MARSHALL UNIVERSITY
CENTER FOR BUSINESS AND ECONOMIC RESEARCH

Regional Economic Review

www.marshall.edu/cber Winter 2005

IN THIS ISSUE

CBER

One John Marshall Drive
Huntington, WV 25755
Tel: 304/696-2313
Fax: 304/696-6661
Email: cber@marshall.edu

Starting with our Fall 2005 edition, the Regional Economic Review will be produced solely in electronic form. This conversion will allow us greater flexibility in delivery options to our readers and reduce limitations on article size and graphical content. We hope that you, our readers, benefit from these changes as much as we believe the Center will. As always, please feel free to contact us with comments or questions.

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In This Issue

The Contribution of a University Business and Economic Research Center to State Economic Development

Calvin A. Kent

Overview

Universities are major drivers in the economic development of a region. This impact takes many forms:

- By providing higher education options, the quality of the labor force is made more attractive for new and existing business.
- By increasing the level of educational attainment for the population, incomes are raised, living standards improved and the tax base expanded.
- By attracting outside funding from grants and contracts, there are direct and induced increases in regional income as this outside money circulates.
- By having a medical school and its related health care services, the quality of life for residents is enhanced and income for the region is generated.
- By establishing a program in science and engineering along with a technology transfer office, ideas become realities, realities become products, products become the nucleus for high tech firms, and high tech firms generate high paying jobs.
- By creating a center for the fine arts, the enjoyment of the population is increased and the attractiveness for new and existing enterprises expanded.
- By developing a competitive intercollegiate athletic program, a major industry is created and entertainment dollars are attracted, spent and circulate, in the region.
- By having a faculty with the mission of service to the community, a cadre of expertise is available to support both economic development and worthy social causes.
- By bringing students from outside the region to campus, the level of spending is increased and regional business supported.

How does a university economic and business research center, such as the Center for Business and Economic Research at Marshall, add to the dynamics of economic growth in a region? Again, there are several ways:

- By providing research based studies on pending and potential legislation, it provides necessary and reliable analysis for public policy decision makers.
- By performing economic impact studies, it shows how a firm, government project or educational activity enhances economic growth in definitive dollar and cents terms.
- By evaluating the capabilities of specific areas to support various new or expanding endeavors, it can determine what infrastructure, both human and physical, is needed to create a more hospitable environment for economic growth.
- By analyzing labor markets and educational systems, it can provide recommendations as to how the quality of each can be upgraded.
- By publication of the results of its inquiries, it increases public awareness of the importance of private investment and supportive public policy to creating new jobs and income.
- By involving students in its work, it creates future employees who are capable of performing this type of analysis for their private or public employers.

"The Economic Impact of Early Child Development Programs in West Virginia *focused on the economic development benefits of providing quality education for children prior to their entry into kindergarten."*

What follows is a discussion of how Marshall's Center for Business and Economic Research (CBER) performs the roles described above, thereby significantly increasing the environment for entrepreneurial activity and economic growth.

Mission

CBER was established in 1993 to fill a void in the understanding of what was needed to stimulate economic development in West Virginia, with a specific emphasis on the area south of I-64. Its mission was clear: to become an active partner with those public and private organizations seeking to raise the quality of life by economic development in the region. CBER sought to mobilize the resources of the university and focus them on the important question of how to raise the level of State income and create a competitive environment conducive to economic growth.

Specific Projects

How CBER has accomplished its mission is reflected in the numerous reports and analyses which it has provided to decision makers both public and private. A few of these are highlighted below. Copies of all CBER work can be downloaded at http://www.marshall.edu/cber/ .

Energy:

In a series of investigations CBER has evaluated many aspects of West Virginia's coal industry. Beginning in 2001 with *Coal Production Forecasts and Economic Impact Simulation for Southern West Virginia* CBER isolated the importance and contribution of coal to the most economically distressed portion of the State. The 2002 *Mountain State Clean Water Trust Fund* study proposed a better way to deal with the environmental effects of coal; CBER seeks to promote an expanded role for coal while minimizing its environmental effects. In 2004 CBER prepared for the Legislature an analysis, *The Goodwin Decision's Impacts on Coal Production and Economic Outcomes: A Preliminary Discussion,* of what would happen to the State's economy if the Goodwin decision limiting permits for surface mining was fully implemented.

This year three major studies have been undertaken. The report *Regional Markets for FutureGen Products* provided a detailed analysis of locating the proposed Integrated Gasification Combined Cycle electrical power plant in Mason County. What is unique about FutureGen is that it would not only gasify coal to produce electricity but would also sequester the carbon produced from that coal in underground geological structures. The purpose of this study is to help attract this $1 billion project to West Virginia.

As of this writing two additional studies are under production. The first concerns changes in the way the Special Reclamation Fund, responsible for environmental costs of forfeited coal mines, can be financed in the most cost effective manner. The results of this study will have long lasting and financially important implications for the coal industry. The second concerns the location of a plant in Mingo County which would convert coal into diesel fuel, creating major investments and significant job opportunities for the State.

C-130s like this one were kept flying at the 130th Airlift Wing in Charleston, due in part to CBER's economic impact analysis.

(photo: West Virginia Air National Guard)

Public Finance:

In 1999 Governor Underwood requested for CBER to do the analysis for his "Fair Tax" commission. The *Report of the Governor's Fair Tax Commission* outlined a comprehensive reform of the entire State tax structure. That program is under active consideration by the legislature. The education finance study has major implications for State finances, particularly property taxes. The initial report has led to a series of related investigations.

For Governor Manchin's "21st Century Commission", the report *Local Government Consolidation: Lessons for West Virginia*, was prepared this year. Here is laid out the benefits and costs of merging local government functions. Legislation to allow for consolidation of local government functions will again be considered in the next legislative session.

When the federal Base Realignment and Closure Commission threatened to move the 130th Airlift Wing from its base in Charleston, CBER was called upon to do the economic impact analysis. This analysis was required by law and showed the significant cost to the area of losing the Wing, and ultimately the report contributed to the Wing successfully remaining in Charleston.

