



June 6, 2006

Ms. Jennifer Turchetta, *President*
Shelby County Chamber of Commerce
c/o Process Machinery, Inc.
1636 Isaac Shelby Drive
Shelbyville, KY 40065

Ms. Shelley Goodwin, *Executive Director*
Shelby County Chamber of Commerce
P.O. Box 335
Shelbyville, KY 40066-0335

Dear Ms. Turchetta and Ms. Goodwin:

In an April 14, 2006, letter addressed to you, the Home Builders Association of Louisville (HBAL) responded to a letter of March 6, 2006, that Maintain Our Rural Environment, Inc. (MORE) sent to the members of the Shelby County Chamber of Commerce.

The Home Builders Association of Louisville letter stated that it hoped “to clarify and take issue with specific points within the [MORE] letter as well as challenge the validity and further use of the study referred to as the Cost of Community Services Study (COCS).”

The HBAL letter then sought to discredit not only MORE and the study’s author, the American Farmland Trust, but all other organizations and institutions of regional or national renown that have conducted COCS studies – not to mention the usefulness of the COCS studies themselves.

But for those willing to do deeper research, it’s obvious that COCS studies consistently prove a credible and valuable tool in community development.

Thus, seeking to further investigate HBAL’s assertions, MORE asked an outside party to review the HBAL letter and respond. Ms. Lori Garkovich, a University of Kentucky professor with extensive expertise in this area, has graciously accepted this task.

Ms. Garkovich has provided a memorandum summarizing her key points if your time is limited. However, MORE hopes you’ll read the complete analysis. MORE feels Ms. Garkovich does much to address and correct the HBAL assertions, some of which (though not necessarily intentionally) border on misinformation.

These two documents are enclosed.

Page 1 of 3

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In addition to Ms. Garkovich's comments, MORE asks you to note the following:

✍ The only study HBAL offered that showed a positive return for residential development *did not include the cost of construction of new schools and other capital construction costs required for the new development.* According to the Shelby County Public Schools, the proposed Saddle Ridge development would cost Shelby County property taxpayers \$10.8 million above what the proposed development would pay in property taxes.

✍ Quite simply, community services for residential development in rural areas cost more than residential development in cities. There's no getting around it.

✍ The implied assertion by HBAL that Shelby County has excess capacity in infrastructure is simply not true. Even Triple S Planning and Zoning has stated that our present infrastructure is insufficient for explosive growth.

✍ HBAL stated that much of the quoted \$8.2 million in sales of nursery, greenhouse, floriculture, and sod is generated by Shelby County residents. MORE cannot find HBAL's sources for this statement, but in talking to farmers here we believe these producers receive a significant portion – and perhaps the majority of their revenues – from outside the county.

✍ While HBAL has agreed to impact fees in Jefferson County, it has told Shelby Fiscal Court that it would sue if Shelby County put them in place. Appropriate development fees would remove the burden of paying for community services related to new residential growth from our existing and future taxpayers.

✍ In Shelby County, HBAL is on record as being opposed to the school growth ordinance that would enable our public school system to build schools as development takes place, instead of after development has overcrowded the school facilities.

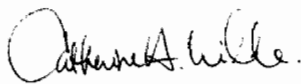
MORE advocates balanced economic development for Shelby County. Which means that MORE believes agriculture should be a part of that development along with residential, commercial, and industrial land uses. Agricultural land use pays its way in Shelby County, so agriculture should not be summarily dismissed and replaced by land uses that cost the community money – merely to satisfy the desires of outside special interest groups.

We really appreciate your time, and regret any inconvenience. But we believe that where our county's future is concerned, the facts *must* be kept straight and clear.

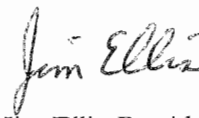
To review Shelby County's Cost of Community Services study online, visit www.more-ky.org. And, if you have any questions or comments, please contact:

Jim Ellis, President
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Again, thank you so much for your time,



Cathy Wilde, Director
Maintain Our Rural Environment



Jim Ellis, President
Maintain Our Rural Environment

Enclosures:

Garkovich summary points
Garkovich review of HBAL letter

cc:

Shelby County Chamber Board of Directors
Shelby County Judge/Executive Rob Rothenburger
Shelby County Magistrates
Mayor of Shelbyville, Tom Hardesty
Mayor of Simpsonville, Steve Eden
Kentucky Senator Gary Tapp
Kentucky Representative Brad Montell
Public School Superintendent Elaine Farris
Triple S Planning Commission Chairman George Best
Triple S Planner Ryan Libke
Farm Bureau President Eddie Mathis
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June 2, 2006

MEMORANDUM

TO: Jim Ellis

FROM: Lori Garkovich, Professor

RE: Analysis of Home Builders Association of Louisville (HBAL) letter to the Shelby County Chamber of Commerce

I have read the letter and documentation submitted to the Shelby County Chamber of Commerce and others in Shelby County by the Home Builders Association of Louisville. The attached document presents my analysis of the HBAL letter and its supporting papers. Here, I offer key points from my analysis.

1. A COCS study is a type of fiscal impact analysis that should be added to the knowledge base that informs a public policy decision in specific communities. It is a tool that is widely accepted and used by diverse academic and public interest research organizations as well as private consulting firms.
2. Every COCS study and nearly all other fiscal impact analyses find that farmland generates more property tax revenues than it receives back in publicly funded services and that residential land receives back more in publicly funded services than it pays in property tax revenues. Although the exact ratio varies, the consistency of these findings across states, time periods, types of communities, estimates of components and parameters in the models, and types of researchers is remarkable and significant. The patterns of fiscal impacts associated with particular types of land use change are real.
3. Shelby County local governments will not benefit directly from new residents spending money locally. Growth in the local economy will not offset any excess costs created by new residential developments because in Kentucky, the primary source of local government revenues is property taxes. Property taxes are insensitive to changes in the value of sales and services of entities occupying the land. In other words, a retail lot is assessed at a given property tax whether the store on that lot sells \$500,000 or \$5 million annually. Local governments in Kentucky have no effective tool to capture any value from economic growth other than property taxes.
4. There is a need to evaluate development proposals both individually and as a comprehensive whole in order to assess the total fiscal impact of development patterns in a community. The tendency in zoning decisions is to evaluate each proposal individually, but this ignores the cumulative effect on public infrastructure capacity. This cumulative effect may tip the scales toward a serious fiscal crisis in the community. This is confirmed by one of the HBAL supporting studies where the excess of revenues over expenditures in the study reflects the exclusion of the cost of capital expenditures for public schools, road construction, sewer and water lines as well as the costs of servicing any debts for these items. This exclusion is based on the assumption that no congestion in the delivery of services will occur with development. This is a fiscally dangerous assumption.

Review of the Home Builders Association of Louisville
Letter to the Shelby County Chamber of Commerce

by Dr. Lori Garkovich
Professor of Rural Sociology
University of Kentucky

June 6, 2006

Introduction to the review

In this review, I will summarize and then analyze the arguments presented by the Home Builders Association of Louisville (HBAL) in its letter and the supporting papers and conclude with some comments on cost of community services studies in general.

The statements in the letter

Paragraph two

HBAL statement - *They also identify \$6.097M in farm workers and payroll, while Dr. Paul Coomes in an economic presentation to the Shelby Chamber identified \$5M in agricultural wages and salaries, includes net loss for farm proprietors.*

Response - There are multiple sources of information on wages and payroll and each uses a slightly different measure. For example, the U.S. Census of Population and Housing uses self-reported income and wages; the U.S. Census of Agriculture uses farm operator reports of farm income and wages paid; while the REIS (Regional Economic Information Service, Bureau of Economic analysis) uses earnings as well as transfer payments such as Social Security. So it is not surprising that there would be a difference in these estimates, especially since the economic presentation by Dr. Coomes included net loss of income for farm proprietors.

HBAL statement - *Lastly, M.O.R.E. listed a \$120M economic impact for agriculture products, services and agri-tourism. We cannot find a source for the services and agri-tourism numbers in the study.*

Response - It is my understanding that the \$120 million economic impact for agricultural products and services and agri-tourism was not part of the COCS study. I believe that the sources for this information are cited in the bar chart accompanying the March 6, 2006 M.O.R.E. letter to the members of Shelby County Chamber of Commerce. From this citation, it is apparent that the data are a compilation of information from the Kentucky Agricultural Statistics Service, the Saddlebred Farms of Shelby County, and the Shelbyville/Shelby County Visitors Bureau.

HBAL statement - *In addition, much of the agriculture sales such as nursery, greenhouse, floriculture, and sod, which accounts for \$8.2 million of total agricultural product sold, are purchased by the residents in Shelby County homes whose purchases add a significant amount to the agriculture and services industry of the county.*

Response – The exact proportion of these particular agricultural products and services sold in Shelby County to residents of Shelby County cannot be accurately estimated by either M.O.R.E. or the Home Builders Association of Louisville. But the point of this statement is not clear. The \$8.2 million in expenditures claimed for Shelby County residents (but not documented by HBAL) will not disappear if Shelby County adopts a local PACE program or development impact fees.

Bullet one

HBAL Statement - *The American Farmland Trust study (AFT) lacked consideration of the impact of residents purchasing goods and services in Shelby County, thus adding to the local economy...and by doing so building the tax base of those businesses that pay taxes to county government.*

Response - The stated purpose of any cost of community services study (COCS) is to examine the property tax revenue and public services expenditures of different land uses. A COCS study does not purport to be a comprehensive fiscal impact analysis; it is what it is.

But there is an implication here by the HBAL that local governments will directly benefit from economic growth; and benefit sufficiently to offset any negative revenue effects from residential growth. But, remember the following points:

First, Kentucky law limits the revenue sources for local government to property taxes as well as occupational taxes and a list of fees. Property taxes represent the bulk of local government revenues and therefore the primary source of income for public services expenditures.

Second, Kentucky's local governments cannot levy sales taxes and the property tax assessment is on the value of the land and its improvements (e.g., buildings, roads, water lines) regardless of the gross sales generated by that land. Therefore, a retail lot is assessed at a given property tax whether the store on that lot sells \$500,000 or \$5 million annually.

Thus, the statement cited above in bullet one is incorrect. Property taxes are insensitive to changes in the value of sales and services of entities occupying the land. Local governments in Kentucky have no effective tool to capture any value from economic growth other than property taxes.

Bullet two

HBAL statement - *Houses on farms demand a greater level of service than homes concentrated in cities or residential developments/communities.*

Response - This statement is correct only if "greater level of service" means "greater cost for service."

A house in the country does impose a higher cost for a comparable set of services provided to a house in the city. An example is the cost of driving that school bus on a 10 mile round trip compared to the children walking to a school three blocks away in the city.

This is precisely the point underlying M.O.R.E.'s efforts to encourage higher density development in Shelbyville and other urban concentrations on municipal sewers in Shelby County and to preserve agricultural land in the rural parts of the county. When development leapfrogs into rural/agricultural parts of the county, planting subdivisions miles from an urban center, the cost of delivering services rises tremendously. Quite simply, distance matters.

The easiest way to see this is as follows: A single farm house on a 100 acre is occupied by a husband, wife and 2 school age children. The school bus has to travel 10 miles (round trip) to pick up those 2 children. Now, sell the farm and put 300 homes (3 units per acre) on that 100 acres and each house has a husband, wife and 2 school age children (600 children in the subdivision). The school bus still has to travel 10 miles (round trip) to pick up the children but now it is 20 buses (30 children per bus) that make the trip. As one editorial writer once stated: "Cows don't go to school."

Even Deller (2001:10) notes "*The econometric results, numerous applications of WEIMS and other SPAN-like models (e.g., Deller, 1999) all suggest that the level and magnitude of impact assessment hinges on correctly estimated population changes. In the end, population changes drive the impacts.*" As

a result, residential uses of any kind are going to have substantively different fiscal impacts following a land use change from agriculture than changes to industrial or commercial uses.

Another way to think of this impact is as follows. Picture a rural county road with 10 homes in 1990 and 14 in 2000. The four additional houses, on an annual basis (using data from 2004) will:

Increase demand for water service by 227,760 gallons (56,940 gal/yr/HH or, given a HH size of 2.6 persons x 60 gal/person/day x 365 days)
Generate 11,972 more day trips on the road
Generate 16,320 pounds more of solid waste

Note that these calculations are easy to make – one simply obtains information on daily or annual consumption and average household size and do the math.

Bullet three

HBAL statement - We went further than our analysis here and researched nationally the COCS Studies and methods the American Farmland Trust applies to conduct these such [sic] studies. As you would expect with such a nonscientific and arbitrary mode to conduct a cost of community services study, the AFT always finds that farmland coasts county governments less than the taxes they pay and residential costs more than they pay.

Response - To this point, the letter from the Home Builders Association of Louisville has not proven that the methodology underlying a cost of community services study is “nonscientific” nor “arbitrary.” In fact, with this statement, the Home Builders Association of Louisville is painting not just AFT COCS studies as “nonscientific and arbitrary” but also studies done by: University of New Hampshire Extension Service, University of Wisconsin Extension Service, Pennsylvania State University Agricultural Economics Department, Sonoran Institute, University of Wyoming, University of Illinois Extension Service to name just a few other research studies utilizing this methodology (see Appendix A for a longer but not exhaustive list of COCS studies by researchers other than those employed by AFT).

Every single one of these studies find that farmland generates more property tax revenues than it receives back in publicly funded services and that residential land receives back more in publicly funded services than it pays in property tax revenues. Although the exact ratio varies, the consistency of these findings across states, time periods, types of rural communities, types of estimates for estimates and components in the models, and types of researchers suggests that the conclusion of the Home Builders Association of Louisville may be, at best, unfounded. All of these studies can't be simultaneously in error in the same way.

Bullet four

HBAL statement - Use of “fallback percentages” is completely inappropriate to use in an economic study...Another critical issue with the study is the arbitrary allocation of general administrative costs for county government operation.

Response - The basis for making these claims is not presented. However, I draw your attention to the Greenaway and Sanders (2006) study for Red Deer County in Canada. Here, the researchers did not employ normal fallback percentages in assigning revenues and expenditures to different categories of land use. These researchers used in-depth interviews with local officials to develop their allocations. They then developed a new set of estimates utilizing fallback percentages (the proportions applied to revenues and expenditures for which there is no basis, or for which it would be inappropriate to allocate among land uses) as is done in many previous COCS studies. The results of this comparison are as follows.

Utilizing a property-tax-based fallback allocation did make residential land use more efficient, but

it still cost at least \$1.20 for every dollar in revenues, down from \$1.66 for every dollar in revenues utilizing their original model.

Fallback percentages would allocate 11% of road-related expenditures to agricultural land use even though their interviews and actual road surveys indicate that agricultural traffic represents about 2% of rural road use. Thus, the use of fallback percentages would be overestimating the allocation to agricultural land for rural road expenditures and thereby overestimating the expenditure demand of agricultural land.

