Understanding Regional Impacts and Data

In economic development, a critical first step toward strategy development lies in understanding how the regional economy functions. In other words, a local area should know what industries, occupations, and other assets contribute to the sustainable functionality of the economy and the jobs it provide. Once this level of understanding is achieved, decisions and strategies for enhancing and diversifying the regional economy are better informed and can align with the area's capacity and capabilities. This in turn can increase the prosperity of the region and its residents. This chapter discusses the basics of how economies function, and will provide a better understanding of the potential impacts –positive and negative – caused from changes in the local economy.

This chapter also covers:

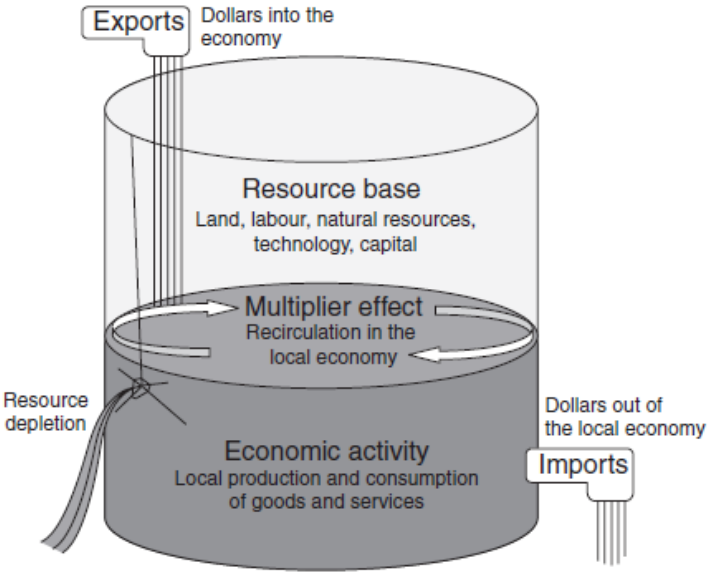
- How industry and occupation data are classified;
- Different metrics for evaluating industry and occupation characteristics;
- Sources for obtaining economic data; and
- The types of industries that bring new money into an economy vs. the industries that circulate existing money.

Knowing how various systems of classifications work and the types of information available will enhance a region's research and provide greater understanding of regional characteristics for use in planning and decision making.

I. How Economies Work

A. Background

Perhaps one of the easiest ways to understand how a region functions is to imagine a giant tub of water, where money flows into the economy from the top (tap) and out of the bottom (drain). This tub analogy contains several key concepts related to a region's intimate linkage to the rest of the world, specifically through the inflow (tap) and outflow (drain) of income and goods (i.e., the tap and drain both lead to everyplace else).



First, the regional economy (or the tub of water) uses resources either present locally or purchased outside of the region. Second, the size of the economy (or the amount of water in the tub) is determined by the inflow of outside income (e.g., exports), the "recycling" of existing income within the region (i.e., multiplier effects), and the volume of resources used to produce the region's output. When a region sells its products and services to the next region, state, or country, new money flows into the local economy from the tap, in the form of revenues, profits, and wages. This is why export-based industries (e.g., manufacturing, high-tech services, and tourism) are so positive for the regional economy—they bring new dollars into the region and raise the level of water in the tub. Conversely, when local residents and businesses spend

their money outside the region (e.g., purchasing production inputs from another region or going on a shopping trip to another area), dollars flow out of the tub and ultimately reduce the level of regional economic activity.

From a regional growth perspective, economic development practices should focus on increasing the amount of water in the tub (i.e., resource base). When the size of the resource base increases, ensuing ripple effects occur throughout the economy, further strengthening and diversifying the portfolio of regional industries.

In a broad sense, systematic evaluation of this tub can highlight economic development opportunities to achieve regional growth, as well as form the foundations of economic impact analysis, which is further described in Section 3.III. Basic economic development policy questions include:

- What is the region's linkage to the rest of the world?
- In what ways can we increase the potential inflow of income?
- How can the community better use its existing infrastructure, resources, businesses, and talent to produce more output, associated jobs, and income?
- How can the community reduce the loss of resources to improve its local income situation?

From a strategic perspective, increasing the amount of water in the tub may take one or more of three primary forms:

- Decreasing the size of the drain (import substitution);
- Patching the leaks (reducing resource depletion); and
- Increasing the size of the tap (increase exports).

B. Economic Development Focus

1. Decreasing the size of the drain (Import Substitution)

This strategy focuses on identifying and attracting industries that do not currently exist in the region and whose products are consequently imported. In regions containing specific manufacturing sectors, this strategy could focus on building an integrated local supply chain. Many small to mid-sized regions have manufacturing sectors that must purchase their production inputs outside the region. Identifying gaps in the regional supply chain could reduce the outflow of money to other regions, thereby increasing the amount of water in the tub. The reader should note that the success of this strategy is largely predicated on the compatibility of the region's resource base to the import substituted industry in question. In other words, if the region is not well-equipped, economically aligned, or has sufficient market capacity to produce goods that serve as an input to other production, then an import substitution venture runs a higher risk of failure.

Rise of the Co-Located Suppliers in the Auto Industry
In 2007, the Chrysler Group started production for the Jeep Wrangler and Jeep Wrangler Unlimited at its Toledo Supplier Park assembly plant. This marked the beginning of its co-location manufacturing model. The supplier park will be the first North American plant to have three major vehicle-building operations run and managed by suppliers.

