in a given year, so measuring educational expenditure as a share of total expenditures shows the proportion of the state budget that funds education. Changes in the share of total government expenditures earmarked for education will reflect implicit changes in the importance placed on education by state policy makers. Data on state and local government expenditures come from the U.S. Census Bureau's Census of Governments.

The measure of total state and local government expenditures contains all expenditures—including expenditures made using revenue that is mandated to be spent on certain programs or areas. For example, some states, including Kentucky, mandate that all revenue collected through motor vehicle taxes be spent on road projects in the state. Other states have similar mandates for different programs. For example, Missouri allocates one-tenth percent sales tax directly to its state parks. Since it is virtually impossible to remove these mandated expenditures in every state, we have included them in our measure of total state and local government spending. It is important to keep in mind, however, that deciding that certain revenues are "mandated" to be spent on certain items is ultimately a choice made by residents and policy makers in a state. Mandated expenditures reflect the importance individuals place on education relative to other programs, such as building and maintaining roads. Therefore, these mandatory expenditures should be included when measuring educational expenditures as a share of total government expenditures.

One measure of education spending used in some studies is education expenditure divided by the population of the state—per-capita expenditure. The problem with this measure is that it is neither a measure of demand nor supply of education, but instead is a combination of both demand and supply and, as such, is a misleading and confusing measure of education spending. For example, states with a large population typically have more students in school and therefore have a larger demand for education services. However, some states are larger because they have a relatively larger population of older residents without children (e.g., Florida and Arizona). For these states average daily attendance provides a much more accurate measure of the actual use of public schooling in a state. In addition, larger states presumably have a larger tax base and therefore are able to spend more on education. Again, however, differences in population are not perfectly correlated with differences in income, so personal income provide a much more accurate measure of the resources in a state that are available for paying for public education.

Based on this discussion we are going to construct three different measures of spending on K-12 education: Current Expenditures on Primary

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and Secondary Education per Student; Current Expenditures on Primary and Secondary Education per Dollar of Total Personal Income; and Current Expenditures on Primary and Secondary Education per Dollar of Total State and Local Government Expenditures. We will construct these measures for the years 1988-2004 for Kentucky for all other states.<sup>2</sup> Comparative measures will be made by combining data for all 50 states and by combining data for the five states that share a significant border with Kentucky: Indiana, Ohio, Tennessee, Virginia and West Virginia. All of these measures will include both state and local expenditures but will exclude federal expenditures or any donations from private organizations. Because these measures include all sources of expenditures from state and local governments, they provide a more comprehensive measure of spending on education in a state than measures that focus on some type of base state funding. These measures should produce a fairly complete picture of elementary and secondary education spending in Kentucky, and show how educational spending has changed over time, and relative to bordering states and the nation as a whole.<sup>3</sup>

### ***B. Measuring Spending on Post-Secondary Education***

Measuring spending on public post-secondary education is easier than measuring spending on primary and secondary education because public post-secondary education is primarily controlled and funded by the state, and there are fewer bureaucratic organizations involved in financing and running the system. Because of this structure most of the public spending on post-secondary schooling is included in a state's budget. In addition, the level of spending is determined in the standard budgeting process and is not based on some spending formula, so all of the spending should appear in the state budget. Much of the data on post-secondary education is readily available on the National Center for Higher Education Management System (NCHEMS) website ([www.higheredinfo.org](http://www.higheredinfo.org)). The primary information on spending used in most studies of higher education is state and local government's total appropriation to post-secondary education in a given year. These data include all of the direct support for higher education from state and local governments, including any money given directly for capital

improvements. However, these data do not include any federal money or any money raised by the institutions through tuition, private donation or debt.

The most common measure used to capture the demand for higher education is the number of full-time equivalent students (FTE) enrolled in public institutions in a state, and this is the measure we will adopt. The number of FTE students is the number the federal government focuses on when deciding on funding, and it is the most direct measure of the demand for post-secondary education available. This measure is also available on the NCHEMS web site. The number of FTE students excludes students enrolled in medical, osteopathy, dental and veterinary schools. The same measures of the ability of a state to finance K-12 education discussed in the previous sub-section, total personal income and the state's total general appropriations, are also used to measure the potential supply of post-secondary education in a state.

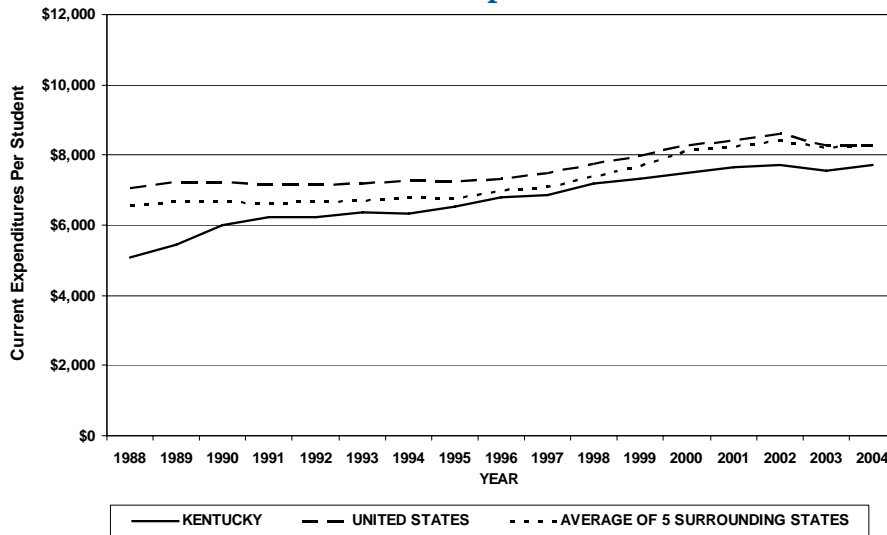
I will construct three measures of spending on post-secondary education: State and Local Appropriations for Higher Education per FTE student, per Dollar of Total Personal Income, and per Dollar of Total State and Local Government Expenditures. I will construct these measures for Kentucky for the years 1991-2005. I will also construct these measures for comparison to other states by combining the data for all 50 states and combining data for the five states that share a significant border with Kentucky. These measures should provide a complete picture of how spending on post-secondary education in Kentucky has changed over time and relative to other states.

### ***C. Measuring Total Spending on Education***

In order to construct measures of total spending on education in a state, I will add together data on current expenditures on elementary and secondary education with total appropriations for higher education. To measure total demand for education I will combine the data on average daily attendance for elementary and secondary school with full-time equivalent students in post-secondary schools. Using these data I will construct three measures of total spending on education: Total State and Local Expenditures on Education per Student, Total State and Local Expenditures on Education per Dollar of Total Personal Income, and Total State and Local Expenditures on Education per Dollar of Total State

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**Figure 1:**  
Current Expenditures on Primary and Secondary Education per Student



Source: Author's calculations based on data from the National Center for Education Statistics and the Bureau of Economic Analysis, Department of Commerce.  
 Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars.  
 Number of students is measured using average daily attendance.

and Local Government Expenditures. I will construct these measures for Kentucky, for all 50 states, and for the states that border Kentucky.

### III. Educational Spending in Kentucky

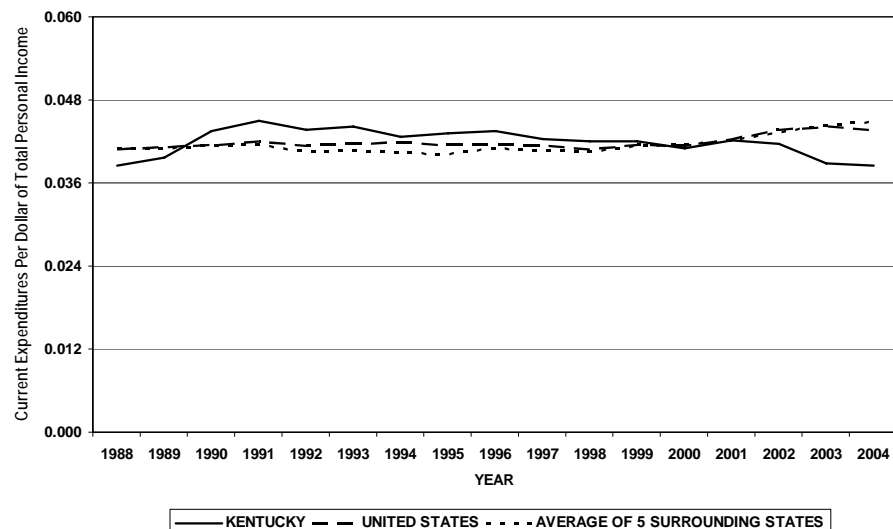
In this section I present my results from measuring educational spending using the measures discussed in the previous section. Section A examines trends in spending on primary and secondary schools. Section B examines trends in spending on higher education in Kentucky, while Section C examines overall spending on education in Kentucky.

#### A. Spending on Primary and Secondary Education in Kentucky

I begin with Figure 1 which shows Current Expenditure on Primary and Secondary Education per Student for Kentucky (the solid line), for all 50 states (the long dashed line), and for the five states—Indiana, Ohio, Tennessee, Virginia and West Virginia—that share a significant border with Kentucky (the short dashed line).

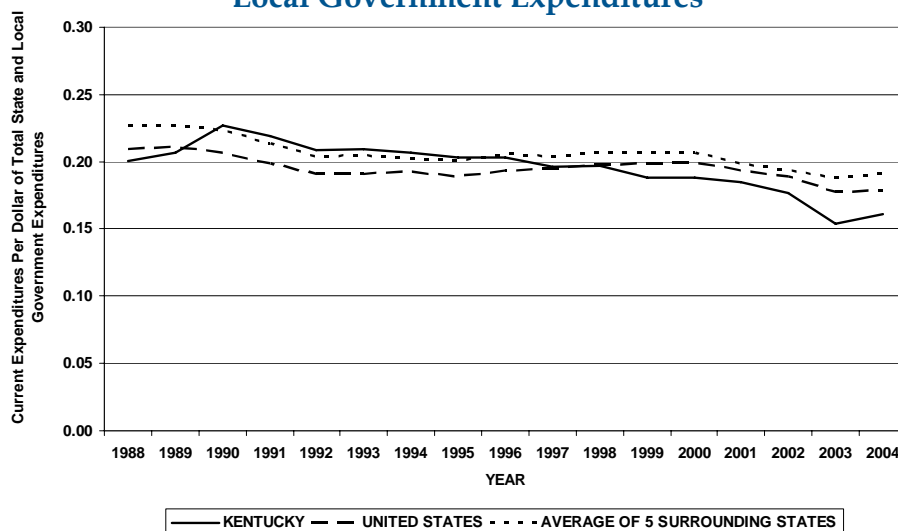
Figure 1 shows that for all three of these groups, real spending per student has risen over time. For Kentucky, spending increased quickly leading up to and shortly after the passage of KERA in 1990. In fact, after being below the level of the border states in the early part of our data, by 1992 current expenditure

**Figure 2:**  
Current Expenditures on Primary and Secondary Education per Dollar of Total Personal Income



Source: Author's calculations based on data from the National Center for Education Statistics and the Bureau of Economic Analysis, Department of Commerce.  
 Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars.

**Figure 3:**  
**Current Expenditures on Primary and Secondary Education per Dollar of Total State and Local Government Expenditures**



Source: Author's calculations based on data from the National Center for Education Statistics and the U.S. Bureau of the Census, Department of Commerce.  
 Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars.

per student in Kentucky was similar to current expenditure per student in the border states and remained so until 1998. Over this period, current expenditure per student grew by 52 percent in Kentucky. Unfortunately, the growth in spending slowed in Kentucky after 1998, while it accelerated in the border states, so that by 2004 Kentucky again lagged behind these states in spending per student.

Throughout this period current expenditure per student in Kentucky lies below the level for all 50 states, although the gap did close significantly in the early 1990s, reaching a minimum in 1997. Again, however, current expenditure per student rose at a faster rate in the rest of the country after 1998, so that by 2004, per-student spending in Kentucky was again significantly below the level of spending in the rest of the country.

Figure 2 shows Current Expenditure on Primary and Secondary Education per Dollar of Total Personal Income for Kentucky, all 50 states, and the five border states. For Kentucky, current expenditures, as a share of total personal income, rose from 0.038 to 0.045 between 1988 and 1992, with much of the increase coming around the enactment of KERA. However, this increase was fairly short lived, and after 1992 current expenditures per dollar of total personal income fell fairly steadily and by 2004 was

again 0.038.

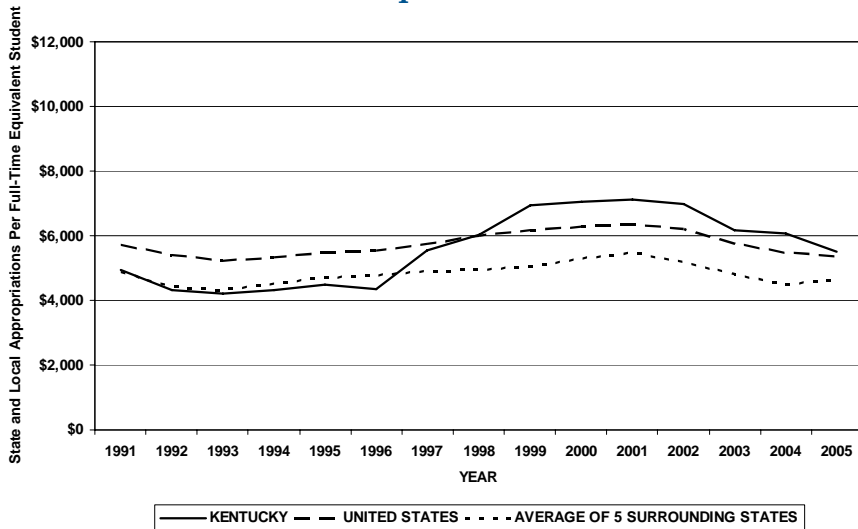
In contrast, current expenditures per dollar of total personal income rose over this period for both the nation and for the five border states. And while Kentucky's current expenditure per dollar of total personal income actually rose above the average level in other states in 1992, by the end of the data, based on this measure, educational spending in Kentucky was again below spending in other states.

Figure 3 shows Current Expenditures on Primary and Secondary Education per Dollar of Total State and Local Government Expenditures. Here again we see that Kentucky's education spending, as a share of overall government spending, rose immediately after the enactment of KERA and was greater than spending in other states. However, based on this measure, education spending in Kentucky declined fairly steadily after 1992; by 2004 the share of government spending in Kentucky going to support education was below its own levels prior to 1992 and again fell below the levels in the five surrounding states and in the average U.S. state.

Overall, Figures 1-3 present a mixed picture of how spending on primary and secondary education in Kentucky has changed over time. Real spending relative to the demand for education (on a per student basis) has risen in Kentucky over time. However, spending, as a share of total personal income or as a share of state and local government expenditures, after rising immediately after KERA, has fallen steadily since 1992. In addition, by the end of this period Kentucky is again spending less on education than either the average surrounding state or the average state in the country. This is important because if Kentucky wants to catch up with other states in average education, Kentucky will have to

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**Figure 4:**  
**State and Local Appropriations for Higher Education per Full-Time Equivalent Student**



Source: Author's calculations based on data from the National Center for Higher Education Management System.  
Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars.

spend *more* than others states now and in the foreseeable future.

### **B. Spending on Higher Education in Kentucky**

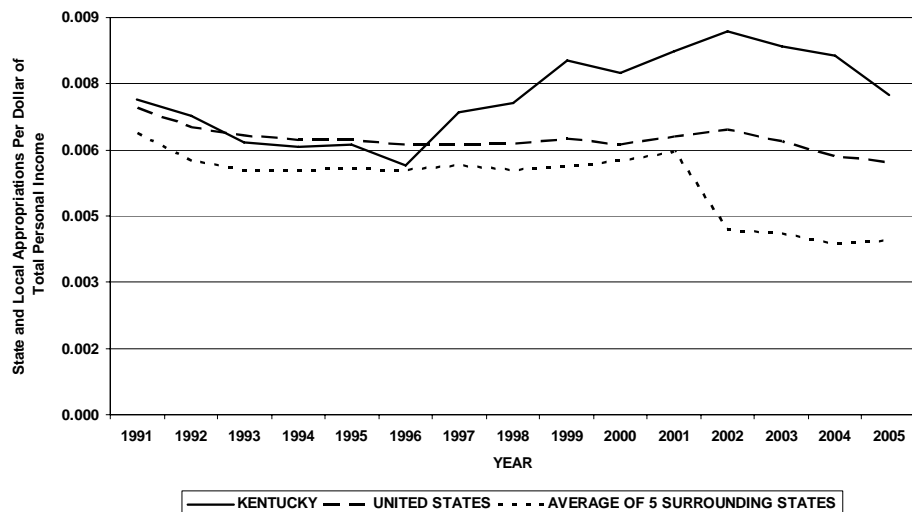
In this section I examine state spending on higher education in Kentucky. We start with Figure 4, which presents State and Local Appropriations for Higher Education per Full-Time Equivalent Student for Kentucky (the solid line), the U.S. as a whole (the long dashed line), and the five border states (the short dashed line). This figure shows that between 1991 and 1996 real spending on higher education was either declining or flat. However, starting with the 1996-1997 academic year, appropriation per

student grew quite quickly in Kentucky until the 1998-1999 academic year. Since 1999, spending on higher education remained flat for a couple of years before starting to decline in the most recent years.