Bullet five

HBAL statement - *The study did not consider city services. This is a significant flaw because all city residents pay city taxes as well as county taxes; however, those residents who do not live within the city limits certainly use city services from time to time and contribute no revenue through taxes to provide the services they use. The COCS study calculated the portion of taxes that city residents [sic] pay to the county but did not consider the number of people who live outside of the city limits but use city services on a daily basis that city residents pay for? [sic]*

Response - Again, the Home Builders Association of Louisville is attempting to assert that a COCS study is more than it claims to be. A COCS does not purport to evaluate the entire ledger for local government and does not attempt to evaluate all sources of revenues and all types of expenditures. A COCS study is what it is – an evaluation of the property tax revenues generated by farmland and what it receives back in publicly funded community services. The issue of city revenues and city-funded services is not the focus of a COCS study. To attack the conclusions of a COCS study because it did not encompass more than it was intended to is unwarranted.

The papers by Steven Deller

“The impact of alternative economic development and land use options: a case study using the Wisconsin economic impact modeling system” paper presented at the annual meetings of the North American Regional Science Association, 2001.

“Urban growth, rural land conversion and the fiscal well-being of local municipalities” pg 94-119 in John Bergstrom, John C. Bergstrom, Stephan Goetz, James Shortle and John Bergstrom, editors, Land use problems and conflicts: Causes, consequences and solutions. London, Routledge, Taylor and Francis, 2004.

HBAL letter - a series of quotations are extracted from the chapter in Bergstrom et.al. (2004) The substance of these extracted statements is that fiscal impact assessment is utilized by advocacy groups to support their policy positions and that there are purported flaws in the methodology of COCS studies.

Response - First, if you read both the chapter and the professional paper on which it is based, the methodological concerns are attributed to fiscal impact analyses in general, not just COCS studies. In other words, Deller is asserting that because the results of fiscal impact analyses in general and COCS studies in particular are used to question the benefits of development this makes the results of these studies suspect. But logically, how one uses the results has nothing to do with the scientific method used to generate the results.

Second, both of the Deller papers present a laundry list of methodological flaws in fiscal impact analyses in general and COCS studies in particular. These purported flaws include:

1. These are “snapshots” of impacts at one time and therefore may be incorrectly assessing the fiscal impact of different uses

2. The arbitrary nature of the allocation of particular revenues and expenditures across different land use categories
3. The use of gross land use categories (e.g., residential, industrial, commercial) may overlook different impacts across more finer land use delineations (e.g, single family vs multi-family housing)
4. The use of gross dollars generated (revenues) and spent (expenditures) blurs differences in the intensity of land uses
5. Excess capacity in public infrastructure may absorb residential development and thus enable rural places to achieve economies of scale in the utilization of public goods
6. People may incorrectly interpret the results attributing the net fiscal benefit or loss of a class of land use to individual parcels

Let me address each of these.

1. *These are “snapshots” of impacts at one time and therefore may be incorrectly assessing the fiscal impact of different uses*

Correct, COCS studies are assessments of impact at one point in time. However, fiscal impact analyses have been conducted over longer periods of time and arrived at the same conclusions as these “snapshots.” Four of these fiscal impact analyses are:

Burchell, R.W. and S. Mukherji, 2003 - this study uses mathematical impact models to produce US estimates of differences in resources consumed in several different growth patterns projected from 2000-2025 and found that sprawl “causes about 10% more annual public service (fiscal) deficits (\$4.2 billion) and 8% higher housing occupancy costs (\$13,000 per dwelling unit).

Carruthers, J.I. and G. Ulfarsson, 2003 - this is a study of how the character of urban development affected per capita public outlays in a cross-section of 283 metropolitan counties during the 1982-1992 time period and found that “urban sprawl does undermine the cost-effective provision of public services.”

Gaertner, K., 2006 - this study compares the projected costs of continuing today’s pattern of residential development through 2025 to the costs of a shifting to a more compact settlement pattern (9% less development in rural counties and a 20% increase in the density of development in urban places) and found considerable reductions in consumption of land and natural resources, infrastructure expenditures, real estate development costs, and fiscal impacts with the compact settlement pattern.

Johnston, R.J., 1998 - this is a study of the primary fiscal impact of a subdivision on a farm in Rhode Island over a 30 year time horizon and found that residential development of the property would cost taxpayers between \$920,680 and \$2,679,775 in net discounted 1998 dollars even after considering all the tax and other revenues generated by the new residential units

2. *The arbitrary nature of the allocation of particular revenues and expenditures across different land use categories*

The term “arbitrary” is not appropriate because in all cases of COCS studies, the researcher has spent considerable time consulting with local public officials and examined local budgets to develop the estimates for allocating revenues and expenditures across different land use categories. If you examine the methodological discussions in the references presented in Appendix A, every single one notes the importance of operationalizing key variables within the context of the characteristics of the community under study. This is what accounts for the variability in results as to the ratio of revenues to expenditures under different land use scenarios in all these studies.

Moreover in Deller’s 2001 study using WEIMS (the Wisconsin Economic Impact Modeling System), he too relies on the allocation of particular revenues and expenditures across different land use categories. In other words, any fiscal impact or economic impact model must rely on estimates of components and

parameters. This is evident in the references in Appendix A that specify their models.

The fact that different estimates of components and parameters in these models yield comparable results – residential land uses generate less revenues than they receive back in publicly-funded service expenditures – suggests that the pattern of fiscal impacts associated with particular types of land use change are real.

3. *The use of gross land use categories (e.g., residential, industrial, commercial) may overlook different impacts across more finer land use delineations (e.g., single family vs. multi-family housing) and*
4. *The use of gross dollars generated (revenues) and spent (expenditures) blurs differences in the intensity of land uses*

This may be true, but in general, when urban development occurs in rural agricultural areas it is residential in nature and most commonly, single family dwellings. Rarely is it multi-family housing. I draw your attention to the report “Fiscal impact analysis of residential and nonresidential land use prototypes” prepared by Tischler and Associates for the town of Barnstable, Massachusetts (2002:2-5). This study used 4 residential and 8 nonresidential prototypes to estimate fiscal impacts. The only positive residential impact was for townhouses, while single family moderately priced (\$131,000) residential units had a net cost to the community of \$1,675 annually. Tischler and Associates note that:

“The only difference within each residential prototype in their model is the average assessed value and subsequent property taxes....The majority of the costs for the residential prototypes are driven by average household size, school pupil generation rates, number of Equivalent Dwelling Units (EDUs) per household, and vehicle trip generation rates. As a result, the single family prototypes generate greater costs than the townhouse prototypes.”

Tischler and Associates go on to note that because property taxes comprise a significant proportion of general fund revenues for this community (as they do in Kentucky), residential growth can lead to a demand for services that cannot be supported by the local revenue structure.

I think it is important here to consider Deller’s 2001 simulation of different types of development scenarios using the WEIMS which includes some assumptions that are critical to the outcomes of his modeling.

First, let’s remember Deller’s conclusion:

For each of the five different types of economic development options, and corresponding land use decisions, the demand for services provided by local governments increases. But given the size of local government in the case study area, Walworth County, Wisconsin, these increases represent less than half of one percent increases. Modest impacts given the relative size of the county. Increases in revenues outpace increases in expenditures by 2 to 2.3 times in every example scenario. (Pg 11)

But Deller notes the following assumptions that underlie this simulation:

The expenditures estimated here do not include any capital expenditures (e.g., road construction, sewer and water lines, etc) and the costs of servicing any debt incurred to finance the capital items. (Pg 11)

It is particularly important to note that in addition to capital expenditures not being captured, these analyses do not include public schools. (Pg 11)

*For this county example, development does seem to pay for itself **if congestion in services is not an issue.** (Emphasis in original) (Pg 11)*

These are **very substantive assumptions** that may, in fact, shape the outcome of the analysis. For example, the costs for the provision of public schools are a significant public expenditure factor in any conversion of agricultural land to residential uses. The impact of population growth on the demand for school services is widely acknowledged and this is why estimates of public school impacts are incorporated into COCS studies as well as other fiscal impact analyses of land use changes.

5. *Excess capacity in public infrastructure may absorb residential development and thus enable rural places to achieve economies of scale in the utilization of public goods*

It is true that some rural communities do have excess capacity in public infrastructure that may benefit from a given amount of urban-type growth in order to achieve efficiency in operations. But this is a very delicate balancing act. Consider for example a school facility that is designed for 500 children and has 400 attending. Residential development that adds 100 children to this school brings it to the maximum capacity under state law. The next child who moves in and attends this school and each child after that will trigger a cascade of state actions that will force the school district to build new capacity, either with a permanent structure or temporary classrooms. The school district will have no choice in this matter. It cannot say that a classroom of 32 children is acceptable if the state mandates classrooms of 25.

6. *People may incorrectly interpret the results attributing the net fiscal benefit or loss of a class of land use to individual parcels*

It is certainly true that any single development proposal may yield a fiscal impact that is either similar to or different (either positively or negatively) from the results identified in a COCS. In other words, a particular development proposal may have greater net revenue gains or greater net revenue losses than the averages estimated in any COCS analysis. But a COCS study was never designed to address a single parcel of land but rather to assess the consequences of changes in types of land uses.

Final comments

A COCS study is a tool of fiscal impact analysis that should be added to the knowledge base that informs a public policy decision in specific communities. It is an important tool but it should not be the only tool to inform decision-making. Moreover, it is obvious that it is a tool that is widely accepted because it is used by diverse academic and public interest research organizations as well as private consulting firms. If we are to use a decision tool we must have a level of confidence that it can contribute important information for our deliberations. COCS studies are credible and useful to a community in decision-making.

One thing that has become clear in this discussion is the need to evaluate development proposals both individually and as a comprehensive whole in order to assess the total fiscal impact of development patterns in a community. The tendency in zoning decisions is to evaluate each proposal individually, but this ignores the cumulative effect on public infrastructure capacity. This cumulative effect may tip the scales toward a serious fiscal crisis in the community. This in fact is a cautionary note in the two papers by Deller accompanying the HBAL letter.

I have identified the web sites where research papers and reports I have referenced and others are available. However, some of the materials noted in Appendix A are only available in hard copies in the professional journals or through a University with Academic Search Premier access.

References

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Tischler and Associates. 2002. "Fiscal impact analysis of residential and nonresidential land use prototypes." prepared for the town of Barnstable, Massachusetts.



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April 14, 2006

Ms. Jennifer Turchetta
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Ms. Shelley Goodwin
Executive Director
Shelby County Chamber of Commerce
316 Main Street
Shelbyville, KY 40066

Dear Ms. Turchetta and Ms. Goodwin:

The Home Builders Association of Louisville and its Shelby County Council would like to respond to the recent March 6th letter from M.O.R.E. that I personally received as a Chamber member. We would like to clarify and take issue with specific points within the letter as well as challenge the validity and further use of the study referred to as the Cost of Community Services Study (COCS).

First a look at some specific points in the M.O.R.E. letter, then a more detailed explanation of why we believe the COCS Study is fraught with problems and methodological concerns. M.O.R.E. indicates that in the 2004 PVA records farms accounted for \$338M in Shelby County property value, however, in their COCS Study they only count \$148M as farms and do not consider the residential portion of the farms in their study. While we disagree with their separating residential from the farms they sit on in the COCS, we are unsure of their intent to include farm residences as part of the property value considered in their letter to you. They also identify \$6.097M in farm workers and payroll, while Dr. Paul Coomes in an economic presentation to the Shelby Chamber identified \$5M in agricultural wages and salaries, includes net loss for farm proprietors. Lastly, M.O.R.E. listed a \$120M economic impact for agriculture products, services and agri-tourism. We cannot find a source for the services and agri-tourism numbers in the study. In addition, much of the agriculture sales such as nursery, greenhouse, floriculture, and sod, which accounts for \$8.2 million of total agricultural products sold, are purchased by the residents of Shelby County homes whose purchases add a significant amount to the agriculture and services industry of the county.

What ultimately concerns us the most is the insistence by M.O.R.E. to continue to act as if the COCS Study was some exact science study which should be used as a tool for public policy. This study is far from that. I would like to point out specific issues of this study to you. We examined the Shelby County COCS Study in scientific terms to determine if their methodology, assumptions and other approaches were reasonable. In many instances they were not and we have

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listed several critical concerns for you to consider before this study is used in any serious manner for developing public policy.

- The COCS study lacked any true economic analysis component when considering the actual economic impact of a Shelby County resident on County government beyond the actual property tax paid for each residential unit. Residents have an extended economic life in the county and it is generally considered that their dollars turn over six times in a local economy. The American Farmland Trust study (AFT) lacked consideration of the impact of residents purchasing goods and services in Shelby County, thus adding to the local economy by purchase of groceries, food at restaurants, home improvement stores, garden shops, general services, etc. and by doing so building the tax base of those businesses that pay taxes to county government. If the true economic impact of a Shelby County resident is to be considered then a study of this nature should be taken to the next level beyond the actual property tax paid for each residential unit. Also, the impact of residents volunteering their time for the PTA, Churches, and other endeavors are completely ignored in the COCS Study.
- Another major flaw in this study was to separate residential from the very farm they sit on in tax valuation and services. Farms have homes on them and thus are a package. In considering this, the COCS Study would have allocated a significantly higher proportion of value to deliver the county services to homes spread out the county, rather than actual residential developments where the homes and residents are concentrated. Houses on farms demand a greater level of service than homes concentrated in cities or residential developments/communities. This aspect of the COCS Study seems, by itself, enough to make this study suspect. Are we to believe that farms have no one living on them?
- We went further than our analysis here and researched nationally the COCS Studies and methods the American Farmland Trust applies to conduct these such studies. As you would expect with such a non-scientific and arbitrary mode to conduct a cost of community services study, the AFT always finds that farmland costs county governments less than the taxes they pay and residential costs more than they pay. What would you expect from an advocacy group such as the AFT? With their logic, Shelby County could have saved a lot of money not building any homes for residents.
- Use of "Fallback Percentages" is completely inappropriate to use in an economic study. If "it was not possible to attribute some line items to specific land use categories," as quoted in the COCS Study, then these numbers should not have been used at all, specifically in cases where revenues generated were straight lined with these numbers, but expenditures were not. If an expenditure can not be attributed to a land

use category definitively then that expenditure should be straight lined equivalently to revenue or should not be used at all. In this context it is not economically sound to counter that a certain percentage of revenue is generated from farmland to pay for general services such as a county attorney, county clerk, or sheriff, but then devote a different percentage of expenditure back to farmland from these general services. These services would have to be provided even if every resident in Shelby County, Kentucky resided on a farm. Another critical issue with the study is the arbitrary allocation of general administrative costs for county government operation.

- The study did not consider city services. This is a significant flaw because all city residents pay city taxes as well as county taxes; however, those residents who do not live within the city limits certainly use city services from time to time and contribute no revenue through taxes to provide the services they use. The COCS study calculated the portion of taxes that city residents pay to the county but did not consider the number of people who live outside of the city limits but use city services on a daily basis that city residents pay for?

We also identified a noted professor, Dr. Steven Deller, of the University of Wisconsin-Madison who has published numerous studies on rural communities fiscal well being. One titled "Urban Growth, Rural Land Conversion and the Fiscal Well-being of Local Municipalities" contained significant critical academic review of the AFT COCS Study model such as M.O.R.E. completed in Shelby County last year. We have included with this letter, copies of this study and another but please note several excerpts from the study relative to the AFT COCS Study which follow:

As noted by Bunnell (1997, 1998), "fiscal impact assessment has moved from unbiased information used in the public debate over land use and growth patterns into the realm of advocacy against unmanaged growth and for farmland and open space preservation."

Deller notes "Perhaps the clearest example of the use of fiscal impact studies to support an advocacy argument related to growth management is the American Farmland Trust's (AFT) sponsorship and promotion of Cost of Community Services (COCS) studies."