The supply park is part of a growing trend that auto original equipment manufacturer (OEMs) are turning to as they cut costs and become leaner in production. Thus, suppliers are taking on larger roles in design and engineering.
Source: http://www.bxjmag.com/bxj/article.asp?magarticle_id=1040

2. Patching the Leaks (reducing resource depletion)

This strategy can take on multiple forms, considering that a region's resource base includes everything from natural resources to technological, workforce, and education resources. For example, cities such as Portland and Austin have had success in encouraging economic growth by maintaining and preserving the natural environment (i.e., green space), making the area more attractive to high-tech businesses whose workers desire a particular quality of life. Other regions, such as Boston and Jacksonville have focused around retaining educated talent or recent graduates, to reduce attrition of educated workers.

Umicore to break ground on $51 million Quapaw, Oklahoma plant
Belgium-based Umicore selected the rural town of Quapaw, OK over sites in Phoenix and Albuquerque to construct optical products used in medical and defense industries. The plant will now add manufacturing of germanium wafers to be used in high-efficiency solar cells for satellites and other space applications.

As cited by the director of the area's Economic Development Service, demonstrating high-skilled workforce availability was the number one priority on the site selector's list, along with proving regional collaboration.
Sources: http://www.okcommerce.gov/Commerce/About/rc/Hi-Tech-Facility-In-Quapaw-Means-165-New-Jobs and
http://www.economicmodeling.com/wp-content/uploads/CS-Oklahoma-umicore1.pdf

3. Increasing the Size of the Tap (increasing exports)

This strategy focuses on directly increasing the level of exports in the region. This may involve recruiting new companies that are export-oriented, or expanding existing export-oriented companies using various economic development incentives and tools.

Regional economies represent complex interlinked systems of industries, workforces, resources, and other assets. The connections of these components contribute toward spending, jobs, and wealth within the region. What has been outlined above represents a way to view these connections and begin to understand how these connections can be leveraged for future planning and growth.

II. Regional Approach and Impacts

A. Background and Introduction

Before a regional economic model can be constructed for planning purposes, it is necessary to precisely define its boundaries. Though at first the concept of a "region" might appear obvious, defining one for economic purposes is not a simple or insignificant task. The process itself is an issue that has frustrated regional scientists since the discipline's earliest beginnings 60 years ago (e.g., Isard, 1956). However, we can begin to understand the purpose and process by first understanding why a regional approach is used to assess an economy, evaluate impacts, and eventually construct and implement a development plan.

A regional economy is generally connected by many types of economic activities within a given geographic area. For example, companies buy inputs from other companies and hire workers, who are often times educated and trained within the region. Companies buy inputs from other companies and hire workers. Additionally, companies sell their products and services to other companies and consumers, while employees spend their wages and salaries on goods and services provided by other businesses. These activities form the basis for measuring impacts to a given economy, which is further explored in this chapter. However, before delving into impact assessment, it is important to recognize that economic activity, while connected between businesses, consumers and workers, is also connected across geography. Not all connected businesses are located in the same community, just like not all workers reside within the community where they are employed. As a result, regional boundaries must be clearly defined in order to accurately measure changes to the economic activity.

Functional Economic Area (FEA) vs. Asset Region: An area that covers a relatively contained and cohesive network of trade. In an ideal FEA, almost all the labor in the area is sold within it and almost all the goods consumed in the area are bought within it In other words, functional economic regions have a cohesive, semi-closed market for goods, services, and labor. The interlinking of places provides important context for the regional planner.

An "asset region", on the other hand, should incorporate the surrounding areas that demonstrate significant potential for commercial and labor linkages that could feed into an overall growth strategy.

Once a region is defined, the second critical step in understanding the regional economy focuses on characterizing the driving forces (also known as economic base) behind the region's economic activity. Since we have recognized that industries are interconnected within a region, characterizing that connection both within the region and to the world outside the region allows better understanding of the flow of economic activity. Simply put, knowing what sectors drive the regional economy will help to inform policy aimed at maximizing growth within the region.