The pattern of changes in appropriations per student in the U.S. is similar to the pattern for the five surrounding states. For both of these groups, appropriations per student has remained fairly flat over this period. This stands in sharp contrast to the increases

seen for Kentucky. In fact, after experiencing spending levels equal to or below the average level for the five border states and the U.S., appropriations per FTE student in Kentucky jumped above the average level in the other states between 1997 and 1999, and remained above the comparison groups

**Figure 5:**  
**State and Local Appropriations for Higher Education per Dollar of Total Personal Income**



Source: Author's calculations based on data from the National Center for Education Statistics and the Bureau of Economic Analysis, Department of Commerce.  
Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars.

## Changes in Educational Spending in Kentucky Since KERA and HB1

until 2005, when appropriations per student in Kentucky equaled the average appropriations per student in the U.S.

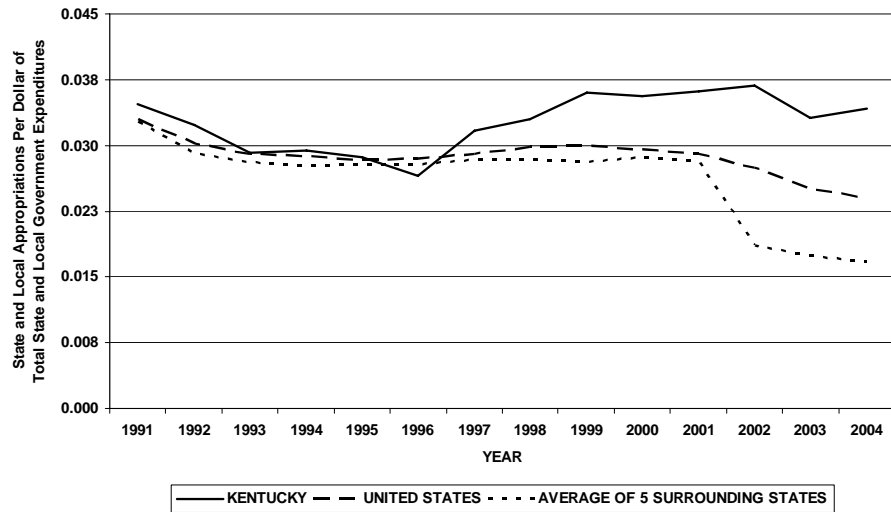
Figure 5 presents State and Local Appropriations for Higher Education per Dollar of Total Personal Income for Kentucky, the U.S., and the five border states. Here the changes in spending in Kentucky are even more dramatic both over time and relative to other states. Relative to total personal income, the drop in higher education spending between 1991 and 1996 appears even larger than the fall seen in Figure 4, as does the subsequent increase in spending. Relative to total personal income, average spending on higher education in the U.S. and the five border states falls precipitously over this period. By 2005, state appropriations for higher education relative to total personal income in Kentucky is significantly above the national average and the average of the five border states. The same basic patterns seen in Figure 5 are seen in Figure 6 where I plot State and Local Appropriations for Higher Education per Dollar of Total State and Local Government Expenditures.

Figures 4-6 show that state spending on higher education in Kentucky has increased since 1997. After falling for a number of years prior to the passage of HB1, state appropriations relative to either FTE students, total personal income, or total government expenditures grew dramatically after 1997. And while the growth has slowed or slightly reversed itself in recent years, higher education spending in Kentucky is either comparable to or actually above the spending in the average U.S. state and the average of the five border states.

### C. Total Spending on Education in Kentucky

I now turn to examining overall spending on

**Figure 6:  
State and Local Appropriations for Higher Education per Dollar of Total State and Local Government Expenditures**



Source: Author's calculations based on data from the National Center for Education Statistics and the Bureau of Economic Analysis, Department of Commerce.  
Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars.

education in Kentucky. In order to measure overall spending in a state, I combine the data on current expenditures on primary and secondary education with the data on total state and local appropriations for higher education.

Figure 7 shows Total State and Local Expenditures on Education per Student from 1991 to 2004. Since the largest part of total expenditures is expenditures on primary and secondary education, the patterns seen in this figure, along with the patterns seen in Figures 8 and 9, mainly reflect changes in total expenditures on K-12 education. This can be seen by comparing Figure 7 with Figure 1. Similar to Figure 1, Figure 7 shows that total per student expenditures on education in Kentucky have risen slightly over time, but the level of expenditures still lies below the average level in the five border states and below the average level in all 50 states.

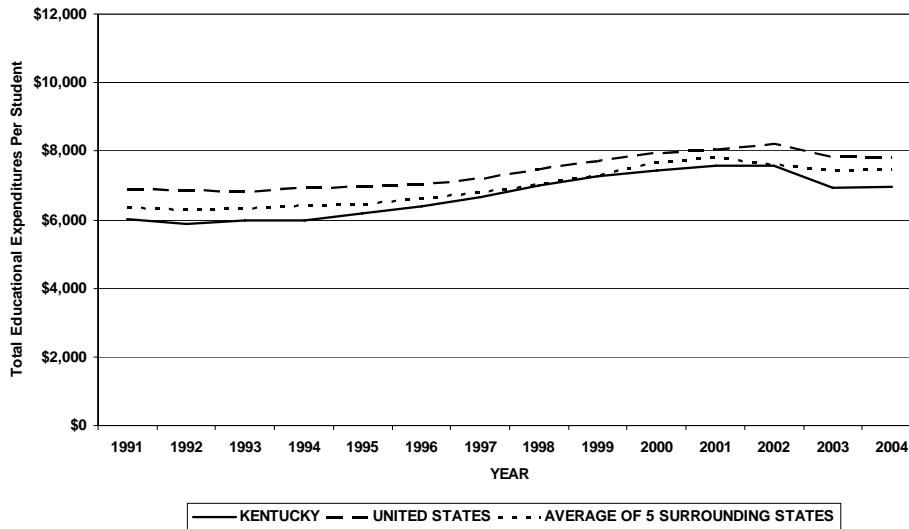
Figure 8 presents Total State and Local Expenditures on Education per Dollar of Total Personal Income. In Figure 8 we see that total expenditure on education per dollar of total personal income has declined slightly over time, and the level of expenditure is similar to the level in the average border state and the average U.S. state.

Figure 9 presents Total State and Local Education Expenditures on Education per Dollar of Total State and Local Government Expenditures.



## Changes in Educational Spending in Kentucky Since KERA and HB1

**Figure 7:  
Total State and Local Expenditures on Education  
per Student**



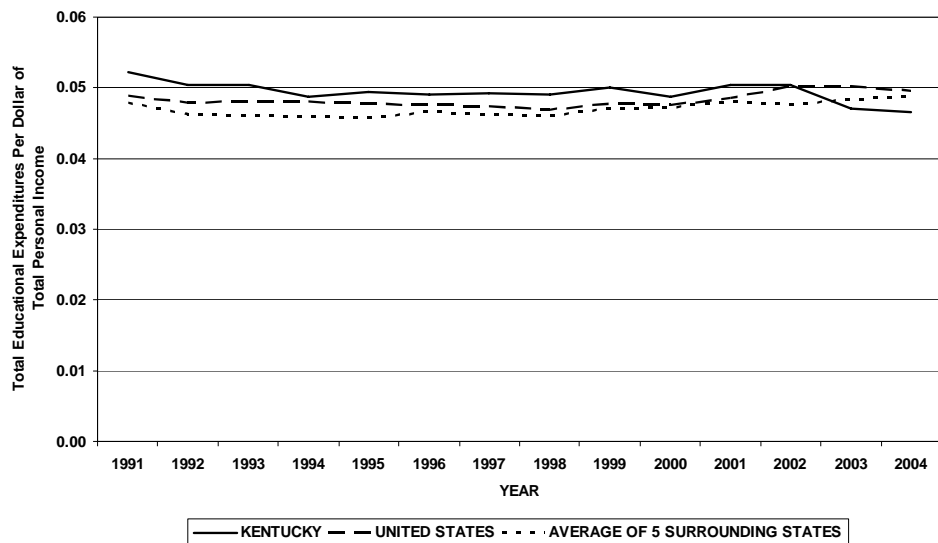
Source: Author's calculations based on data from the National Center for Education Statistics, National Center for Higher Education Management System.  
 Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars. These figures exclude data on adult education. See text for details.

This figure shows that in Kentucky, since 1996, expenditures on education, as a share of total expenditures, has fallen over time. Comparing Figure 9 with Figure 3 shows that this drop is due to a drop in the share of expenditures going to fund elementary and secondary education. Comparing Figures 9 and 3 with Figure 6 shows that expenditures on higher education, as a share of total expenditures, has risen since 1996. These three figures together show that, since 1996, state and local expenditures for education, as a share of total expenditures, has fallen; subsequently a larger share of education expenditures in Kentucky are going to

fund higher education, while a relatively smaller share of education expenditures are being devoted towards K-12 education. This stands in contrast to the behavior of the border states or the other states in the U.S. where the share of education expenditures devoted to K-12 education have either remained constant or increased over this period.

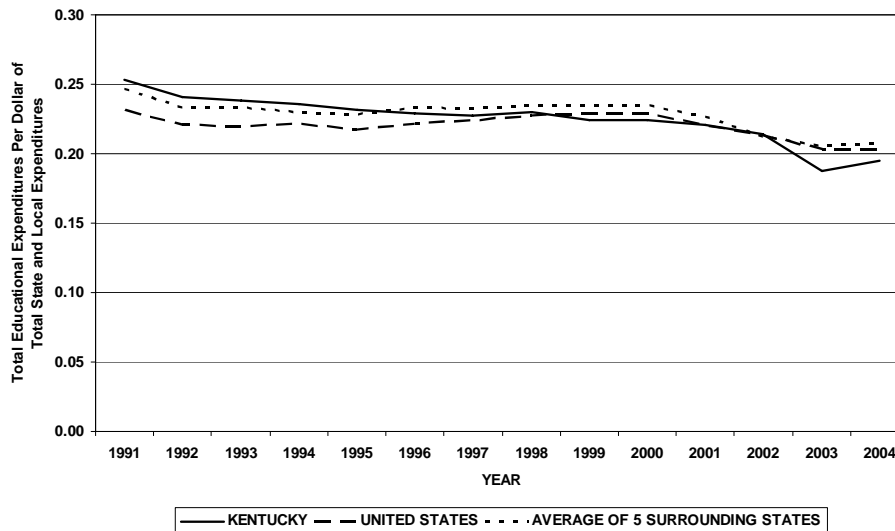
To summarize, looking at Figures 7-9 we see mixed results on whether spending on education in Kentucky has increased. Spending per student in Kentucky has increased slightly over time, but still lies below spending levels in the typical border state or the typical state in the U.S. Spending on education

**Figure 8:  
Total State and Local Expenditures on Education per Dollar of  
Total Personal Income**



Source: Author's calculations based on data from the National Center for Education Statistics, National Center for Higher Education Management System, Office of Vocational and Adult Education, and the Bureau of Economic Analysis.  
 Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars. These figures exclude data on adult education. See text for details.

**Figure 9:**  
**Total State and Local Expenditures on Education per Dollar of**  
**Total State and**  
**Local Government Expenditures**



Source: Author's calculations based on data from the National Center for Education Statistics, National Center for Higher Education Management System, Office of Vocational and Adult Education, and the U.S. Bureau of the Census.  
 Note: All dollar figures have been adjusted for inflation and are measured in 2002 dollars. These figures exclude data on adult education.  
 See text for details.

per dollar of total personal income has declined slightly over time but is similar to the spending levels seen in other states. Finally, spending on education, as a share of total state and local government expenditures, has declined over time. And when we compare Figure 9 with earlier figures, we see that the share of education spending for K-12 has declined over time while the share of education spending on higher education has risen.

#### IV. Conclusion

The goal of this study was to address the question: "How has education spending in Kentucky changed since the late 1980s?" The answer seems to be, "It depends." The figures presented in this report indicate that since KERA there has been only a modest increase in overall spending on primary and secondary education in Kentucky. While it is true that overall, real spending on K-12 education in Kentucky has risen somewhat since the passage of KERA, it has risen in other states as well, so that by the end of the period, spending in Kentucky still lags behind spending in most other states – albeit by a somewhat smaller amount. If Kentucky hopes to catch up with other states in the education level of their population, Kentucky will have to spend *more*

money on primary and secondary education than these other states both now and in the future.

In contrast, there appears to have been a rather dramatic increase in spending on higher education in Kentucky since the passage of HB1. Immediately after the passage of HB1, appropriations for higher education jumped significantly. And while appropriations, as a share of total students or as a share of total personal income, have fallen in recent years, Kentucky is still

spending at least as much as the average state in the country and is spending more than the average of the five border states.

Finally, we have seen that total spending on education per student in Kentucky has increased slightly over time, but spending relative to total personal income has declined slightly. In addition, spending on education per dollar of total government expenditures has fallen in recent years, as has the share of educational spending going towards K-12 education. In other words, Kentucky is now devoting a smaller share of total government spending to education and has increased spending on higher education while decreasing the share of spending on primary and secondary education.

I conclude this report with a note of caution concerning focusing simply on total spending measures when evaluating public education in a state. While the level of spending on education in a state is clearly important, and a good place to start when evaluating a state's commitment to education, examining how the money is spent and the effectiveness of the money is equally important. States can differ substantially in the amount of money that is spent on instruction and the amount that is spent on infrastructure and administrative overhead.

## *Changes in Educational Spending in Kentucky Since KERA and HB1*

Money that flows directly to instruction has a much greater impact on students, and this difference shows up in performance measures. Obviously, the effectiveness of monies spent is related to how monies are spent. Most studies looking at the difference in academic performance, particularly at the K-12 level, find that differences in the amount of money spent in a state is only loosely related to differences in student test scores. One reason for this weak relationship appears to be differences in how schools spend money. Given the relative lack of resources Kentucky has to spend on education, if we want to catch up with wealthier states in our level of education, it is imperative that we spend our resources in the most efficient manner possible.

### **Endnotes**

1 One cross-state difference in the way states report expenditures that could affect measures of current expenditures is how individual states classify teacher benefits. Some states treat benefits as a current expenditure while others treat benefits as a capital expense. However, in this study I will ignore these differences.

2 The year refers to the academic year, so 2002 refers to the 2002-2003 academic year. I stop in 2004 because that is the last year the data are available from NCES.

3 One final detail we should discuss concerns adjustments for differences in the cost of living in a state. All of the dollar values in this report have been adjusted for inflation and are measured in constant 2002 dollars. However, we have made no attempt to adjust these measures for cost-of-living differences across areas. This is because there is no consistent and simple way to make this type of adjustment. Previous studies that have tried to adjust for cost-of-living differences across states have used techniques that were developed for the specific studies; these techniques are inconsistent and arbitrary. For measures of spending per dollar of total personal income we do not need to make any adjustment; since both the numerator and the denominator in these measures are in dollars, any cost-of-living difference will cancel. For measures of spending per student that compare spending in Kentucky with spending in states geographically close to Kentucky, we do not need to worry about cost-of-living differences because the cost of living in Kentucky and Tennessee or Indiana is similar.

# Kentucky Health Insurance Coverage,

## 2002-2006: A Complicated Picture

**Aaron S. Yelowitz**

*Rising health care costs and growing numbers of uninsured are key policy issues in both Kentucky and nationally. This study evaluates how health insurance coverage in Kentucky changed during Governor Ernie Fletcher's term. Although insurance coverage fell overall, the picture is complicated with some groups making gains and others losing ground. In terms of uninsured, Kentucky fell from 28th to 33rd, with the percentage uninsured rising from 13.6% to 15.6% from 2002 to 2006. Insurance coverage for children improved, due to increasing private coverage. Coverage for young adults worsened significantly, due to falling public coverage.*

### Introduction

Rising health care costs and growing numbers of uninsured are key policy issues both in Kentucky and nationally. During the recent gubernatorial campaign, newly-elected Governor Steve Beshear proposed a number of ambitious reforms in his “Keeping Kentuckians Healthy” plan (hereafter, KKH) to extend health insurance coverage. One of the key goals of this plan is to cover all kids with health insurance, by increasing outreach efforts for Medicaid and KCHIP to non-participating, but eligible children, as well as allowing families above 200% of the poverty line to buy into KCHIP.<sup>1</sup> A second important goal was to allow young adults to keep coverage under their parents’ plans.<sup>2</sup> In addition, the KKH plan would consider reforms for small businesses – like “one-stop shopping” for health coverage with a “Kentucky Health Care Connector” and offering plans that emphasized prevention and chronic disease management.<sup>3</sup> Finally, the KKH plan would expand the Medicaid safety net for some adults.