According to Deller "Taken to its logical conclusion the new conventional wisdom fostered by the American Farmland Trust is a world with farms, but no farmers, businesses, but with no employees: a community of farms and businesses, but no residents."

Deller also notes "COCS studies, however, are fraught with problems and critics often discount them because of the many underlying assumptions. Most notable, the conventional studies often fail to acknowledge that the

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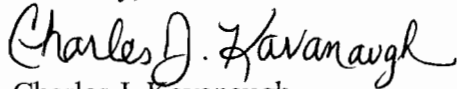
residential category includes the homes of most people who farm or work on farms in the study area.”

As noted by Ladd (1998), “most economists agree that fiscal impact assessment as advocated by the American Farmland Trust is a bastardized cost – benefit analysis, and consequently cannot by itself provide appropriate signals about whether a new development should be allowed.”

Before I close please let me say that this letter in no way is intended to shed any negative light on Shelby County farm owners. The Home Builders Association believes in the property rights of farmers and the subsidies that State and Federal Governments provide them. We also believe they should be able to sell their property when they want and receive market value. We have no argument with the farming community, only groups such as M.O.R.E. who somehow want to treat building homes for families who want to live, work and shop in Shelby County as something negative.

We feel strongly our analysis of the COCS Study raises legitimate concerns that need to be addressed before this faulty study is used for Public Policy. We appreciate the opportunity to address you and the Shelby County Chamber of Commerce. We hope to continue discussion of this study with you in the future.

Sincerely,



Charles J. Kavanaugh
Executive Vice President

cc: Shelby County Chamber Board of Directors
Shelby County Judge – Executive Rob Rothenberger
Shelby County Magistrates
Mayor of Shelbyville, Tom Hardesty
Mayor of Simpsonville, Steve Eden
Kentucky Senator Gary Tapp
Kentucky Representative Brad Montell
Cathy Wilde, M.O.R.E.
Kristin Mathis, B.A.C.E.D.

Version 1.0

**The Impact of Alternative Economic Development and Land Use Options:
A Case Study Using the Wisconsin Economic Impact Modeling System**

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The Impact of Alternative Economic Development and Land Use Options:
A Case Study Using the Wisconsin Economic Impact Modeling System

Abstract

The economic and fiscal impact of five alternative economic development events are compared and contrasted using a conjoined input-output/econometric modeling system call the Wisconsin Economic Impact Modeling System (WEIMS). The five hypothetical events include retail, services (hospital) and manufacturing developments along with two housing developments. For the case study of Walworth County, Wisconsin, the simulation results suggest that impacts can vary wildly across the types of development and that scenario development plays a key role in the analysis. Along this line, experimental simulations must take care to make scenarios comparable. In the end there are seldom "rules of thumb" that can be applied in the community setting.

Introduction

Traditionally rural communities that are located in close proximity to urban growth centers and/or areas best described as endowed with high levels of natural amenities are now faced with a range of economic growth and development options. Lands that have traditionally been used as an input into extractive industries such as agriculture and forestry, or sat idle, are now being sought for development. These developments range from retail and commercial developments on the edge of communities to the relocation of manufacturing facilities from urban areas to residential developments including recreational housing and more traditional track housing development. Often times these communities are faced with difficult decisions: should current use of lands be allowed to change and if yes, what is the "best use" of that land. Rapid land conversions in some instances have been know to negatively alter the characteristics of the community that attracted the development initially.

While these issues are not new, local officials are becoming more concerned about preserving the character of their communities. In addition to changing concerns about community character and preservation of the environment, the introduction of new theories of economic growth and development and research tools such as geographic information services and regional modeling methods have allowed local decision makers to ask more detailed questions and analysts to provide more detailed insights. The difficulty is that decision makers are often looking for simple answers to complex questions. Simple answers that are suggested in the practitioners' literature and particularly in the private consulting industry tend to become "truth." Unfortunately, these simple answers to complex questions tend to be gross over-simplifications and are more often than not wrong.

In the area of impact estimation, particularly related to alternative land use assessment, perhaps the most widely referenced "truth" answer is based on the work of the Farm Land Trust Preservation. The Trust's Cost of Community Services (COCS) methodology compares the total revenue generated by each land use type (e.g., residential, commercial, agricultural and manufacturing) to the total cost of providing services to each land use.¹ If expenditures equal revenues the ratio is equal to one and the particular land use is said to be revenue neutral. If expenditures exceed revenues the ratio is greater than one and the conclusion is that the particular land use does not pay for itself. If the ratio is less than one, the land use is said to more than pay for itself. Applications of the Trust's COCS approach has consistently found that the ratio for residential development is greater than one while other land uses, agriculture in particular, are always less than one. The "conventional wisdom" that has followed is that residential developments seldom if ever pay for themselves and that commercial, manufacturing, and in particular agricultural land uses should be promoted over residential. Given the Trust's stated political agenda the result concerning agricultural use should not be surprising. Because of the simplicity and wide use of COCS studies their results and policy positions have been taken as "truth." In numerous community settings local officials are commonly heard stating that "everyone knows housing developments don't pay for themselves." Cost of Community Services studies have been defined de facto as a simple set of "rules of thumb."

Unfortunately, when this "conventional wisdom" or "truth" is applied to specific situations in specific communities the results are simply wrong. In short, the method is descriptive and not predictive and is hence misapplied because the method is based on averages at a given point in time and not the marginal costs associated with land use changes. Given the narrow focus of COCS studies other socioeconomic factors are often overlooked and/or ignored. Issues like housing affordability, income levels and overall community quality of life are pushed to the side in deference to fiscal issues. In the extreme, following the logic of COCS studies, the "optimal" economic development policy, or land use policy, should result in a community full of farms, commercial and manufacturing developments and no residents.

In addition to the overall misuses of COCS studies, including the illogical end conclusion on land use, they fall short on several methodological and theoretical issues. Several of these limitations to be outlined are not unique to COCS studies. Other methodologies, including the one used in this study, are subject to the same critiques. Burnell (199X) argues that the methods wildly used are so fraught with limitations that no "conventional wisdom," "truth" or "rules of thumb" exist and that attempts to identify any are predetermined to fail and lead to poor public policies. Policy makers, however, are still faced with policy decisions concerning economic

¹ See Tim Kelsey's excellent review of COCS studies in "The Fiscal Impact of Alternative Land Uses: What do Cost of Community Service Studies Really Tell Us?" Journal of the Community Development Society, 27(1, 1996):78-89.

development and land use and should be made available the best information that the sciences can offer.

Many studies of the impact of alternative land uses often times use gross definitions of land use types. By averaging across land types, key distinctions between different land uses within the same category are lost. For example, the aggregate category "residential land use" makes no distinction between single family dwellings, mobile homes, apartment buildings or smaller retirement homes. In addition, the category "manufacturing" makes no distinction between small-scale low-intensity firms and large-scale operations. "Commercial" development treats edge of town big-box stores the same as downtown redevelopment efforts. Clearly the level of aggregation across land use types is often so gross that little insight into actual impacts can be gained.

Basis measurement errors are also common in a wide range of impact analysis approaches. COCS studies, for example, use as gross dollar basis to make comparisons, intensity of land use is lost. In COCS studies, farmland and open spaces appear to have the most favorable impact. This is because the ratios are estimated on a per dollar basis. If the ratios were calculated on a per acre basis, industrial and commercial developments would appear to be much more favorable. One acre of industrial land on average will contribute more to the tax base than one acre of agricultural land. Here methodological flaws in COCS studies predetermine the study's outcome.

The capacity to develop and grow is also ignored. This is perhaps the largest shortcoming to any approach used to assess economic and fiscal impacts of development and land use alternatives. For example, a sewer treatment plant operating at 80 percent capacity may be able to absorb 100 new single family dwelling with minimal additional costs. The 101st home, however, may exceed the capacity of the treatment plant and expensive expansions may be required. In this simple example, the first 100 dwellings may more than pay for themselves, but the 101st did not. Because the capacity of communities to absorb growth varies at any given time across a range of services and across communities, general "rules of thumb" can never be correctly applied. The notion of congestion plays a vital role in assessing impacts and is by definition very difficult to measure.

Economies of scale in service provision are also ignored in most impact methodologies. The academic literature has consistently documented the existence of scale economies in service provisions. Providing public services, for example, tend to have high fixed costs that can be spread over more developments. Road maintenance, for example, requires the community to have a minimum set of equipment regardless of the number of miles of road maintained. For smaller communities, this equipment can sit idle and represents high costs to the community. Other obvious examples include police and fire protection, certain cultural services such as libraries, and the general overall costs of government administration. For larger communities that

same equipment can be used more fully spreading the fix cost of operation over a wider range of users.

Many impact methodologies also ignore the nature of public services. Public services are very different than most other goods. Private goods are characterized as rival and excludable. If I eat an apple you can not consume the same apple. Consumers are rivals for private goods. Consumers can also be excluded from consuming certain goods through market mechanisms, particularly prices. Public goods are non-rival and non-excludable. If a police department is effective at deterring crime, all residents of the community benefit from that service. Additional residents do not necessarily prevent others from benefiting from an effective police department nor can additional residents be excluded. COCS studies along with many other approaches treat public services as private goods. In the absence of congestion, adding industrial or residential developments will not preclude prior residents from continuing to enjoy the same level of the public service.

Many impact methodologies also fail to take into consideration difference in demand levels for services. The demand for services, both public and private, varies across household types, commercial and industrial types. Demand does not, however, vary by land uses. Land in and of itself does not demand services. Rather it is the economic agents that are using the land that demand goods and services and the level of demand varies by users. Demand for public and private services will be very different for wealthy retirement communities from that of an aging manufacturing community. The more widely used simplistic methods of impact assessment, such as COCS studies, cannot reflect differences in demand levels across communities.

The intent of this study is to use a comprehensive regional economic modeling system to explore the variation in socioeconomic and fiscal impacts of alternative economic development options within a land use framework. Five alternative development proposal will be compared and contrasted including: a high and middle income residential development, a commercial retail development, a service based development, and a manufacturing development. Issues concerning consistency in scenario development will be explored as well as issues in comparison of simulation results. A case study approach will be adopted for ease of comparison using Walworth County in southeastern Wisconsin. Beyond these introductory comments, the paper is composed of four sections. Next, I outline the Wisconsin Economic Impact Modeling System which will be used to conduct the impact analysis. The scenarios are then described along with a brief description of Walworth County. The simulation results are then presented and the paper closes with a review of the issues and an outline of a research agenda. A more detailed description of WEIMS is provided in a technical appendix.

WEIMS

I examine the economic and fiscal impacts of different types of economic growth events and corresponding land use patterns on local economies in an integrated (or conjoined) input-output/econometric modeling framework (for a more detailed discussion see Appendix A and references therein). The model—dubbed the Wisconsin Economic Impact Modeling System (WEIMS) (Deller and Shields 1996; Shields and Deller 1997, 1998; Shields 1998; Shields, Stallmann and Deller 2000)—closely resembles a plethora of regional models constructed for policy simulations (e.g., Kort and Cartwright (1981) for US states, Conway (1990) for Washington state, Coomes, Olson and Glennon (1991) for the Louisville SMSA, Treyz, Rickman and Shao (1992) for user-defined regions, and Rey (1997) for San Diego).

For conjoined models, the IO component is used to determine industry outputs and primary factor demands. The econometric component estimates final demands, factor prices, and primary factor supplies. The aim is to retain the sectoral detail afforded by IO techniques and close it with a system of endogenous econometric relationships (Dewhurst and West, 1990).

As noted above, many studies looking at the impact of alternative land use patterns are limited because they offer only partial analysis. Using an integrated approach to assess the economic and fiscal impact of alternative land use patterns is a marked improvement over these previous studies because it moves toward the “holistic” approach that is often lacking in this literature. In particular, our approach recognizes the economic relationships among all agents in the economy, thus provides a better understanding of wide reaching impacts.

The Wisconsin System is a rather complex model, consisting of more than 50 stochastic equations. Because many of the details of the complete model are not relevant for the purpose of this study, discussion is limited to the demographic and fiscal modules. Additionally, since I want to keep the presentation as intuitive as possible, I approach this section by considering how the impacts of alternative land are specifically examined in the model framework.

A graphical overview of the Wisconsin System is presented in Figure 1. Six modules compose the model: 1) production, 2) labor, 3) demographics, 4) retail, 5) housing and 6) local government (fiscal). All modules, save the production module, consist of a series of stochastic econometric equations. To capture interrelationships, the modules are linked by one or more endogenous variables. Similar to other models of its type, the Wisconsin model recognizes two sources of economic demand, external and local. While county growth is driven primarily by export production, the model also contains a number of local policy variables that allow users to model locally induced demand shocks.

Intermediate production relationships in the local economy are examined in the input-output (IO) component. The IO model provides a very detailed family of production functions, albeit reliant on a number of fairly strong assumptions. A common way to initiate a policy simulation in the Wisconsin System is to specify a demand shock—the scenario often involves

reducing or increasing output for a single industry. The IO core is used to estimate changes in output by industry due to changes in final demand.

The labor market components of the model are linked to the production sector via industry output as determined by the production module. Part one of the labor module is used to estimate industrial employment and wages while part two examines unemployment, commuting patterns, population (including migration), total personal income and income distribution responses to the initial change in economic activity.

The remaining induced demand modules incorporate information provided by the labor market modules. Local retail sales rely on personal income, population and commuting patterns. Income and population change, among other things, drives the local housing market. Key forecasts from the housing sector include housing starts and property values. Income, population, and income distribution drive local government expenditures and revenues. Local government is also closely integrated with the local housing sector through property values (i.e., the property tax base).

To date WEIMS has been used to assess the economic and fiscal impact of retirement migration (Shields, Deller and Stallmann 2000; Stallmann, Shields and Deller 2000; XXXXXX), the affects of commuting on local retail markets (Shields and Deller 1999), the operation of a state prison (Deller 1999) and a public airport (Deller and Koles 1998). In addition, the modeling system has served as the foundation for an extension outreach educational program aimed at helping local officials better understand the economics of alternative policies and events (Deller and Shields 1998).

The Case Study and Scenarios

For the purpose of this study, five alternative land use patterns are examined within the context of alternative economic development options. The scenarios are designed to be as compatible as possible but sufficiently different to allow for contrasts between alternative policy options. The hypothetical scenarios center on a 100 acre parcel of land on the edge of a representative community. It is assumed that the public construction costs (e.g., new road construction, water and sewer line extensions, etc.) are comparable across the five development options. Therefore, the comparison/contrasts will emphases changes in operational expenditures and revenues of the hypothetical developments. In addition, a minimal number of assumptions are made about the structure of each scenario allowing the greatest flexibility for the model and comparisons.

The five alternative scenarios include: 1) commercial retail development, specifically a general merchandise type store such as a Wal-Mart or K-Mart; 2) a service development, a health care facility or small hospital; 3) a manufacturing facility that is consistent with the study area, a

food processing facility, specifically a condiment making plant; 4) a residential development marketed at households earning more than \$75,000 annually (high income); and 5) a residential development targeted at households earning \$35,000 annual (middle income). Each development is assumed to employ 100 persons paying prevailing wages. The two residential developments are assumed to include 100 homes each. For consistency in comparisons, it is assumed that all of the retail, service and manufacturing jobs are taken from in-commuters while each of the 100 workers associated with the residential developments out-commute. While this latter assumption represents an extreme oversimplification, it is required in this experimental framework to ensure comparability across scenarios.