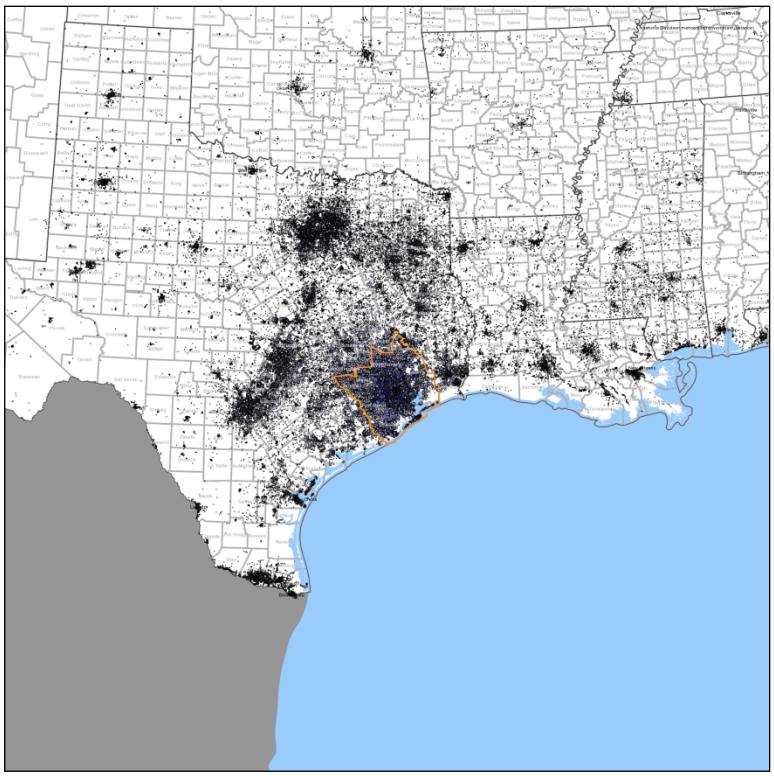
- Functional Economic Areas

The boundaries of markets rarely adhere to political jurisdictions and constructs such as counties or states. The principle of a functional economic area is to define and identify geographic areas that show significant levels of interconnectedness between markets. Interconnectedness typically involves three main elements:

- Workforce flows;
- Consumer commerce flows; and Supply-chain linkages – While supply chain linkages are much more likely to reside outside the region than the other two elements, many support activities and services reside inside the region, depending on region size. The point here is to consider more than one criterion when trying to construct a functional economic area.

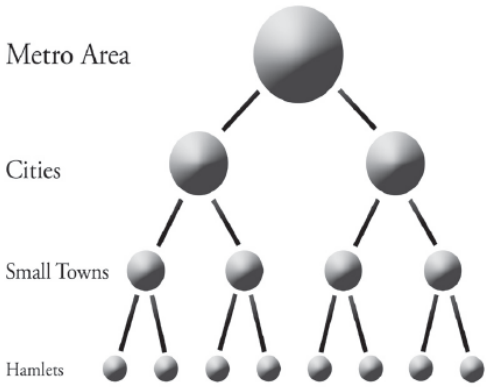
The three main sources do not necessarily overlap evenly. Supply-chain linkages (i.e., where industry sector's inputs come from) may not completely coincide with workforce flows (i.e., commuting patterns for an area's residents). Where strong links or "connectedness" is identified, especially in areas that cross political boundaries, local leadership should consider the advantages and benefits of collaboration across those boundaries.

The following graphic displays the 2009 workforce inflows of the Houston metropolitan statistical area region. As can be seen, significant portions of the workforce, represented by the shaded areas, commute physically or electronically from outside the MSA region and even the state into the area for work.



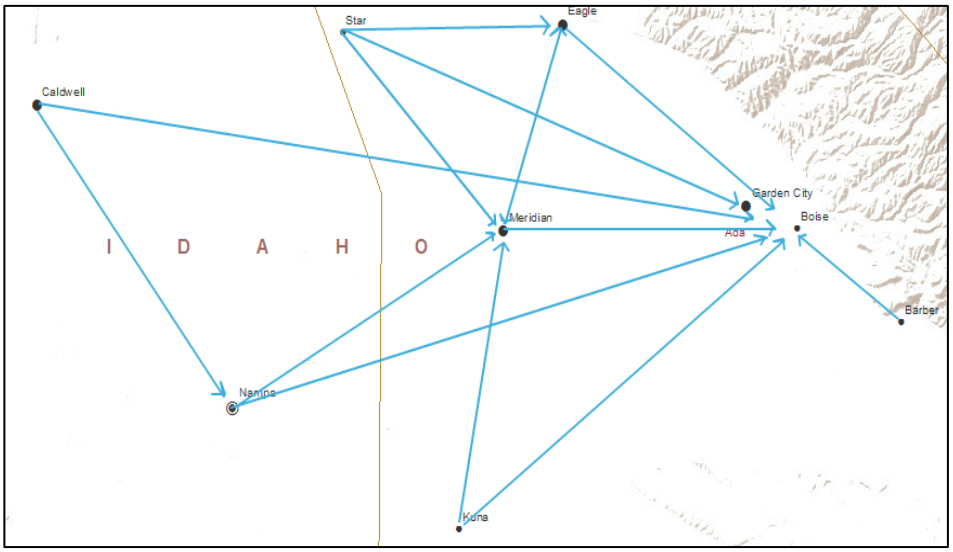
The two major principles that typically guide the development and selection of functional economic areas are central place theory (CPT) and labor market closure.

- Central Place Theory



If anything gives life to the notion of a functional economic region, it is the set of ideas underlying central place theory. CPT provides an idealized description of how communities or "places" are economically linked. This spatial linkage provides an internal cohesion that marks central place regions as functional economic areas (Christaller, 1966; Losch, 1954). By tracing linkages, CPT also describes the trade hierarchy among the various places in a region. In its simplest form, a single "highest-order place" (i.e., offering the widest array of goods and services) "dominates" some collection of lower-order places. The following figure presents a four-order hierarchy, with a single "metro area" (fourth-order place) economically dominating a pair of "cities" (third-order places), which in turn dominate "small towns" (second-order places), which dominate "hamlets" (first- or lowest-order places). The analysis is completed by specifying that each place (or "node") dominates peripheral areas populated with isolated homesteads. Notice that a political region (such as a state or county boundary) may cut through central place regions regardless of trade links.

The following map illustrates the Boise-Garden City, Idaho area trade hierarchy, wherein Boise represents the metro area containing the largest levels of amenities and services. Cities such as Meridian, Eagle, and Nampa, represent second order places, providing certain amenities to third and fourth order places such as Kuna and Star.