Before moving forward with various health insurance reforms, however, it is important to understand how health insurance coverage evolved under former Governor Ernie Fletcher’s administration, and how Kentucky compares to other states in terms of health insurance coverage. This paper utilizes data from the Census Bureau to examine how health coverage in Kentucky has changed from 2002 (the final full year before Governor Fletcher was elected) to 2006 (the final full year before he left office).

Overall, the picture is complicated, and does not tell a simple story. Despite the fact that Kentucky is one of the poorest states, it has historically done a reasonable job of providing health insurance. In 2006, for example, Kentucky had the 6<sup>th</sup> highest poverty rate in the U.S.; over the years 1995 to 2004, Kentucky’s percentage uninsured has ranked it very near the median state.<sup>4</sup> Nonetheless, Kentucky’s overall position declined under Governor Fletcher. The number of uninsured rose by 91,000, and the percent uninsured increased from 13.6% to 15.6%. Relative to other states, Kentucky’s position fell from 28<sup>th</sup> to 33<sup>rd</sup>.<sup>5</sup> Despite this overall decline, however, some groups were better off and others worse off. The number of uninsured children fell by 24,000, and Kentucky’s overall position improved from 39<sup>th</sup> to 27<sup>th</sup>. This improvement among children appears to be due to an increase in private coverage, not public coverage. On the other hand, coverage among young adults (aged 18 to 24) fell dramatically. The percent uninsured rose from 22.2% to 28.5%, and Kentucky’s overall position fell from 15<sup>th</sup> to 32<sup>nd</sup>. Private coverage increased, but public coverage fell.

In addition to these groups – both of whom are important targets in Governor Beshear’s KKH plan – there were several other notable changes. The number of the uninsured grew dramatically among older, working-age adults as well as single individuals, high school graduates, college non-graduates, workers in smaller firms, and the disabled. Based on these trends, some of the groups targeted in the “Keeping Kentuckians Healthy” plan seem appropriate, and other less so.

## *Kentucky Health Insurance Coverage, 2002-2006: A Complicated Picture*

The remainder of this study is arranged into three sections. First, I provide a detailed description of the Current Population Survey (CPS), which is the key data set on which these conclusions are based. Next, I describe how health coverage has evolved during the 2002-2006 period in Kentucky, and compare Kentucky to the rest of the U.S. Finally, I examine the implications for current health insurance reform proposals.

### **CPS Description<sup>6</sup>**

The primary dataset used in the analysis is the March CPS Annual Social and Economic Survey ("ASEC") from 2003 and 2007, covering the calendar years 2002 and 2006, respectively. I begin this report with a brief description of these data.

The CPS is a credible and widely respected survey. The March CPS typically surveys more than 70,000 households across the United States. It is administered by the Bureau of the Census for the Bureau of Labor Statistics and has been conducted for more than 50 years.<sup>7</sup> The response rate for the March survey is exceptionally high for a voluntary, household-based survey.<sup>8</sup> The sample is scientifically selected to represent the civilian non-institutional population. The Census Bureau states that the CPS sample provides estimates for the nation as a whole and contributes to model-based estimates for individual states and other geographic areas. The CPS is conducted by telephone and in-person (and thus includes residences without telephones).

The March 2007 CPS, covering the 2006 calendar year, surveys 75,477 households (206,639 individuals), and 1,066 households (2,838 individuals) in Kentucky.<sup>9</sup> When appropriately weighted, the estimated population count from the CPS is 296,825,125 for the United States and 4,106,506 for Kentucky. The count for Kentucky exactly matches published Census tabulations, while the count for the United States appears to be subject to a trivial amount of rounding error.<sup>10</sup> Unless otherwise noted, all estimates in the paper are based on the weighted data.

The CPS asks questions that specifically address issues of health insurance coverage. According to the Census Bureau, the March CPS is perhaps the most widely used source of data on health insurance coverage in the United States. It is the official source of estimates used to allocate federal funding to states for the State Children's Health Insurance Program

("SCHIP"), which amounted to \$3.7 billion in Federal Fiscal Year 2002. The March CPS provides reliable estimates of the net change in the number of uninsured people from one year to the next. Even critics of the CPS concede "Despite its limitations, the CPS provides a useful measure of changes over time in health insurance coverage and uninsurance." (Brown, et al., 2002, p. 61).

The CPS ASEC asks detailed questions about health insurance for the entire previous calendar year. Thus, the March 2007 CPS asks about health insurance coverage in 2006.

Health insurance status is asked for all household members; the survey includes questions about private and government insurance. The CPS does not directly ask people whether they are uninsured. The survey asks about coverage of specific types of insurance and respondents who answer no to all of the categories are considered uninsured. The March CPS asks respondents about private and government coverage at any time during the preceding calendar year so being uninsured reflects lack of health insurance for the entire 12 months. It is thought that the CPS misclassifies insurance status for some people.<sup>11</sup> In the analysis, for transparency, I use health insurance definitions identical to those of the Census Bureau.<sup>12</sup>

The CPS asks about private insurance coverage from two sources: employment-based plans and direct purchase plans. Employment-based health insurance is coverage offered through one's own employment or a relative's. It may be offered by an employer or by a union. Direct-purchase health insurance is coverage through a plan purchased by an individual from a private company, such as Blue Cross.

The CPS also asks about an extensive number of public health insurance programs. Public health insurance includes plans funded by governments at the federal, state, or local level. The major categories of government health insurance are Medicare, Medicaid, the State Children's Health Insurance Program (SCHIP), military health care, state plans, and the Indian Health Service. The CPS defines uninsured as not being in any of the other categories.

### **Health Coverage in Kentucky**

To study health insurance with the CPS, I focus both on problematic groups (e.g., demographic groups with low rates of health insurance coverage),

## Kentucky Health Insurance Coverage, 2002-2006: A Complicated Picture

as well as putting Kentucky's situation into a national perspective. Some demographic groups – such as the poor – have low rates of insurance coverage, but does Kentucky do well at covering the poor compared with other states?

In the tables that follow, survey respondents are classified into four mutually exclusive insurance categories: Uninsured, exclusively Privately insured, exclusively Publicly insured, or Publicly and Privately insured. The health insurance questions in the CPS refer to insurance coverage during the entire calendar year, so an individual who lost insurance coverage part-way through the year would not be classified as uninsured. As a consequence, “Uninsured” means no health insurance coverage from public or private sources for an entire 12-month

**Table 1: Overall Trends In Insurance Coverage**

	2002	2006	Percent Change OverTime
<b>Population</b>	4,046,008	4,106,506	1.5%
<b><u>Insurance coverage</u></b>			
<b>Uninsured</b>	548,390	639,443	16.6%
<b>Private Coverage</b>	2,243,157	2,261,488	0.8%
<b>Public Coverage</b>	669,131	728,593	8.9%
<b>Public &amp; Private Coverage</b>	585,330	476,982	-18.5%
<b><u>Kentucky's National Ranking</u></b>			
<b>Uninsured</b>	28	33	
<b>Private Coverage</b>	37	37	
<b>Public Coverage</b>	19	17	
<b>Public &amp; Private Coverage</b>	5	29	

span. Some individuals who are classified as privately or publicly insured may have not have received coverage for all 12 months. In addition, many individuals in the “Public and Private”

category likely received these different insurance sources at different times during the calendar year; for example, a person who transitioned from welfare to work during the year may also move from Medicaid to employer-provided coverage.

The natural starting point in evaluating Kentucky is to examine trends for the entire state population. **Table 1** shows how insurance coverage has changed over time. Although Kentucky's population grew very modestly over the 2002-2006 period (1.5% growth over four years), the number of uninsured grew by 16.6%. As a consequence, an additional 91,000 Kentuckians were uninsured in 2006. At the same time, there was virtually no change in “private-only” coverage, a large increase in “public-only” coverage, and a large decrease in “public and private” coverage. The decrease in the number of individuals who combined public and private coverage during the year nearly mirrors the increase in the number of uninsured.

**Table 2: Most States Had Growing Numbers of Uninsured**

State	Percent Growth In Uninsured 2002-2006	State	Percent Growth In Uninsured 2002-2006
ARIZONA	43.05%	NORTH DAKOTA	9.15%
UTAH	42.93%	SOUTH DAKOTA	6.65%
FLORIDA	34.65%	MARYLAND	6.33%
SOUTH CAROLINA	34.58%	CALIFORNIA	6.14%
DELAWARE	32.96%	VIRGINIA	4.51%
TENNESSEE	31.80%	TEXAS	2.67%
OREGON	30.00%	MASSACHUSETTS	2.11%
MISSISSIPPI	29.03%	ILLINOIS	0.50%
NEBRASKA	25.24%	IDAHO	-2.62%
GEORGIA	22.52%	WEST VIRGINIA	-4.13%
ALABAMA	22.20%	VERMONT	-4.31%
NEW HAMPSHIRE	20.18%	INDIANA	-6.23%
MINNESOTA	19.54%	ALASKA	-8.29%
KANSAS	19.53%	CONNECTICUT	-8.51%
MISSOURI	19.45%	MICHIGAN	-9.99%
NEVADA	18.64%	HAWAII	-10.12%
ARKANSAS	18.41%	PENNSYLVANIA	-10.42%
KENTUCKY	16.60%	WISCONSIN	-10.61%
NORTH CAROLINA	15.88%	D.C.	-11.01%
MONTANA	14.96%	WASHINGTON	-12.20%
NEW MEXICO	14.87%	NEW YORK	-12.49%
COLORADO	14.66%	RHODE ISLAND	-12.88%
LOUISIANA	12.27%	WYOMING	-12.99%
NEW JERSEY	12.07%	MAINE	-14.92%
IOWA	10.95%	OHIO	-15.36%
OKLAHOMA	9.99%		

## Kentucky Health Insurance Coverage, 2002-2006: A Complicated Picture

One important objection to these numbers is that health insurance coverage was generally declining overall during this period. For example, **Table 2** shows that the majority of the states had growing numbers of uninsured; some states had growth that was much more dramatic than Kentucky – Arizona, Utah, Florida, South Carolina, Delaware, Tennessee and Oregon all experienced 30% or more growth in the number of uninsured over this period. Returning to **Table 1**, I also focus on Kentucky’s national ranking. Because Kentucky’s uninsured grew at an above-average rate compared with other states, Kentucky’s ranking fell from 28<sup>th</sup> to 33<sup>rd</sup>. There was little change in the ranking for either private-only or public-only coverage. The percentage of individuals who combined public and private coverage in Kentucky in 2002 was among the highest in the nation (5<sup>th</sup> overall) but by 2006, Kentucky ranked 29<sup>th</sup>.

A natural question to ask is whether the decline in health insurance coverage, and Kentucky’s position, affected all Kentuckians equally, or were some groups hit harder than others? The perception that some “at-risk” groups – children, the poor, the disabled, and so forth – might have been affected more dramatically by this decline could, if correct, serve as motivation for the sort of targeting in Governor Beshear’s KKH plan. The next tables, successively, examine insurance coverage by a number of socio-economic characteristics: Age, Education Status, Disability Status, and Poverty Status.<sup>13</sup> The tables only focus on the percentage who are uninsured, but draw upon a full analysis of the CPS.<sup>14</sup>

**Table 3** examines insurance coverage by age group, and a number of facts emerge. First, the highest percentages of uninsured are for young adults aged 18 to 29 – the percentage is 2 to 3 times as high as for children. Second, almost all elderly are covered by Medicare, so very few are uninsured.<sup>15</sup> Third, insurance coverage generally improves from age 30 onward, consistent with individuals getting “better jobs” in the private sector that offer fringe benefits like health insurance.

A number of trends are apparent from 2002 to 2006. There was positive news to report with respect to children. The number of uninsured children fell by nearly 24,000, and the percentage fell from 12.6% to 9.7%. Kentucky’s position improved from 39<sup>th</sup> to 27<sup>th</sup>. What explains this improvement? In tabulations not shown, none of this improvement for children is

due to expanding take-up of public coverage. Rather, private-only coverage rose by 2.6 percentage points from 53.8% to 56.4%. Public-only coverage rose by 0.6 percentage points, but public/private coverage fell by 0.4 percentage points.

There were significant setbacks for many, but not all, non-elderly adults. Among young adults aged 18 to 24, the percent uninsured rose from 22.2% to 28.5%, and the number uninsured increased by more than 21,000. Kentucky’s national position fell dramatically from 15<sup>th</sup> to 32<sup>nd</sup>. Private coverage increased, but the percentage of young adults on public coverage – either public-only, or combining public and private – fell dramatically. The number of uninsured adults aged 40 to 64 increased by nearly 93,000, and the percent uninsured increased from 12.7% to 18.0%. Among this group, private insurance coverage fell dramatically, and public coverage rose modestly. Kentucky’s relative position fell dramatically, from around 28<sup>th</sup> to around 40<sup>th</sup>. Kentucky currently ranks near the bottom (45<sup>th</sup> or 46<sup>th</sup>) in private coverage of adults in this age range, but near the top (6<sup>th</sup> or 9<sup>th</sup>) in public coverage.

In general, eroding coverage among working-age adults would potentially point to problems in the

**Table 3: Insurance Coverage  
By Age Group In Kentucky**

Age Group	2002	2006
Ages 0 to 17	121,672	97,759
	12.6%	9.7%
	39	27
Ages 18 to 24	89,745	111,218
	22.2%	28.5%
	15	32
Ages 25 to 29	62,712	82,514
	24.6%	26.3%
	23	24
Ages 30 to 39	101,948	78,190
	18.2%	17.0%
	27	17
Ages 40 to 49	93,902	141,309
	13.7%	20.4%
	28	42
Ages 50 to 64	76,402	121,508
	11.7%	15.9%
	28	39
Ages 65+	2,009	6,945
	0.4%	1.4%
	21	33

Notes: First row shows total number of uninsured individuals, second row shows the percentage of that age group that is uninsured, and the third row shows Kentucky’s ranking.

## Kentucky Health Insurance Coverage, 2002-2006: A Complicated Picture

private sector. Yet, the declines were unevenly spread across working age adults. Individuals in their thirties saw increases in insurance coverage. And those in their mid-to-late twenties saw a decline, but hardly any change in Kentucky's relative position. The fact that insurance coverage declined on both "ends" of the working-age adult spectrum (but not in the middle), and apparently came from different sources (an erosion of public coverage for young adults, and an erosion of private coverage for older workers) makes it difficult to come up with one simple story for the trends.

**Table 4** examines insurance coverage by education status for individuals aged 15 and over. The results are surprising, and inconsistent with a simple story on declining public or private coverage. For high school dropouts, the number and percentage uninsured fell modestly. In 2006, the percent of high school dropouts who were uninsured was less than that for high school graduates (18.5% compared with 21.9%). During the 2002-2006 period, uninsurance rates increased dramatically for both high school graduates and college non-graduates. The number of high school graduates who were uninsured increased 40% from 2002 to 2006, and Kentucky's relative position fell dramatically. The same kinds of trends were seen for those with some college (and to a lesser extent, for college graduates).

**Table 4: Insurance Coverage By Education Group In Kentucky**

Education Group	2002	2006
High School Dropouts	149,284	146,038
	20.0%	18.5%
	29	19
High School Graduates	172,445	242,468
	15.8%	21.9%
	18	33
Some College	99,744	138,125
	12.1%	17.2%
	19	41
College Graduates	33,941	36,675
	5.5%	6.2%
	5	22

Notes: First row shows total number of uninsured individuals, second row shows the percentage of that education group that is uninsured, and the third row shows Kentucky's ranking. Only individuals aged 15 and older are included.

Except for individuals in the lowest educational attainment category, Kentucky's position fell dramatically.

Finally, **Table 5** examines how insurance coverage changed by two key indications of economic

**Table 5: Insurance Coverage By Disability/Poverty Group In Kentucky**

Disability or Poverty Group	2002	2006
Disability	33,895	57,517
	6.7%	11.8%
	20	37
Non-disabled	421,519	505,789
	15.2%	18.0%
	28	32
Under 100% Poverty	157,939	199,133
	27.0%	28.8%
	23	24
Between 100%-200% Poverty	166,415	197,108
	20.8%	24.4%
	27	33
Between 200%-300% Poverty	109,691	96,300
	13.6%	12.8%
	25	9
Over 300% Poverty	114,345	146,902
	6.2%	7.9%
	11	30

Notes: First row shows total number of uninsured individuals, second row shows the percentage of that disability/poverty group that is uninsured, and the third row shows Kentucky's ranking. Only individuals aged 15 and older are included in the disability tabulations. Disability is defined as answering yes to: Does individual have a health problem or a disability which prevents work or which limits the kind or amount of work?

well-being: disability status and poverty status. The number, and percentage, of disabled individuals who were uninsured nearly doubled from 2002 to 2006, and Kentucky's ranking fell from 20<sup>th</sup> to 37<sup>th</sup>. The change for the non-disabled was far less dramatic. In terms of poverty status, the picture is less clear. First, there is a dramatic decline in insurance coverage as an individual becomes poorer. Nonetheless, some income groups made progress and others did not over the 2002-2006 period. For those under 100% of the poverty line, there was hardly any change in the percentage uninsured, or Kentucky's ranking. Insurance coverage got worse for the "near-poor" (between 100% and 200% of poverty), but got better for those between 200% and 300% of poverty. And although the percent change is quite small, Kentucky's relative ranking got far worse for individuals with income above 300% of poverty. Again, as with the education groups and age groups, no one story emerges that could plausibly explain these trends.