Education:

The role of education at all levels has been a relatively recent area of investigation. Building in 2002 *Individual Returns to Education Investment* demonstrated how improved education performance was a prerequisite for economic development in the State, CBER preformed an in-depth analysis of high school consolidation (*School Consolidation and Educational Performance: An Economic Analysis of West Virginia High Schools).* This year another study, *An Evaluation of Technology*

in West Virginia Schools: Results from a Teacher and Student Survey, demonstrated the need to significantly improve technology in the classroom. A final 2005 study *The Economic Impact of Early Child Development Programs in West Virginia* focused on the economic development benefits of providing quality education for children prior to their entry into kindergarten.

> **"As a business CBER directly contributes to the regions prosperity by creating jobs as outside grant and contract work is secured."**

At the request of the legislature and in partnership with the Bureau of Business and Economic Research at West Virginia University, CBER is preparing a comprehensive study of the State's formula for support of k-12 education. Support of elementary and secondary education is the largest single item in the West Virginia budget. The formula has not experienced major change since its imposition. This study will provide guidance for revision.

A series of reports have been done for the Regional Workforce Investment Boards that document the need for and the type of workforce training which is needed.

Transportation:

The numerous studies done at request of the Rahall Transportation have not been mentioned. Chief among these the *Central Corridor Double Stack Initiative* which laid the foundation for the Mid-America Corridor which connects by rail Ohio to ports in Virginia. This will create new industry and bring hundreds of millions of private and government investment to the state.

Survey Research:

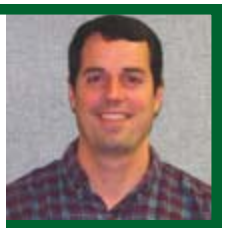
No coverage of the CBER would be complete without mention of its survey division which conducts surveys for business, state and federal entities. These include client satisfaction survey and wage surveys to public opinion polls. CBER's survey division has a well deserved reputation for speed and accuracy.

Conclusion

The work of CBER is a prime example of the contribution this type of University-based economic research center can contribute to the economic development of a state or region. It must be noted that CBER operates like a business and not like a government agency. Of the 12 positions, only three are fully state funded. As a business CBER directly contributes to the regions prosperity by creating jobs as outside grant and contract work is secured.

Marshall University's Center for Business and Economic Research is located at the corner of 3rd Avenue and 20th Street in Huntington, West Virginia in the City National Bank Building

Policy Advice for West Virginia from a Hoosier Economist



Paul Hamilton

As a relative newcomer to West Virginia, perhaps I haven't earned the right yet to op-ed about what the state needs to do to improve the well-being of its citizens. This summer I joined the economic research staff at Marshall University's Center for Business and Economic Research (CBER) as well as serving as an Economics professor in the classroom beginning this fall. I completed my doctorate from Indiana University and had been teaching for a few years at DePauw University, a small, liberal arts college in Greencastle, IN. Furthermore, my profession as an economist doesn't exactly inspire confidence in most people's minds when it comes to accuracy of predictions which are notoriously wrong. For those with that mindset, I merely ask that you read attentively and then do the opposite of my advice.

In this short essay I will lay out in very general terms what direction the state must move towards if it is to create outcomes that really matter to improve the quality of life in West Virginia. All of these ideas have been forwarded long before my time and by numerous voices. Some of these issues have been or are currently being explored by my colleagues at CBER (I must add they may not share my dogmatic economic views). My centralizing theme is that policy actions must move quickly and in many instances be a radical departure from the status quo which either is obviously ineffective or is illusory in its touted success.

Why must the state move quickly? Most of us realize too late in life just how valuable time is as a commodity. While careful scrutiny of policy proposals is a must, so is decisive action when too many West Virginians are living well below their attainable potential. Incremental approaches are appropriate when we are closing in on the ideal policy or when so much uncertainty surrounds an issue that a dramatic move would be unwise. Neither of these environments exist today in WV. We are reminded periodically in the newspapers and everyday with our contact with the people that things are not up to par with most other states. Secondly, research coming out of think-tanks, government, and universities (including Marshall) has built a solid case for the proposals I suggest in this essay.

When the national state rankings report that the economic status of our citizens as perennial basement-dwellers there is a strong impetus for change. This invites the temptation to find a so-called economic silver-bullet: the one policy event that turns our tears into laughter, turns red ink to black ink, and grants prosperity to all who work hard and play by the rules. More often than not these silver-bullets turn out to be blanks. A closely related seduction is to rely on old-school economic tricks: a complex tax code, introducing and expanding gaming opportunities, engaging other states in competition for trophy firms, and investing in the stock market rather than in sound financial stewardship. A major contribution of the work we do at CBER is to provide unbiased, empirical support for policies that will influence the quality of life of the people of West Virginia.

A great example of this type of contribution is the recent CBER study[1] conducted by Drs. Mark Burton and Michael Hicks. This study was successful in demonstrating that businesses and individuals were not greatly disadvantaged by the lack of broad-band access in many of the more remote parts of WV. The investment to bring broad-band to all areas defied the economic logic as market and technological forces will bring those innovations rapidly without multi-million dollar investments by small communities.

Another recent study by CBER touted the dramatic returns to early childhood education. The results suggest that WV must find a way to provide quality pre-K opportunities especially to those identified as high-risk children. The benefits of early childhood education are not surprising to most people. However, this study illustrated how much potential benefits WV could expect (a conservative estimate is over $4 of benefits for every dollar invested in early childhood education). One interesting note in this literature is that this type of investment is dramatically more effective than state-level competition for trophy firms. These types of studies are important ingredients in advancing the state of West Virginia.

My wife and I pulled into Huntington in late June with three young daughters and all our earthly belongings in the largest U-Haul truck they make pulling a trailer with furniture tied to the top (modern-day "Beverly Hillbillies"). We also brought with us a knowledge that this is the place where we were meant to be. I hope that over the next several years I can continue the tradition of sound policy advice that Marshall's Center for Business & Economic Research has become known for across the state.

(Footnotes)

[1] Burton, Mark L. and Michael J. Hicks. *The Residential and Commercial Benefits of Rural Broadbroad: Evidence from Central Appalachia*, June 2005.

Coal: Beyond Power and Steel?