- Incorporating Workforce Flows

As can likely be determined from the above discussion, more than one method can be used to define an economic area. As described above, typical methods include analysis of: (1) workforce flows; (2) consumer commerce flows; (3) supply chains; and (4) combinations of the previous three as well as integration of housing markets. Given the varying information, the defined functional economy's boundaries must be relatively "closed" based on one or more of these aspects. In this discussion, "closed" means that the economy can be considered mostly self-contained. In other words, the output of businesses and availability of resources satisfy the majority of the region's demands for goods and services. Regional leadership is encouraged to explore the goals and desired outcomes of the planning activities to help guide which mechanism is used to close the region. For example, if the goal is to increase the number of skilled jobs in the region, then closing the area with respect to the workforce flows is advised, since any subsequent industry, occupation or impact analysis would pertain to locally present workers and not workers commuting from outside the region.

- Defining a Region's Economic Base

One critical goal in the region's planning activities is to define the industries that are driving the regional economy. The simplest way to think about a region's economic base is to think of a region's industries as being composed of two fundamentally different types: one sells to non-residents and thereby brings outside dollars to the region; the other sells to residents and thereby intercepts monies already in circulation. The former industries are called "basic," while the latter are called "non-basic." A region can grow by adding either basic or non-basic industry, but basic industry (i.e., industry that is predominately export-oriented and brings in outside income) serves as the driving force of the economy.

Economic Base:
Activities within a geographic market area that provides core employment and income on which the rest of the regional economy depends.

Basic Industries

Basic industries are made up of regional businesses that are largely, if not entirely, reliant on the economy outside the functional area. For example, Boeing builds large commercial aircraft that it in turn sells to airline companies worldwide. Boeing does not sell its products to local residents and households, which consequently makes the company largely reliant on the external marketplace to export their goods. Typically, manufacturing and natural resource (i.e., mining, logging, etc.) based firms tend to be considered basic industries because they primarily export their final product to economies outside their respective local economies.

NASA Shuttle Program
Cape Canaveral (Brevard County, Florida), has experienced significant economic fallout from reductions in space travel. With the shuttle program shutdown in 2011, an estimated 10,000 direct job losses occurred in and around the Kennedy Space Center. Residual ripple effects estimate indirect job losses as high as 13,000 for a total regional job loss in excess of 23,000 workers. With few alternative comparable job opportunities in the region, at least in the short–term, many of the highly-skilled displaced workers are moving elsewhere for employment.

Economic base theory supports the development of basic industry sectors as the driver of economic expansion and prosperity. In other words, a regional economy cannot continue to grow and develop if new, outside money is not flowing in through export activity (recall the tub analogy from Section 3.I). Non-basic sectors, though important, will be developed as demand for local-level services increases through economic expansion. For example, a local barber shop provides services to local residents who spend

their wages and earnings to receive haircuts. The barber shop, therefore, is not bringing new money into the economy; rather, it captures existing dollars spent by local residents.

Economic base theory also emphasizes the importance of diversification within the basic industries. The primary assumption in this approach is a diverse economic base can help to insulate an economy from economic downturns because outside markets will not be as heavily affected. Conversely, an industry that is aligned solely with the regional economy may have a more difficult time adjusting to economic slumps within the regional economy.

Non-Basic Industries

Non-basic industries are those local businesses that primarily rely on local economic factors to grow. In other words, these businesses tend to circulate existing money within the economy. For example, a local restaurant primarily sells its goods and services to local households and perhaps businesses. Since the restaurant's clientele is local, the prepared products are also consumed locally.

The non-basic industry sector is very important within a regional economy because these businesses provide services and products required by local households, residents, and businesses. The sectors also contribute to the quality of place and amenities that often serve as a draw for new residents, or retain existing residents. Furthermore, the sector also helps to prevent leakage of money from the local economy, allowing further increases in economic multiplier effects (recall the tub analogy from Section 3.I).

- Defining Driving Factors of the Economy

Given the above overview of economic base theory, four critical factors regarding the flow of new dollars into the economy should be considered: (1) basic industries; (2) residents' outside income; (3) government spending/transfer payments; and (4) non-resident investment into the region.
Evaluation of basic industries follows the above description, namely identifying export-oriented industries and calculating the level of export sales stemming from the industry. Sales can be in the form of visitor spending (e.g., non-resident retail spending, hotels/accommodation and recreation spending from non-residents), sales of manufactured products outside of the region, sales of services outside the region. Once sales are calculated, determining the number of jobs and level of earnings attached to export sales is simple arithmetic.

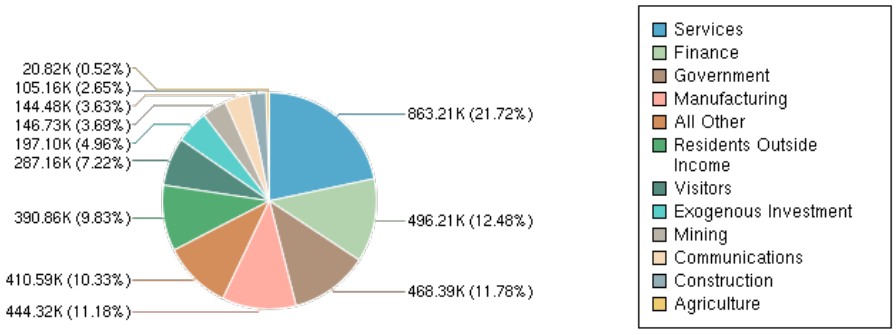
Residents' outside income can be derived from more than one source of income flow. Residents who commute outside the region earn wages and salaries that are then brought back into the region as income. Additionally, residents who own income-producing capital and assets outside the region receive payments in the form of rents and/or royalties, which are ultimately captured under the heading of outside property income. These payments contribute to the economic base as residents allocate their earnings toward savings and spending.

