

Defining a Functional Economic Region

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Introduction

The definition of a region is the first key step in an economic impact or economic base analysis. Which sub-areas (counties, ZIPs, or MSAs) should be included or excluded? What principles guide region definition? This short document is intended to answer these questions and help our users create regions that are appropriate for such analysis.

What Is the Purpose of Defining the Region?

In many cases, region definition depends simply on the purpose of the analysis. If, for example, you want simply to view data on a single county for a report to county officials, then defining your region as that single county is the obvious choice. But if you are doing more in-depth analysis, such as estimating the economic impact of a major factory closure in a small city, then the area that will likely be impacted is more difficult to define. In a case like this, multiple counties or ZIPs in one or more states might be affected, depending on the city's location.

In this guide, we will assume that you are defining regions primarily to be used with an input-output model or for an economic base analysis.

The Basics of Region Definition

Though defining an appropriate region is often a complex and difficult task, the guiding principles are quite simple. In brief, *the two major keys to defining a region for economic analysis are (1) choosing an appropriate scale, and (2) capturing a functional economic area.* These two interrelated concepts will be discussed in more detail below.

Choosing an Appropriate Scale

"Scale" in this context refers to the size of the region chosen. A small-scale region might consist of only one ZIP code, while a large-scale region might include multiple counties in one or more states.

Let's take the example of a factory closure in a small city. If we make our region too small (e.g., the city's central business district, city limits, or main ZIP code), then we will not see the effects of the closure on surrounding areas (e.g., a bedroom community) that may depend on jobs in the city. But if we make our region too large (e.g., a multi-county region that includes other cities of comparable size), then the effects of the closure may be partially or completely lost in the economic "noise" generated by other economic activity in the area. For this analysis, it makes the most sense to choose the smallest reasonable area which is still a "functional economic area."

Identifying a Functional Economic Area

Geographers, ecologists, governments, and economists all define regions differently. Physical geographers might be interested in river basins or mountains, ecologists in interlinked ecosystems, and governments in administrative and political jurisdictions. Economists, in turn, are interested in areas that are bound together by *trade links*—the buying and selling of raw materials, industrial and consumer goods and services, and labor. An area which covers a relatively contained and cohesive network of trade is called a *functional economic area* (FEA), and this is the type of region that works best for economic modeling.

When looking for FEAs, keep in mind local and regional commuting, shopping, and supply chain patterns, since these are some of the most important trade links that will create a functioning regional economy. A closed or semi-closed labor market (minimal commuting in or out of the area) is a particularly important indicator.

In addition, the concept of *central places* may be helpful. A central place is a settlement that provides certain goods and services (or “functions”) to the area around it, an area defined by its “market reach.” An area is said to be “economically dominated” by its central place. Very small hamlets serve as central places in rural areas if they have even a small number of functions, such as a post office, gas station, restaurant, grain silos, and so on. These hamlets are in turn dominated by “higher-order” central places like towns and large cities, each of which offers more functions than the places it dominates. It is common to find a hierarchy of nested places, from a large, dominant metro area down to small towns and hamlets. Though in real life these hierarchies are often not tidy and sharply defined, they are usually clear enough.

The conclusion? It is convenient to use a central place (large or small) and its market reach to define an FEA. The market reach is basically the distance people will travel in order to use the central place’s unique functions. People need not commute daily to a central place in order to be included in its market reach; they may be included even if (for example) they make occasional trips to its large airport, shopping centers, or sports stadium.

Your input-output models will be much more useful if you build your region to match (even roughly) an FEA as defined by some hierarchy of central places. In many cases, a Metropolitan Statistical Area (MSA) or Micropolitan Statistical Area is an appropriate region that captures a functional economy. In other cases, a custom region built from ZIP codes will more closely match the region’s economic realities.

Special Considerations

There are a few situations which call for additional care in defining an appropriate region.

Thin Economies and Overlapping Market Areas

In very urbanized and densely populated areas (such as the northeastern U.S.), central places and FEAs are much less tidy than in lower-density areas. For example, in such an area it would be unwise to run economic impact scenarios on a small community, because that community has a very large number of trade links with surrounding communities and perhaps with several large cities. An event like the closure of a factory or large retail center in this community would create an impact, but the impact would be fleeting and superficial since those affected by it have so many other opportunities for employment within a reasonable commuting field. In areas with such thin economies and overlapping markets, it usually makes more sense to create larger-scale models of metro areas with approximate boundaries for their market reach.

Counties That Are Not FEAs

In the U.S., county boundaries are mostly artifacts of eighteenth- and nineteenth-century politics, not contemporary economics. As such, they very often do not capture a single FEA. For example, a county may have a primary central place, but a community on the county border has much closer trade links with a different central place in a neighboring county. Therefore, creating a model of “the county’s economy” makes little sense. The solution is to use ZIP codes to build an area that more closely matches the FEA(s) in the region.

In the past, economic data were only available at the county level, which seriously hindered fine-resolution economic analysis. Today, however, the availability of ZIP code data from selected vendors has vastly improved our ability to model FEAs within and across county lines.

Politically Divided FEAs

Just as a political area may be split into several FEAs, an FEA may be divided by one or more political boundaries. Ideally the economist would model only FEAs and completely ignore other boundaries, but politics and economics are so intertwined that this is not always feasible. So while it is usually safe to ignore most county boundaries, state or province boundaries are much more significant and should be taken into account.

Take, for example, the somewhat common occurrence of “twin cities” on either side of a state boundary. Because such cities have very close trade links and may even share the title of “central place” for the surrounding area, we might assume they should be modeled as a single FEA. Political realities, however, may discourage this—the two cities have different taxes, different governing laws and ordinances, and so on, which are impossible to ignore when performing some kinds of practical economic analysis. Situations like this are exceptions to our rule of modeling only FEAs.

The solution to this problem is a custom-built *interlinked model* from a specialized economic consulting firm, which treats the politically divided FEAs as separate economies while tracking their interlinkages. A model of this kind is quite expensive, so you should consider whether it is truly necessary for regional planning needs.

References & Further Reading

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