Christine Risch

The enormity of the liquid fuels market and the security of demand for its products make it a market that many desire to capture. Regional efforts to capture a share of the market for liquid fuel have included two coal liquefaction projects that were among the largest undertaken in the U.S. Two pilot plants were built along I-64, one by Union Carbide in 1952 along the Kanawha River, and one by Ashland Inc. in 1980 along the Big Sandy River.

The driver for these projects was crude oil prices - sustained high crude oil prices. These prices provided the potential to substitute coal, in form of synthetic crude or as a chemical feedstock, for crude oil.

In the mid-1940s, Union Carbide undertook a project at its plant in Institute, WV that would be thefirst large coal hydrogenation chemicals plant in the U.S. The company attracted some of the best scientists of the decade and was directed by Ray Crist who had just completed work on the Manhattan Project.

Through 1948 the freight on-board price for U.S. oil was lower than for oil produced in the Persian Gulf. About the same time, several Middle Eastern oil fields were discovered, including the largest producing field in the world, the Ghawar field in Saudi Arabia. (Ghawar produced 4.5 million barrels of oil per day in 2004.) By 1949, Middle East crude began selling at prices lower than U.S. produced crude. From this point forward, world oil prices would no longer be tied to Texas prices. Middle East production began to grow and soon exceeded that of the U.S.

As of 2004 West Virginia has the largest recoverable coal reserves east of the Mississippi, 1,518 million short tons.

(Source: Energy Information Administration)

Union Carbide's coal hydrogenation plant opened in 1952. Hydrogenation is a process whereby coal is liquefied under high pressure and temperature using a hydrogen-rich gas as a catalyst. The pilot plant operated for 12 years, and produced feedstocks for Carbide's aliphatic chemicals business, processing up to 300 tons of coal a day. As the price of oil fell, the viability of the project faltered resulting in its cancellation. Synthetic fuels and feedstocks could not compete with crude oil from Middle East.

Significant increases in global capacity and production, driven by the Middle East producers, caused world oil prices to decline from the 1950s through the 1960s. In the 1970s the world saw a change in energy markets. Prices rose throughout that decade, peaking during the attempted oil embargo in 1974 and then again in 1981. The 1974 peak was due largely to taxation policies instituted by OPEC producing countries and accepted by the United States. The 1981 peak, at $65/bbl in 2005 dollars, followed production cuts made by the Oil Producing and Exporting (OPEC) countries in 1979.

In 1980, motivated by the price rises of the preceding decade, the Catlettsburg H-Coal liquefaction facility, the largest ever built in the U.S., began operating in Catlettsburg, KY. The project was a public-private partnership funded by the U.S. Department of Energy, Ashland, Inc., the State of Kentucky and United Technologies Corporation. The H-Coal plant was designed to process 800 tons of coal per day to produce 1,820 barrels of low sulfur fuel oil and 705 barrels per day of synthetic crude.

At the time, the price of synthetic crude was estimated to be $60/bbl. Again, the low price of oil caused the cancellation of the project, as crude prices declined steadily throughout most of the 1980s, to $20 a barrel in nominal dollars.

Now we are again faced with real petroleum prices, and thus gasoline prices, that are near the 1981 peak price per barrel. Today's high prices are not an indicator of a physical shortage of oil, but driven by speculation of a shortage and ultimately the future equilibrium price of oil. While there will not be a near-term physical shortage of oil, there may be a shortage at prices seen in the 1990s, when the real price of oil averaged about $20 a barrel. (It should be noted that the prices of the 1990s were lower than those seen during the attempted oil embargo of 1974, but higher than what was seen in the 1950s and 1960s.)

There are several uncertainties surrounding this speculation. Will production capability decline in the near future? How long will the existing fields be able to continue producing at current rates? How many more fields will be discovered? How much will the more marginal fields produce and how much will it cost?

The Energy Information Administration's (EIA) Annual Energy Outlook forecasts world petroleum prices to fall back to about $43 per barrel and remain on average below $48 per barrel through 2030. This event would be a decline from the $45 to $65 per barrel that was seen in much of 2005, and a higher average real price than what the world has experienced throughout most of its oil-consuming history. Because the EIA models coal based liquid fuel as being economically viable when oil is in the $41-$45 range, some coal-based transportation fuel is projected to come on-line beginning in 2011. That fuel could be made in West Virginia.

So What Does Nebraska Have To Do With West Virginia Anyway?

Mark Burton

A recent article in *Inbound Logistics* described the important contribution that transportation infrastructure has made to more general economic development within the state of Nebraska.* The article also carefully noted the other factors that have helped the Cornhusker State attain striking levels of prosperity. These include a highly educated pool of available workers, business-friendly business taxes and workers compensation fees, cheaply-priced electricity, and the state's central location. As West Virginia looks to its future, it may well consider Nebraska as an example of both effective policy and desirable policy outcomes.

The Nebraska State Capital Building in Lincoln, Nebraska.

Sounds preposterous, doesn't it? But it's not. First of all, Nebraska and West Virginia are more alike than we might think. The economies of both states are largely defined within two urban centers roughly an hour apart from each other.** Outside of these urban centers, both states have very low population densities that make it both expensive and difficult to provide public health care, education, and communication services. In fact, while both states have nearly almost identical populations (1.8 million for West Virginia and 1.7 million for Nebraska), Nebraska is three times bigger, so that its state-wide population density is three times smaller. While it's true that West Virginia's economic development is made more difficult by its rugged terrain, Nebraska must struggle with vast distances over sparsely populated land.

There's one final similarity. Like most areas of West Virginia, most areas of Nebraska has historically had an economy that has not been linked to manufacturing. Nebraska's history lies in agriculture – cows and corn. West Virginia's history lies in resource extraction – coal and timber.

When we turn to a comparison of economic conditions, however, the similarities between Nebraska and West Virginia end abruptly. Average annual per-household income in Nebraska ($39,000) is roughly one-third higher than the West Virginia value of ($29,000) even though household sizes are nearly identical.[1] The percentage of Nebraskans living below the federal poverty threshold (9 percent) is roughly half of a similar calculation for West Virginia (18 percent). The median value of single family homes in Nebraska ($88,000) is nearly 20 percent higher than the median value in West Virginia ($73,000). Finally, not only is Nebraska's population growing, the percentage of that population that is under age 18 (26 percent) is much higher than the value for West Virginia (22 percent). Indeed, Nebraska seems to be thriving in the "new economy", while West Virginia continues to struggle.