As outlined above, each scenario is constructed to be readily recognized by IMPLAN, the input-output component of WEIMS. In turn, the general merchandise (IMPLAN sector 449) sector, hospital (IMPLAN sector 492) sector and condiment food processing (IMPLAN sector 69) sectors are shocked by 100 jobs. For the residential scenarios, income was injected into the local economy using the expenditure patterns for the high- and middle-income household institutions. For the high income, \$7.5 million is injected into the region while for the middle income \$3.5 million is injected. The expenditure pattern for these two institutions represents the spending patterns that each of these new households represent (see Wagner, Deller and Alward 1995 for details). For population estimates, each household is assumed to be composed of one worker and two and a half persons.

The region used for this experiment is Walworth County in the southeastern portion of Wisconsin. Walworth County has a population of about 88,000 persons with a per household income of slightly less than \$62,000. Perhaps best known for the recreational area Lake Geneva, it has historically been a weekend retreat destination for higher income residents of Chicago. Today, the southern part of the county, which borders on the Illinois-Wisconsin state line, is starting to experience the ex-suburban growth pressures from the north-northwest growth of metro Chicago. The northern and western parts of the county are traditional agricultural with fairly large scale (relative to Wisconsin) crop production farms. Scattered throughout the county is a large and growing Hispanic population that supports a number of low to average paying manufacturing jobs. In short, Walworth County represents a community that has a balance of economic activity and as the Chicago metro area grows from the south and the Milwaukee metro area from the north-east, an area that will be facing increased demands for alternative land use decisions.

Scenario Results

The results of the simulation are presented in Tables 1 through 6. The estimated changes in industrial demand from the input-output model (IMPLAN) are provided in Table 1. Immediately, one can see significant differences in the scale and variation in impacts across the

five scenarios. The middle-income residential development has the smallest total impact on industrial output at only \$1.5 million, a level significantly below the \$3.5 million in injected income. This "loss" of economic activity comes from effective margining of retail expenditures and non-local spending associated with out-commuters (Shields and Deller 1998). The commercial retail development impacted total regional activities by \$3.7 million in industrial output, followed by the high-income residential development at \$4.4 million and the hospital development at \$8.4 million in industrial output. The manufacturing scenario, however, generated a significantly higher change in industrial output: 100 jobs in the food-processing sector generated \$41 million in additional industry sales. This dramatic difference can only be attributed to high output per working in this particular sector. Care must be taken because this disproportionately large impact for manufacturing will follow throughout the rest of the analysis.

From the econometric components of WEIMS estimates that the change in employment levels will range from 27 jobs with the middle-income residential development to 340 for the manufacturing scenario (Table 2). Eighty jobs are generated for the high-income scenario, only 110 for the commercial retail development and 173 for the hospital scenario. The difference in the two residential developments seems reasonable given the assumption of 100 percent out-commuting and differences in income levels and spending patterns. The 100 hospital jobs resulting in 173 total jobs imply an employment multiplier of 1.73, which seems reasonable. The small increase in additional jobs from the retail development, with an implied employment multiplier of only 1.10, is reflective of the lower pay scale often offered at general merchandise type stores and the leakage of profits from the area. The 100 additional jobs in food processing manufacturing translates into 340 total jobs for an implied multiplier of 3.40, an estimate that seems unreasonably high.

Since no structure is imposed within the various scenarios on the location of persons taking jobs created, other than all workers from the residential development out-commuting, the model is given complete flexibility. Changes in population range from 139 persons for the retail development to 447 persons for the manufacturing scenario (Table 3). The residential developments result in population increases of 351 and 285 persons for the high- and middle-income scenarios respectively.

There are also changes in the level of unemployment and net-commuting patterns. Across all five scenarios, the number of unemployed persons decreases from between five for the middle-income residential development to 54 for the manufacturing development (Table 3). In terms of unemployment rates, these declines in the number of unemployed translate into modest reductions in the unemployment rates going from about 2.6 to 2.5 percent. In each of the scenarios there is a noticeable change in commuting patterns from an increase in out-commuting across all five, modest reductions in in-commuting, save for the manufacturing scenario. The balance of the jobs are taken from in-migrants.

The changes in commuting patterns is best explained within WEIMS by relative changes in regional wages (per capita income) and housing prices. The econometric results of WEIMS suggests that increases in housing prices (median house value) relative to housing prices in surrounding counties, increases the tendency of new jobs to be taken by in-commuters as opposed to in-migrants. The econometric results also suggest that changes in local wages (per capita income) relative to wages in surrounding counties will affect net-commuting patterns. In four of the five scenarios, per capita income declined, ranging from a decline of \$42 for the middle income scenario to a modest decline of slightly more than \$5 for the hospital scenario. Interestingly, the general merchandise retail scenario saw a decline of about \$7.5 which is smaller declines than either residential developments. The manufacturing scenario results in an increase of almost \$24 in per capita income. But even the largest absolute change in per capita income is only 0.23 percent of the original level.

From the housing module of WEIMS there are small changes in median housing values (Table 4), which feed into commuting patterns. In four of the five scenarios, the median price (value) of housing increased by almost \$11 for the retail scenario to \$170 for the manufacturing scenario. Only in the middle-income residential development saw a decrease in market values with a \$65 decline. But with an original median house value of nearly \$68,000, these changes represent less than a one percent change. Still, this is a sufficient change to influence commuting flows describe above. Also reported in Table 4 are simulated changes in the value of new residential construction (New Housing Permit Value) and the change in the rate of flow of new housing construction (Increase in New Construction). It is important to note that these latter measures do not directly reflect the two residential development scenarios, but rather the level of ripple or multiplier affect from the initial shock (scenario).

While these changes in income and housing values may appear to be small, specifically less than half a percent, these variables a drivers in the labor market modules of WEIMS. It is the latter module that absolute changes in population are derived and "getting population right" is critical in assessing fiscal impacts. The econometric results, numerous applications of WEIMS and other CPANlike models (e.g., Deller 1999), all suggest that the level and magnitude of impact assessment hinges on correctly estimated population changes. In the end, population changes drive the impacts.

The fiscal impacts of the five alternative economic development options, and corresponding land use patterns, are reported in Tables 5 and 6. Consistent with the rest of the analysis, the food processing manufacturing scenario has the largest increase in local government expenditures at about \$350,000 exclusive of K-12 public schools. General government administration expenditures is the largest single category of expenditures followed by expenditures on safety related items including police and fire protection. The smallest increase for the manufacturing example is health and human services with only a \$7,000 increase. The

small increase in the latter category is a direct result of the estimated increase in per capita income and the relatively large decrease in the number of unemployed. Total revenues are estimated to increase by over \$800,000 hinting at a net positive impact. Care must be taken, however, because the expenditures estimated here do not include any capital expenditures (e.g., road construction, sewer and water lines, etc.) and the costs of servicing any debt incurred to finance the capital items.

The high- and middle-income residential develops increase total local expenditures by \$317,000 and \$231,000 respectively. For the high-income scenario, expenditures on police and fire protective services is single largest category increase at almost \$90,000 and for the middle-income residential development protective service expenditures increased by almost \$65,000. It is most interesting to note that the two types of residential developments does not produce parallel expenditure impacts. For example, protective expenditure increases for middle-income residential development is about three-quarters that of the high-income scenario. But road maintenance expenditures, at \$26,000 for the high-income is almost four times higher than the middle-income residential development. Health and human services expenditures is nearly the same for both types of development ranging from about \$54,000 to \$59,000. As with the manufacturing example, total revenues are expected to increase by about \$645,000 for the high-income development and almost \$500,000 for the middle-income. In both cases, the developments appear to more than pay for themselves. It is particularly important to note that in addition to capital expenditures not being captured, these analyses do not include public schools.

The retail development places modest demands on local public services with an estimated increase of just over \$100,000 yet generates revenues of \$240,000. The service development, in this case a modest size hospital increases local government expenditures by \$167,000 and revenues of \$385,000. Again, both the general merchandise type development and the hospital development more than pay for themselves.

For each of the five different types of economic development options, and corresponding land use decisions, the demand for services provided by local governments increases. But given the size of local government in the case study area, Walworth County, Wisconsin, these increases represent less than half of one percent increases. Modest impacts given the relative size of the county. Increases in revenue outpace increases in expenditures by 2 to 2.3 times in every example scenario. For this county example, development does seem to pay for itself *if congestion in services is not an issue.*

From a local decision making perspective each economic development scenario has positive and negatives. For example, the manufacturing development will have the greatest impact in terms of jobs and income, but will increase local government expenditures the most. On the other hand, the manufacturing development may have a net revenue windfall of \$460,000

dollars. But will the manufacturing development impact the community to such an extent that the characteristic of the community may be altered? Four of the five scenarios have a positive net fiscal impact, yet per capita income declines, albeit modestly. Only one development scenario, manufacturing, has a modest positive impact on median housing value and the middle-income residential development actually lowers median housing value. Other than the manufacturing example, which may be overstated with an implicit employment multiplier of 3.4, each of the example scenarios has both positive (e.g., fiscal) and negative (e.g., per capita income) economic impacts. In the end, local officials must balance multiple and often contradictory economic impacts.

Conclusions

Local officials are faced with a range of alternative economic development policies and corresponding land use decisions. Increasingly these officials are asking complex questions about the costs and benefits of these alternatives. Fewer communities are inclined to “shoot anything that flies, claim anything that lands” as their economic development policy. As our ability to simulate changes in a policy (e.g., socioeconomic impact assessment) and physical (e.g., environmental) setting, the ability to provide finer insights has been enhanced. The intent of this study was to use an integrated input-output/econometric socioeconomic model of Wisconsin counties. The Wisconsin Economic Impact Modeling System (WEIMS) links IMPLAN to a set of 50 simultaneous equations.

Five alternative economic developments, and corresponding land use patterns, are examined. These include: a retail development, a small hospital, a food processing manufacturing firm, a high-income and a middle-income residential development. For ease of analysis and comparison, each development is limited 100 jobs at prevailing wages and/or 100 houses. All workers residing in the two residential developments are assumed to commute out of the county. The model is allowed to determine the location of workers generated through the industrial developments.

The simulated results suggest that each development has positive and negative aspects. From a purely fiscal perspective, each of the development scenarios generate more than sufficient revenues to off-set higher local government costs. Hence, each proposal has a positive fiscal impact. Yet, four of the five scenarios generated lower levels of per capita income, a net negative impact. In addition, while four of the five developments increased the median value of owner occupied housing, there was downward pressure on the value of new residential construction. In the end, only one development proposal, the food processing firm, had positive economic impacts across the board. The remaining four development proposals presented a mixture of positive and negative economic impacts. The balancing of these positive and negative, in the end, is a local decision with no necessarily right or wrong answer.

This exercise has drawn attention to three central issues in socioeconomic impact assessment. First, the simplistic methods of impact assessment, such of the Farmland Trust Cost of Community Service approach (COCS), greatly oversimplify complex issues and fail to allow for differences across types of development. There is no easy answer or magic frame of reference that to drive development and land use policies. Second, great care must be taken when comparing and contrasting alternative development policies. Scenario development can largely predetermine the end analysis. Changes in basic assumptions, particularly with the employment patterns associated with new residential developments, can drastically alter the analysis. A less than scrupulous analyst could easily sway the analysis one way or another. Finally, the capacity of the community to absorb that growth is fundamental to the impact, particularly fiscal impacts. The notion of congestion is vital to assessing impacts, congestion levels vary by community, compounding the lack of an easy answer issue, and is difficult to measure. This latter difficulty practically mandates that each proposed development and land use be assessed on a case-by-case basis.

References

Table 1 Simulated TIO Impacts (Output from IO)

	RETAIL		MANUFACTURING		SERVICES		RESIDENTIAL	
	Gen Merch		Food Proc.	Hospital	High Income	Middle Income		
Agriculture	\$ 11,073		\$ 594,022	\$ 39,873	\$ 63,596	\$ 24,813		
Mining	\$ 0		\$ 0	\$ 0	\$ 0	\$ 0		
Construction	\$ 37,194		\$ 332,762	\$ 91,662	\$ 124,072	\$ 37,060		
Manufacturing	\$ 91,915		\$ 32,970,794	\$ 187,176	\$ 195,181	\$ 70,633		
TCPU	\$ 65,819		\$ 1,858,257	\$ 186,075	\$ 262,877	\$ 96,686		
Trade	\$ 2,997,778		\$ 2,405,768	\$ 566,242	\$ 1,198,233	\$ 423,743		
FIRE	\$ 251,944		\$ 1,187,299	\$ 669,846	\$ 1,287,400	\$ 401,346		
Services	\$ 248,046		\$ 1,820,859	\$ 6,569,279	\$ 1,184,897	\$ 389,536		
Government	\$ 33,330		\$ 171,835	\$ 101,019	\$ 127,752	\$ 47,844		
Total	\$ 3,737,099		\$ 41,341,595	\$ 8,411,173	\$ 4,444,008	\$ 1,491,660		

Simulation: 100 new jobs or 100 new households

Table 2 Simulated Employment Impacts

	RETAIL		MANUFACTURING		SERVICES		RESIDENTIAL	
	Gen Merch		Food Proc.		Hospital	High Income	Middle Income	
Agriculture	0		11		1	1	0	
Mining	0		0		0	0	0	
Construction	0		2		1	1	0	
Manufacturing	1		197		1	1	0	
TCPU	1		17		2	2	1	
Trade	100		72		17	36	13	
FIRE	2		8		5	9	3	
Services	5		40		144	26	9	
Government	1		5		3	4	1	
Total	110		341		173	80	27	

Simulation: 100 new jobs or 100 new households

Table 3 Simulated Labor Market Impacts

	RETAIL	MANUFACTURING	SERVICES	RESIDENTIAL	RESIDENTIAL
	Gen Merch	Food Proc.	Hospital	High Income	Middle Income
Population	139	447	219	351	285
Per Capita Income	-\$7.54	\$22.78	-\$5.45	-\$9.17	-\$42.13
Total Income	\$2,582,479	\$8,318,355	\$4,069,254	\$6,520,651	\$5,285,151
Unemployment	-19	-54	-29	-13	-5
In-Commuters	-18	111	-5	-5	-17
Out-Commuters	42	91	60	72	52

Simulation: 100 new jobs or 100 new households

Table 4 Simulated Housing Market Impacts

	RETAIL	MANUFACTURING	SERVICES	RESIDENTIAL	RESIDENTIAL
	Gen Merch	Food Proc.	Hospital	High Income	Middle Income
Median House Value	\$10.76	\$170.16	\$35.55	\$17.90	-\$65.32
New Housing Permit Value	-\$10.69	\$32.31	-\$7.73	-\$13.00	-\$59.76
Increase in New Construction	18	59	29	46	37