Government spending and transfers also constitute flows of new money into the economy. Transfers come in the form of Social Security, Unemployment Compensation, disability payments, Medicaid/Medicare, other social assistance programs, state and federal grants and any other new dollars that flow in from non-local government agencies.

Finally non-resident investment in the region, also known as "exogenous investment," contributes to the inflow of new dollars. Exogenous investment can be anything from new enterprise development to venture capital, provided the origin of the investment is outside the region.

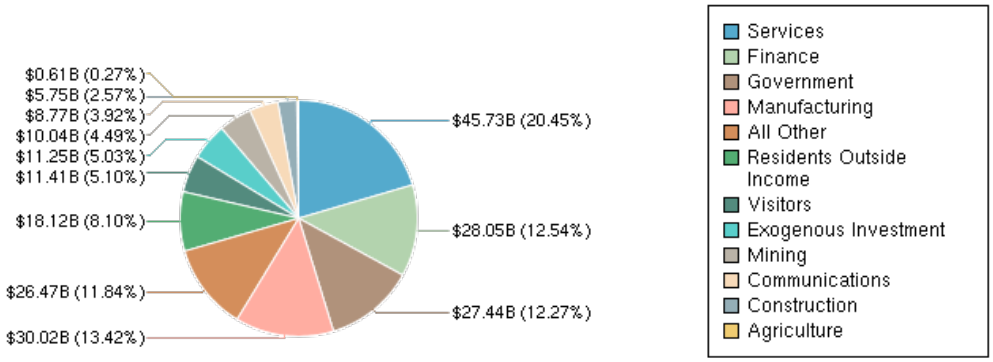
The following figure provides a representation of the basic sectors within an economic base, and their subsequent support of all jobs in the Dallas-Fort Worth region. In this figure, we can see that the service sector and finance are significant drivers of the regional economy, comprising 34 percent of the regional jobs and 33 percent of the regional earnings. Additionally, we can also see how visitor spending, residents' outside income, and exogenous investment all play a part in supporting jobs and earnings within the region.[1]

Jobs



[2]

Earnings



[1] Economic Modeling Specialists Inc (EMSI) – Input-Output model 2011 Quarter 3 data

III. Introduction to Impact Assessment

The first sections of this chapter discussed the structure of regional economies, how to define regional economies, and how to determine the factors and forces that drive regional economies. Armed with this knowledge, one can more accurately assess and describe impacts associated with changes to the regional economic structure and flow of money. Measuring and understanding the extent of this impact allows for a better understanding of the industry connections within a regional economy as well as the job and earnings changes in the economy—thus assisting with planning and development efforts. For example, an economic impact study of Scott Air Force Base in the St. Louis region concluded that the air force base provides an annual impact of roughly $3 billion, as well as directly employs 13,350 workers and indirectly employs 6,450 workers.

Referring back to the water tub analogy, as the size of the resource base increases (i.e., increasing the level of water in the tub) through business creation/expansion, subsequent ripple effects—called multiplier effects—occur in the economy. This occurs because the level of interaction/spending between businesses and other businesses—as well as between businesses and consumers—increases when more businesses or consumers are added to the mix. Conversely, as the resource base shrinks (i.e., decreasing the level of water in the tub), less interaction between businesses and consumers occur, thus lowering the multiplier effects. These effects can be calculated using a method called input-output modeling. At its core, input-output modeling uses regional data pertaining to industry demand for inputs and their subsequent output of products and services to measure the inter-relationship industries have with their supply chains, their supplier's supply chains, as well as with consumers—known as indirect and induced effects.

A. Getting Started

1. Define the Impact Region

The functional economic area described serves at the regional backdrop for input-output modeling and captures the economic and workforce flows of the region. This flow allows us to more accurately measure changes to the region, since we know the majority of relevant ripple effect impacts will be contained within the geographic boundaries.

2. Define the Initially Impacted Industry

The next step accurately identifies the initial impacted industry to understand the extent of ripple effects on other connected industries. To this end, most input-output models use the North American Industry Classification System (NAICS) to characterize the initially impacted industry. NAICS provides a hierarchy of industry codes and descriptions, ranging from a broad two-digit level to a detailed six-digit level. Input-output models often have varying degrees of industry specification built into the application, thus allowing an analyst to determine the scope of the industry to evaluate. Note: Misspecification of the initially impacted industry can lead to misleading results of the multiplier effects in a regional economy.

For example, a military facility that operates as a naval boat repair shipyard closes. The NAICS code that classifies the non-military functions of this facility would likely fall under 336611 – Ship Building and Repairing. Should the necessary industry linkages also be located within the region, the ripple effect would also likely affect engineering services, machine shops and manufactured steel.

