

Note: Numeric values removed to protect client data and prevent comparisons across as hospital district financial data vary greatly between districts.

2020 Economic Contribution of County Hospital District¹

Overview

County Hospital District (CHD) provided \$## million in healthcare services, including almost \$## million in charity care within the county in 2020. With tax-based funding of just under \$## million, each local tax dollar invested in CHD directly provides \$## in health services to the local community.

The hospital district contributes more than just the value of its service to the local economy. Its contribution is multiplied as employees spend earnings locally and the hospital purchases supplies from local businesses. The district's direct contribution to the County economy occurs primarily through its payroll. The ## full-time equivalent (FTE) CHD employees include ## County residents. Through the multiplier effects of its payroll and local purchases, CHD contributes \$###million in output, \$## million in value added, \$## million in labor income, and ## jobs based on 2020 payroll and spending data. Labor income is a component of value added, which is a component of output, so these three figures cannot be summed.

Patients and, more broadly, county residents benefit from having healthcare facilities close to home. Without a local hospital, more than \$## patient co-pays would be paid outside the county, creating a direct economic leakage. About % percent of CHD patients reside outside County, and their payments constitute new money in the county economy. The hospital also attracts money into the county through payments from insurance companies, the state and federal governments, and other sources. Further, the hospital and clinic and serve as an anchor institution supporting economic development in the community and helping attract and retain industry and residents.

Methods

Final demand sales are typically the basis for economic contribution studies. However, it can be difficult to determine a "sales" value due to the complexity of hospital reimbursements from public and private insurers. "Sales" also fail to capture the value of charity care. Furthermore, healthcare sectors encompass a wide variety of services and cost functions, with many expenditures for specialty supplies and services occurring outside the local territory.

¹ Name redacted.

Healthcare studies typically rely on hospital's spending patterns, specifically employee compensation and local purchases, to estimate economic contributions. A rural hospital's primary contribution to the local economy is through employees' wages, salaries, and benefits. These values were summed and entered into the IMPLAN model as a labor income change to employee compensation.

Many items and services used by the hospital are specialty healthcare products not produced or sold in a rural county. Items ranging from medicines and suture materials to x-ray and MRI machines must be imported from outside the county, constituting leakages from the local economy. However, the hospital purchases many goods and services locally and contributes to local organizations, and that money does circulate in the economy. The CHD calculated total spending at businesses within the county. These expenditures were divided among 36 IMPLAN industry categories based on the research team's prior work in other locations. Expenditures by industry (e.g., retail, repair-related expenditures, restaurant, business services) were entered into the IMPLAN model as industry events. For retail sectors, expenditures were entered as gross retail sales as opposed to margins, and the resultant direct output value was adjusted to equal actual expenditures after modeling. This method provides direct results that are consistent with both reported spending and with IMPLAN's modeling procedures for similar industries, such as restaurants and caterers. The effects of payroll and local purchases were summed to estimate the hospitals' total economic contribution. The direct and total output values were then adjusted to reflect the value of services, including charity care, to the county's residents and economy.

Return on investment was calculated based on hospital revenues, the value of charity care, tax receipts, and patient payments. Additional data to describe the County economy was accessed from the Bureau of Economic Analysis.

Economic Impact Analysis: A Brief Introduction²

The hospital's contribution to the County economy does not stop with its own local purchases and direct payment of employees. When the hospital purchases equipment from a local vendor, a portion of that business's production expenses are paid to the business's local suppliers and wages are paid to employees. Business owners and employees also spend part of their profits and wages in the local economy—eating at local restaurants and buying groceries, clothing, and movie tickets. As money circulates through the local economy, it multiplies the original direct expenditure to a larger total economic output.

Economic impact analysis (or economic contribution analysis) is based on the idea that a dollar spent in a region stimulates additional economic activity, or multiplies as it circulates through the economy. This *multiplier effect* recognizes that the total effect on output, employment, personal income, and government revenue in the region is greater than the initial dollar spent. For example, a hospital employee's expenditure at the grocery store contributes not only to that business, but to its suppliers, its suppliers' suppliers, each of their employees' incomes, and tax revenues. Of course, some of the original expenditure leaks out of the regional

² This subsection is adapted from Extension publication EAG-055 Economic Impact Analysis: A Brief Introduction.

economy, for example as inventory is imported from other regions, employees commute from other regions, and businesses and households pay state and federal taxes. The portion of the money that remains in the local economy throughout these transactions constitutes the net economic gain. Larger regions contain more economic linkages, which is why large cities and multi-county regions generally have larger multipliers than do small towns or single counties.