Simulation: 100 new jobs or 100 new households

Table 5 Simulated Fiscal Expenditure Impacts

	RETAIL		MANUFACTURING		SERVICES		RESIDENTIAL	
	Gen Merch	Food Proc.	Food Proc.	Hospital	High Income	Middle Income	High Income	Middle Income
Health and Human Services	\$7,123	\$6,930		\$9,057	\$58,971	\$53,699		
Government Administration	\$36,562	\$102,777		\$55,668	\$66,494	\$54,578		
Safety Services	\$22,746	\$92,175		\$38,493	\$89,654	\$64,928		
Road Maintenance	\$8,774	\$49,034		\$16,689	\$26,535	\$6,017		
Solid Waste and Sanitation	\$9,251	\$37,528		\$15,660	\$25,050	\$14,367		
Cultural and Amenities	\$19,610	\$67,167		\$31,504	\$50,424	\$37,867		
Total	\$104,067	\$355,612		\$167,071	\$317,129	\$231,455		

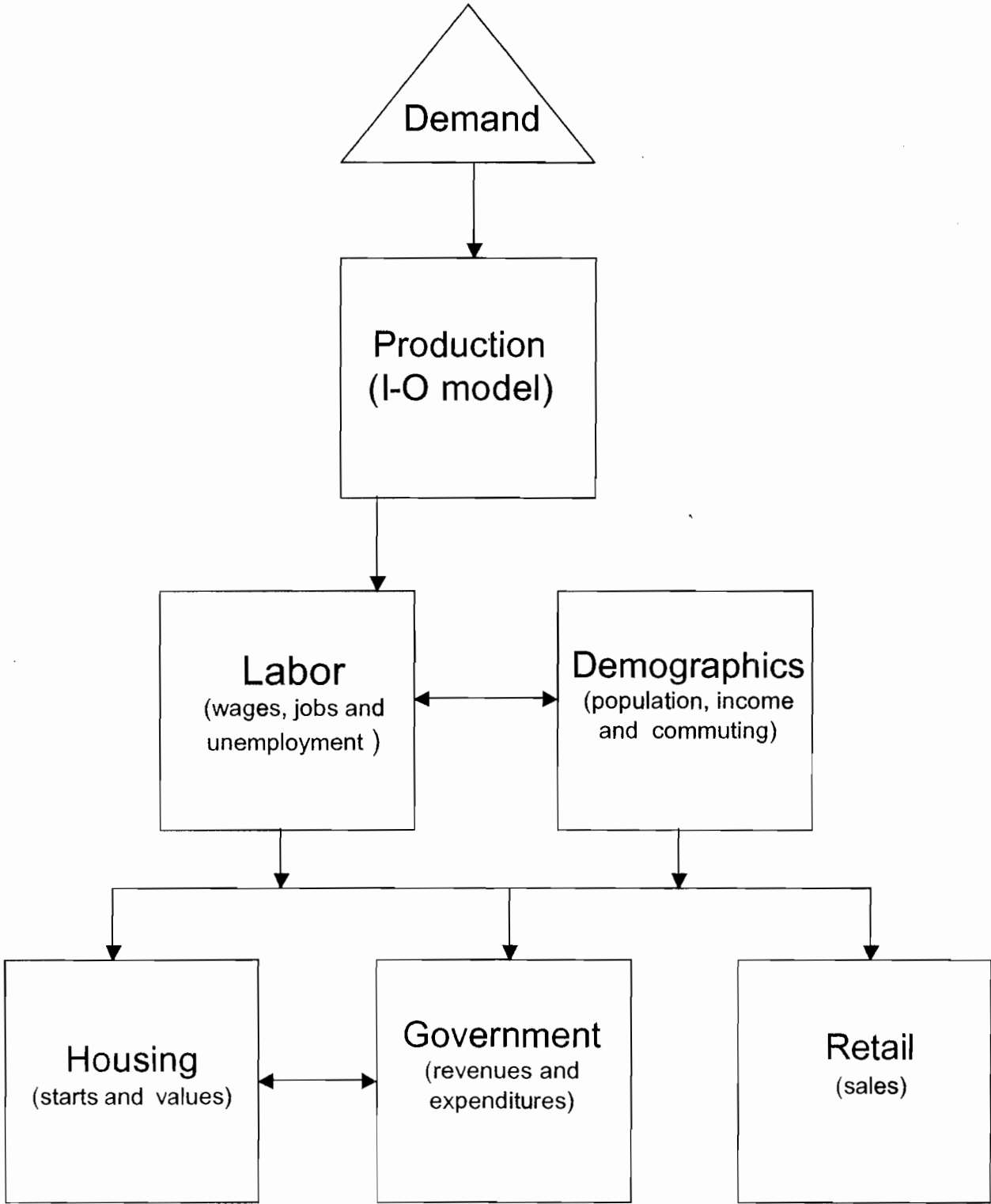
Simulation: 100 new jobs or 100 new households

Table 6 Simulated Fiscal Expenditure Impacts

	RETAIL		MANUFACTURING		SERVICES		RESIDENTIAL	
	Gen Merch	Food Proc.	Food Proc.	Hospital	High Income	Middle Income	High Income	Middle Income
Intergovernmental Aids/Revenues	\$32,271	\$115,304		\$52,495	\$112,931	\$76,927		
Property Taxes	\$208,152	\$700,908		\$332,753	\$531,513	\$419,976		
Total	\$240,422	\$816,212		\$385,248	\$644,444	\$496,903		

Simulation: 100 new jobs or 100 new households

Figure 1. The Wisconsin Economic Impact Modeling



APPENDIX 2
The Labor and Demographics Modules

The labor and demographic modules of the Wisconsin System have several purposes. First, they are used to convert changes in industry output into changes in industry labor demand and wages. The modules then use this information to examine how changes in labor demand and the local wage structure affect the labor supply decisions of commuters, local residents (including the unemployed) and in-migrants. In general, we expect people to respond positively, either through commuting, mobility or labor force participation, to higher wages and more employment opportunities. Conversely, we expect labor supply to respond negatively to high unemployment, low wages and, in instances of commuting, variant housing prices and distance traveled. Overall, population, commuting and income changes are important economic impacts and critical for the rest of the system.

The labor and demographic equations are built in the tradition of previous empirical and theoretical models of labor markets and population. The following system of equations summarizes the relevant aspects of these modules.

$$emp_i = \alpha_{0,i} + \alpha_1 wage_i + \alpha_2 output_i + \sum_{j=3}^5 \alpha_j clust_j + \varepsilon_i \quad (A.1)$$

$$wage_{i,t} = \beta_0 + \beta_1 emp_i + \beta_2 unemp_i + \beta_3 wage_{i,t-1} + \sum_{j=4}^6 \beta_j clust_j + \varepsilon_{i,t} \quad (A.2)$$

$$unemp_t = \delta_0 + \delta_1 emp\ grow + \delta_2 wage\ grow + \delta_3 educated + \delta_4 unemp_{t-1} + \sum_{j=5}^7 \delta_j clust_j + \varepsilon_t \quad (A.3)$$

$$pop = \eta_0 + \eta_1 totemp + \eta_2 relstwa + \eta_3 relstun + \sum_{j=4}^6 \eta_j clust_j + \varepsilon \quad (A.4)$$

$$incommute = \gamma_0 + \gamma_1 rrellocwa + \gamma_2 rrellocun + \gamma_3 empop + \gamma_4 relhouse + \gamma_5 dist + \sum_{j=6}^8 \gamma_j clust_j + \varepsilon \quad (A.5)$$

$$outcommute = \tau_0 + \tau_1 rrellocwa + \tau_2 rrellocun + \tau_3 empop + \tau_4 relhouse + \tau_5 dist + \sum_{j=6}^8 \tau_j clust_j + \varepsilon \quad (A.6)$$

$$laborforce = \lambda_0 + \lambda_1 pop + \lambda_2 elderly + \sum_{j=3}^5 \lambda_j clust_j + \varepsilon \quad (A.7)$$

Equation A.1 is the industry employment equation. Here, we expect higher wages to be negatively associated with total industry (*i*) employment ($\alpha_1 < 0$), while higher industry output should be positively associated with employment ($\alpha_2 > 0$). We have also included a location-specific dummy variable *clust3*. In our model we consider nine one-digit SIC industries, the same level of industry aggregation as the I-O model.

2 A detailed description of the Wisconsin System is available in Shields (1998) and at <http://www.aers.psu.edu/d/fac/shields.htm>.

3 In the larger model we have developed a set of dummy variables "defining" economic regions in Wisconsin. Using cluster analysis on a variety of economic base indicators, we have identified four regions in the state: agriculture, tourism, resources and diverse. In the interest of saving space and because the results of this analysis are not critical for our purposes here, we do not detail the clustering procedure or the results. Readers interested in finding out more about this procedure are referred to Shields and Deller (1998).

Equation A.2 is the industry wage equation. Here, we suggest that higher levels of industry employment are related to higher annual earnings per worker ($\beta_1 > 0$). If the local labor market has unemployed resources, wages will be lower ($\beta_2 < 0$). Lagged wages ($t-1$) are also important.

In equation A.3, we examine local unemployment. We expect that a higher employment *growth rate* is related to a lower unemployment rate ($\delta_1 < 0$), as local residents fill some of the new job opportunities. We expect that growth in the local wage will be indicative of a tightening of the local labor market ($\delta_2 < 0$). Counties with higher percentages of a population with at least a high school degree are expected to have lower unemployment rates. The lagged unemployment rate is included to examine differences in unemployment across regions yet stability within a region ($\delta_4 \approx 1$).

Population is endogenous (A.4). We expect that employment opportunities are related to the current population ($\eta_1 > 0$). In testing the hypothesis that population will be higher in counties with a higher wage relative to the state average ($\eta_2 > 0$), the importance of relative earnings is also considered. Conversely, counties with high unemployment rates relative to the state, hence a lower relative probability of employment, are predicted to have fewer people ($\eta_3 < 0$).

Equation A.5 examines the proportion of the regional labor force that commutes into the county. Analogous to the population equation, in-commuters will be attracted to counties with a higher local wage *relative* to contiguous counties ($\gamma_1 > 0$) as well as greater relative employment opportunities relative higher ($\gamma_3 > 0$). Conversely, counties with higher unemployment rates relative to contiguous counties should be less attractive ($\gamma_2 < 0$). Employees preferring lower relative housing costs might be willing to commute ($\gamma_4 < 0$). Finally, travel costs (i.e., average distance between the local county seat and contiguous county seats) might negatively influence commuting ($\gamma_5 < 0$). Coefficients on estimates for the proportion of the local labor force that out-commutes (A.6) are anticipated to be the opposite of the hypothesized signs for the in-commuting equations. In equation A.7 we predict that the local labor force will be greater in regions with larger populations ($\lambda_1 > 0$) and lower in regions with a higher proportion of elderly residents ($\lambda_2 < 0$).

To account for simultaneity, we estimate equations (A.1)-(A.7) using three stage least squares on cross-section data for 69 Wisconsin counties. In general, the empirical results are consistent with theoretical predictions, and the elasticities are similar to those reported in the literature. Space limitations prohibit a detailed discussion of the results, but in general the data for Wisconsin supports the hypothesis outlined above.

The Fiscal Module

The fiscal module examines the effects of economic change on local government expenditures and revenues. In modeling the expenditure side, we adopt the conceptual framework forwarded by Robert Inman and empirically examined by many others. Inman (1979) modifies the traditional demand-supply model for public goods and services delivery to reflect a two-step process of decision-making and production. *Provision* of the good or service refers to the collective choice (i.e., demand) that determines what goods and services to provide, at what level, how to raise the necessary revenue, and how to arrange for the *production* of the good or service. The second step is the actual production (supply) of the public good or service. Here, *production* refers purely to the technical process of transforming inputs into outputs (i.e., the public good or service). It is important to note that it is in the latter stage that actual costs are incurred. In this framework, supply and demand are examined simultaneously in an empirical expenditure function.

Here, local government expenditures are a function of input prices, income, population (to capture congestion effects) and local tastes and preferences, or:

$$\begin{aligned} \text{govtexp}_k = & \alpha_{k,0} + \alpha_{k,1}pci + \alpha_{k,2}hhlds + \alpha_{k,3}proptax + \alpha_{k,4}pceav + \\ & \alpha_{k,5}\Theta + \sum_{j=6}^8 \alpha_j clust_j + \varepsilon_j \end{aligned} \quad (\text{A.8})$$

where *govtexp* is per capita expenditure for public good *k*, *pci* is per capita income, *hhlds* is the number of households, *proptax* is the local property tax rate, *pceav* is per capita equalized assessed property value, and θ represents socioeconomic characteristics based on a review of the median voter and fiscal impact literature.

In general, it is expected that per capita expenditures will be higher in communities with higher income levels ($\alpha_{k,1} > 0$); higher tax rates ($\alpha_{k,2} > 0$); and higher property values ($\alpha_{k,3} > 0$).⁴ The sign on the

4 Note that our tax variable (and subsequently our hypothesis) differs from most previous empirical expenditure equations. Whereas earlier studies examine the tax *burden* (i.e., tax share) of the median voter—with a higher burden being thought of as a higher price and thus less demand—we examine the local property tax *rate*. Because this rate is (indirectly) set by democratic process in Wisconsin, we argue that it captures a resident's *willingness* to pay for a particular service. Thus in areas with a higher willingness to

number of households is not hypothesized because it can capture congestion (a positive effect on per capita expenditures) or economies of scale (a negative effect). The socioeconomic variables, which vary by equation, include local poverty and unemployment rates, the local crime rate, and other unique demand conditions. To ensure consistency in the analysis, expenditures are aggregated to the county-level. Because local public services in Wisconsin are provided within a tiered system between county and municipal governments, this is a reasonable approach.

Local Government Revenues

Revenue is difficult to model theoretically because it is often defined in accounting terms. For example, property tax revenues are simply the product of the local property tax rate and local property value. It is obvious, though that recognizing the factors that influence property values is critical to understanding local property tax revenues, a point expanded upon below. The local government revenue side of the fiscal module examines two primary sources of revenue: intergovernmental transfers and property tax revenues.

In Wisconsin, intergovernmental revenue is determined by formula; thus, the revenue sharing formula can be used to estimate those revenues. A large source of local revenue in the state comes in the form of state revenue sharing. While the shared revenue formula consists of several different components, we focus on aidable revenues, which account for 80 percent of the revenue sharing in Wisconsin.

The general formula municipal revenue sharing is calculated as follows:

$$\text{aidable revenues} = 3 \text{ year avg of local purpose revenues} * \text{tax base weight} \quad (\text{A.9})$$

where

$$\text{tax base weight} = 1 - \left(\frac{\text{per capita EAV}}{\text{standard value per person}} \right) \quad (\text{A.10})$$

Local purpose revenues are defined as local property tax levies plus certain other locally raised revenues. The tax base weight can not be less than zero. The standard value per person acts like a state guaranteed tax base and is set annually by the state such that all budgeted aid dollars are allocated. From this formula it is obvious that per capita equalized assessed value (EAV) and per capita property tax revenues are important determinants of state revenue sharing. It is important to note that this formula excludes revenue sharing for education, which is accounted for separately. Property tax revenues depend primarily on the assessed value of local property (EAV) and the local property tax rate. The empirical revenue equations

Because they are based on formulae and definitions, it is rather easy to specify local (linear) revenue equations:

$$igovrev = \psi_0 + \psi_1 pcgovexp + \psi_2 pceav + \varepsilon \quad (\text{A.11})$$

$$prtaxrev = \mu_0 + \mu_1 proptax + \mu_2 pceav + \sum_{j=3}^5 \mu_j clust_j + \varepsilon \quad (\text{A.12})$$

where *igovrev* is per capita intergovernmental revenue and *prtaxrev* is local property tax revenue. In accordance with the formula, it is expected that intergovernmental revenue is positively related to property tax revenues ($\psi_1 > 0$) and negatively related to per capita EAV ($\psi_2 < 0$). For estimating local property tax revenues it is expected that both property tax rates and per capita EAV have positive coefficients ($\mu_1 > 0, \mu_2 > 0$). In estimating revenues and expenditures we use a time-series cross-section of data for 1992-94. The government expenditure and revenue data is drawn from the Wisconsin Department of Revenue. Again, space limitations prohibit a detailed discussion, but in general the models performed as expected.