What has Nebraska done right, what has West Virginia failed to do, and is the State taking the proper actions to fix the problem?

To answer these questions, let's return to the *Inbound Logistics* story mentioned above. The story is focused on the value of transportation infrastructure as a development tool, so

let's start there. Nebraska has good Interstate highways, and so does West Virginia. Nebraska has two freight railroads with solid infrastructures, and so does West Virginia. Nebraska has one mechanized intermodal facility. West Virginia will have one soon. Nebraska has very modest access to commercial navigation on the Missouri River, but nothing as substantial as West Virginia's access via the Ohio. I don't see a lot of differences here. Similarly, West Virginia faces no disadvantage when it comes to commercial and industrial electricity prices. Moreover, the proximity of affordable fuel (coal) is likely to sustain this outcome for the foreseeable future.

The notion that, somehow, Nebraska is favored by its central location seems more than a little silly. It is, in fact, centrally located – a long way from anywhere. Using Omaha and Huntington for comparison purposes, the former is within 500 miles of six major metro areas, while the latter is within the same 500 mile distance of 14 major population centers – advantage West Virginia.[2]

The *Inbound Logistics* story quickly turns to education. In Nebraska, 91 percent of residents age 25 and older are high school graduates. The national average is 80 percent and the corresponding West Virginia value is 75 percent. To the extent that more educated workers are more productive, the difference in educational attainment between Nebraska and West Virginia may go a long way toward explaining the differences in economic outcomes.

The West Virginia State Capital Building in Charleston, West Virginia.

Even the best educated workers must also have good tools in order to be productive. This means that firms must have the ability and incentive to invest in facilities and equipment. The ability and incentive to invest, in turn, is often impacted by the both the form and magnitude of business taxes. A full evaluation of Nebraska's system of business taxes is certainly beyond the scope of my current musings. However, the *Tax Foundation* produces annual state rankings wherein higher rank denotes more onerous business taxes. The 2004 rankings place Nebraska at No. 35 – sort of mid-range, while West Virginia ranks No. 47, very near the bottom.[3] West Virginia is also certain to win no awards for the magnitude of workers' compensation fees.

There is, however, reason for hope. First, as noted above, West Virginia is very much "in the game" in terms of transportation and other public infrastructure. This strength will be made even greater by the development of the *Heartland Corridor*, recently approved for funding by the federal government. Moreover, to the extent that affordable electricity is important to future developments, West Virginia is also well-situated.

The State's deficits in terms of educational outcomes will take time to remedy, but there seems to be a general recognition that the problems exist and that they are of paramount importance to long-run economic develop. West Virginia's First Lady Gayle Manchin's very public interest in early childhood education and its link to economic prosperity is particularly heartening.

Finally, the Governor's Commission on Fair Taxation, formed by Governor Underwood, clearly identified the problems that exist in the State's system of business taxes and developed a comprehensive set of reforms that would have remedied most of these ills while leaving overall revenue collections unchanged. Those proposals were never moved into the legislative process. However, West Virginia's current Governor has expressed an interest in reviving the reform process and, if his leadership in the area of Workers' Compensation is an indicator, Governor Joe Manchin's administration may have what it takes to usher in comprehensive business tax reforms.

A dear friend, upon her return from the Great Plains, once said, "All my life, I've heard prosperity depends on flat land and good roads, but that just isn't true." Much of America is rural and many of the states with rural populations (and the associated low population densities) face the same struggles. As Nebraska has demonstrated, however, these challenges can be overcome.

(Footnotes)

* See, "Nebraska: America's Emerging Logistics Center," Outbound Logistics, March 2005, pp. 64-83.

** The similarities really are remarkable. Just like Charleston and Huntington, Lincoln and Omaha have fought for decades over the creation of a regional airport that would serve both cities.

[1] Unless otherwise noted, all data are drawn from the 2000 Decennial Census.

[2] Omaha: Kansas City, St Louis, Tulsa, Oklahoma City, Minneapolis, and Chicago. Huntington: Nashville, Atlanta, Charlotte, Washington, DC, Baltimore, Richmond, Pittsburgh, Cleveland, Cincinnati, Detroit, Chicago, St Louis, Louisville, and Indianapolis.

[3] For a full description of the Tax Foundation and its business tax climate index, visit http://www.taxfoundation.org

Does Wal-Mart Cause an Increase in Medicaid Expenditures?

Mike Hicks

Introduction

As the largest private sector employer in the United States, Wal-Mart experiences considerable scrutiny over its influence on a number of regional fiscal and economic issues. These include its impact on the local retail market structure, land use patterns, local fiscal conditions and general business practices.

Criticism of Wal-Mart's business practices include, but are not limited to its anti-unionization efforts, sale of imported goods, wage and compensation structure and the use of Federal and state anti-poverty transfers by its employees. The use of Medicaid by Wal-Mart employees is the biggest criticism in this arena.

West Virginia has been hit especially hard with regard to Medicaid expenditures, both with recession related increases over the past business cycle and seemingly profligate changes in eligibility expansion which occurred under the Wise Administration. See Figure 1.

Of concern to West Virginia policymakers and citizens is the role low wage employers (such as Wal-Mart) and the structure of Medicaid will have on the states economy in the coming years. To better understand this in the context of West Virginia, this study outlines national issues regarding Wal-Mart. Included in this analysis are much West Virginia specific analysis, both of Wal-Mart (an article by Hicks and Wilburn cited in this paper first appeared in an earlier **Regional Economic Review** and a Marshall University Working Paper) and by state estimates of Wal-Mart and Medicaid expenditures in the state.

In this paper I evaluate the concerns regarding the role of Wal-Mart in changing expenditures on Medicaid. I begin with a review of the research literature on Wal-Mart's impact on commercial and fiscal conditions throughout the country, provide a description of the Medicaid program, and describe the estimated impact of Wal-Mart on Medicaid citing results and analysis from a technical paper, and several existing studies of Wal-Mart.