### Evaluating Health Insurance Reforms

Although insurance coverage declined during



## *Kentucky Health Insurance Coverage, 2002-2006: A Complicated Picture*

Governor Ernie Fletcher's term, a mixed picture emerges. Some groups have greater insurance coverage, others worse. One of the key groups targeted by Governor Beshear's "Keeping Kentuckians Healthy" plan – children under the age of 18 – have experienced dramatic increases in insurance coverage during the 2002 to 2006 period. Others – such as young adults and the disabled – have experienced dramatic declines. To the extent that the goal of the KKH plan is to reverse declining trends in insurance coverage, this analysis suggests that some of the provisions of KKH are well targeted, and others are not.

First, the KKH plan aims to expand coverage to *all* children under age 18 through a combination of outreach and expansion of government programs. Yet, insurance coverage of children has improved dramatically over the last four years, and that improvement has been driven by growth in private coverage. Expanding public coverage may not have much "bang-per-buck" in terms of reducing the number of uninsured, because relatively few children are uninsured in the first place. In addition,

expanding public coverage introduces the possibility of "crowd-out" of private health insurance sources (Cutler and Gruber, 1996). Thus, based on the evidence in this study, one might not expect dramatic improvements in the number of uninsured children.

On the other hand, insurance coverage of young adults is a key problem area, one that has gotten dramatically worse between 2002-2006. The level, percentage, and Kentucky's relative ranking have all fallen, especially for young adults ages 18 to 24. Thus, another aspect of KKH – expanding coverage for dependent children under age 25 from a parents' plan – might make a significant impact on the uninsured. Of course, to the extent that young adults choose to be uninsured, such an extension may have a small impact.

Overall, two big lessons emerge from this analysis. First, the "problem" of the uninsured in Kentucky has gotten worse, but Kentucky is far from being an outlier in terms of providing insurance. Second, no one clear story can explain all the trends that we observed from 2002 to 2006.

## Kentucky Health Insurance Coverage, 2002-2006: A Complicated Picture

### Endnotes

- 1 All information from Governor Beshear's plan was obtained from his campaign web site, <http://www.stevebeshear.com/campaign/node/348> . Families with income above 300% of poverty would pay full price for the KCHIP coverage for their children.
- 2 The plan would allow all dependents to keep coverage; Kentucky currently requires only full-time students up to 25 to be eligible under their parents' coverage (see <http://www.stevebeshear.com/campaign/node/348> ).
- 3 The "Commonwealth Health Insurance Connector" concept is a key part of Massachusetts' comprehensive health insurance reform. See [www.mahealthconnector.org](http://www.mahealthconnector.org) .
- 4 The 2006 poverty rankings come from the author's tabulation of published Census Bureau numbers; see [http://pubdb3.census.gov/macro/032007/pov/new46\\_100125\\_01.htm](http://pubdb3.census.gov/macro/032007/pov/new46_100125_01.htm) . The rankings for health insurance come from Yelowitz (2007, Table 1, <http://gaton.uky.edu/faculty/yelowitz/yelowitzfinal.pdf> , page 51).
- 5 In making comparisons between Kentucky and other states, Washington D.C. is also included. Thus, the rankings range from 1 (highest) to 51 (lowest). For brevity, I will simply call these "other states."
- 6 Much of the discussion in this section borrows from my previous work in Troske and Yelowitz (2007, <http://gaton.uky.edu/CBER/Downloads/Troske&Yelowitz07.pdf>) and Yelowitz (2007, <http://gaton.uky.edu/faculty/yelowitz/yelowitzfinal.pdf> ).
- 7 See <http://www.bls.census.gov/cps/overmain.htm> .
- 8 The CPS has a large percentage of in-person interviews that improves coverage and reliability and leads to a very high response rate. Interviewers use laptop computers to administer the interview, asking questions as they appear on the screen and directly entering the responses obtained. Households are interviewed eight times over the course of sixteen months. During the first and the fifth interviews, an interviewer usually visits the sample unit. Almost all of the remaining interviews are conducted by telephone. Even though the CPS is a voluntary survey, the March interview of recent years has been between 92 and 93 percent of the eligible households providing basic labor force information, and between 80 and 82 percent of the eligible households completing the ADS supplement. For the March 2002 basic CPS, the nonresponse rate was 8.3 percent. The nonresponse rate for the March supplement was an additional 8.6 percent, for a total supplement nonresponse rate of 16.2 percent. See <http://www.bls.census.gov/cps/ads/1995/sdacodes.htm> , <http://www.bls.census.gov/cps/ads/1995/smethovr.htm> , and [http://www.bls.census.gov/cps/ads/2002/S&A\\_02.pdf](http://www.bls.census.gov/cps/ads/2002/S&A_02.pdf) for additional discussion.
- 9 The March 2003 CPS surveys 78,310 households (216,424 individuals), and 1,055 households (2,899 individuals) in Kentucky.
- 10 See [http://pubdb3.census.gov/macro/032007/health/h06\\_000.htm](http://pubdb3.census.gov/macro/032007/health/h06_000.htm) .
- 11 For example, some CPS respondents may answer about their current insurance situation or their most common insurance situation during the previous year. To the extent that respondents forget about short spells of health insurance coverage during the prior year, the official number of uninsured will be overstated, since any health insurance coverage – even for a day – counts as health coverage. Many would argue, however, that counting individuals with short spells of health insurance coverage dramatically understates the true number of uninsured (or at the very least, the number that face severe financial risk due to medical uncertainty).
- 12 The health insurance definitions can be found at <http://www.census.gov/hhes/www/hlthins/hlthinsrecodivar.html> .
- 13 I have also produced results by homeownership status, marital status, sex, race, work status, and firm size. These results are available upon request.
- 14 Full results on private-only, public-only and public and private coverage are available by emailing the author.
- 15 The CPS asks age as of March of the survey year, but asks insurance from the prior year. The most likely reason that 1% of the elderly are uninsured is because some 65-year-olds (as of March) who are covered by Medicare were uninsured when they were age 64.

# Enhancing Financial Transaction Efficiency: Electronic and Plastic Options

*Merl Hackbart, Dwight Denison & Wie Yusuf*

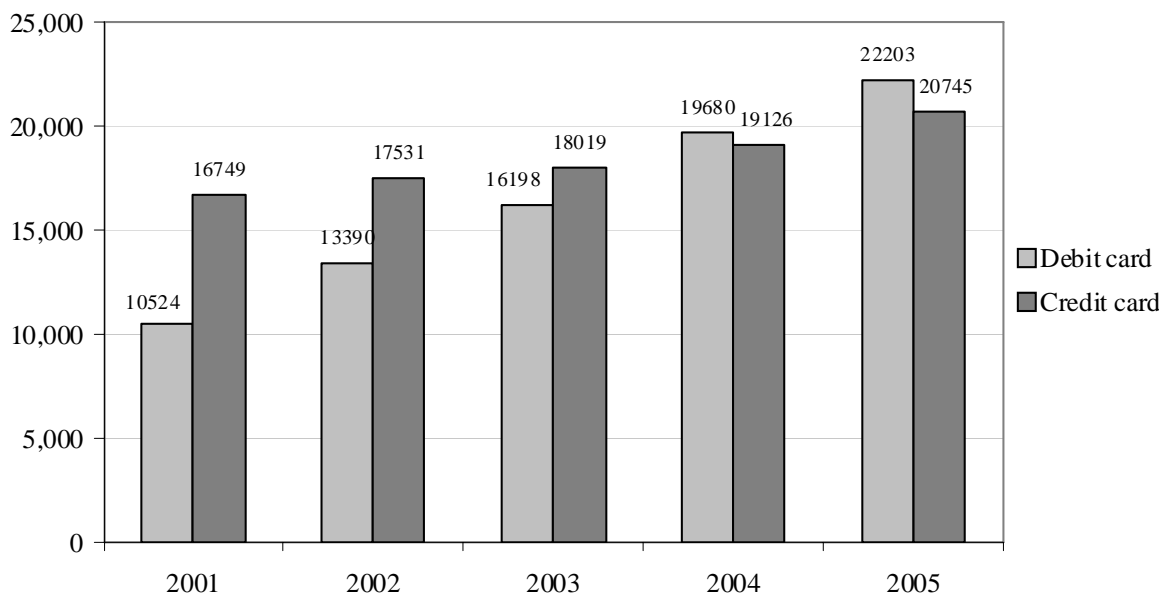
*Many payments that traditionally were made by cash or check are now being made electronically through the Federal Reserve's Automated Clearing House (ACH) or through private electronic payment networks such as Visa or MasterCard using credit or debit cards. Electronic transactions in the public sector have lagged behind the private sector but there has been significant growth in recent years. Electronic payments are used for the procurement of goods and services by government agencies as well as for the collection of taxes and fees. This paper summarizes the results of two recent studies regarding the use of these payment options by state governments. The studies sponsored by the Association of Government Accountants and the Council of State Governments found that the use of purchase cards has become "common practice" for the procurement of small items by state agencies. Meanwhile, the use of electronic payments for the collection of taxes and fees is increasing but faces a series of policy issues described in this report.*

## Introduction

Cash is the life blood of any organization and state governments are no exception. Cash facilitates the payment of taxes and fees. Cash also facilitates the procurement of goods and services needed to sustain government activities. Many payments traditionally made by cash and check are now being made electronically through the Federal Reserve's Automated Clearing House (ACH) or through private electronic payment networks such as Visa and

MasterCard using credit or debit cards. Findings of the 2001 and 2004 Electronic Payment Surveys by Dove Consulting for the Federal Reserve Bank found that between 2000 and 2003, the use of checks for non-cash payments declined by 4.3% annually (Dove, 2005). In contrast, ACH, debit card and credit card transactions exhibited average annual increases of 13.4%, 23.5%, and 6.7%, respectively. Figure 1 summarizes the growth in credit and debit card transactions from 2001 through 2005. Debit card transactions

**Figure 1: Number of Credit and Debit Card Transactions in the U.S. (in millions), 2001 - 2005**



Source: Committee on Payment and Settlement Systems. (2006) Statistics of Payment and Settlement Systems in Selected Countries: Figures for 2005 (Preliminary Release). CPSS Publications No. 75. Basel, Switzerland: Bank for International Settlements. Table 7 (p. 157). <http://www.bis.org/publ/cpss75.pdf>

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exhibited a much higher growth rate compared to credit card transactions.

Electronic financial transactions in the public sector have lagged behind the private sector. However, there has been growth in recent years in both the use of electronic payments (e-payments), especially ACH and credit cards for the collection of taxes and fees as well as for the procurement of goods and services by government agencies. The Internal Revenue Service (IRS), for example, began accepting credit cards for payment of federal income taxes in 1999. Table 1 summarizes the growth in both the number of transactions and dollar volume of IRS credit card payments between 1999 and 2003. The number of transactions increased ten-fold over this period and the dollar volume increased more than four-fold. In the early years of the credit card acceptance program, the most avid users of the program were those with large tax balances (average transaction value of \$3,445) but over time the program became more widely used and the average transaction value dropped to \$1,569.

**Table 1: Trends in Credit Card Payments of Federal Income Taxes**

Year	Number of payment transactions	Dollar volume of payment transactions (\$ in million)	Average transaction value (\$)
1999	53,300	\$184	3,445
2000	216,500	\$659	3,044
2001	284,800	\$891	3,130
2002	313,400	\$781	2,494
2003	559,600	\$878	1,569

Source: Mitchell, R. (2004) Rumbblings from the public sector. *Credit Card Management*. 17(2): 18-22.

States are also increasing their use of electronic financial transactions as they are accepting electronic tax and fee payments and are converting procurement transactions from the traditional invoice system to purchase card transactions. Electronic transactions offer many benefits to government agencies and citizens. States have determined that the purchase card reduces paperwork associated with small item acquisitions and provides a convenient and efficient means of processing small item purchases. As a result, paperwork and the time involved in small purchases are reduced and cost savings and service delivery are enhanced. Likewise, state governments

are realizing reduced processing costs, accelerated funds availability, and a reduction in delinquent payments as a result of accepting electronic tax and fee payments.

As a result of realized benefits, state governments' use of the purchase card for small dollar value procurements (which began in the early 1990s) experienced widespread use in the mid-1990s. Also, ACH transactions have become the standard means for states to receive large revenue transfers such as withholding taxes from employers while credit and debit credit card tax and fee payments are gaining acceptance for individual tax and fee payments made by individuals.

### **Purpose:**

The purpose of this article is to summarize recent studies that focused on state government use of electronic payment processes for the procurement of goods and services and acceptance of electronic tax and fee payments. The studies sponsored by the Association of Government Accountants hereinafter referred to as the AGA study [Hackbart and Denison, 2007] and the Council of State Governments hereinafter referred to as the CSG study [Denison and Hackbart et. al., 2007] involved national surveys of state governments that focused on determining trends regarding the use of e-payments for the procurement of goods and services as well as the receipt of tax and fee revenues. The studies also analyzed policy issues associated with the use of electronic payment systems.

Such policy issues included approvals required for using electronic payment systems as well as policies and procedures designed and implemented to insure proper use of electronic payment systems. The studies also explored the reasons why states have encouraged the use of electronic payment systems and attempted to identify issues that constrain expanded use of electronic payment systems.

Trends and policy and procedural issues associated with state government use of purchase cards and electronic tax and fee payment systems are discussed in separate sections followed by observations regarding the two uses of electronic payment systems.

**State Purchase Cards**

States are expanding their use of purchase cards measured in terms of the number of purchase card transactions as well as the aggregate dollar value. The AGA survey data regarding the number of transactions charged to state purchase cards for fiscal years 2004 and 2005 is shown in Table 2. Also shown are the total dollar value of purchases and the average dollar value per transaction charged to the card. The 2004 to 2005 aggregate percent change in dollar value of transactions processed through the purchase card for the eleven states that were able to respond to that part of the AGA study was nearly 25 percent.

*Time Benefits:* With the use of the purchase card, processing of purchase orders is streamlined and procurement transactions can be consolidated into one vendor payment for multiple acquisitions. The purchase card also enhances the ability of state agencies to respond to spontaneous events. Even with traditional procurement processing, the purchase card reduces the time it takes to acquire and utilize goods and services.

*Vendor Benefits:* Vendor relationships with states are enhanced with purchase card use because the vendors receive payments through the purchase card faster than with the traditional purchase order process. With the purchase card, merchants usually

**Table 2: Number of Transactions and Dollar Value for State Purchase Card Purchases in Fiscal Years 2004 and 2005 by State**

	Transactions		Dollar Value of purchases		Average Dollar Value per Transaction
	2004	2005	2004	2005	2005
Arizona	n/a	n/a	\$3,191,710	\$9,835,855	n/a
Arkansas	42,786	63,808	6,269,720	10,084,666	\$158
Iowa	27,756	35,567	5,351,235	11,763,742	331
Louisiana	266,820	293,000	42,300,000	n/a	n/a
Minnesota	82,000	89,000	8,000,000	10,600,000	119
Mississippi*	70,695	n/a	8,151,987	n/a	115
Missouri	105,459	111,039	11,585,320	13,876,531	125
Nebraska	n/a	n/a	4,420,006	5,641,107	n/a
Nevada	98,730	116,061	17,389,609	21,578,290	186
New Mexico	n/a	n/a	31,964,948	n/a	n/a
New York	n/a	318,000	26,000,000	77,000,000	242
Oregon	n/a	n/a	14,715,155	18,421,593	n/a
South Carolina	728,734	788,212	169,529,870	164,810,633	209
Wisconsin	483,822	530,528	99,977,351	114,086,604	215
<b>Total</b>	<b>1,906,802</b>	<b>2,345,215</b>	<b>\$448,846,911</b>	<b>\$457,699,021</b>	<b>\$198</b>

\*Mississippi values are for FY 2003

n/a indicates that the data was not available.