Given that these two sources are the primary local revenue sources in Wisconsin, property value obviously plays a critical part in local government finance in the state. Thus, we have modeled it endogenously. Our property value equation follows the rich tradition of hedonic modeling, and is designed to capture the influence of local economic conditions (e.g., Oates, 1969).

To summarize, there are at least two ways in which economic change can affect local property values. First, shifts in the demand factors that influence local housing markets such as income and population can put upward pressure on property values. Second, changes in local public expenditures (endogenous) and tax policies (exogenous) can also affect property values. We estimate a variant of Oates' (1969) seminal model. The specification is typical of the linear regressions that dominate the literature, and uses total equalized assessed property value per capita as the dependent variable:

pay we expect higher per capita expenditures. Similarly, we argue that property value captures an *ability* to pay, with higher values leading to higher local expenditures.

$$value = \beta_0 + \beta_1 taxrate + \beta_2 govtexp + \beta_3 pci + \beta_4 poverty + \beta_5 popdens + \beta_6 since70 + \sum_{j=7}^{10} \beta_j clust_j + \varepsilon \quad (A.13)$$

Generally, it is expected that a higher property tax rate (*taxrate*) will have a negative effect on property and house values ($\beta_1 < 0$). Three government expenditure measures (*govtexp*) are included to proxy public service provision: per student education, per capita road maintenance and per capita public safety. It is expected that higher expenditures in each of these categories will lead to higher property values, *ceteris paribus* ($\beta_2 > 0$). If housing and property are normal goods, per capita income (*pci*) should have a positive coefficient ($\beta_3 > 0$). Population density (*popdens*) and the local poverty rate (*poverty*) are included to capture the importance of local demographic characteristics. It is expected that house values are higher when homes are newer ($\beta_6 > 0$), thus we include the proportion of houses built since 1970 (*since70*). Because they are specified as linear equations, the property and median value equations above lend themselves to OLS estimation.

This approach to modeling fiscal relationship has one major complicating problem: the notion of congestion. Because public goods are jointly consumed, the number of beneficiaries is an important consideration. Most public goods can accept additional use up to a capacity threshold. Until this threshold is reached, marginal costs of additional users are minuscule. Upon reaching the threshold, congestion becomes an issue, and the impacts of adding additional consumers can be significant. An obvious example is a public school. When capacity is exceeded, local decision-makers must consider building a new school. Unfortunately, the equation outlined above does not do a good job of addressing the discrete nature of some public goods. The upshot is that analysts should interpret model results with an understanding of current local capacity conditions.

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**Urban Growth, Rural Land Conversion and the
Fiscal Well-Being of Local Municipalities***

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* This essay draws heavily on the work of Tim Kelsey (1996) and Gene Bunnell (1997, 1998).

Urban Growth, Rural Land Conversion and the Fiscal Well-Being of Local Municipalities

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As urban areas grow in terms of population, income, and wealth the value of land surrounding these places increases. Returns to developing the land for housing and commercial enterprises exceed the returns to farming. Some of the most productive agricultural areas become attractive sites for development (Morris, 1998). Prior to the 1960s, the conversion of farmland was considered part of the natural process of spatial economic growth. Rapid suburbanization of cities due in part to the completion of the interstate highway system and the draw of suburban lifestyles caused many environmentalists to call into wisdom the allowance of unregulated growth. As observed by Rome (2001) the 1960s and 1970s witnessed the emergence of two conflicting mega trends: first, massive migration to the suburbs and high amenity ex-suburban rural areas and second, the rise of the environmental movement.

Throughout the 1960s and early 1970s environmentalists and others concerned with the rapid unregulated growth argued for more restraints on growth due to nebulous environmental concerns, broad quality of life issues and accusations of the demise of the family farm. While the general public were aware of these concerns there was little for local decision makers to use to off set the positive economic impacts taunted by developers and the strong sense of private property ownership rights. The tone of the discussion shifted rapidly in 1974 with the release of the infamous *Cost of Sprawl* study prepared by the Real Estate Research Corporation (RERC 1974a) for the U.S. Department of Housing and Urban Development. For the first time the public was made aware of differential fiscal impacts on local governments from alternative land use patterns. The major conclusion of this study was that "for a fixed number of households, 'sprawl' is the most expensive form of residential development...[t]his cost difference is particularly significant for that proportion of total costs which is likely to be borne by local governments" (RERC 1974a:7).

In a follow up study in Wisconsin, the RERC (1974b) analyzed the cost implications of accommodating projected future growth under different development scenarios. The study compared the public costs associated with accommodating a forecasted statewide population increase of almost one million persons under three different growth scenarios: compact, high density "containment;" "suburban extension;" and "exurban dispersion." On the basis of the study, RERC concluded that "[i]f saving money on community facilities is important to citizens and local government officials, an increase in density and a reduction in leapfrogging will save significant sums" (p.7). Environmentalists and concerned planners who before the RERC studies had been able to point to qualitative concerns about unregulated growth now had tangible "hard" evidence upon which to plead their case.

More recent examples of studies supporting the notion that planning and growth management can save taxpayers money include the work of researchers at Rutgers University's Center for Urban Policy Research (CUPR). The CUPR study (1992) calculated the public costs that would result from following the New Jersey growth management plan compared to unregulated growth. The Rutgers researchers found that over a twenty-year period \$1.3 billion in infrastructure costs could be saved. More remarkable about the Rutgers study is that the New Jersey growth management plan did not limit the amount of growth to occur but rather simply alter the pattern, density, and location of development. While the CUPR study covered a range of environmental and social issues, the fiscal calculation attracted by far the greatest publicity and public comment. Other large scale studies that have drawn significant attention in the planning arena and the public's eye include the Builders Association of the Twin Cities study (1996), the Kelly (1993) study of the Maryland "Vision" plan, and the infamous DuPage County Planning Department study (1992) of the rapid growth west of Chicago. In each case, low-density growth

often associated with "sprawl" in which a given amount of population and business growth consumes larger amounts of land has significantly higher capital costs born by local governments.

Within the academic literature, the work of Helen Ladd (1990, 1994 and 1998) and her colleagues represents perhaps the most systematic and rigorous analysis of alternative growth patterns. In her 1990 study, for example, she examined 248 large counties and found that counties with higher rates of growth, and larger increases in tax-paying new development, had higher levels of public expenditure and higher tax rates than slower growing communities. The work of Ladd and other economists associated with the Lincoln Institute of Land Policy have consistently found that more rapidly growing areas tend to have greater increases in expenditures and tax burden than slower growing areas. These results are intuitive because rapid growth areas require greater and speedier investments in new infrastructure and government services generally not previously supplied. While Ladd points out that her work is not intended to assess the impacts of one type of development over another, her work has been viewed as supporting evidence for the advocates of managed, or more recently "smart growth."

As noted by Bunnell (1997, 1998), fiscal impact assessment has moved from unbiased information used in the public debate over land use and growth patterns into the realm of advocacy against unmanaged growth and for farmland and open space preservation. Planners working in the field quickly learned of the findings of the DuPage County study in a special Planning Advisory Service Memo (American Planning Association 1991) headlined "Does Development Really Pay for Itself?" Similarly, a 16 page report issued by the Sierra Club's Midwest Office titled "Sprawl Costs Us All: How Uncontrolled Sprawl Increases Your Property Taxes" presents findings from a number of fiscal impact studies which show that development is fiscally "unbeneficial" to local governments and therefore should be severely limited. It argues that a "Property Tax Impact Statement" should be required when any new development is proposed. "With the Property Tax Impact Statement, we will know up front what we will be paying for and we will decide if this development is beneficial or detrimental to the community" (Hulse, 1996: 13).

Perhaps the clearest example of the use of fiscal impact studies to support an advocacy argument related to growth management is the American Farmland Trust's (AFT) sponsorship and promotion of Cost of Community Services (COCS) studies. The AFT offers an alternative to the widely used methods of fiscal impact assessment offered by Buschell and Listokin (1978, 1980 and 1994) and Burchell, Listokin and Dolphin (1985). The COCS approach assesses a community's overall balance of sheet revenues and expenditures at any given point in time and attempts to determine the proportion of municipal revenues and expenditures attributed to major categories of land. The final product of a COCS study is a set of ratios expressing the proportion of revenues and costs for various land uses. The ease of interpretation and the aggressive marketing of the COCS approach by the American Farmland Trust has thrust it into the mainstream of America's thinking about the fiscal impacts of alternative land use patterns. The success of the AFT's COCS studies can be viewed in the "new conventional wisdom" that it has created: "...everyone knows housing development doesn't pay for itself but commercial development does..."

But this conclusion is not without some rigorous evidence. Danielson and Wolpert (1991) examined the growth of 365 contiguous municipalities in northern New Jersey during the 1980s. They assessed whether growth in employment and population affected several indices of fiscal and non-fiscal benefits. In general they concluded that employment growth benefited local communities while population growth was largely detrimental. With specific regard to fiscal impacts, employment growth significantly lowered property tax rates while raising local government revenues per capita.

In the end, however, the "new" conventional wisdom has resulted in a unique scramble for "fiscally productive tax bases" that can produce undesirable and bizarre patterns of land use.

Many communities try to attract industrial and commercial developments but try to avoid housing for employees, especially those with low incomes and large families. Taken to its logical conclusion, the new conventional wisdom fostered by the American Farmland Trust is a world with farms, but no farmers, businesses, but with no employees: a community of farms and businesses, but no residents. The remainder of this essay contains three parts. Next, a critical review of the AFT COCS approach is provided. Then, a review of what impact assessment is, is not and the potential confusion impact assessment can cause is provided. The essay closes with an outline of one potential research agenda.

Cost of Community Service Studies

One collection of studies that have contributed the most to the current state of confusion over the economic and fiscal impact of alternative land use patterns is the AFT COCS studies. While often referred to as fiscal impact analysis, the COCS method allows the community to assess their fiscal position at any one point in time in terms of "demands" placed on the locality by different land use categories. The studies are snapshots of the net fiscal costs of differential land uses. They are snapshots in that they measure one year at a time and not make projections into the future. The COCS approach compares annual revenues to annual expenditures on public services for various land uses. Local revenues and expenditures are appropriated to major categories of land use, and the result is a set of ratios purporting to show the proportional relationship of revenues and expenditures for different land uses at one point in time.

Kelsey (1996) expresses a common formulation of the ratio as:

$$\text{RATIO}_u = \frac{\bullet ((\text{TAXSD}_{ut} + \text{NONTAXSD}_{ur}) + (\text{TAXMCD}_{ut} + \text{NONTAXMCD}_{ur}))}{\bullet (\text{EXPENDSD}_{uj} + \text{EXPENDMCD}_{uj})}$$

where

- RATIO_u = ratio of revenues to expenditures for land use *u*
- TAXSD_{ut} = school district revenue from tax *t* and land use *u*
- NONTAXSD_{ur} = school district revenue from non-tax source *r* and land use *u*
- TAXMCD_{ur} = municipal revenue from tax *t* and land use *u*
- NONTAXMCD_{ur} = municipal revenue from non-tax source *r* and land use *u*
- EXPENDSD_{uj} = school district expenditure *j* related to land use *u*
- EXPENDMCD_{uj} = municipal expenditure *j* related to land use *u*.

The ratio is said to provide an easy to understand measure of the net fiscal impact from a particular land use. When net fiscal impact is neutral (i.e., expenditures exactly equal revenues) the ratio will be 1:1. If expenditures exceed revenues, then the ratio will be less than one. The ratio is generally calculated on four different types of land uses: residential, commercial, industrial and farmland.

The critical part of these studies is the determination of which revenues and expenditures should be allocated to what types of land use and in what proportions. Some allocations decisions are straightforward such as property tax revenues. Determining the allocation of certain expenditures can be accomplished through detailed analysis of community records, such as the number of fire department calls to alternative land uses or refuse collection based on tonnage collected from different land uses.

Others are more difficult if not completely arbitrary such as the allocation of general administrative costs of running the local government. Here the AFT suggests using the percentage of all tax revenues arising from each land use as a default. For example, if residential

properties account for 50 percent of property taxes, 50 percent of all non-directly allocable revenues and expenditures are attributed to residential land.

In the end, the allocation of revenues and expenditures depends on the availability and completeness of local records, the willingness of local staff and officials to participate in interviews and help in the allocation process, and *the objectiveness of the analyst* conducting the analysis. This latter point is vital because inherent to the COCS approach, judgment calls on the part of the analyst are inevitable. As argued by Bennell (1997, 1998) in the current environment of using fiscal impact assessment in an advocacy setting the objectivity of the analyst has been called into question.

COCS studies consistently show that for residential land, the cost of service ratio is greater than one. The average of ratios of previous studies range from about \$1.05 to \$1.50 for residential development for every dollar of revenue generated (Table 1). COCS ratios for commercial and industrial properties are typically below one, costs ranging between 30 and 65 cents for every dollar of revenue generated. For agricultural land and open space, ratios are typically smaller, ranging from 10 to 15 cents for every dollar of revenue generated. COCS studies across the board have concluded that farmland and open space provide more revenue to a community that is incurred in expenditures, resulting in a net fiscal benefit to a community. A new conventional wisdom is born.

COCS studies, however, are fraught with problems and critics often discount them because of the many underlying assumptions. Most notable, the conventional studies often fail to acknowledge that the residential category includes the homes of most people who farm or work on farms in the study area. This means that the costs associated with servicing farmers, resident agricultural workers, and their families are apportioned to the residential category, and many kinds of costs—such as street maintenance, garbage collection or protective services are not assigned to any agricultural uses. As a result of this approach, the overall costs associated with agriculture and other natural resource industries will necessarily be low or nonexistent. Since the traditional AFT methods discount the human service costs with agricultural activities, conventional COCS ratios may not provide a clear picture of the different fiscal impacts associated with farming versus residential land uses.

Gross Land Use Categories By averaging across land types, key distinctions between different land uses within the same category are lost and thus the method may unintentionally influence the conclusions about which development policies and subsequent land use patterns are cost effective from a fiscal perspective. For example, the aggregate group residential makes no distinction between mobile homes, single-family dwellings, apartment buildings or smaller retirement homes. Additionally, the method gives no insight into the differences between small low intensity manufacturing development and large-scale operations or different types of agricultural operations such as intensive large scale confined livestock operations and open crop fields. Clearly, the level of specificity in COCS is sufficiently gross that little insight into fiscal impacts is gained.

Basis Measure Bias Because COCS uses a gross dollar basis to make comparisons, intensity of land use is lost. In COCS studies farmland and open spaces appear to have the most favorable fiscal impact. This is because the ratios are estimated on a dollar basis. If the ratios were calculated on a per acre basis, industrial and commercial land would seem much more important. One acre of industrial land on average will contribute much more to the tax base than one acre of agricultural land. Here, methodological flaws in COCS predetermine the study's outcome.