3. RIMS II Model

Many alternative input-output tools are available in the marketplace, each having its own unique advantages and characteristics. The U.S. Bureau of Economic Analysis (BEA) produces its own input-

output model called RIMS II (Regional Input-Output Modeling System) and publishes a handbook describing the methodology of the system and how to use the tool. [3]One specific advantage of the RIMS II system is that impact assessment is already completed and multipliers are provided, at a low cost, for up to 406 detailed industry categories, or any pre-defined geographic area. Once the multipliers are acquired for the defined region, the analyst simply defines the extent of the direct impact and then applies the multiplier effect for the industry.

Multipliers typically account for the sum of three effects, called direct, indirect, and induced effects. **Direct effects** are simply the initial change in a particular industry. **Indirect effects** capture changes to inter-industry linkages as the market responds to changes in the initial industry. The effects capture changes to second, third, fourth generation, etc. suppliers. These effects would include supply chain effects associated with reductions in input demand. **Induced effects** reflect changes in household spending as income changes. The economic rationale behind this effect holds that job creation or loss results in an addition or reduction in income that consumers use to purchase goods and services. This addition/reduction changes the demand for locally present "non-basic industries" such as grocery stores, restaurants, hair salons, movie theatres, etc.

4. Using RIMS II

Once the initially impacted industry is properly identified, the next critical step is to determine the extent of the impact. In the case of reduced economic activity, is the industry losing sales? In the case of defense spending reductions, are specific companies losing contracts and revenue? Are they relocating to another region? How much is the anticipated loss? Whatever the answer, the RIMS II input-output model allows for output analysis from three perspectives (jobs, earnings, and sales/final demand) because they are inextricably linked. For example, fewer jobs means less output *or* lost sales requires reductions in labor and results in lower earnings, etc. Once the analyst determines the extent of the direct impact, this result serves as the "input" into the input-output model. The input is the change to final demand from the impacted industry.

Once the analyst determines the change in final demand, that number is applied to the industry sector and output results are generated according to changes in jobs, earnings, and sales/final demand. If, however, the analyst is only looking to evaluate the ripple effect of lost jobs or earnings (*and* has an estimated number of layoffs or reduction in earnings), then the multiplier effects can be used to determine the additional number of job losses or earnings losses occurring in other industries within the region. The calculated changes, referred to as multipliers, are provided in the multiplier. For some additional context, brief descriptions of the various multipliers are provided below.

Job Multipliers: The number of additional jobs created/lost in a regional economy as a result of one additional job created/lost in an initial industry. For example, a jobs multiplier of 2.5 in industry Y would mean that if 10 jobs were created/lost in industry Y, then 25 total jobs (10 x 2.5 = 25) would be created/lost in the region.

Earnings Multipliers: Much like job multipliers, earnings multipliers represent the amount of worker earnings generated/lost in addition to an initial change in earnings for a given industry.

Final Demand/Sales Multipliers: These multipliers represent the additional change in sales for all industries as a result of an increase/decrease in final demand for a given industry.

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[3] This handbook can be found at: https://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf.

IV. Industry and Workforce Metrics

As described in Section III.A of this chapter, impact modeling within a region allows for decision-makers to better understand the level of regional connectivity and ripple effects associated with change. However, an equally important aspect when planning for the future recovery and/or prosperity for a region centers on understanding, characterizing, and quantifying the region's assets—*and* identifying the most desired outcomes for those assets. Ultimately, defining outcome goals and tracking metrics once plans are implemented is a significant goal of this activity.

The first step in this activity is determining the desired outcome of the plan through identifying the region's and leadership's economic values. If regional goals are already in place prior to this step, then the activity should focus on identifying metrics and tracking the progress of those goals. This will guide the type of data and modeling necessary to provide meaningful and/or actionable information. For example, if the goal is to increase the level of high-wage jobs in the region, a closer look at growing industries or "in-demand" industries with high average wages would be a good first step. Identification of target sectors to encourage growth establishes a baseline to track progress of that growth and new job creation.

Cataloging Outcome Metrics

To determine if policies and implementation strategies are reaching goals, outcome metrics serve as an indicator of success. These metrics help to guide future strategies and can also be used to efficiently adjust current strategies, once certain processes have been put in place. Since there are many ways to measure the effects of a strategy (note: some of the above metrics can also be used as outcome metrics), the following section will simply focus on the two general types of metrics—process and outcome.

A. Capturing and Reporting Outcome Metrics

In project management, you can either measure the process or the outcome, though many process measurements and/or outcome measurements can be captured. When focusing on process metrics, the goal is to identify an objective way to measure the progress of a project. The process is simply the steps taken by the designated groups or individuals within the region to formulate, develop, and maintain the goals of a project or implementation strategy. For example, if improving regional innovation is a regional goal, process metrics may focus on the number of patent filings or SBIR/STTR applications submitted by individuals or organizations within the region. The key to identifying and tracking process metrics should focus on using the information to determine where and how improvements can be made to the strategy.

Outcome metrics, on the other hand, measure the results of the implementation strategy or project. Instead of looking at the metrics captured during the process, the outcome metrics focus on how the process improved the regional economy and how effective the implementation strategy is moving the region toward its goals. For example, if a goal is new business development, an outcome metric may focus on capturing the number of new net business openings/locations in the region.

Ultimately, the region should determine how process and/or outcome metrics should be captured and calculated. More than one type of metric is advisable in order to get a more complete picture of how strategies are implemented. Also note that these two metrics can be used together in a region, because process metrics are effective in measuring current projects/strategies, while outcome metrics are useful when measuring older, completed projects.