Source: AGA, *The State Purchase Card: Uses, Policies and Best Practices*, 2007

**State Purchase Card Program Benefits**

The AGA study found that purchase card programs can positively impact state agency performance in several ways. Among the performance related impacts are time benefits, vendor benefits and agency cost reduction benefits.

get paid within two or three days, and the state can take 30 days to pay the card balances. As a result, many states have seen growth in the vendor base, leading to more competition for government purchases. Increased competition may decrease prices paid or enhance the quality of the goods and services purchased. Purchase card programs also facilitate the analysis of past purchases with various merchants that may lead to a stronger position in

## *Enhancing Financial Transaction Efficiency: Electronic and Plastic Options*

negotiating contract prices.

*Cost Benefits:* Florida reported, in the AGA survey, that it has saved several million dollars by using the purchase card. Such savings resulted from not having to have warrants issued, copies of invoices made, #10 Window envelopes purchased and postage paid for mailing each warrant to each vendor. Furthermore, the state is able to take advantage of the “2% 10 days” discounts when possible.

### **State Purchase Card Use Policies**

The states have enacted a variety of purchase card use policies designed to promote appropriate use of the card as a payment mechanism. Restrictions called merchant category blocks are frequently coded into the purchase card to prevent use at unauthorized groups of merchants. The following card restrictions (with the percent of respondents imposing the restriction in parenthesis) were indicated by the recent AGA state purchase card survey:

- Maximum dollar value per transaction (85%)
- Monthly acquisition limits (80%)
- Merchant category blocks (75%)
- Type of purchase limits (69%)
- Credit checks on users (4%)

As shown, a cap on the maximum dollar value per transaction is the most widely used of the card restrictions. The cap value may be set at a single value for all transactions, or the cap may depend on the transaction. For example, Arizona allows card purchases up to \$10,000 for service transactions, but other card purchases are limited to \$1,000 or less. On the other hand, Nevada does not allow the purchase card to be used for service transactions at all. Merchant category blocks are used to restrict the types of goods and services that can be purchased through the card. Merchant blocks can be turned on and off for an individual card to match the permissible categories to the responsibilities of the employee, and thereby designate the card for particular uses. In addition, monthly acquisition limits set an aggregate bound on the dollar amount of transactions that can be processed through the card in a given month. Only one respondent considered personal credit risk before authorizing an employee to hold a purchase card. Similarly, employee credit checks were not used as a screening mechanism for issuing the integrated purchase/

travel card.

A purchase card usually carries government liability for the transactions charged to the card. As a result, personal credit is not a factor for determining card spending limitations. Some argue that screening out employees with high credit risk will reduce the incentives for card fraud, but there is little evidence to support this notion.

The distribution of purchase cards is managed by card use authorization policies. Procurement employees are identified as authorized card holders for 85 percent of the responding states. In addition, for 70 percent of the respondents, purchase cards are always or frequently authorized for employees “designated” by the agency or department head as needing the cards for departmental procurements. Respondents report that other employees are also issued cards. Specifically the AGA survey indicated that, among two thirds of the respondents, administrative/clerical staff, contracting officers, and financial office staff were “frequently” or “always” authorized purchase card holders. State respondents indicated that purchase cards were only occasionally authorized for contractors performing services for state agencies and non-governmental employees.

This section has highlighted the benefits and controls associated with the use of e-payments for disbursing a state’s budget funds through purchase cards to procure goods and services. The next section discusses how e-payments can facilitate the collection of taxes and fees that are due to the state.

### **Electronic Tax and Fee Payments**

A survey by the Federation of Tax Administrators (FTA, 2003) in 2003 found that almost \$700 million was collected by state agencies from credit card, debit card and e-check payments in FY 2003. This was a significant increase compared to the \$190 million collected by the states just two years earlier (FY 2001). Credit card payments alone amounted to almost half of these transactions, comprising slightly over 40% of the transaction amounts. Between 2001 and 2003 both the number and dollar volume of credit card payment transactions increased by 57% and 70%, respectively.

Electronic payments are accepted and used for various state taxes and fees. Of the 37 states that responded to the CSG survey, ACH was the most commonly accepted for business-related taxes

## Enhancing Financial Transaction Efficiency: Electronic and Plastic Options

(business/corporate taxes and excise, sales or usage taxes), while credit cards were the most commonly accepted form of electronic payment of individual income taxes and for fees such as licenses or permits and agency user fees (see Figure 2 and Table 3).

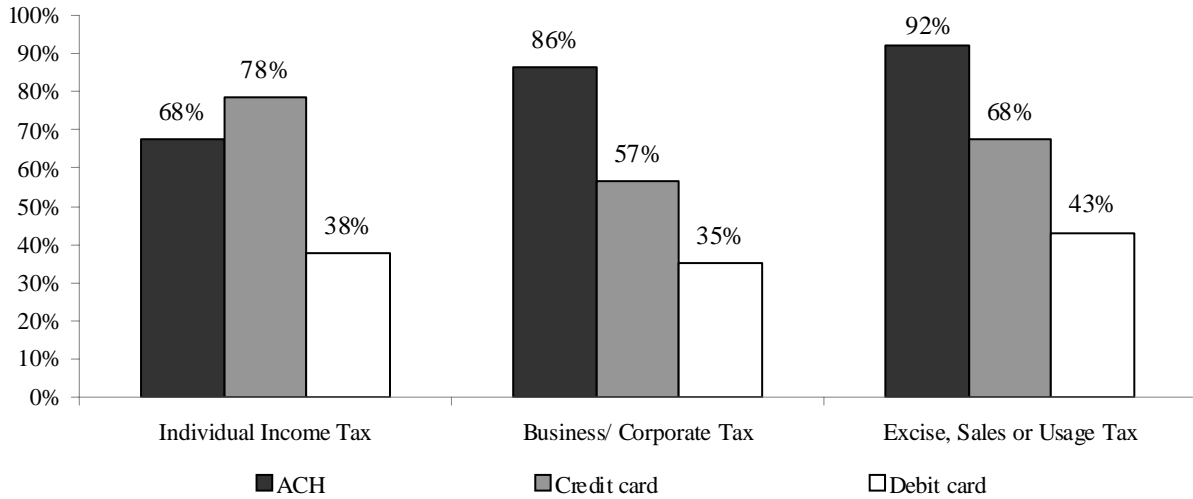
- Reduced accounts receivables and payment delinquencies, and less need for debt collection activities;
- Improved fund availability by reducing check float and enhancing cash flow; and
- Added convenience for citizens.

### Benefits of Accepting Electronic Payments

Electronic payments for government taxes and

Beyond these benefits, electronic payments offer government agencies the opportunity to automate

**Figure 2: Forms of Electronic Payments Accepted for State Taxes**



Source: CSG, Acceptance and Use of Electronic Payments for State Taxes and Fees, study survey, 2007

**Table 3: Forms of Electronic Payments Accepted for State Fees**

	Licenses or Permits	Agency User Fees
<b>ACH</b>	51%	38%
<b>Credit card</b>	57%	41%
<b>Debit card</b>	32%	24%

Source: CSG, Acceptance and Use of Electronic Payments for State Taxes and Fees, study survey, 2007

fees – whether in the form of ACH, credit card, or debit card – offer many benefits to government agencies and citizens. These include:

- Reduced processing costs associated with cash and check payments;
- Reduced transaction processing time and costs;
- Improved payment verification and auditing through real-time authorization and verification;

their accounting, banking and reconciliation functions and processes. Electronic payments can also speed the receipt of tax and fee payments from citizens and taxpayers.

The study identified the reasons that states were accepting electronic payments for state taxes and fees. These reasons and the percent of respondents identifying the reason as important in their decision to accept electronic payments are shown in Table 4.

States largely agree that ACH payments expedite deposits of payments, improve fund availability, and reduce the costs of collecting and processing payments. The most frequently cited reason for accepting credit cards was taxpayer preferences, followed by improved fund availability and reduced costs of payment processing. The respondent from Florida, for example, wrote that “the public expects this service and the next generation will be totally electronic-based. The age of pure checks or cash for most government services is in the decline.”

**Table 4: Reasons for States' Accepting Electronic Payments**

	ACH	Credit card	Debit card
<b>Expedite deposits of payment/improve fund availability</b>	97%	77%	65%
<b>Reduce payment delinquencies</b>	65%	60%	60%
<b>Reduce the costs of collecting/processing payments</b>	92%	74%	70%
<b>Taxpayer preference</b>	73%	89%	65%
<b>Other</b>	14%	17%	10%

Percent of respondents identifying the reason as important in the decision to accept electronic payments.

Source: CSG, Acceptance and Use of Electronic Payments for State Taxes and Fees, study survey, 2007

**Credit Card Tax Payment Options**

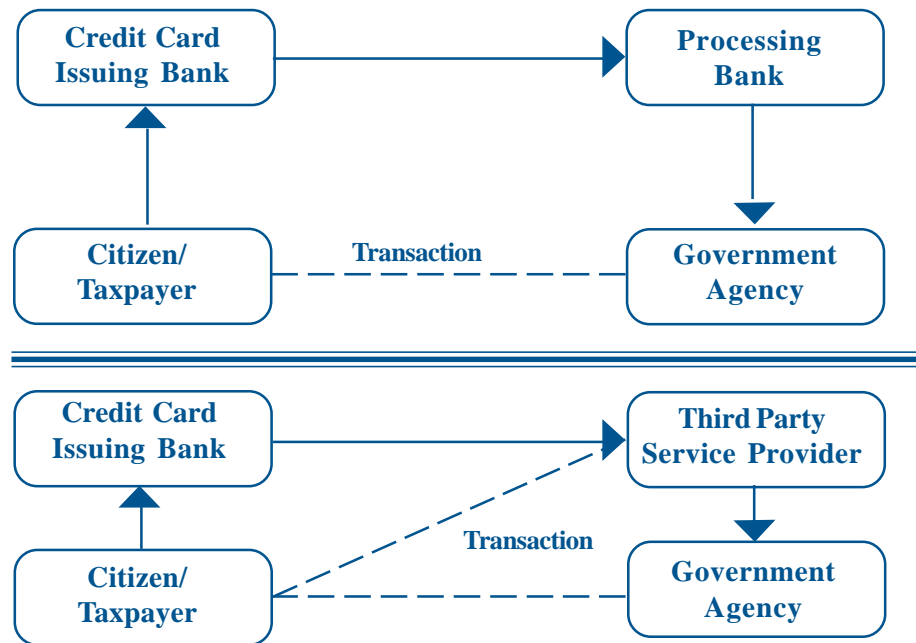
Government agencies have two primary options for accepting credit card payments, as shown in Figure 3. The primary difference between the two systems is the use of a financial intermediary – a third party service provider – that can perform multiple functions for the government agency, including accepting and processing the credit card transaction. In the first option (top panel of Figure 3) the credit card transaction begins with payment accepted directly by the government agency. The bank issuing the credit card transfers funds to the government agency's processing bank. Subsequently, funds are deposited into the government agency's account. Note that the issuing bank transfers payment to the processing bank prior to collecting payment from the taxpayer. In this first option, the government agency is typically responsible for the fees associated with the credit card transaction.

The same process is mirrored in the second option (bottom panel of Figure 3). However, depending on the functions undertaken by the third party service provider, the payment for government services can be made either to the government agency or to the third party service provider. In addition to possibly accepting the credit card payment, the

third party service provider also replaces the functions of the processing bank.

Many of the benefits credit and debit cards offer government agencies are the same as those offered by other electronic payments. However, credit cards offer an additional benefit to citizens and taxpayers in the form of short-term credit. This credit option offers additional taxpayer relief by providing the opportunity for payment spreading and cash flow management for those who may otherwise face difficulties in paying large tax or fee payments at a particular point of time but who could otherwise manage payments spread over time.

**Figure 3: Two Primary Credit Card Payment Systems for Government Agencies**



Source: CSG, Acceptance and Use of Electronic Payments for State Taxes and Fees, 2007



## *Enhancing Financial Transaction Efficiency: Electronic and Plastic Options*

Debit cards also offer additional advantages. Because anyone with a checking account can obtain a debit card, accepting debit cards as a payment option serves a larger pool of potential users. In addition, canceling services or returning goods paid for with a debit card is typically treated as if they were made with cash or check, allowing for a less complicated and less costly return or cancellation process.

However, accepting credit and debit card payments also pose several challenges to government agencies. These include legal and legislative challenges, cost challenges and technology challenges. From a legal or legislative perspective, issues that affect the acceptance of credit and debit card payments include:

- Credit and debit card transactions impose certain costs (transaction fees), which conflicts with requirements in some states that government agencies collect 100% of the amount due;
- Credit card transactions may violate public funds handling laws; and
- Legislative issues regarding protection of financial data from public records laws and technology issues related to data and information security need to be addressed.

The primary costs associated with credit and debit card payments are the start-up costs (initial equipment, training, marketing and education) and the recurring per transaction fees. The fees paid by government agencies for credit card processing are determined by their contractual relationship with their bank and/or service provider, and are based on a number of factors, including total and average volume, total and average dollar amount, association fees, processor fees, card types, and processing timeframe. Some states have imposed surcharges or convenience fees as a way to pay for such fees associated with credit and debit card transactions.

### *Electronic Tax and Fee Payment Policies*

While electronic payments provide several benefits and cost savings, the acceptance of electronic payments also involves several costs. If decisions are made to accept electronic payment, policies must be established to address how and by whom such costs will be covered. The costs associated with electronic payments include:

- Ongoing processing fees charged per

transaction paid through electronic payments;

- Equipment expenses including specialized software, keypads, and computers;
- Administrative expenses including employee training, process streamlining, and marketing activities and user education programs; and
- Social costs associated with electronic payment media such as lack of access to electronic payment options by certain categories of citizens or misuse of electronic payment options such as increased debt burden due to increased use of credit cards.

### *Transaction Surcharge*

A transaction surcharge is a charge that is added to the transaction amount by the merchant if the customer chooses to pay by card, either credit or debit. The surcharge tends to be a fixed amount but varies with the transaction amount. Use of surcharges is strictly prohibited by Visa, MasterCard and Discover.

### *Convenience Fees*

A convenience fee is a charge that is added to the transaction amount by the merchant if the customer chooses to pay the merchant in a non-traditional environment, such as via a website or an interactive voice response (IVR) telephony system. The convenience fee amount can take the form of a flat fee or a percentage-based fee, but the type of fee varies widely across government entities and third party service providers. American Express allows convenience fees if the transaction is related to: (1) federal, state, provincial or municipal government mandatory revenue payments; (2) public utility payments; and/or (3) mandatory fees at public higher education institutions. Furthermore, under the American Express convenience fee policy, convenience fees (1) can only be charged when the payment is made through a more convenient payment method; and (2) cannot be higher than the fees imposed on other payment instruments. For Visa and MasterCard, the convenience fee must be applied equally to all payment types offered through the same environment. However, Visa also states that the convenience fee cannot be charged for over-the-counter or face-to-face transactions. The merchant must also state up-front that a convenience fee will be charged to the cardholder, specify the fee amount,

## *Enhancing Financial Transaction Efficiency: Electronic and Plastic Options*

and allow the cardholder to either decline or proceed with the transaction and be assessed the fee.

### **Summary and Conclusions**

This review of state electronic financial transactions trends and policies indicates that the states are transitioning from traditional paper based processing of revenue receipts and program expenditures to electronic means of processing and accounting for state government financial transactions. Studies indicate that the state purchase card has gained wide acceptance for the procurement of small dollar value items and services by the states. The use of the purchase card continues to expand and respondents to recent studies indicate a desire to increase the use of this procurement method largely because of realized cost savings. State agencies appear to no longer perceive the use of the purchase card to be a “best practice” procurement method. Rather, the use of the purchase card has become a “common practice” purchasing strategy.

State government acceptance of electronic tax and fee payments has also increased rapidly. ACH payments have become a common means of accepting large fund transfers of tax and fee payments while the credit or debit card is gaining acceptance for such payments and citizens are increasingly turning to the use of cards for tax and, especially, for fee payments. Like the purchase card, the major motivation of state acceptance of the electronic tax and fee payments are the anticipated cost savings while other benefits are also realized including more rapid receipt of funds and reductions in payment delinquencies.

These studies also suggest that the states have implemented several innovative policies and

procedures to maximize the benefits of purchase card and electronic tax and fee payment programs. Continued innovations and the sharing of “best practices” will further enhance the benefits of state purchase card programs and permit the states to maximize the financial benefits of this alternative procurement payment mechanism. Meanwhile, there has been a significant increase in the use of electronic payment systems for taxes and fees as states attempt to enhance the efficiency of their revenue collection systems. However, the states face a series of challenges to expanding electronic payment of taxes including the handling transaction and convenience fees, the financing for electronic payment equipment and the lack of access of certain citizens to the technology required to make electronic payments.