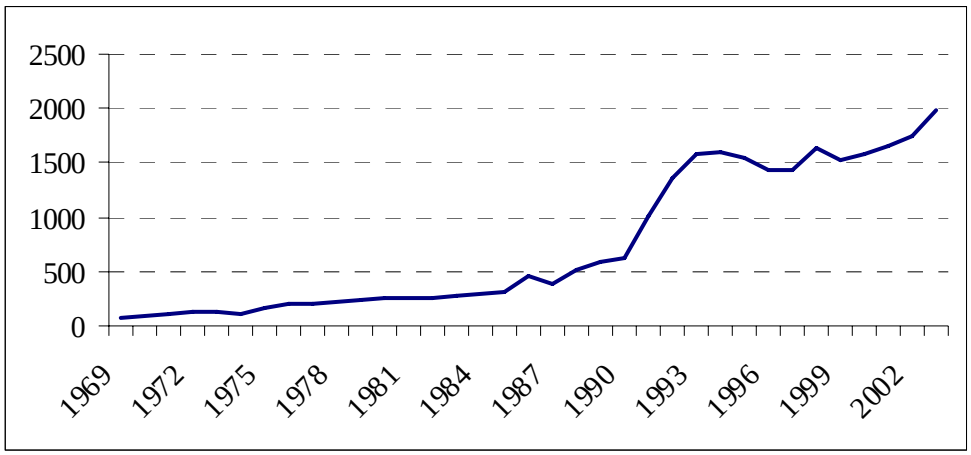
Studies of Wal-Mart

Empirical evaluations of Wal-Mart impact on local economies began with Ken Stone's [1988] study of the impact of Wal-Mart on small towns and communities in Iowa. Stone offers mixed evidence of the impact, noting increased retail sales in cities with Wal-Mart (though the net effect is smaller than the gross effect of a new store). He finds the impact fades over time and that Wal-Mart stores locating outside small towns reduced retail employment and businesses within the small towns, even if the overall impact was positive. Stone found in these (and later studies) mixed impacts on associated retail.[1] These studies suffer the inevitable problems with case studies in that they fail to control for pre-existing or coincident factors which may lead to spurious results.

Keon, Robb and Franz [1989] and Ozment and Martin [1990] examined the impact of Wal-Mart on the structure of retail markets. Both studies report some modest positive impacts on wages, employment and number of businesses within counties with Wal-Mart stores, with the latter emphasizing the possibility that Wal-Mart chose faster growing counties as potential new store sites distorts the results. This endogeneity concern continues to plague analysis of Wal-Mart entrance.

Later studies (Barnes and Connell, 1996; Ketchum and Hughes, 1997) examined Wal-Marts impact while attempting to control for existing economic conditions in regions. Both studies examined retail sales and employment growth, and found no evidence of increases in the number of retail firms. Barnes and McConnell found a modest decline in the number of specialty retail stores at the county level. Other studies repeat many of these findings (see Hornbeck, 1994; McGee and Gresham, 1995; Artz, 1999; Artz and McConnon, 2001; Stone, Artz and Myles, 2002; and Mehta, Baimann and Persky 2004). Each of these studies suffers some common weaknesses. Absence of convincing controls for

Figure 1, West Virginia Medicaid Expenditures (Millions of 2004 Dollars)



underlying economic conditions, potential concern over selection bias and failure to make statistical comparisons of impacts (even when quasi-experimental comparisons have been employed) serves to weaken many of the conclusions of these studies. The absence of econometric analysis of the issue failed to remove ambiguity from the literature on Wal-Mart.

An econometric study (Hicks and Wilburn, 2001) tested a panel of county level data in West Virginia from 1988 through 2000, analyzing the impact of Wal-Mart's presence on retail industry structure, wages and employment. The time-space recursive model analyzed both within and adjoining county impacts of Wal-Mart. This study found that the entrance of a Wal-Mart store led to a modest increase in the number of retail establishments, a permanent retail employment increase of roughly 54 workers and no impact on retail wages. One major concern is that Wal-Mart may have entered faster growing counties, thus leading to a spurious conclusion that Wal-Mart causes growth. However, this study and others concluded empirically that Wal-Mart entrance decisions are independent of regional growth conditions.[22] Hicks and Wilburn [2001] used a technique similar to that of Franklin [2001] who examined the Wal-Mart Supercenter impacts on the structure of grocery stores in metropolitan areas. However, this approach has been criticized (Curs, State and Visser, 2004) for failure to employ an instrumental variable method to account for endogeneity.

Also, these researchers offered anecdotal evidence that Wal-Mart is largely unconcerned with local economic conditions when making decisions to open new locations. Also, criticism of the widespread validity of the findings due the choice of West Virginia as a study region has been offered.[3]

Basker, 2005 performed a similar analysis of a much larger sample of U.S. counties. This analysis using a direct statistical to control for the possibility that Wal-Mart entered faster growing counties. This study reports that following an initial increase in retail employment, the three year impact drops to a roughly 55 worker increase, accompanied by a small reduction in the number of small retail firms. Basker also found very modest impacts of Wal-Mart entrance on adjoining counties.

Villareal [2005] notes the remarkable similarity of these employment findings to those of Hicks and Wilburn [2001].

The effective criticism of Basker's study focuses on the impact of censoring the sample (elimination of counties with employment levels below 1,500 in 1964, without positive employment growth and without a Wal-Mart prior to 1977) which eliminated the most important regions in terms of policy consideration (Goetz and Swaminathan, 2004). This latter criticism is also raises the specter of selection bias problems in the study as earlier research (Graff, 1998) which identified a specific expansion pattern for Wal-Mart Supercenters in mid-sized towns (which may well have been censored by Basker). Further, failure to control for interstate fiscal differences may offer a different endogeneity concern as states with high levels of local financing may actively seek Wal-Mart stores (Wassmer, 2002).[4]

Despite the criticisms of both Hicks and Wilburn [2001] and Basker [2005] the remarkable similarity of results suggest that claims of the critics regarding Wal-Mart's employment and wage impacts at the county level would fail to enjoy much significant empirical support.