- Sustainability and Prolonged Assessment of Outcome Metrics

Recognizing that strategies can be developed for both the short- and long-run, it is essential to identify metrics that can be captured over the course of several years. Just as the metrics developed to measure goal achievement should align directly with plan goals, the time frames identified for metrics should also align with the time frames for implementing plan initiatives.

V. Industry and Occupation Data and Metrics

A. Sources

The data and analysis components described above can be collected and structured through multiple data sources, organizations, and private companies. The list of sources below is not exhaustive, though many of the sites and organizations provide good starting points for economic research.

Federal Sources

Many federal agencies report specific data on the economy. Some datasets are focused on national trends, while others are focused on regional and local industries. Below are a few sources and the types of data that can be collected from each:

a. U.S. Census Bureau: reports data on households, poverty, income, commuting patterns (i.e., where people travel to work) and local industry;
    i. American Community Survey (ACS)
    ii. County Business Patterns (CBP)
    iii. Zip Code Business Patterns (ZBP)
    iv. Nonemployer Statistics (NES)
    v. Small Area Income and Poverty Estimates (SAIPE)

b. Bureau of Labor Statistics (DOL): reports data on occupations, employment, inflation, and prices. Specific data sources include:
    i. Current Employment Statistics (CES)
    ii. Quarterly Census of Employment & Wages (QCEW)
    iii. Occupational Employment Statistics (OES)
    iv. Current Population Survey (CPS)
    v. Local Area Unemployment Statistics (LAUS)

c. Bureau of Economic Analysis (DOC): reports data on trade, industry output, and input-output multipliers:
    i. RIMS II
    ii. State Personal Income and Employment
    iii. Local Personal Income and Employment
    iv. Industry Economic Accounts, Benchmark and Annual Input-Output (I-O) Accounts

Regional/State

Many sources of local-level data can be obtained through regional and state organizations. The following are specific resources that can be used to meet specific data needs:

a. State labor market information (LMI) agencies: Each state has a LMI agency that gathers specific industry, occupation, education, and other data to provide to state-level leaders. Many of these agencies can be contacted directly for special data requests by local economic developers.

Newton, Iowa, Reshapes Economy after Maytag Closure
When faced with an impending closure of its largest and longest running employer, Maytag, Newton, Iowa undertook a new strategic direction to diversify its economic base and rebrand the region. The following case study outlines the challenges faced and solutions derived through data research, regional collaboration, and planning: http://www.economicmodeling.com/2008/11/12/iowa-town-reshapes-its-economy-with-data-focused-plan-partnerships/

b. Utility companies: Many utility companies maintain regional datasets on the areas they serve. As part of community outreach and economic development, the utility companies provide a great resource for obtaining needed data.
c. Economic Development Corporations (EDCs) and Area Development Districts (ADDs): As part of their operations, EDCs and ADDs often conduct research and surveys on their local areas. The information and data collected can provide good insight into the types of economic activity taking place in a local economy.
d. Workforce Investment Boards (WIBs) and Workforce Development Councils (WDCs): Similar to EDCs and ADDs, workforce boards also collect and maintain regional data on the workforce and often on industries.

B. Industry Data

Understanding the types of industry data available is also critical to understanding an area's economy. Specifically, knowing how the region functions and what drives job creation or job destruction (i.e., layoffs) allows for better planning of the area's future. For example, in the face of significant economic downturn in certain areas of traditional manufacturing, some communities have undertaken a rebranding approach to drive investment and job creation in high-tech or advanced manufacturing, clean energy, and research and development.

Archetypal industry data and analysis includes evaluating historical, current, and projected growth/decline of an industry, at various levels of the NAICS hierarchy. Often, mistakes are made when specific industry performance and information is not taken into account. For example, the perceived decline in the manufacturing sector may have merit on an aggregated level. However, more often than not, specific pockets of manufacturing growth can be identified in most areas. These manufacturers may have leveraged specific regional characteristics and/or amenities in order to outperform industry expectations—a quality that should not be overlooked.

- **Employment:** Historical, current, and industry projections provide an understanding of the past and present performance of an industry, as well as future expectations of industry growth/decline.
- **Percent change**: Enables further insight of the rate of change within an industry, which can include employment, earnings, or output.
- **Earnings:** Evaluates industry productivity and value. Two basic measurements include total industry earnings—a measure of income generated by the industry—and earnings per worker (EPW), a measurement of productivity associated with the employment within the industry.

- **Percent regional employment:** Characterizes how much of an industry sector contains the regional workforce employment.

C. Occupation Data

Just as industry data are necessary for understanding how the local economy operates, knowing the occupational structure of the economy is just as important. Historically, little weight was given to the workforce structures in an economy. Workers were viewed as labor "inputs" to a production or service process. In recent decades, scholars and practitioners have become increasingly interested in the workforce and occupational structure of local and regional employment. From an economic development standpoint, knowing what occupational (and skills) talent resides in an economy can help to more narrowly target and solicit prospective employers, or assist current employers with expansion and diversification opportunities.