Capacity to Develop is Ignored The notion of excess capacity in the provision of local public services is vital to understanding the impact of any particular development. For example, a sewer treatment plant operating at 80 percent capacity may be able to absorb 100 new single-family dwellings with little if any additional costs. The 101st dwelling, however, may exceed the capacity

of the treatment plant and expensive expansions may be required. In this example, the first 100 dwellings more than paid for themselves, but the 101st did not. This error is commonly seen when using averaging analysis when marginal analysis is preferred. COCS studies fail to capture this important notion.

Economies of Scale are Ignored Local public services have been documented to exhibit economies of scale. Providing public services carry a high fixed cost. As a community grows these fixed costs can be spread over more residents and per resident costs decline. For example, a community with road maintenance responsibilities must have a minimum of equipment regardless of road mileage. For smaller communities, equipment sits idle and is very expensive. For larger communities, that same equipment can be used more fully. High fixed costs can be spread over more residents. Again, this error is commonly seen when using averaging analysis when marginal analysis is preferred. COCS studies fail to capture this important notion.

Nature of Public Goods Ignored Public goods are very different than most other goods. Private goods are characterized as rival and excludable. If I consume an apple, you cannot consume the same apple. Consumers are rivals for private goods. Consumers can also be excluded from private goods through market mechanisms, most notably price. I am excluded from the market for Ferrari automobiles because of prices. Public goods, however, are characterized as being non-rival and non-excludable. If an effective police department deters crime, all residents of the community consume that public service simultaneously. Nor can any one resident be excluded from the sense of security the police provide. COCS studies are flawed because they treat public goods and services as if they are private in nature. In a public setting, **adding a new industrial park or residential development will not deter** prior residents or new residents from continuing to enjoy the same level of the public service. At some point, however, congestion in the consumption of the public good will prevail and additional investments (expenditures) for the good will be required. Here congestion is similar to capacity discussed above. COCS studies fail to capture this important notion.

In addition to these specific short coming, it has been noted that the results of COCS studies are often interpreted incorrectly. For example, although a general class of land use may be associated with a net fiscal benefit or loss, it is also true that any individual piece of property may have an impact that can be significantly different from the overall averages. Finally, fiscal impact assessment and COCS studies in particular, can be criticized as a tool for local decision making on that grounds that, in contrast to social cost-benefit analysis, it focuses attention on a narrow view of benefits and costs. Benefits of development are measured only in terms of the additional revenues that accrue to the local government. Similarly, costs include only those that affect local governments.

As noted by Ladd (1998), most economists agree that fiscal impact assessment as advocated by the American Farmland Trust is a bastardized form of cost—benefit analysis, and consequently cannot by itself provide appropriate signals about whether a new development should be allowed. Because local residents care so much about their tax burdens, however, such analysis will often be requested. Even sadder, with the “new conventional wisdom” dominating land use discussion, the call for analysis may not even be forthcoming. At best, fiscal impact analysis should be regarded as an input into a more comprehensive analysis of the costs and benefits of new development.

Impact Assessment: What It Is and Is Not*

When a community undertakes an impact assessment there are several elements of the assessment that the community must consider, including what it is and what it is not. These include an understanding that:

- Impact assessment is a process to comprehensively evaluate the consequences of development on a community.
- Impact assessment is a process that provides extensive documentation of the anticipated economic, fiscal, environmental, and social related impacts of a proposed development.
- Impact assessment is a process that makes use of existing information where possible.
- Impact assessment is a process that employs techniques to gather additional, new information, where necessary.
- A process that provides a framework to integrate data, models, spatial and statistical analysis and the impacts of alternatives.

What is vital to this view of impact assessment is that it is a process through which a community gathers and thinks about information about the proposed development. Within the community development literature the idea of sustainable development hinges on grassroots development and adoption of specific proposals. While outside consultants can play an important role in providing technical expertise, the community should not be held hostage to the opinions of the developer or outside advocates. An understanding and appreciation of the process of impact assessment is almost as important as the technical merits of the assessment itself.

The benefits of impact assessment are wide ranging and include:

- Impact assessment is designed to enhance sound land use management at the local level and includes a number of important characteristics, not just fiscal impacts.
- Impact assessment provides an opportunity for communities to gain advance understanding of a particular development so that they may plan to both efficiently meet new service demands and avoid potential environmental or social costs.

But impact assessment is only beneficial if it leads to sound decisions such that the development minimizes adverse environmental impacts, is suitable for the location, makes efficient use of existing community infrastructure and services, accounts for community costs in the broadest context, and is the product of broad public consensus and is consistent with the community's economic, cultural and regional character. Impact assessment is particularly beneficial if the proposed development is large, unique or precedent setting and may have a substantial impact on a community's financial, environmental and cultural resources. But in the end, the decision to allow or dismiss the proposed development must be founded in the community's vision of itself.

Elements of a "proper" impact assessment should include:

- Evaluations of both the positive and negative impacts of the proposed development in all of the elements that a community defines as important in its vision of itself.

* This discussion follows from [Assessing the Impact of Development](#) an interactive software program developed by Mary Edwards, Steven Deller and Gareth Betts, University of Wisconsin-Madison/Extension (under development).

- Focus on the significant impacts, not on the nominal effects of the proposed development. In other words, impact assessment should draw attention away from “red herring” issues and onto the noteworthy impacts.
- The impact assessment should consider the direct as well as the indirect impacts of the proposed development.
- The assessment process gives high priority to community values, long-term goals and self-vision when assessing impacts.
- Impact assessment involves the community in evaluating impacts, especially when considering social and cultural impacts.

While impacts should be comprehensive and draw on local knowledge when at all possible, there are several things it will not do, including:

- Impact assessment does not provide *THE* answer.
- Accounting for the possibility of spill-over into other communities.
- Should not be used to evaluate community values and/or vision of itself.
- Tends not to be cumulative in that impact assessment evaluates proposed development on a case-by-case basis.

Because impact assessment, when properly conducted, includes a wide range of both quantitative and qualitative information, it is important to realize that impact assessment in and of itself cannot provide the answer. While impact assessment should be comprehensive covering a range of issues, it should not be confused with cost-benefit analysis. Impact assessment is a process that draws information into the decision-making process whereas cost-benefit analysis is an attempt to quantify all costs and benefits of the proposed development. Seldom does a community have the time, energy or resources to conduct a full cost-benefit study for every proposed development.

A successful impact assessment, particularly the decision that comes at the end of the process, hinges on the notion that the community has an up-to-date and well thought out vision and comprehensive plan in place. The plan should guide the impact assessment to focus on issues relevant to the community. In addition, the plan should outline the weights the community places on elements of the impact assessment. Without a vision or comprehensive plan in place, the impact assessment itself can inadvertently steer the decision making process. In the extreme, the impact assessment can dictate the community's vision of itself. The latter makes for bad public policy.

While in theory, impact assessments should consider the longer cumulative impacts of a proposed development on the community, in practice impact assessments tend to focus on individual development proposals on a case-by-case basis. In the absence of a long-term comprehensive plan or vision of the community, short-term decisions on the basis of impact assessment can result in poor long-term policies. In addition, the decisions of any individual community seldom consider the impact of the proposed development within the context of the larger urban area. A reasonable decision by any one community at a given point in time may have unpredictable consequences on the larger urban area.

For example, within the planning literature land use patterns described as leapfrogging is generally considered to have negative fiscal impacts (RERC 1974b). Rigorous monocentric

urban density analysis, however, points out the short-comings of short-term views of urban structure. Peiser (1989) for example, empirically demonstrates that areas that are skipped over and subsequently developed are developed at higher land use densities than they would have been had they not been skipped over. Peiser notes that "[t]he driving forces behind the hypothesis is that land values on vacant infill parcels increase faster than land values at the urban fringe, and therefore developers must build at higher densities to achieve the same level of return" (p.197). Ohls and Pines (1975) further suggest that skipping over central city locations to build low-density housing at the fringe is efficient from a regional perspective by saving central locations for more intensive uses. In the end, impact assessment properly conducted can provide invaluable information into the decision making process notwithstanding some of the shortcomings discussed above. Incomplete, poorly executed or conducted within an advocacy setting can result in poor public policy.

An Outline of a Research Agenda

Part of the difficulty in making decisions about alternative development proposals and corresponding land uses is the inherent complexity of each decision. It is somewhat human nature to try to simplify complex issues into more manageable problems. Further, if we can be offered a simple solution or answer to these oversimplified problems, all the better. Fiscal impact assessment, and Cost of Community Services studies in particular, can offer what appear to be black and white answers to complex issues. Indeed, COCS have provided a "rule of thumb" that be applied blindly to a range of development alternatives. As outlined in detail above, COCS studies are not only inherently flawed they narrowly focus attention on only the fiscal element of impact assessment.

In the light of this critical assessment, several research agenda items can be advanced:

- A sampling of communities for which COCS ratios have been calculated should be the focus of a selection of in-depth broad-based studies. Using a range of impact assessment methods, four hypothetical development scenarios should be rigorously examined.
- A collection of community impact assessment-modeling tools covering a range of impact areas (e.g., economic, fiscal and environmental) that are based on rigorous theory and empirical dimensions needs to be developed. These tools can then be used to systematically examine the impact of alternative development patterns. The work of the Community Policy Analysis Network (CPAN) is an example of this type of effort.
- More rigorous methods of modeling the elusive notion of quality of life need to be explored. If quality of life can be proxied and modeled, then impacts of alternative development patterns could potentially be assessed.
- Spatial modeling that is now possible in light of GIS technologies, needs to be focused on assessing the true impacts of alternative development patterns. In addition to modeling impacts, insights into what drives growth and the policies that effectively affect growth can be achieved.
- Develop clearer links between public service provision levels and government expenditure patterns. Due to the lack of a better method, impact studies link services provisions directly to expenditures: more spending is equated to better services.
- Explore the potential insights that modern game theory can provide on the "winners and losers" of alternative development proposals.

- Develop stronger links between alternative development patterns and land use decisions to notions of fiscal stress and health.

In the end, the results of the most rigorously crafted and executed research program can not have the desired affects if there is not a complementary outreach educational program. The advocacy environment in which much of the public discussion takes place today, I fear that even the best research may collected dust on the selves of university libraries.

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Table 1. Cost of Community Service Studies

	Residential (with farm homes)	Combined Commercial & Industrial	Farmland, Forest and Open Lands	Study Source
Connecticut				
Bolton	1 : 1.05	1 : 0.23	1 : 0.50	Geisler, 1998
Durham	1 : 1.07	1 : 0.27	1 : 0.23	Southern New England Forest Consortium, 1995
Farmington	1 : 1.33	1 : 0.32	1 : 0.31	Southern New England Forest Consortium, 1995
Hebron	1 : 1.06	1 : 0.47	1 : 0.43	AFT, 1986
Litchfield	1 : 1.11	1 : 0.34	1 : 0.34	Southern New England Forest Consortium, 1995
Pomfret	1 : 1.06	1 : 0.27	1 : 0.86	Southern New England Forest Consortium, 1995
Idaho				
Canyon County	1 : 1.08	1 : 0.79	1 : 0.54	Hartmans and Meyer, 1997
Cassia County	1 : 1.19	1 : 0.87	1 : 0.41	Hartmans and Meyer, 1997
Kentucky				
Lexington-Fayette	1 : 1.64	1 : 0.22	1 : 0.93	AFT, 1999
Maine				
Bethel	1 : 1.29	1 : 0.59	1 : 0.06	Good, Antioch New England Graduate School, 1994
Maryland				
Carroll County	1 : 1.15	1 : 0.48	1 : 0.45	Carroll County Dept. of Management & Budget, 1994
Cecil County	1 : 1.12	1 : 0.28	1 : 0.37	Cecil County Office of Economic Development, 1994
Frederick County	1 : 1.14	1 : 0.50	1 : 0.53	AFT, 1997
Massachusetts				
Agawam	1 : 1.05	1 : 0.44	1 : 0.31	AFT, 1992
Becket	1 : 1.02	1 : 0.83	1 : 0.72	Southern New England Forest Consortium, 1995
Deerfield	1 : 1.16	1 : 0.38	1 : 0.29	AFT, 1992
Franklin	1 : 1.02	1 : 0.58	1 : 0.40	Southern New England Forest Consortium, 1995
Gill	1 : 1.15	1 : 0.43	1 : 0.38	AFT, 1992
Leverett	1 : 1.15	1 : 0.29	1 : 0.25	Southern New England Forest Consortium, 1995

Table 1 (cont). Cost of Community Service Studies

	Residential (with farm homes)	Combined Commercial & Industrial	Farmland, Forest and Open Lands	Study Source
Middleboro	1 : 1.08	1 : 0.47	1 : 0.70	AFT, 2001
Southborough	1 : 1.03	1 : 0.26	1 : 0.45	Adams and Hines, 1997
Westford	1 : 1.15	1 : 0.53	1 : 0.39	Southern New England Forest Consortium, 1995
Williamstown	1 : 1.11	1 : 0.34	1 : 0.40	Hazler et al., 1992
Michigan				
Scio Township	1 : 1.40	1 : 0.28	1 : 0.62	University of Michigan, 1994
Minnesota				
Farmington	1 : 1.02	1 : 0.79	1 : 0.77	AFT, 1994
Lake Elmo	1 : 1.07	1 : 0.20	1 : 0.27	AFT, 1994
Independence	1 : 1.03	1 : 0.19	1 : 0.47	AFT, 1994
Montana				
Carbon County	1 : 1.60	1 : 0.21	1 : 0.34	Prinzing, 1999
Gallatin County	1 : 1.45	1 : 0.16	1 : 0.25	Haggerty, 1996
Flathead County	1 : 1.23	1 : 0.26	1 : 0.34	Citizens for a Better Flathead, 1999
New Hampshire				
Deerfield	1 : 1.15	1 : 0.22	1 : 0.35	Auger, 1994
Dover	1 : 1.15	1 : 0.63	1 : 0.94	Kingsley et al., 1993
Exeter	1 : 1.07	1 : 0.40	1 : 0.82	Niebling, 1997
Fremont	1 : 1.04	1 : 0.94	1 : 0.36	Auger, 1994
Groton	1 : 1.01	1 : 0.12	1 : 0.88	New Hampshire Wildlife Federation, 2001
Stratham	1 : 1.15	1 : 0.19	1 : 0.40	Auger, 1994
Lyme	1 : 1.05	1 : 0.28	1 : 0.23	Pickard, 2000
New Jersey				
Freehold	1 : 1.51	1 : 0.17	1 : 0.33	AFT, 1998
Holmdel	1 : 1.38	1 : 0.21	1 : 0.66	AFT, 1998
Middletown	1 : 1.14	1 : 0.34	1 : 0.36	AFT, 1998
Upper Freehold	1 : 1.18	1 : 0.20	1 : 0.35	AFT, 1998
Wall	1 : 1.28	1 : 0.30	1 : 0.54	AFT, 1998
New York				
Amenia	1 : 1.23	1 : 0.25	1 : 0.17	Bucknall, 1989
Beekman	1 : 1.12	1 : 0.18	1 : 0.48	AFT, 1989
Dix	1 : 1.51	1 : 0.27	1 : 0.31	Schuyler County League of Women Voters, 1993
Farmington	1 : 1.22	1 : 0.27	1 : 0.72	Kinsman et al., 1991
Fishkill	1 : 1.23	1 : 0.31	1 : 0.74	Bucknall, 1989
Hector	1 : 1.30	1 : 0.15	1 : 0.28	Schuyler County League of Women Voters, 1993