Goetz and Swaminatham [2004] estimate the impact of Wal-Mart on county wide poverty. The authors estimated poverty rates in two time periods, thus permitting a much richer choice of explanatory variables than are typically employed in more dynamic time series models.[5] Employing a two stage estimation technique, which should account for some endogeneity concerns, the authors found that a new Wal-Mart, entering a county between 1987 and 1998 had a marginal impact of 0.2 percent on the county poverty rate, and that stores that existed prior to 1987 increased the poverty rate by just under half that amount. There two major concerns with this study. First, the magnitude of the poverty impact of Wal-Mart estimated by these authors is quite small, and this is not discussed. Second, the claim that the poverty result implies an externality of exchange at Wal-Mart is, I believe, on very shaky theoretical ground.

While the externality argument is a convenient method of explaining possible policy interventions, it is more likely that Wal-Marts behavior is better explained as a public policy result rather than a market failure.[6] Importantly, neither weakness impugns the empirical results, only the potential policy interventions which may be inferred from their findings. Aside from this criticism, Goetz and Swaminathan [2004] offer an important study in that while acknowledging that earlier research has found little of the criticism of Wal-Mart to enjoy empirical support.

One criticism of the preceding studies is the emphasis on empirics over theory. The earliest of the studies reviewed above employed descriptive models of the chain of events surrounding Wal-Mart entrance. Both Hicks and Wilburn [2001] and Basker [2005] attribute firm level productivity differentials to explain their results. And, the former authors conclude that protection of local incumbent rents is the source of much of the local disfavor targeting Wal-Mart. Konishi [1999] provides a model of retail concentration which concludes that common consumer demand

characteristics can result in concentrated retail markets through a market-size effect. The first venture into formal theory regarding Wal-Mart specifically is offered by Curs, Stater and Visser [2004, 2005] who offer a location model which provides testable hypotheses for land rents for big-box retailers which includes relative location of existing commerce and transportation costs. Hopefully this research will yield compelling empirics in the coming months.

Despite almost two decades of research, the hyperbole regarding Wal-Mart and its putative economic and fiscal impacts far outweighs the level of scholarly scrutiny applied to it. A number of advocacy group reports focus on Wal-Marts fiscal impacts. Among these are the Shils Report [1997], an extensive criticism of Wal-Mart described corporate social welfare through a number of anecdotal experiences in local funding issues mostly related to property and sales taxes. Mattera and Purinton [2004] compiled a very long list of examples of Wal-Mart employing local tax incentives (tax increment financing, infrastructure grants, property tax abatement, etc.) to support growth. In a similar strain LeFaivre and Hicks [2005] offer a broader theoretical and empirical critique of the role of incentives and economic growth in Michigan, with empirics regarding incentives to wholesale distribution centers (among others) as part of Michigan's MEGA Incentive Program.

The first important study to raise the point of Wal-Mart's employee's reliance on Medicaid was offered by Dube and Jacobs [2004]. These authors describe the potential for Wal-Mart's workers to rely on government assistance by simulating individual worker use of such programs. This simulation model provides much needed evidence of a public finance concerns, but does not provide unassailable evidence that Wal-Mart practices differ systematically from other similar firms. These authors use data from a court case in which Wal-Mart was compelled to release wage data. From these data the authors apply California take-up rates for a variety of public assistance instruments to estimate the difference between Wal-Mart and other retail firms in the state.[7]

Carlson [2005] offers a similar analysis of the government subsidization of Wal-Mart through a variety of transfer instruments in Oregon. This extensive analysis provides estimates of total subsidization of Wal-Mart using representative firm models on 2001 data. As with any study of its type it fails to provide controls. However, this study is as in-depth an analysis of the state level fiscal considerations surrounding the Wal-Mart debate as is available. This is even more remarkable when compared to a 2004 report to Congress (Miller, 2004) which repeats, in some concise detail, all the arguments against Wal-Mart while bravely ignoring either theory or evidence to the contrary.[8] At the heart of these papers is whether or not Wal-Mart workers use TANF, Medicaid, etc. at rates that differ from the retail industry in general. The AFL-CIO compiled a list of States in which Wal-Mart has been named as having employees receiving Medicaid (or similar state programs). This list judiciously avoided calculating the percentages, but provided the basic data to find that in the 10 states where actual numbers of take rates are known, Wal-Mart employees use Medicaid at rates from 2.3 percent in Washington State to 24.9 percent in Tennessee's beleaguered TennCare program. See Table 1.

The only industry wide average I have found for the Trade sector (both retail and wholesale) is 11.8 percent in Nevada (Waddoups, 2004). Shore-Sheppard, Buchmuller and Jensen [2000], note high levels of low income workers receiving Medicaid in a micro-data study.

The literature described above has provided fairly conclusive analysis of the commercial impacts of Wal-Mart. When controlling for other factors, there is strong counter evidence to the argument that Wal-Mart causes net employment decline, mixed evidence of a reduction in the number of firms, and no evidence that Wal-Mart reduces retail wages.[9] However, scholarly research into Wal-Mart's impact is much needed in a number of areas that bear important insights on land use patterns and the optimal structure of public expenditures for poverty amelioration and health.[10]

The expansion of the literature, though uneven does suggest that analysis of the local fiscal impacts, both revenue and expenditure be more fully evaluated. In addition to the research discussed above policy concerns over Wal-Marts fiscal impact are emerging. Calls for a "Wal-Mart Tax" to be levied on firms based upon their share of workers receiving Medicaid have been sufficiently robust that 18 states are at least making efforts to collect data on Medicaid participation by employees.[11]

Wal-Mart and Medicaid

A central component of the War on Poverty was healthcare for the poor and aged (in *The 1967 Social Security Amendments*). The Medicaid program today provides assistance to a variety of recipients, the poor, disabled and aged. The primary elements of Medicaid from inception through the mid-1990's was as the healthcare component of welfare (then known as *Aid to Families with Dependent Children*) and *Supplemental Security Income*. Medicaid experienced its greatest transformation as part of the 1996 *Personal Responsibility and Work Opportunity Reconciliation Act* (PRWORA) in which the traditional linkage between welfare and Medicaid was severed, permitting the working poor to participate in Medicaid. The

preservation of Medicaid for the working poor was a necessary concession to liberal lawmakers, and was part of re-worked bill that had twice been vetoed by President Clinton.[12]

The liberal arguments in support of extending Medicaid support to the working poor are fourfold: Federal matching funds make state payments less onerous, PRWORA would likely lead to increases in the number of working poor, coverage promotes work as it is a benefits bridge to private sector employment, and it would provide the same level of access to poor working families as is available to those receiving traditional welfare payments (Guyer and Mann, 1998).

