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Economic Activity Analyses: The Need for Consensus

Abstract

Extension professionals have shown eagerness and creativity when it comes to providing programming justification. However, the potential for misapplication of two common economic activity analyses requires Extension to standardized economic impact and economic contribution techniques. Readers are introduced to the cornerstones of economic activity analyses and are offered interpretations on the methodology needed to conduct an accurate impact or contribution analysis. Additionally, the authors suggest several other essential considerations that need to be addressed when undertaking any economic activity analysis. Other Extension professionals should look to this article and either show support or critique the proposed interpretations.

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Introduction

Over the past decade, the uncertain economic climate has led Extension to emphasize programming accountability. Political appointees and ultimately the public have increasingly challenged Extension to show tangible returns on publicly invested tax dollars (Lamm & Harder, 2009). In response to these challenges many Extension professionals are turning toward economic activity analyses. These justification studies are popular because analysis outputs include an economic term virtually everyone is familiar with, dollars. Using economic figures provided by an economic activity analysis, administrators are able to make comparisons between Extension initiatives and other public investments, determine the returns on investing in Extension initiatives, and ultimately make policy decisions.

As economic analysis studies have increased in popularity, more and more professionals with limited economic backgrounds are using these techniques. This situation is cause for concern considering the likelihood of misapplication. In an effort to standardize methods and reduce the misuse of economic activity analyses, Watson, Wilson, Thimany, and Winter (2007) stated, "it is imperative that researchers be explicit in their terminology and methodology and that what constitutes a

contribution, impact, or benefit in a study must be consistent across discipline" (p.140).

Input-Output Modeling

In order to understand economic activity analyses it is necessary to have an introduction to input-output (IO) modeling. An economy functions as a set of fluid relationships between consuming and producing industries, households and other "institutions" (which includes the different levels of government and foreign trade partners). To simplify modeling, industries that produce similar types of products are often aggregated into sectors. As one sector of the economy produces a product, say the beef industry for example, another sector such as one consisting of fast food companies is able to consume the production. Based on the input requirements of sectors, IO modeling follows and tracks these interdependent relationships (MIG Inc., 2012). Ultimately, these relationships are used to illustrate a particular region's economy and an economic analysis is performed to quantify network relationships (McConnell, 2013).

Quantifying Network Relationships of IO Modeling

Three common measures are often included in IO modeling:

Direct Effects—capture initial changes in production or consumption by industries due to an activity or policy change (MIG Inc., 2012). These effects represent new sales or income introduced into the local economy.

Indirect Effects—measure the interactions between direct effect industries and those industries that provided needed input products or services to direct effect industries within a pre-determined (local) geographic region.

Induced Effects—take into account the recirculation of money back into the local economy through the wages of those employed by industries with direct and indirect effects (MIG Inc., 2012). Induced effects estimate the payroll impact of the new employment stimulated by the production of goods and services by industries with direct and indirect effects.

A hypothetical IO model of the Forest Products Industry (Figure 1) places direct, indirect, and induced effects in relation to one another.

Figure 1.
Hypothetical IO Model

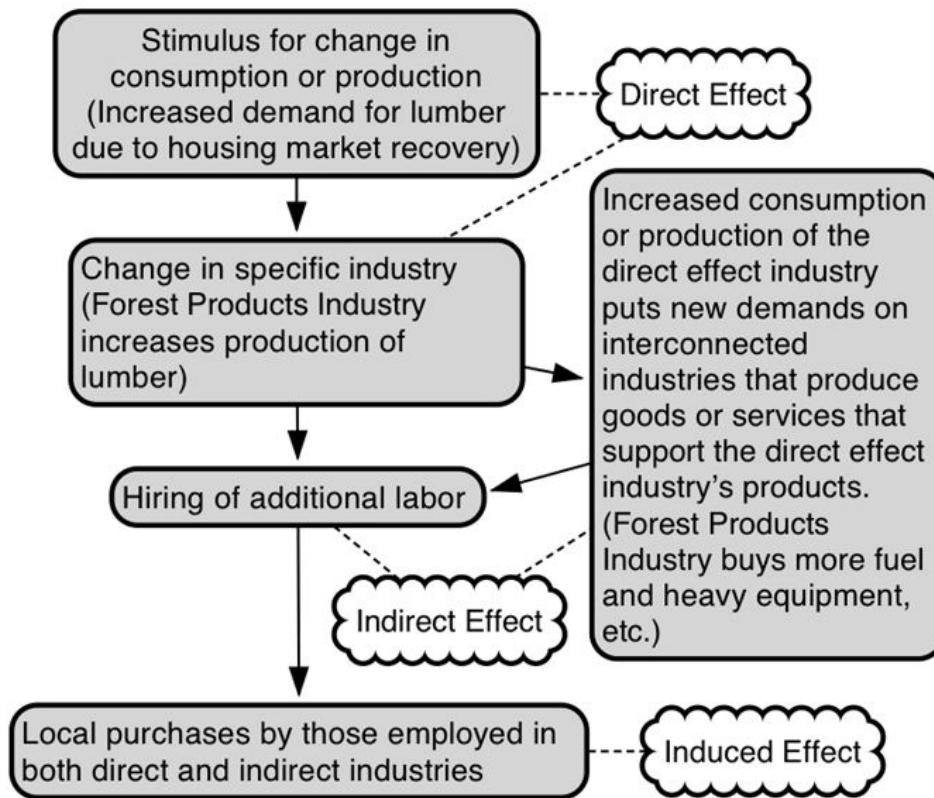


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Production- Versus Consumption-Oriented Models