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# The Economy in 2007: Slowing Down, but Still Going

*Christopher Jepsen and Jenny Minier*

*The U.S. economy grew faster than expected during much of 2007, despite a prolonged slowdown in the housing market and the related sub-prime mortgage crisis, crude oil prices approaching \$100 a barrel, and declining consumer confidence. In this article, we discuss economic events in Kentucky and the U.S. as a whole during 2007, and their implications for the state and national economies in 2008. With some caveats, we are confident that both economies will continue growing in 2008 at moderate – but not spectacular – rates.*

## Introduction

National growth in gross domestic product (GDP) increased significantly after the first quarter of 2007: the Bureau of Economic Analysis' projection for first-quarter growth was only 0.6% annual (seasonally adjusted) growth. That rose to 3.8% in the second quarter, and to an exceptionally high 4.9% in the third quarter (in late November, this was revised upward from the advance estimate of 3.9%, which was also higher than expected). The growth rates in both the second and third quarters were higher than expected, due largely to increases in exports. Combined, these could result in an annual growth rate over the entire year of slightly over the 2.9% registered in 2006.

However, predictions for fourth-quarter growth were much lower than the second- and third-quarter growth rates, as consumer confidence declined, oil prices remained stubbornly high for fall, and economists began to predict a more significant slowdown in economic growth, to perhaps 1.6% in the fourth quarter. The Congressional Budget Office estimates that national GDP growth over 2007 will be 2.1%, although they predict an increase to 2.8% in 2008 (but this is higher than most professional forecasters' estimates).

There were some bright spots in 2007: the Dow Jones Industrial Average closed above 14,000 for the

first time ever in July (and subsequently returned to close over 14,000 for much of the first half of October); employment remained strong; and exports increased 16% in the third quarter. (And, of course, Apple introduced the iPhone.)

As shown in Table 1, although Kentucky's growth rate of gross domestic product (the value of goods and services produced) was significantly above the national growth rate in 2002, Kentucky has not grown as fast as the U.S. in any year since 2002. Kentucky's consistently lower growth rate is partly due to its lower levels of educational attainment and higher shares of manufacturing employment.

## Unemployment

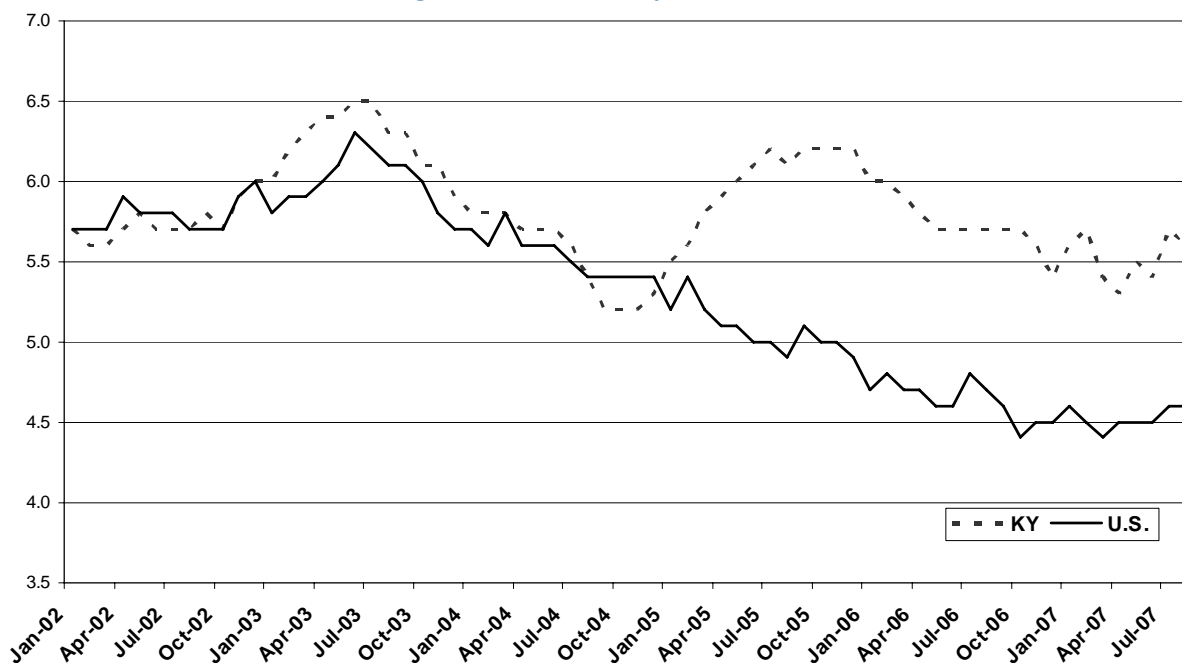
Unemployment rates in the U.S. and Kentucky have generally trended downward over the past two and a half years, although they began to increase during 2007. Figure 1 plots monthly unemployment rates for the U.S. and Kentucky since January 2002. Both series peaked in the summer of 2003, during the most recent recession, and have subsequently declined. The two rates were quite similar until January 2005, when the Kentucky rate diverged from the national rate. By the summer of 2005, the unemployment rate in Kentucky was a full percentage point higher than the national rate, and this gap has been fairly persistent. This may be partly explained by Kentucky's above-average share of manufacturing

**Table 1: Growth Rates in Gross Domestic Product, 2001-2006**

	2001	2002	2003	2004	2005	2006
<b>Kentucky</b>	0.2	3.0	1.5	2.4	2.2	2.2
<b>U.S.</b>	0.8	1.6	2.5	3.6	3.1	2.9

Source: Bureau of Economic Analysis

Figure 1: Unemployment Rates



Source: U.S. Bureau of Labor Statistics.

employment, since job losses in the manufacturing sector at the national level have been higher than in other sectors.

Unemployment declined both nationally and in Kentucky throughout 2006, and remained at fairly low levels through much of 2007. Preliminary data through October 2007 suggest that unemployment increased both nationally and in Kentucky, although the increase in Kentucky was more dramatic than in the country as a whole. By September, the unemployment rate in Kentucky was 6.1%, significantly higher than the 4.7% rate for the national economy. Given the persistence of this gap, we anticipate that Kentucky’s unemployment rate will remain somewhat above the national rate into 2008.

The Congressional Budget Office estimate of the NAIRU (non-accelerating-inflation rate of unemployment, or the lowest unemployment rate that will not cause inflation to rise; this is also referred to as the “natural rate” of unemployment) has been between 4.8% and 5.0% for the last several years. Since the national rate has been on the low side of that, and the Federal Reserve has repeatedly stated that it is watching inflation carefully, it would not be a surprise to see the national rate tick upward slightly

in 2008, and it is likely that Kentucky’s unemployment rate will move in the same direction as the national rate. That said, inflation has also remained relatively low by historical standards, which gives the Fed somewhat more flexibility to ease monetary policy to prevent a sharp rise in unemployment.

### The Big Problem: The Housing Market

Many economists thought that the housing slowdown would not continue past the spring of 2007. We were wrong. The most troubling aspect of the economy in 2007 has been the continued softening of the housing market, and the accompanying sub-prime mortgage crisis. The housing market is currently having a negative effect on the economy in several ways: declining home values; falling housing starts; increasing numbers of foreclosures; and restrictive credit policies.

Nationally, the median price of existing homes sold in September was 4.2% lower than September 2006. Although sales of existing homes do not enter directly into GDP, there can be an effect on wealth and consumer confidence, since the stock of U.S.

## *The Economy in 2007: Slowing Down, but Still Going*

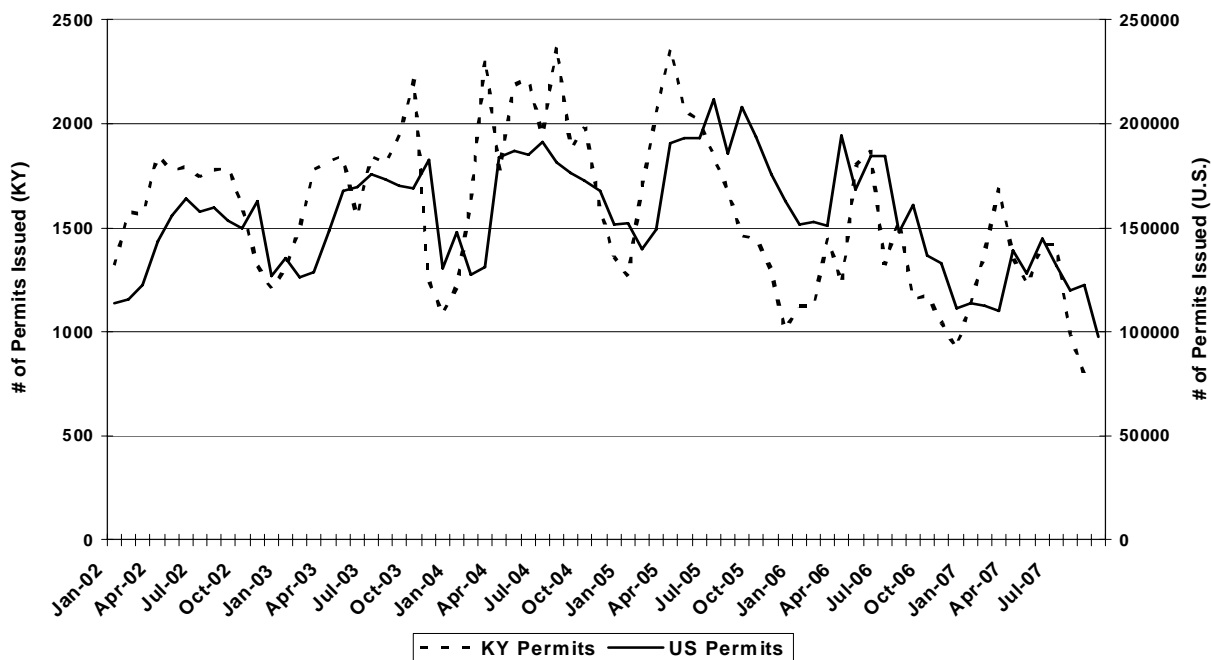
residential housing is estimated to be worth approximately \$21 trillion (nearly one-third of household assets). The extent to which consumption responds to a change in housing wealth, however, is less clear. Traditional estimates are that a \$100 decrease in financial wealth leads to a \$3-5 decline in consumer spending, while an equivalent decrease in housing wealth causes a \$4-9 decline. The decrease in consumption associated with a fall in housing wealth, however, occurs over a longer period of time, so the effects are not felt immediately.

A decrease in the number of housing starts directly affects GDP; the construction sector contributes almost 10% of GDP. In August 2007, national housing starts were at only 58% of the high reached in January 2006; the decline has been fairly constant since that time. This trend also shows up in the data on housing units authorized by building permits, which is a closely related measure of residential construction. Figure 2 shows the number of housing units authorized by building permits for 2002 through 2007, for the U.S. and for Kentucky. Although building permits are more volatile in Kentucky than in the economy as a whole, the patterns look quite similar. There are, of course, large seasonal fluctuations associated with housing

construction; although national data are often seasonally adjusted, state data are not, so neither series in Figure 2 has been adjusted.

What has come to be known as the “sub-prime mortgage crisis” grew directly out of a combination of factors: home prices began decreasing after a long period of steady increases, and interest rates began to rise. Many homeowners who had taken out adjustable-rate mortgages – in some cases, hoping to “flip” the house, or sell it for a higher price before the higher interest rates kicked in – found their mortgage payments increasing dramatically, with no possibility of selling their home. Although some homeowners have been able to renegotiate payment on these loans, many other cases have ended with foreclosures. Estimates are that over 2 million homeowners hold approximately \$600 billion of sub-prime adjustable-rate mortgages scheduled to experience interest rate increases over the next eighteen months. Sub-prime mortgages are those made to people with poor credit, who face higher interest rates (and are more likely to default based both on their poor credit ratings, and the higher interest rates). Of course, not all of these cases will end in foreclosure; however, the potential direct impacts on the economy – for example, through

**Figure 2: U.S. and KY Housing Permits**



Source: U.S. Census Bureau.

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reduced consumer confidence, declining home values, and increases in the numbers of homes listed for sale – is quite large.

In addition, financial companies have already lost billions of dollars related to bad debt, primarily from the housing sector: the most (in)famous to date is the announcement in November that Citigroup had lost \$6.5 billion in the third quarter, and expected to take \$8 to \$11 billion in additional losses, which led to the resignation of the Chairman and CEO of Citigroup, Charles Prince. As a result, many companies are increasingly reluctant to lend to people with less-than-stellar credit records. The Federal Reserve, in its survey of bank loan officers, found that 25% had tightened their conditions on loans (excluding credit cards) in October, up from 10% in July. This decreased ability to access credit clearly has many effects, including decreasing personal consumption expenditures and allowing the housing market to remain fairly stagnant. Indeed, when the Federal Reserve moved in September to lower the federal funds rate target to 4.75% (it had

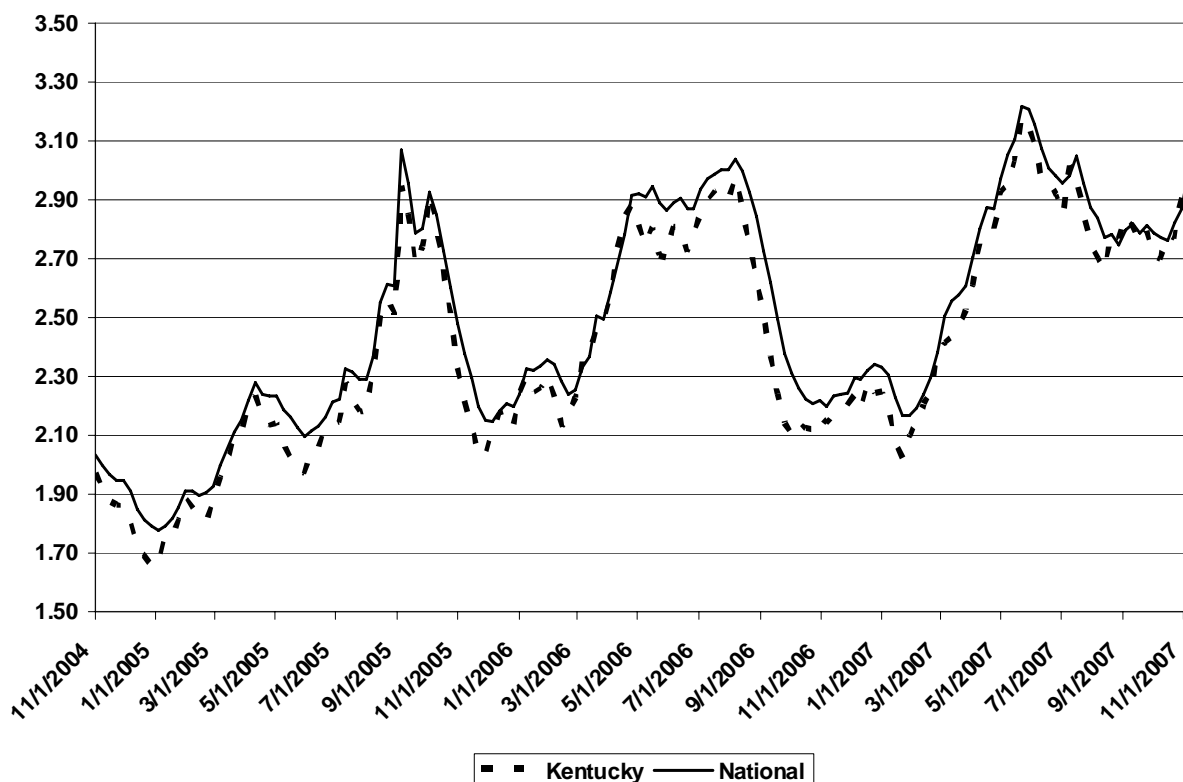
been at 5.25% for 15 months), the press release cited as their primary concern that the tightening of credit conditions would “intensify the housing correction,” and “restrain economic growth more generally.” The rate was lowered further, to 4.5%, in October, and again, the intensifying problems in the housing sector were cited as the primary object of concern. The University of Michigan’s measure of consumer confidence (widely used among economists) fell to its lowest level in over two years in November, with the weak housing market and increasing oil prices widely cited as the primary causes for concern.

The economists Nouriel Roubini and Christian Menegatti estimate that the seven other housing recessions experienced in the U.S. since 1960 lasted an average of 32 months, suggesting that the slowdown in this important sector of the economy could continue well into 2008.

### **Also of Concern: Oil Prices**

Oil prices – already high – increased by 25% between August and November 2007, and reached a

**Figure 3: Nominal Gasoline Prices**



Sources: U.S. Department of Energy (national) and Kentucky Energy Watch/AAA (Kentucky)

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record high of \$99.29 per barrel in November. Although they had retreated to below \$90 per barrel by the last day of November, this is still exceptionally high by historical standards. Gasoline prices in Kentucky tend to be slightly below the national average, due largely to lower gasoline taxes. Figure 3 shows average gasoline prices in the nation and in Kentucky for 2005 through 2007, a period during which gasoline prices were volatile. The Gulf Coast hurricanes explain the spike in prices in late 2005, but the sharp increase during the summer of 2006 is harder to explain. It is generally attributed to a host of factors, including increased demand globally and political unrest in North Korea and the Middle East (particularly Lebanon and Iran). Gasoline prices have climbed dramatically in 2007, likely attributed to continued unrest in the Middle East and the weakening dollar.