Today Medicaid is administered by states, with a variety of implementation plans, all of which are required to meet minimum established guidelines. Federal matching rates that vary by state depending upon per capita income. From 1996 through 1999 a dramatic decline in welfare roles associated with both the economic expansion and PROWRA accompanied modest growth in Medicaid expenditures by Federal and state governments (Hicks and Boyer, 1999; Hicks, 2000). However, from 2000 through 2003 Medicaid experienced unprecedented growth at almost 11 percent per year. This growth was primarily caused by the increase in low wage workers and the reversal in the decline of welfare caseloads which accompanied the economic downturn. This expansion in costs came at a particularly bad time for states, the majority of which suffered from very elastic tax revenue sources. Thus, the economic downturn reduced revenues while increasing expenditures – a very predictable combination of events.

During this time, considerable scrutiny of business practices focused the attention of a number of organizations to look more closely at firms which employed large numbers of low wage workers. The giant retailer Wal-Mart, among others, as well as the construction industry came under fire for employing workers who were either not eligible for employer based health insurance or chose not to take advantage of plans (see Waddoup, 2004).

Another concern over the expansion of Medicaid eligibility involved Medicaid's role in crowding out employer based health insurance for low income workers. Shore-Sheppard, Buchmuller and Jensen [2000], effectively isolated the impact of the Medicaid on firm and employee behavior. While confirming earlier research (see Cutler and Gruber, 1996) which found that firms hiring large numbers of low wage workers were less likely to offer insurance, they found no increase in the probability that these firms would offer insurance due to Medicaid eligibility changes affecting their workforce. However, the authors do not rule out the possibility that firms might make eligibility more difficult to motivate workers to drop coverage. The authors did find a small drop in the probability firms would offer family coverage, as the proportion of Medicaid eligible workers increased. These authors also estimated employee response to Medicaid eligibility finding that the take rate for employee based health insurance dropped as the proportion of Medicaid eligible workers increased. This is a similar argument offered by Becker and Posner [2004] as a counter argument to the critiques of Wal-Mart. Their argument is simply that Medicaid eligible workers experience a real income increase by choosing Medicaid in lieu of standard employer based health insurance for which premiums and co-pays are required. It is thus a utility maximizing decision by workers under the current law.

Fox [2005] surveyed Tennessee firms finding that only 52 percent of retailer and 53 percent of wholesale firms offered employee based health insurance. This study reports that roughly 65 percent of large firms (with more than 100 employees) offered health insurance to all their employees, while 30 percent offered insurance to only a portion of their employees. Firms surveyed in this study also report that cost and the share of part-time employees accounted for roughly 60 percent of those firms not providing insurance. Not surprisingly, the average salary of the firm's workforce played a large role in the firm's decision to offer insurance. At average incomes below $25,000, over 60 percent of firms offered no health insurance (with lower income levels seeing this proportion rise to over ninety percent). At all income levels over $25,000, the majority of firms surveyed offered some employees insurance, but even at income levels averaging over $55,000 one in five firms offered no health insurance. Fox [2005] offers an interesting insight into the employer based health insurance rates in Tennessee, a state which is probably facing the most daunting of the Medicaid related problems (with its partially eponymous TennCare program).

Importantly, I have been unable to locate a study which evaluates at the macroeconomic level the relationship between changes in the structure of low wage work (especially as it relates to the strong criticism of Wal-Mart) and Medicaid expenditures. This study is an attempt to fill this gap.

Modeling Wal-Mart and Medicaid

Evaluating the Wal-Mart impact on Medicaid begins with a formal statistical model which estimates annual changes in the level of Medicaid expenditures as a function of the number of Wal-Mart's and Super Centers in a state and other policy, regional and economic variables.[13] In this model, state level Medicaid expenditures on the lower 48 states from 1978 through 2003 are modeled as a function of real per capita income, the share of retail employment of total employment and the local share of non-Federal government employment. I include control

variables for recessions, the 1996 PROWRA, the 1991 changes to EITC, the 2000 changeover to the NAICS data and a trend value.

The Local Share variable is designed to control for state level differences in fiscal structure. As noted by Wassmer [2002] the local share of revenues may influence the location of 'big-box' retail stores. The local share of total non-Federal government employment proxies the share of local dependency on local taxes. Also, all dollar values are in real terms of 2003 dollars using the Consumer Price Index, All Urban Consumers series. I also account for regional spillover effects and persistence effects of time. Both of these statistical methods are important in this research. Other concerns are discussed in the technical paper.

The estimation results point to a number of interesting issues unrelated to Wal-Mart. First Medicaid is weakly positively correlated with per capita income. Apparently more affluent states dedicate more money to Medicaid, even though the Federal match is lower, a finding confirmed by analysis performed for the US Department of Health and Human Services (DHHS, 2004).

The share of state income contributed by the retail sector has weak impacts, leading to higher Medicaid expenditures. This is evidence, albeit very tentative, that the retail sector is absorbing the working poor who are also using Medicaid (as predicted by Ku and Coughlin, 1997). Not unexpectedly, the 1996 welfare reform (PRWORA) led to reductions in Medicaid expenditures, while the advent of the 1991 EITC changes are correlated with increases in total Medicaid expenditures. No state level impact on expenditures during recessions was noted, though reducing the sampled period from 1995 through 2003, recessionary increases in Medicaid appear in the estimation. This was West Virginia's experience. This suggests that the post PRWORA pool of working poor may be more likely to experience recession related movement into support programs than earlier recipients. The NAICS transition seems to not have significantly influenced the data, and the impact of the trend is muted, while autocorrelation, both spatially and temporally are important contributors to variation of each of the variables.

I find that a new Wal-Mart in a state will increase Medicaid expenditures by more than 2/10ths of a percent. While the specification using the retail market share of Wal-Mart suggests that a one percent increase in Wal-Mart's market share will increase Medicaid expenditures by a little more than 1.5 percent.