Many Extension projects hold the potential to affect the supply of certain goods or services, and should consider using a production-oriented IO model to demonstrate economic activity. Extension forestry initiatives have utilized this type of analysis extensively in the past (McConnell, 2013; University of Wisconsin-Extension, 2005; Macouiller, Ray, Shreiner, & Lewis, 1992). Other initiatives involving bio-fuels production have also taken a similar approach (Fortenbery & Deller, 2008; Grebner, Perez-Verdin, Henderson, & Londo, 2009).

Alternatively and less often utilized by Extension, consumption-oriented IO models collect expenditures of consumers to determine economic activity. The tourism and recreation fields have shown their full support of these models (Daniels, Norman, & Henry 2004; Daniels & Norman, 2003; Crompton & Lee, 2000) and Extension needs to take note. One past study that has taken this approach utilized 4-H livestock record book data (Harder & Hodges, 2011) for their consumption oriented IO model.

Common Types of Economic Activity Analyses

When reviewing previous research, two main types of analyses have been used to justify Extension programming. Economic contribution analysis, a form of economic activity analysis, measures the gross change in economic activity of an existing regional economy in relation to an industry, event, or policy (Watson et al., 2007). Economic impact analysis measures net changes in new economic activity of an existing regional economy in relation to an industry, event, or policy (Watson et al.,

2007).

Economic impact is considered to be a more conservative estimate when compared to economic contribution analysis (Watson et al., 2007). Impact analysis excludes economic activity that existed before the activity under investigation occurred, so that the analysis only captures new economic activity being brought into the geographic area. To reiterate the differences in these two techniques, impact analysis has the main purpose of discovering what sort of new or "net" changes in economic activity have occurred because of the industry, event, or policy under investigation. Contributions analysis is more concerned about how the industry, event, or policy under investigation influences all, or the "gross" economic activity that already occurs within the pre-determined geographic area.

As an example, a consumption-oriented contribution analysis of a regional livestock show should consider all expenditures at the livestock show in the analysis, whereas an impact analysis should exclude the expenditures of participants who reside within the community. The rationale behind excluding local residents from an impact analysis is that, regardless of if the event in question took place, these consumers would have most likely spent their income on another form of entertainment within the community. Therefore, their spending does not constitute new economic activity.

Considerations and Common Misapplications

Understanding the similarities and difference between economic impact and economic contribution will help Extension staff interpret the economic figures generated by both analyses. However, there are several other important considerations when conducting an economic activity analysis.

Is the Study Region Appropriate and Clearly Defined?

Simply increasing the size of a study area often changes our assumptions about the host region's economy, allowing direct effect businesses to purchase more goods or services from within the geographic area rather than outside of it. Crompton (1995) highlights the reality of small geographic study areas when he states, "It is generally assumed that a smaller community tends to not have the sectorial interdependencies that facilitate the retention of monies spent during the first round of expenditures" (p.25). Extension programming has clear geographic units, often working on national, regional, state, district, or county levels. Researchers need to determine which geographic units make the most sense to use and refrain from inflating their economic figures by using inappropriately large study regions.

Can Purchase Locations Be Determined?

Luckily for many production-oriented IO models, researchers can use advanced software packages such as Impact Analysis for Planners (IMPLAN) to help them determine how businesses that already exist within their pre-determined geographic areas are affected by direct effect industries. Consumption-oriented IO models face a much harsher reality in having to determine if consumers purchased goods or services within or outside of the study region. One study that had potential difficulties with this problem was Harder and Hodges (2011), even recommending that 4-H record books include space for members to record from where they purchased items.

Additional misapplications are outlined by Crompton (1995), and Extension personnel should be very cautious with how they collect data and what information they need to be successful in their analysis.

Conclusion

Extension personnel with limited economics background are turning to IO modeling with renewed interest in order to economically justify programming. This situation poses substantial risk to Extension, including discrediting our key quality of being a research-backed entity. Whenever conducting an economic activity analysis, Extension staff should seek out help from community development specialists who are familiar with IO modeling, or consult their university's economics department (Harder & Hodges, 2011). The suggestions herein have outlined the way Extension needs to be applying certain economic activity analyses. Extension professionals need to abide by these guidelines to ensure economic figures are credible or suggest alternative interpretations of the outlined techniques.

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