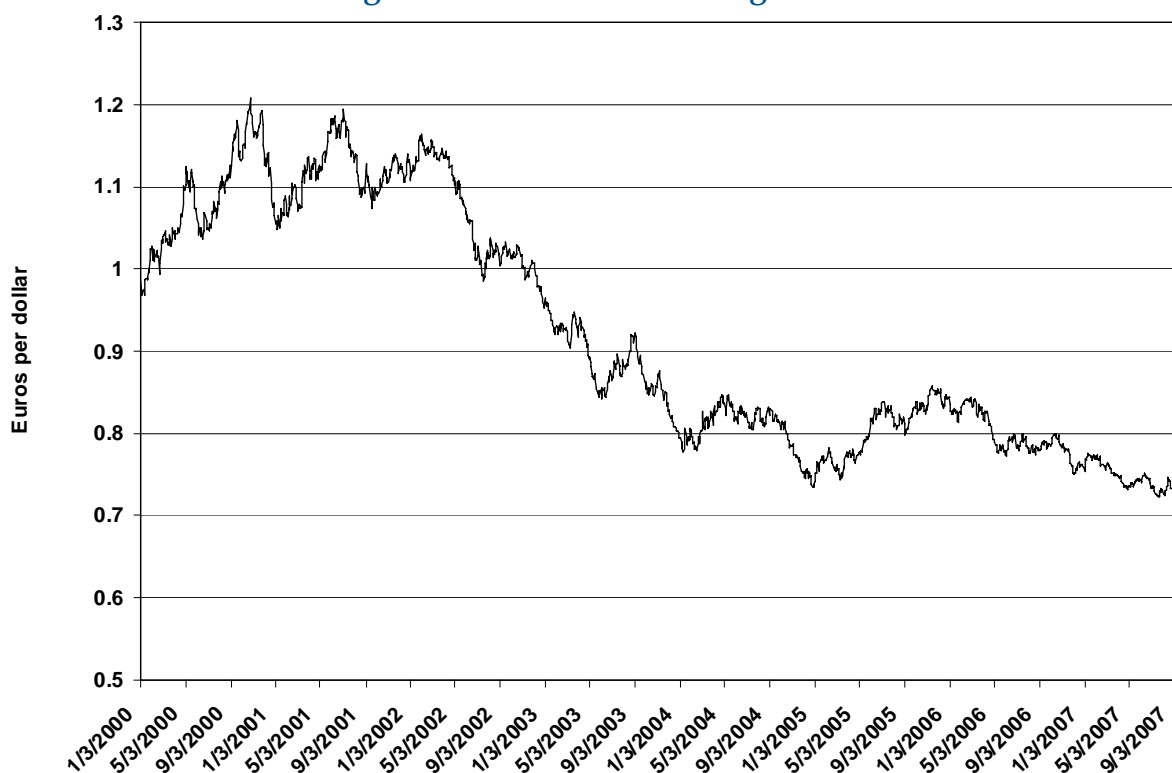
Many economists believe that the U.S. economy is much less vulnerable today to oil shocks than in the 1970s, when spiking oil prices pushed the economy into a recession, combined with rising prices (“stagflation”). Although we have experienced two oil price “shocks” since the late

1990s that compare in magnitude to the 1970s shocks, Blanchard and Galí (2007) conclude that the effects on inflation and GDP growth have been much less severe, for four reasons. First, the oil price shocks of the 1970s occurred simultaneously with other adverse economic shocks (so that some of the “effect” of oil price shocks was due to other factors and incorrectly attributed to increases in oil prices). In addition, the economy has been able to adjust to rising oil prices more easily than in the 1970s, because (1) oil has become less important in production, so that increases in oil prices translate less directly into increases in the prices of other goods; (2) the U.S. labor market has become more flexible, allowing wages to adjust more quickly to changing prices; and (3) the credibility of monetary authorities (the Federal Reserve and other central banks) has improved with more explicit inflation targeting.

### International Linkages: Value of the dollar

Throughout 2007, the dollar continued to fall in value against most currencies. It has dropped 43%

Figure 4: Euro-dollar Exchange Rate



Source: Federal Reserve

## *The Economy in 2007: Slowing Down, but Still Going*

from its high against the euro (see Figure 4), and since early October, has been worth less than a Canadian dollar for the first time in three decades.

The main drawback to a weak dollar, of course, is that imports become more expensive to American consumers and to firms that rely on imported inputs. Although total imports to the U.S. have continued to increase over the last few years, the rate of growth has slowed. The weak dollar also attracted complaints from politicians in several countries during 2007. In November, several Chinese government officials suggested that the dollar's status as a reserve currency was "shaky" and called on the Chinese government to diversify its holdings of foreign currencies away from "weak" currencies like the dollar. The president of France, Nicolas Sarkozy, told the U.S. Congress that the U.S. government needed to intervene to strengthen the dollar or risk "economic war" with Europe.

Despite these costs, a weak dollar has several advantages. By making U.S. products cheaper overseas, the low dollar increases American exports (exports of goods and services in September 2007 were 12% higher than in September 2006, and exports constitute approximately 12% of U.S. GDP, so this is a significant contribution to total output), and generates demand for American products. Kentucky ranks 18<sup>th</sup> among the states in total exports, so an increase in exports directly affects Kentucky's employment and income.

As exports have increased rapidly and the rate of growth of imports has slowed, the U.S. trade deficit (the difference between imports and exports) has decreased from a record high of \$582 million in the first nine months of 2006 to \$528 million over the same period in 2007. (The increasing prices of imports, however, do contribute to higher inflation rates in the U.S.)

In addition, Gourinchas and Rey (2007) estimate that because nearly all foreign liabilities of the U.S. are denominated in dollars, while approximately 70% of U.S. foreign assets are denominated in foreign currencies, a depreciation of 10% in the dollar results in a transfer of 5.3% of U.S. GDP from the rest of the world to the U.S. (Note that these are not realized

gains, but changes in the real value of U.S. assets and liabilities.)

Although the dollar has fallen significantly in value against most currencies over the last few years, Simon Johnson, the Director of the Research Department at the International Monetary Fund (IMF), predicts that the medium-term (approximately 5 years out) equilibrium value of the dollar is still less than its current value, suggesting that the dollar will generally continue to trend downward against other currencies. This may allow strong export demand to compensate for the weak housing market and low levels of consumer confidence, helping to keep GDP growth at positive levels.

### **Concluding Remarks**

Overall, we predict that the economy will slow in 2008. Both the state and national economies will grow at a moderate pace, below the growth rates experienced in recent years. On the positive side, we expect export demand to remain strong. Unemployment is likely to remain at fairly low levels in 2008, although unemployment will likely be higher in Kentucky than in the nation as a whole. Strong export demand is expected to boost manufacturing production, which could help narrow the gap somewhat between Kentucky's unemployment rate and the national rate. Although oil prices have risen dramatically in recent months, current research suggests that these prices, by themselves, will not cause a recession. On the negative side, historical evidence suggests that the housing sector will continue to struggle in 2008. Consumer spending has weakened recently, and we expect this trend to continue.

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# KAM Business Manufacturing Confidence Survey

*Kylie Goggins*

*The Kentucky Manufacturing Business Confidence Survey is produced each year through the joint efforts of the Kentucky Association of Manufacturers and the Center for Business and Economic Research. The survey asks businesses to report on their actual performance over the past year and to make predictions for the next year in areas such as employment, sales, profits, capital expenditures and industry production. Among other finding, the 2007 survey reveals a slow down in growth compared to previous years. This is consistent with last year's prediction that business performance was unlikely to show much improvement in 2007. Last year's survey did reflect the highest percentages of businesses reporting an increase in business performance to date. Those high numbers last year likely reflected the stabilization of the growth that began with the economic recovery that started in 2001. This year we see a very different picture as the number of manufacturers that report increases in business performance indicators dropped to a level last seen in mid-2003. This drop is likely due to problems affecting the overall growth of the state and national economy such as the tightening of the credit market, rising energy prices and a fall in consumer confidence. Since the number of manufacturers that expect a growth in performance has significantly declined, we do not expect conditions to improve next year. We do, however, expect conditions to stabilize as manufacturers adjust to the new business environment.*

## **Introduction**

The current report represents a five-year partnership between the Kentucky Association of Manufacturers (KAM - formerly, Associated Industries of Kentucky) and the University of Kentucky's Center for Business and Economic Research (CBER). Its findings represent data compiled from the 2007 KAM Business Manufacturing Confidence Survey in addition to supplemental data from earlier reports. The survey was administered in November of 2007 to 1,800 Kentucky-based manufacturing establishments - as defined by Dun and Bradstreet - with at least 15 full-time employees. While it is important to define the qualities of the sample of firms surveyed, it is also important to acknowledge that it is only the respondents to the survey that generate the findings within this report, and these respondents are a subset of the manufacturing industry in Kentucky.

The establishments included in the survey employ 231,736 workers, or 91 percent of the manufacturing workforce in Kentucky. The mean and median sizes of establishments in 2007 were 129

and 50 employees, respectively, and the largest firm surveyed had over 6,000 employees. The substantial difference in the mean and median implies there are a few large firms interspersed among the majority of small establishments across the state - thus, the typical firm surveyed has about 50 employees. Additionally, these establishments generated over \$104 billion in annual sales in 2006. The surveyed sample of firms was constructed using the Selectory® database compiled by Dun and Bradstreet.

Three hundred and seventeen firms responded to this year's survey, a response rate of approximately 18 percent. (Twenty-five percent of the 317 respondents are members of KAM.) Respondent mean and median employment counts were 109 and 40 FTE, respectively, and the largest firm reported 5,000 employees. With the typical respondent firm employing 40 workers, these firms are, on average, smaller than the typical manufacturing establishment in the state. Respondents account for 34,444 workers, and their combined annual sales in 2006 were over \$7.5 billion; it is from these firms that findings and outlooks in this report are based.

**Figure 1: Business Location by Area Development District**



Figure 1 shows the locations, by Area Development District (ADD), of the Kentucky manufacturing establishments surveyed. As one might expect, the manufacturing establishments are located in more densely populated areas; the most notable concentration of these firms occurs in the “urban triangle” of Lexington, Louisville and the Cincinnati Metropolitan Statistical Area. These areas are represented by the KIPDA, Northern Kentucky and Bluegrass ADDs in Figure 1. Establishments are also primarily located near I-64, I-71 and I-75, but a number of establishments also are located along I-24, I-65, Bluegrass Parkway and Western Kentucky Parkway.

The survey asked manufacturing establishments to report on their performance over the past 12 months and their expected performance over the next 12 months in a number of areas that are meant to capture their economic activity. This report concentrates primarily on firm responses regarding employment, sales, and, to a lesser extent, profits, capital expenditures and industry production. For each economic measure, firms responded by indicating whether they experienced either a/an “decrease,” “no change,” or “increase.” Likewise, the respondents chose from the same three options to express their expectations for their firms’ performance over the next year.

The next section provides a general discussion about the economic environment of Kentucky’s

manufacturing sector in 2007. The report continues by examining the recent downward trend in economic factors affecting the industry. The section to follow further details firm performance in 2007 and compares this to information about firms’ 2006 performance. Subsequent are sections discussing firm expectations for performance in 2008 and the potential for expectation bias in the survey results. We conclude with a brief summary of the economic trends of Kentucky’s manufacturing industry and commentary on likely influential factors affecting the sector’s current performance and future prospects.

### 2007 Statewide Performance

Like the 2006 survey, a plurality of manufacturing establishments in 2007 report increases in their sales, employment and profits. Unlike the previous survey, however, less than 50 percent of firms in 2007 report increases in all three of these measures. A closer look at firm performance is provided over the next two sections, but without question the past 12 months reveal an overall downward trend in the manufacturing industry in Kentucky. This is true whether one looks at sales, profits or employment. Table 1 reports the performance of each business indicator during 2007 for the Kentucky manufacturing sector.

For comparison purposes, it is useful to examine the performance of manufacturing firms in the previous year as well. Again, as we will show below,

**Table 1: Firm Performance in 2007**

	No		
	Decrease	Change	Increase
Employment	31.7%	29.1%	39.2%
Sales	35.3%	15.0%	49.7%
Profits	39.9%	19.5%	40.9%
Capital Expenditures	16.9%	40.0%	43.1%
Industry Production	40.4%	23.7%	35.9%

from 2006 to 2007, fewer firms saw growth and more firms saw decline in employment, sales and profits – reflecting a decline in the manufacturing sector of Kentucky’s economy.

Figures 2 and 3 illustrate the sales and employment profiles of Kentucky’s manufacturing sector in 2007 by Area Development District using a diffusion index. The diffusion index allows one to compare changes where “no change” is one of the possible responses. Essentially, all the diffusion index does is allocate equal proportions of the firms that indicate “no change” responses across the remaining firms which indicate “decrease” or “increase” responses. Specifically, the index is calculated by adding half the number of “no change” respondents to the “increase” respondents. This sum is then divided by the total the number of respondents – resulting in a ratio between zero and one. The ratio is multiplied by 100 to generate the index values. Index values below 50 suggest deterioration in sales

or employment over the period; while values greater than 50 imply average improvement in sales or employment (an index value equal to 50 implies neither growth nor decline on net).

*Sales*

Figure 2 shows the distribution of sales values for 2007 across the Area Development Districts. Twelve out of the 15 ADDs (one more than last year) show index values in excess of 50 points, indicating that the typical establishment experienced an increase in sales. However, last year five ADDs had index values great than 75, while only two ADDs report sales performance index values above 75 in 2007. Thus, while the index represents an increase in overall sales for the state, the percentage increase is smaller than last year.

With index values in the highest quarter, establishments in the Buffalo Trace and Kentucky River ADDs experienced the strongest growth in sales in 2007. Big Sandy was in the lowest quarter, with establishments the lowest sales performance index values. Since Buffalo Trace, Kentucky River and Big Sandy are among the districts with the lowest manufacturing firm density in the state, it is possible that their strong growth (or in the case of Big Sandy, the strong decline) is being driven by just a few firms. In contrast, in districts with larger concentrations of manufacturing firms, such as the ADDs in Central

**Figure 2: Sales Performance by Area Development District**



Figure 3: Employment Index by Area Development District



and Western Kentucky, the value of the diffusion index more likely reflects the average trend of the typical manufacturing establishment in the region.

*Employment*

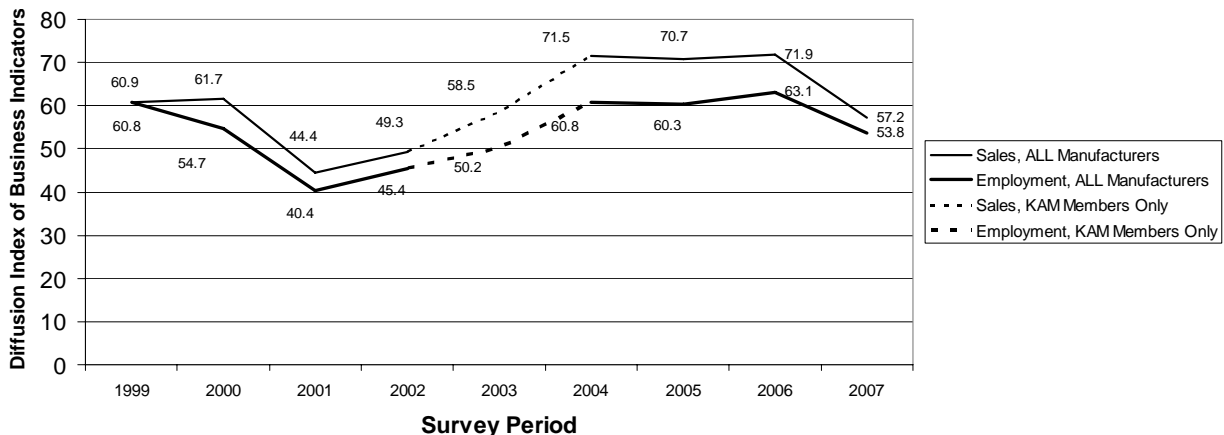
Figure 3 depicts the distribution of employment index values for 2007 across the Area Development Districts. Eight of the 15 ADDs had a net increase in employment, versus the 12 that increased sales. The ADDs that reported an increase in sales but a decrease in employment are Pennyrile, Bluegrass, Cumberland Valley and Gateway. Seven ADDs experienced a decrease in employment, which is

almost the same number that experienced an increase. These findings are consistent with state and national statistics showing a decline in manufacturing employment.

**Historical Data**

Figure 4 shows the performance of Kentucky manufacturers for the past nine years using the diffusion index. Note, the survey samples for the years 1999 to 2002 and 2005 to 2006 include both KAM and non-KAM members. However, the samples surveyed from 2003 to 2004 include only KAM members.