Occupation data are classified by a coding system known as the Standard Occupation Classification system, or SOC. Much in the same way industry data are reported and used, occupation data can also be constructed in a similar fashion, though a few additional key data points can also be calculated. The more prevalent types of occupation data utilized by economic development and regional planning practitioners are:

- **Employment:** Historical, current, and future occupation projections provide a complementary perspective to industry data. Since industries are responsible for employing occupations, industry sector growth signals demand for new occupational entrants to the industry. Inasmuch, knowing the occupations that coincide with industry needs can enhance the capabilities of existing companies or be used as a tool to recruit new companies.
- **Percent Change**: Much like the industry data perspective, this metric can provide a deeper understanding of the types of occupations that are growing or declining. Occupations in decline can become targets and leverage points for demonstrating available workforces to compatible industries.
- **Occupation Location Quotient (LQ):** Similar to industry location quotient, this metric signifies concentration of specific occupations, when compared to a larger geographic context (e.g., state or nation). Occupational LQs vary by region due to the industry makeup of a region. For example, Silicon Valley has a significant concentration of computer engineers and computer programmers that support the burgeoning information technology industry sector.
- **Demand (new and replacement jobs):** One of the cornerstone concepts in economics is demand. If gaps exist between supply and demand, the economic system is considered to be in a state of disequilibrium and resources are deemed misallocated. The same concept applies to occupational demand. Simply stated, economies grow, which creates new jobs, and workers quit, retire, or otherwise move on, creating demand for occupations. If demand for occupations exceed the supply of competent workers, business costs rise and production is stunted. Understanding the future demand for both new and replacement jobs, especially those in critical industry occupations, can assist in developing the proper talent supply pipelines (e.g., education, workforce training, etc.) to support economic development.
- **Percent Regional Employment:** This metric serves as an indication of what occupational strengths the region possesses. Regions with a skilled workforce can be easily identified because a large percentage of the occupations may require postsecondary education. Knowing the extent of employment in these occupations can be useful marketing the region and drawing in new employers.

- **Wages:** Occupational wages indicate the level of self-sustainment on the part of the employee and are a critical occupation metric to understand.

D. Using Metrics to Identify Target Sectors

The last several sections have outlined the importance of metrics, how to identify metrics, several available types of metrics to capture, and several sources of metrics. Becoming familiar with these various components and measures and finding overlap between data and the region's goals and strategies will become increasingly apparent over time. However, data can also be used as part of the process to identify the direction of strategies and assist in the formulation of goals. Many of the metrics and measurements described above work well in identifying target industry sectors and clusters (in other words, where a region may have a comparative or competitive advantage). In regions with competent and capable workforces, other industries that require similar skills may also be interested in leveraging those skills. Use of the above-described metrics -- specifically employment growth, shift-share, location quotient, workforce compatibility, industry average wage, export orientation, and excess demand—can greatly assist a region in identifying industries with the characteristics the region desires to promote and expand. See the "Sector Strategies Consensus-Based Decision Support Model" for a fuller discussion of using metrics, as well as other factors, in deciding on regional target industries.

E. Bridging Data and Professional/Local Knowledge

This final section focuses less on data and more on the qualitative factors within a region that are not easily captured by data and metrics. To conduct regional research based solely on data, metrics, models, and analysis would lack a robust view. The research would fail to capture the qualitative factors that need to become a part of the region's assessment. Qualitative factors are inherently difficult to calculate because they are (by their nature) varied and diverse—changing from region to region. We can, however, point regional leaders to various qualitative elements when making decisions. Some elements may include new and current initiatives not reflected in historical data (e.g., initiatives to develop research centers in a new industry sector [e.g., green energy] or breakthrough R&D that is heading to commercialization).

Other elements may include the tacit knowledge of the region's leadership. No dataset can reflect the key knowledge that community leaders might possess. Current initiatives with community partners (i.e., a policy driven by economic development partners or political considerations) and other factors may be important to consider when making final decisions. In other words, knowledge is seldom considered exclusive of the quantitative analysis, but may further advise the prioritization and final decision-making process.

A final element to consider is culture. The region's leaders have the context to consider factors that might be cultural, such as a bias against office parks or towards "green" initiatives. These issues should inform decision-making. When evaluating opportunities or strategies or making decisions, the leadership should determine what other non-quantitative factors may provide better understanding and context for decision-making.

F. Data Tools

To assist in the data gathering activities of a region, several free tools are available to researchers, outside of the standard government tools described on pages 13-14 of this chapter. These tools leverage existing proprietary or publicly available datasets to create value-added information that can be used in the decision-making process. The following is a list and description of recommended tools.

1. StatsAmerica.org StatsAmerica: Funded by the U.S. Commerce Department's Economic Development Administration, the site contains two tools – Innovation in America's Regions AND Measuring Distress. The tools allow for areas (counties, states, and MSAs) to model industry clusters, occupation clusters, and innovation. In addition, the tools also model potential "distress" for neighborhoods based on unemployment and income. www.statsamerica.org

2. YourEconomy.org Tool: Available through the Edward Lowe Foundation. YourEconomy uses National Establishment Time Series (NETS) data to measure industry jobs and establishments across various geographies. The free portion of YourEconomy allows an area to look at the composition of business establishments in an area (from self-employed to stage 4 companies) and how that composition contributes to employment for a state, MSA or county. Tool is available through www.youreconomy.org.

3. EDA Economic Development Project Evaluation Tool EDA Economic Development Project Evaluation Tool: http://www.eda.gov/Research/ToolsOfTrade.xml

4. For a description see: http://www.ee.unirel.vt.edu/index.php/econdevelopment/comment/EDAs_Economic_Development_Project_Evaluation_Tool/