Table 1. Cost of Community Service Studies

	Residential (with farm homes)	Combined Commercial & Industrial	Farmland, Forest and Open Lands	Study Source
Kinderhook	1 : 1.05	1 : 0.21	1 : 0.17	Concerned Citizens of Kinderhook, 1996 Schuyler County League of Women Voters, 1992
Montour	1 : 1.50	1 : 0.28	1 : 0.29	
Northeast Reading	1 : 1.36 1 : 1.88	1 : 0.29 1 : 0.26	1 : 0.21 1 : 0.32	
Red Hook	1 : 1.11	1 : 0.20	1 : 0.22	Bucknall, 1989
Ohio				
Madison (V)	1 : 1.67	1 : 0.20	1 : 0.38	AFT and Lake County Ohio SWCD, 1993
Madison (T)	1 : 1.40	1 : 0.25	1 : 0.30	AFT and Lake County Ohio SWCD, 1993
Shalersville	1 : 1.58	1 : 0.17	1 : 0.31	Portage County Regional Planning Commission, 1997
Pennsylvania				
Allegheny (T)	1 : 1.06	1 : 0.14	1 : 0.13	Kelsey, 1997
Bedminster (T)	1 : 1.12	1 : 0.05	1 : 0.04	Kelsey, 1997
Bethel (T)	1 : 1.08	1 : 0.17	1 : 0.06	Kelsey, 1992
Bingham (T)	1 : 1.56	1 : 0.16	1 : 0.15	Kelsey, 1994
Buckingham (T)	1 : 1.04	1 : 0.15	1 : 0.08	Kelsey, 1996
Carroll (T)	1 : 1.03	1 : 0.06	1 : 0.02	Kelsey, 1992
Maiden Creek (T)	1 : 1.28	1 : 0.11	1 : 0.06	Kelsey, 1998
Richmond (T)	1 : 1.24	1 : 0.09	1 : 0.04	Kelsey, 1998
Stewardson (T)	1 : 2.11	1 : 0.23	1 : 0.31	Kelsey, 1994
Straban (T)	1 : 1.10	1 : 0.16	1 : 0.06	Kelsey, 1992
Sweden (T)	1 : 1.38	1 : 0.07	1 : 0.08	Kelsey, 1994
Rhode Island				
Hopkinton	1 : 1.08	1 : 0.31	1 : 0.31	Southern New England Forest Consortium, 1995
Little Compton	1 : 1.05	1 : 0.56	1 : 0.37	Southern New England Forest Consortium, 1995
Portsmouth	1 : 1.16	1 : 0.27	1 : 0.39	Johnston, 1997
West Greenwich	1 : 1.46	1 : 0.40	1 : 0.46	Southern New England Forest Consortium, 1995
Texas				
Hays County	1 : 1.26	1 : 0.30	1 : 0.33	AFT, 2000



6 March 2006

Re: Chamber's biased development approach

Dear fellow Shelby County Chamber of Commerce Member,

In 2004, Maintain Our Rural Environment (MORE) commissioned the American Farmland Trust to survey farming's contribution to Shelby County's economy. The resulting 2005 Cost of Community Services (COCS) Study cites US Agriculture Census numbers listing the market value of Shelby County's Agricultural Products Sold at \$45,637,000; plus a Farm Workers and Payroll total of \$6,097,000. MORE's research indicates that the annual sales of Shelby County's agricultural products and services, combined with agri-tourism, are in excess of \$120 million.

Ultimately, the COCS study showed that agriculture is on par with industrial/commercial land uses in terms of revenues that balance our county's residential growth. (See enclosed charts.)

So farming is hardly small potatoes to our county's economy. What's more, according to 2004 PVA records, farms accounted for \$338 million in Shelby County property value – just \$30 million less than commercial and industrial properties (including leasehold properties).

That's not exactly chicken feed, either.

From the numbers, it certainly looks like farms and farm-related activities still count as commerce here. However, I'm concerned our Chamber of Commerce has become so focused on commercial and residential development that it's forgotten farming's economic contributions.

In particular, I'm concerned about recent Chamber activities that actually exclude, ignore, or even denigrate Shelby County farming and those who work to support its future. A few examples:

- In early October 2005, the Chamber's Community Issues and Research (CIR) Committee met to consider the school capacity issue. MORE president Jim Ellis asked to come, sit in and just listen to the discussion. The answer was no. When the CIR Committee planned to continue the issue at its November meeting, comments were made that the Committee should not invite persons from groups like MORE, because the Committee already knew what MORE thought and MORE's presence would not add to the meeting.

(For what it's worth, both MORE and Jim Ellis are dues-paying Chamber members.) (No teachers, civic groups, or taxpayers' representatives were included, either.)

- In the February 10th 2006 *Sentinel-News*, an article by the Chamber's Executive Director averred that any group wishing to make written statements or comments was invited to do so. MORE received no such invitation.

- When the Chamber's members were surveyed on a potential Shelby County commercial airport last year, two out of three said an airport would be of no benefit to them. Disregarding this survey result, the Chamber's Board of Directors vigorously called for the formation of an Airport Board.

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www.more-ky.org

Just for curiosity, I pulled up the Chamber's Online Membership Directory and did a quick search. Within about a minute, I found listings for 12 member businesses in the Farm, Feed and Farm Supplies, and Farm Equipment categories.

I can only guess here, but I doubt these businesses, which rely on farming and farm-related spending, would appreciate such an exclusionary view either.

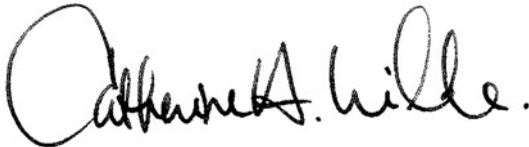
(As for MORE's situation, there was considerable debate among our Board about renewing our Chamber membership in light of the perception that the Chamber uses agriculture to promote the Chamber – even though the Chamber apparently does not support agriculture. In the end, we decided to renew.)

Bottom line? We would like to be included, even if our vision of what's healthy for Shelby County is different. To take membership money and not fairly represent the membership – or worse, to prejudicially exclude it from Chamber activities – this is not acceptable. Further, a narrow focus on “developer's interests” that excludes the greater community cannot be healthy for our community, or reflect favorably on the Chamber's image as a professional organization.

So on behalf of MORE and any other farming or farm-related entity that cares about its future in Shelby County (not to mention the future of Shelby County, period), I ask one simple thing: that the Shelby Chamber of Commerce leadership does not ignore Shelby County's agricultural and rural components. They contribute to our business environment and draw in new growth.

The Chamber should be inclusive, not exclusive, in involving its members in a broad, cooperative community development effort.

Thank you very much,

A handwritten signature in black ink that reads "Cathy Wilde". The signature is written in a cursive, flowing style.

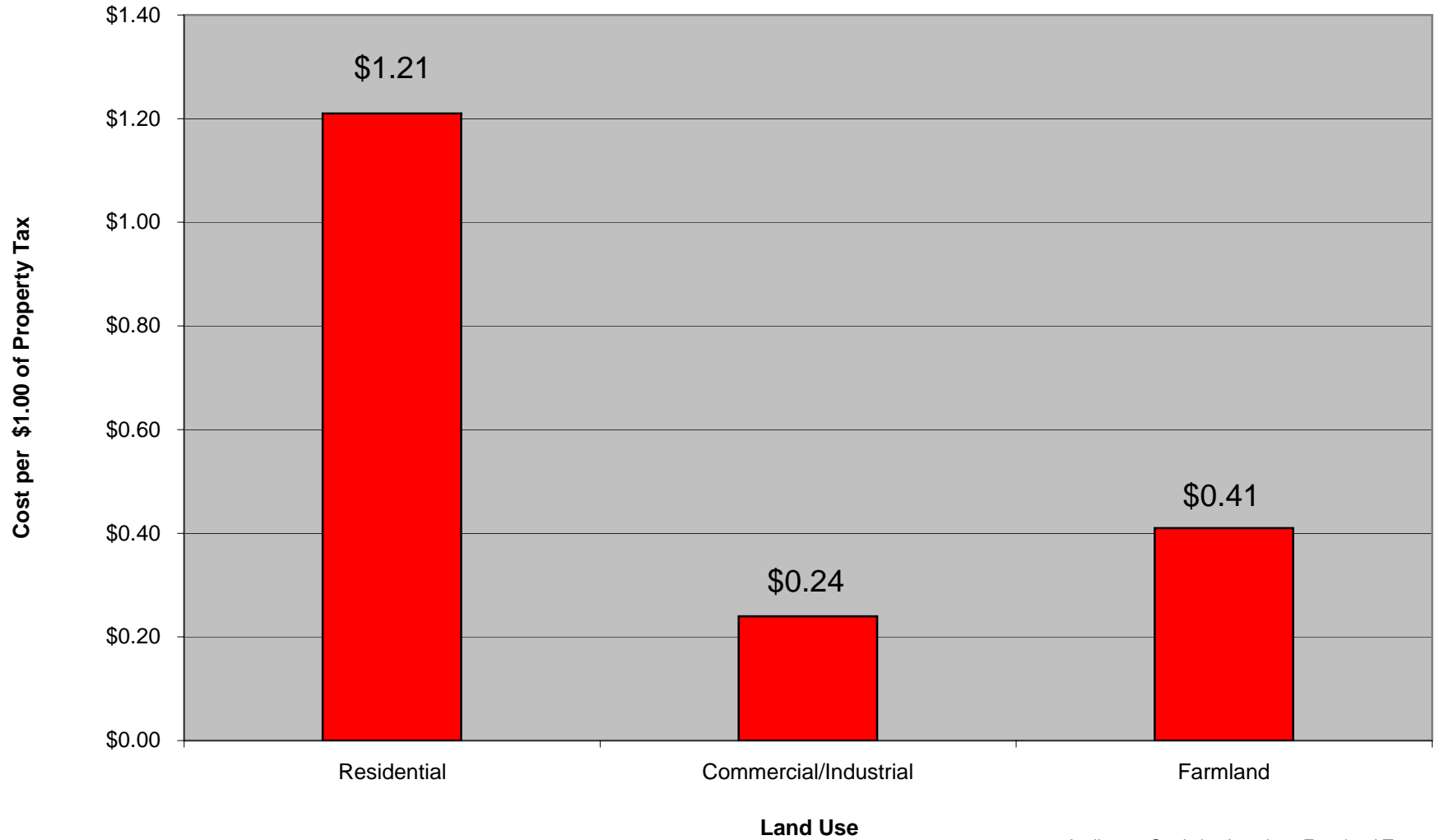
Cathy Wilde, Director
Maintain Our Rural Environment, Inc. (MORE)

P.S. I have forwarded a copy of the complete American Farmland Trust *Cost of Community Services Study for Shelby County, Kentucky* to Chamber Director Shelly Goodwin. Downloadable PDFs of the study are available at www.more-ky.org.

Enclosures:
COCS chart
Agricultural Economic Impact chart

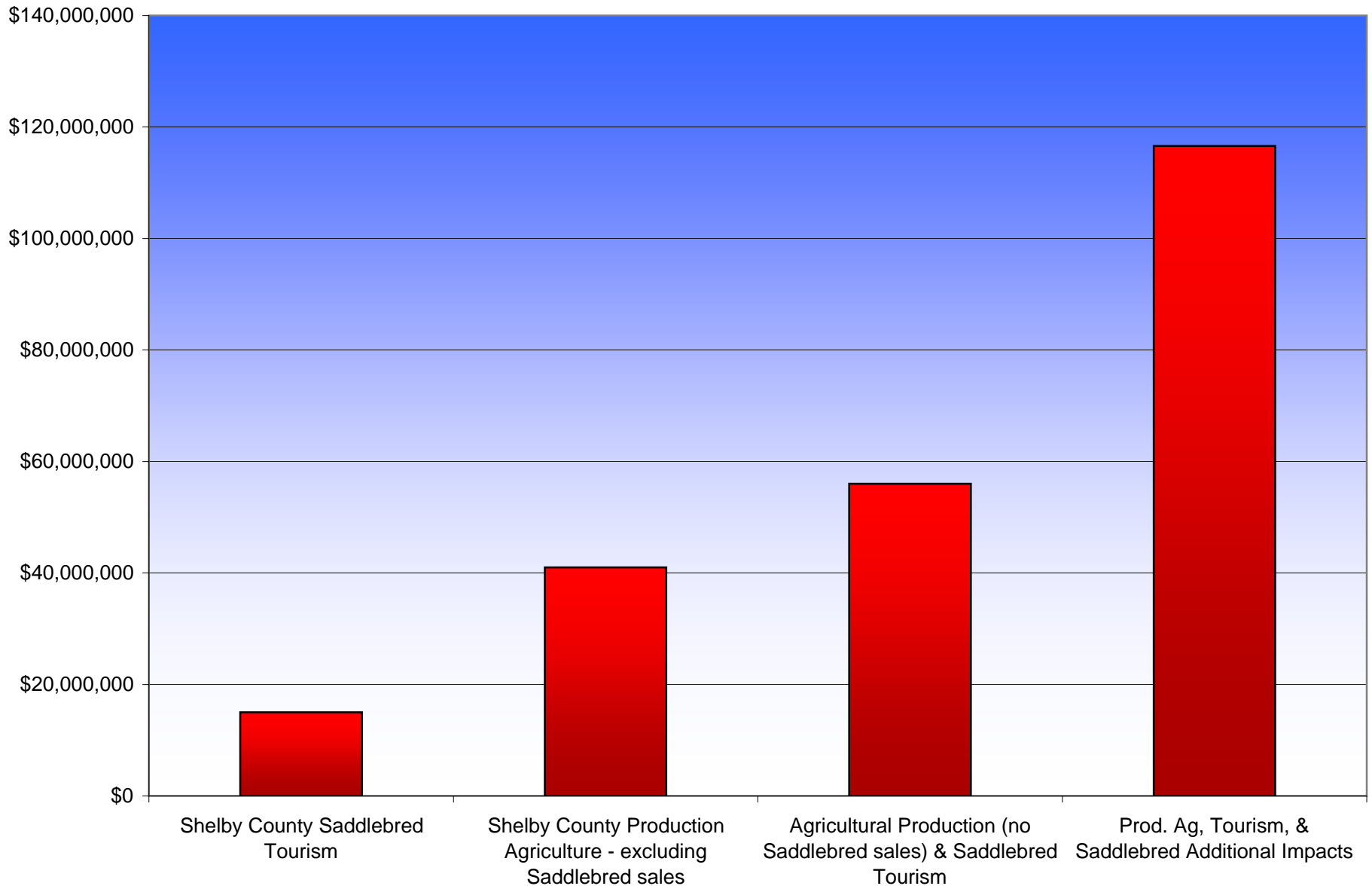
Cost of Community Services - 2004

Shelby County, Kentucky



April 2005 Study by American Farmland Trust
Commissioned by Maintain Our Rural Environment

Agricultural Economic Impacts - 2003 Shelby County



Sources: Shelbyville/Shelby County Visitors Bureau
Saddlebred Farms of Shelby County
KY Agricultural Statistics Service