Figure 4: Manufacturing Sector Performance in Selected Indicators



## KAM Business Manufacturing Confidence Survey

Indicators for 2007 are at their lowest levels since mid-2003. While the number of establishments reporting sales growth continues to exceed the number of establishments reporting employment growth, the measures are converging. Both measures of growth fell short of the growth rates recorded for 2006, a year in which performance continued a slightly upward trend. Indeed, the 2006 survey had the highest indices for sales and employment in the history of the survey. Past reports of growth and relative optimism were consistent with the overall growth of the national economy. However, while 2006's survey values were record highs, they were not significantly higher than the two prior years. This is consistent with the leveling out of the relatively rapid growth of the U.S. economy. The 2006 business confidence survey implied firms believed overall conditions were unlikely to improve in 2007 and, in fact, in 2007, the sales index dropped by 14.3 points and the employment index dropped by 9.3 points. This year's decline in employment and sales is also consistent with a more uncertain economy due to issues such as a tightening of the credit market, rising energy prices and falling consumer confidence.

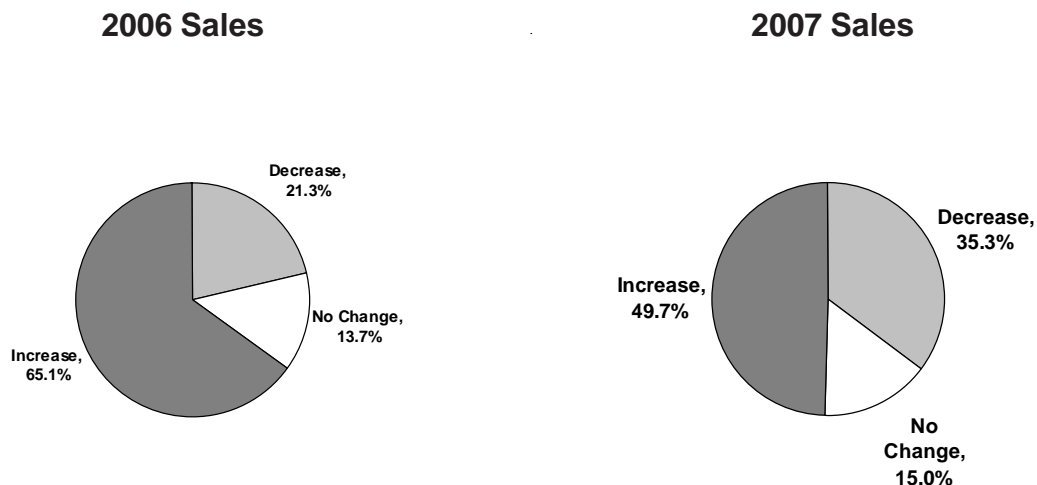
### 2007 Conditions

This section provides greater detail on firm performance in 2007 as well as compares 2007 findings with the findings for the 2006 survey. Just

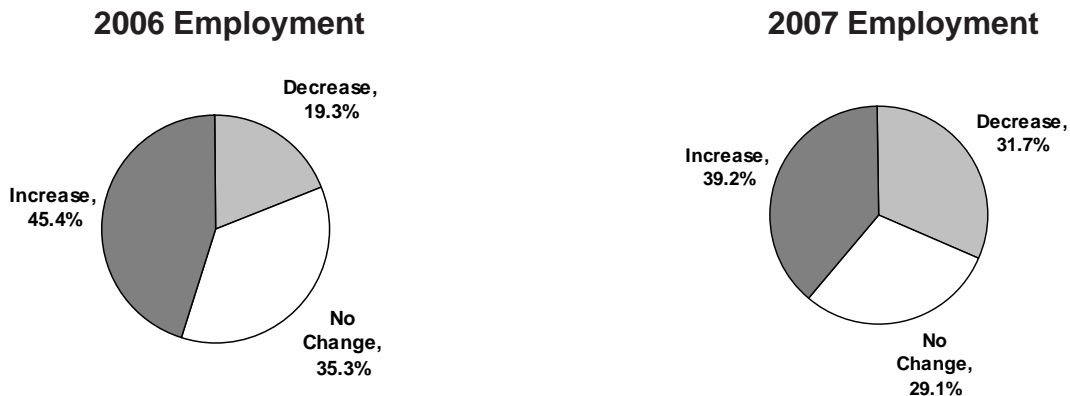
as in the previous year, in 2007 the economic measure to increase for the highest percentage of firms was sales. Figure 5 illustrates the percentages of firm in 2006 and 2007 that increased, did not change or decreased their sales. In 2007, 49.7 percent of firms report increased sales, 15 percent of firms report no change in sales, and 35.3 percent of firms report decreased sales. In 2006, 65.1 percent of firms reported increased sales, 13.7 percent of firms reported no change in sales, and 21.3 percent reported decreased sales. The proportion of firms that increased sales fell by 15.4 percentage points. Much of the reduction in firms that increased sales across the two years appears to have been absorbed by the increase in firms whose sales declined: the proportion of firms that report a decrease in sales rose by 14 percentage points. This leaves the percentage of firms with no change in sales performance nearly unchanged (13.7 percent in 2006, 15.0 percent in 2007). An increase in the number of firms reporting a decrease in sales is particularly notable since the values reported by firms most likely reflect nominal dollars not adjusted for inflation – thus, we expect to see sales increase for all firms. That less than 50 percent of firms report an increase in sales is especially concerning.

Over the past year, 40.9 percent of firms report increased profits, 19.5 percent of firms report no change in profits, and 39.9 percent of firms report a

**Figure 5: Kentucky Manufacturing Firm Sales Performance in 2006 and 2007**



**Figure 6: Kentucky Manufacturing Firm Employment in 2006 and 2007**



fall in profits. In 2006, 57.4 percent of firms reported increased profits, 17.2 percent of firms reported no change in profits, and 25.4 percent of firms reported a fall in profits. Thus, from 2006 to 2007, the proportion of firms reporting an increase in profits fell by 16.5 percentage points; and the proportion of firms reporting a fall in profits increased by 14.5 percentage points. Sales and profits are generally considered lagging indicators, as they are largely dependent on past production orders. The decline in these measures over this time period reflects slowing in the manufacturing sector over the past year.

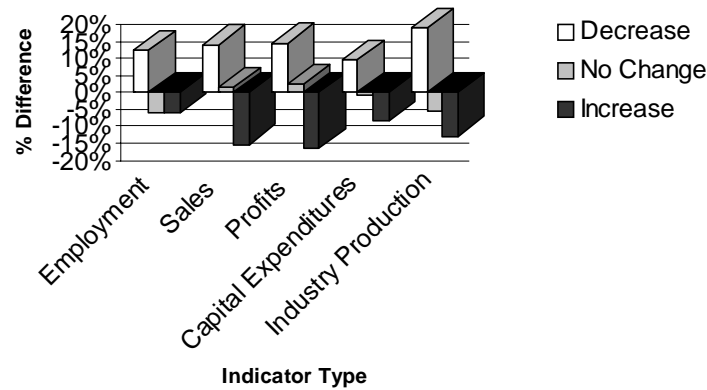
Employment and capital expenditures represent future investments and, therefore, have more predictive power regarding economic activity at the firm level. Figure 6 illustrates the percentages of firms in 2006 and 2007 that increased, did not change, or decreased their employment. In 2007, 39.2 percent of firms increased employment, 29.1 percent of firms did not change employment, and 31.7 percent of firms decreased employment. In 2006, 45.4 percent of firms increased employment, 35.3 percent of firms did not change employment, and 19.3 percent of firms decreased employment. Thus, from 2006 to 2007, the proportion of firms that increased employment fell by 6.2 percentage points; and the proportion of firms that decreased employment rose by 12.4 percentage points. The proportion of firms that did not change their employment fell 6.2 percentage points. Additionally, in 2007, 43.1 percent of firms increased capital expenditures – a reduction of 8.5 percentage points from the 2006 proportion of 51.6 percent.

As discussed above, the combined categories of “decrease” and “no change” for 2007 employment reveals over 60 percent of firms did not increase employment in the past 12 months. The same approach applied to capital expenditures reveals that nearly 60 percent of firms did not increase their capital expenditures in the past year. Additionally, 40.4 percent of respondent firms report a decrease in industry production.

Figure 7 compares current conditions with firm performance reported in the 2006 survey. From 2006 to 2007, smaller percentages of firms increased their employment, sales, profits, capital expenditures or industry production. These declines were substantial – ranging from drops of 6.2 to 16.5 percentage points. Additionally, from 2006 to 2007, larger percentages of firms reported a fall in employment, sales, profits, capital expenditures or industry production. Also important is an increase in the percent of manufacturers that reported a fall in every measure – these struggling manufacturers made up 14.5 percent of firms in 2007, nearly twice the proportion in 2006 (7.5 percent).

When viewing these findings, it is important to keep in mind they primarily reflect the experience of the typical respondent – a firm with around 40 employees. These establishments may have experienced much different changes than manufacturing establishments with over 1,000 employees, who produce the bulk of manufacturing output in the state and employ the majority of workers. However, the shifts in the measures detailed here – in both their direction and magnitude

Figure 7: Comparison of Firm Performance in 2006 and 2007



– likely reflect a downward trend in the manufacturing sector relative to last year and are consistent with the decline in manufacturing employment in Kentucky over the past year.

### Firm Expectations for 2008

In this section we examine the firms’ responses regarding their expectations for 2008. In previous surveys, the majority of businesses have been optimistic about their performance in the coming year. In the 2007 survey we find the level of optimism has decreased from last year – likely reflecting the relative decline in performance over the past year. In 2006, a majority of firms expected to increase their sales, profits, capital expenditures and industry production. In 2007, however, the typical manufacturing establishment expects to only see growth in sales in 2008. Moreover, the proportions of firms expecting to increase sales and profits in 2008 make up only slight majorities: 55.3 percent and 51.2 percent, respectively, indicating nearly as many manufacturers expect either no change or declines in these two measures in the coming year. The firms’ expectations for the performance of all of the economic indicators are provided in Table 2.

Optimism about industry production dropped from 2006 to 2007. For the current survey expectations for increasing industry output dropped 12.7 percentage points; 37.9 percent of firms in 2007 believe that output will increase in the coming year, whereas in 2006, 50.6 percent of firms expected growth in industry output in 2007. Firms expecting a reduction in industry output rose 8.2 percentage points from 15.6 percent in 2006, to 23.8 percent this year. Over the past several years, expectations were

high, and larger fractions of firms anticipated increases in the various economic measures; this year

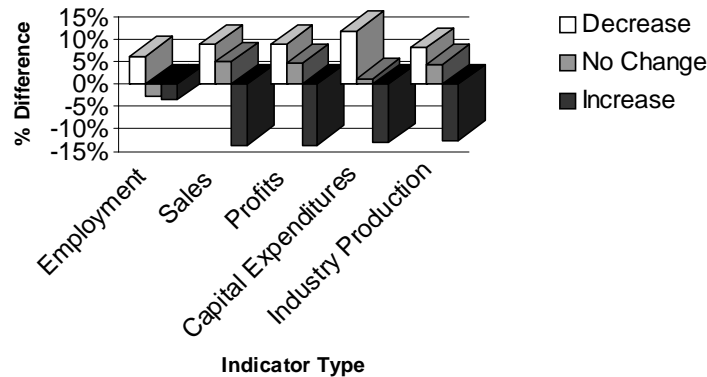
Table 2: Firm Expectations for 2008

	Decrease	No Change	Increase
<b>Employment</b>	14.5%	45.0%	40.5%
<b>Sales</b>	16.7%	28.0%	55.3%
<b>Profits</b>	16.2%	32.6%	51.2%
<b>Capital Expenditures</b>	18.7%	44.9%	36.4%
<b>Industry Production</b>	23.8%	38.3%	37.9%

the majority of firms report that in 2008, they do not expect changes in employment, capital expenditures or industry output.

Figure 8 presents firm expectations for the coming year – specifically the figure illustrates changes in the expectations of firms in 2006 and the expectations of firms in 2007. All of the indicators show a decline. This year the percentages of firms expecting to increase employment, sales, profits, capital expenditures and industry production fell from last year’s predicted values. For employment, this reduction was 3.5 percentage points; for sales, 13.8 percentage points; for profits, 13.6 percentage points; for capital expenditures, 13.2 percentage points; and for industry output, 12.7 percentage points. Also in 2007, the percentages of firms expecting to decrease employment, sales, profits, capital expenditures and industry production rose from last year’s expectations. For employment, this increase was 6.3 percentage points; for sales as well as profits, 8.9 percentage points; for capital expenditures, 12 percentage points; and for industry output, 8.2

Figure 8: Comparison of Firm Expectations in 2006 and 2007



percentage points. Both types of expected behavior are indicative of firms becoming more pessimistic about the performance of the firm in the future.

Accounting for Expectation Bias

In the past, many firms have indicated they expect an increase in nearly every economic measure. Looking across the years of data, if the expectations regarding a given year are compared to what actually occurred in that year, one can see a consistently significant difference between expectations and reality. This year in particular, performance appears

expectation and reality for each economic indicator in both sets of paired years. Averaging the two difference values for every indicator yields the average error in expectation for this period.

Table 3 shows how expectations differed from the true performance for each indicator. Sales and profits were the indicators most prone to upward bias – in part because the percentage of firms expecting to increase at least one of these areas overshot the number of firms that actually did experience an increase within of the same 12-month time period. The expected performance overstated the true increase in sales by 10.9 percentage points, and profits by 15 percentage points. Exacerbating the bias on these two economic indicators is the fact that sales and profits were too conservative at the other end of the spectrum – a smaller percentage of firms anticipated decreasing profits and/or sales than actually experienced a decline in sales or profits. Expected performance understated the true decline in sales by 20.3 percentage points, and profits by 23.3 percentage points.

Table 3: Average Expectation Error (or Bias)

	No		
	Decrease	Change	Increase
Employment	-17.4%	13.9%	3.4%
Sales	-20.3%	9.3%	10.9%
Profits	-23.3%	8.2%	15.0%
Capital Expenditures	-4.2%	3.5%	0.7%
Industry Production	-17.8%	9.8%	8.0%

to have been below the expectations of manufacturers, implying a potential upward bias in expectations. This bias can be roughly approximated by comparing reported business conditions from a given period with the expectations for that period reported in a previous survey. We estimate the expectation bias using data from the survey years 2005 through 2007. To do this, we make use of the performance values obtained by the 2006 and 2007 surveys, and the expectation values from the 2005 and 2006 surveys. Appropriate economic indicators are matched across years, and we calculate the difference between

Expectations for employment, capital expenditures and industry production tended to be more conservative.

By subtracting the error terms presented in Table 3 from the expectations of firms in 2007 (shown in Table 2), we essentially try to “correct” for the expectation bias. These corrected values should provide a more realistic estimate of the economic activity in Kentucky’s manufacturing industry in 2008. The changes in 2008’s expected performance are depicted in Table 4 for each economic indicator. These values are extremely close to those of Table 1,



**Table 4: Corrected (for Bias)  
Expectations for 2008**

	No		
	Decrease	Change	Increase
<b>Employment</b>	31.9%	31.1%	37.1%
<b>Sales</b>	37.0%	18.7%	44.4%
<b>Profits</b>	39.5%	24.4%	36.2%
<b>Capital Expenditures</b>	22.9%	41.4%	35.7%
<b>Industry Production</b>	41.6%	28.5%	29.9%

which depicts the firms’ performance in 2007. These conservative expectations of change in the coming year indicate that the adjusted expectations for 2008 closely match firm’s actual performance in 2007 . There is a general expectation of declining or stagnant employment growth during 2008. Also there is a decline in the percentages of firms expecting to increase employment, sales, profits, capital expenditures and industry production in the coming year; and there is the expectation for more firms to see no changes in these economic indicators in 2008.

**Conclusions**

The results of the 2007 Kentucky Association of Manufacturers Business Confidence Survey imply that the manufacturing sector is experiencing a decline compared to previous years. Last year’s report indicated that conditions were unlikely to improve in 2007, and this report has largely substantiated that prediction. Since last year’s report had the highest index numbers in sales and employment in the history of the survey, this year’s

downturn – at least as experienced by survey respondents – appears even more pronounced. A variety of factors likely influenced this outcome. Last year’s numbers probably still reflected the optimism of the economic growth that started in 2001. Recent trends in the economy, however - such as the tightening credit market, rising energy prices and falling consumer confidence - are likely affecting both manufacturing production and the expectations of manufacturers about future growth. How these trends actually affect the manufacturing sector in the year ahead will likely have a significant impact on the outcome of next year’s survey. trends in the economy, however, such as the problems with housing and mortgage and lending markets, rising energy prices and falling consumer confidence are likely affecting both manufacturing production and the expectations of manufacturers about future growth. How these trends actually affect manufacturing sector in the year ahead will likely have a significant impact on the outcome of next year’s survey.

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