The magnitudes of these impacts are telling. Using the number of Wal-Marts for Medicaid, I find that the average state is spending roughly $898 per Wal-Mart worker in Medicaid expenditures. This is remarkably similar to an Urban Institute [1997] analysis of Medicaid expenditures per worker averaging just over $1,000 for acute care (the bulk of expenditures experienced by the working poor).[14] It is also consistent with the per low-wage worker cost of Medicaid data illustrated in Table 1.

Interpreting this finding with the reported findings above requires additional understanding of Wal-Mart in the context of the retail sector and Medicaid eligibility. Wal-Mart stores account for a remarkably small share of retail employment for a firm which is probably the largest private employer in more than a quarter of US counties. Also Wal-Mart, a discount merchandiser probably has a wage and employee mix similar to Target, Ames and Dollar General Stores. This labor force is heavily dominated by low wage workers in competitive labor markets. This is consistent with the findings reported in this paper.

Also, the retail industry is noted for casual workers. These are the young, the elderly, or those seeking part time flexible employment (and those not requiring health care benefits

Table 1, Estimates Wal-Mart Employees and Medicaid Expenditures

State	Wal-Mart Employees Receiving Medicaid	Medicaid Costs (per worker)	Source
Arizona	9.6%		Arizona Daily Star (confirmed by authors calculations
Arkansas	8.8%		AFL-CIO (reporting data from Arkansas Human Services Department)
Connecticut	8.9% (Huskey A-B)	$586 per worker*	AFL-CIO reporting data from State
Florida	13.25%		Orlando Business Journal April 2005
Iowa	4.78%		Associated Press, Aug 2005
Massachusetts	6.9% of	$246 per worker*	AFL-CIO reporting data from State
Ohio		$651 per worker†	Hicks, 2005
Oregon		$311 per worker†	Carlson, 2005
Tennessee	24.9% (TennCare)		Memphis Commercial Appeal and Authors calculations
Washington	2.3%		AFL-CIO reporting data from Washington Health Care Authority
West Virginia	**3.6%**		**AFL-CIO reporting data from State**
Wisconsin	4.31(BadgerCare)	$174 per worker*	AFL-CIO reporting data from State

*Data reported from direct expenditures, † Data estimated from study

perhaps due to existing coverage). Interestingly, growth in part-time employment in the retail sector have reversed course in recent decades dropping from an early 1980's high of over 25 percent (completing a post-World War II trend), dropping to roughly 20 percent today.

These findings support the rather unsurprising conclusion that Wal-Mart is a retail store that depends upon typical low skilled retail employees. Hence, they are likely to account for Medicaid use rates similar to other low skilled (hence low paid) workers in general. The only surprise is the hue and cry regarding publicly-sponsored health care adoption rates by the working poor.

Summary and Conclusions

This study reports findings of earlier research regarding the impact of Wal-Mart on commercial economic activity and public expenditures. I particularly note recent criticism of Wal-Mart employees using Medicaid. It is in part due to this criticism that this research was undertaken. It is important to understand though that the 1996 PRWORA was specifically designed to make available Medicaid for low wage workers not on TANF. Whether or not this was a wise policy decision is separable from a discussion as to its effectiveness in achieving its stated goals. Also, criticism of an individual company for having a large number of low wage workers is puzzling. So too is criticism of a company for availing its workers to take advantage of a government program when the government itself is criticized by many of these same advocates for failing to adequately advertise its programs. Similarly, it would seem inappropriate, or at least fruitless, to criticize workers who might choose Medicaid over employer based health insurance if it results in net improvements in purchasing power.

Finally, the answer to the question posed by the title of this paper is yes. It is clear from earlier studies, and analysis presented in this paper, that Wal-Mart workers tend to cause states to expend Medicaid resources at about the same rate as other low paid workers. Thus, each new Wal-Mart worker is causing the average state to expend just under $900 a year in Medicaid benefits. However, whether or not this is the result of bad poverty amelioration or labor market policy is far from clear.

Note: See Hicks, Michael J. (2005a) "Does Wal-Mart Cause an Increase in Anti-Poverty Program Expenditures?" Fall 2005 at www.marshall.edu/cber for a list of references.

(Endnotes)

[1] See Stone (1989, 1995, 1997) these papers restate many of the same findings, but with further analysis of the cause and the interim changes to the state of the literature. Also see Stone, Artz and Myles, 2002. These studies also offer both policy guidance and recommendations for retailers coexisting with Wal-Mart.

[3] See www.preservationist.net/sprawl for a remarkably balanced review by an advocacy group of this and other studies.

[4] The absence of a correction for spatial autocorrelation in the model leads to concern over bias in the estimation.

[5] The choice of the two time period model permitted the use of more detailed (but less frequently collected) Census and USDA data on poverty and regional population characteristics.

[6] Indeed, as this outcome is the result of the intended severance of TANF and Medicaid eligibility, it may be viewed as a successful public policy outcome.

[7] See Dukes et. al. v Wal-Mart, Inc. and Drogin, 2003.

[8] This is all the more remarkable given that Carlson's work is an undergraduate honors thesis (which ought to serve as the model for these endeavors). Unfortunately, there would be much value in Miller were it even to offer even a hint of balance (as my findings will later suggest).

[9] Even the harsh critics of Wal-Mart (Dube and Jacobs, 2004) compare estimates of Wal-Mart wages against regional averages and unionized retail firms to impute costs.

[10] Indeed, it might well be argued that analysis of labor markets would provide more fruitful policy than simply targeting a firm that has been successful in changing retail markets (see Reich, 2005).

[11] See www.goodjobsfirst.org for a frequently updated list of these states. In May 2005, Maryland's Governor Ehrlich vetoed SB 790/HB 1284, the Fair Share Health Care Fund Act, which required selected firms to pay at least 8% of total employee expenses in health care related activities. This legislation was clearly targeting Wal-Mart stores in Maryland. (though it certainly could effect others). A detailed examination of state policies effecting Supercenter development was also produced for the California Governors Office of Planning and Research (Clanton, and Duffy, 2004).

[12] See Jencks, 2002.

[13] A formal econometric model for Wal-Mart's impact on Medicaid is contained in Hicks, [2005a].

[14] The retail market share values are more difficult to interpret. The point estimates suggest that doubling Wal-Mart's market share by one percentage point would decrease Foodstamps expenditures by just under $40 per Wal-Mart worker, while increasing Medicaid costs by more than $220 per worker.