Multipliers are calculated based on the purchasing patterns of industries and institutions in the regional economy. Each industry and region combination has a unique spending pattern and a unique multiplier. Multipliers include three components. The *direct effect* on the economy is the initial economic activity measured—for example, gross sales by a manufacturing business. The direct effect results in two types of secondary effects. The *indirect effect* results from the purchase of inputs among local industries. The *induced effect* results from the expenditure of institutions such as households and governments benefitting from increased activity among local businesses.

Four types of multiplier effects are generally reported in impact analyses. *Output or sales multipliers* measure the effect of direct spending (or loss) on overall economic activity in the region. The output multiplier provides the largest economic impact value and, therefore, is reported in many studies; however, the output multiplier says nothing about how the event affects the welfare of households or the profitability of businesses.

The *value-added multiplier* is a more appropriate measure of regional welfare. The value-added multiplier measures the event's contribution to regional gross domestic product (GDP). It is the value added to the regional economy or the return to local resources used in the production of the event.

The *labor income or personal income multiplier* measures the effect of the event on the incomes of households in the region and is appropriate for discerning the benefit of an event to a region's residents.

The *employment multiplier* measures the effect of the event on regional employment. Calculation of the employment multiplier assumes that existing employees are fully occupied and does not distinguish between full-time and part-time workers.

Results

Economic contribution of operations

County Hospital District is one of County's largest employers. The district employs ## staff members, which accounts for % percent of total County employment and % percent of wage and salary employment (as opposed to farm and nonfarm proprietors) (BEA 2021). Payroll (wages, salaries, and benefits) totaled \$## million in 2020, or % percent of hospital revenue (payments received). For every dollar of tax funding, the hospital pays \$## in wages and benefits, most of which (\$##) is paid to county residents.

The districts \$## million payroll constitutes direct labor income from CHD operations. Most employees (## or % percent) reside within county and take home % percent of the district's payroll. The \$## million in wages and benefits paid to county residents is the only portion of payroll modeled to create induced impact in the county. The district's total payroll and the induced effects of local wages contribute \$## million in output total and ## jobs to the County economy (Table 1).

Table 1. Countywide contribution of hospital employee compensation.

Impact Type	Output	Value Added	Labor Income	Employment
Direct Effect				
Indirect Effect				
Induced Effect				
Total Effect				

This payroll contribution includes a \$## million contribution to value added (county GDP). Within that value added contribution, \$## million in labor income paid to both hospital employees and the employees of businesses affected by local employees' local spending. In other words, CHD employees' spending generates an additional \$## in labor income to employees at other County businesses. It is important to keep in mind that labor income is a component of value added, which is a component of output, so these figures cannot be summed.

Leakages of induced spending, even among local households, are high due to expenditures such as taxes, insurance, savings and investments, and mortgages that may be held outside the county. Expenditures outside the county on shopping trips or vacations also cause leakages of induced spending. County is a small, rural economy; at the statewide level, leakages are reduced and multipliers are increased as a result of enhanced economic linkages (Appendix A). Because spending by households (employees) is the basis for this spending, there is no indirect or business-to-business effect.

The contribution of the hospital's employee compensation is almost certainly an underestimate. Some employees reside in surrounding counties and likely make purchases in the county, perhaps getting gas or groceries on their way home from work. However, expenditures by nonlocal employees do not follow local employees' spending patterns and are less certain. Their spending effects are thus excluded from the county IMPLAN model but included in the statewide model (Appendix A).

The full effect of County Hospital District's annual operations is the sum of its revenue and the indirect and induced contributions from its payroll and local purchases. Much of the hospital's specialty equipment and medical supplies must be purchased outside the County economy. However, the hospital makes local purchases and charitable/civic contributions when possible.

From its \$## million revenue, the hospital contributes \$## million in output (Table 2). The hospital also contributes ## jobs to the county economy. These impacts reflect both indirect business-to-business expenditures and induced expenditures by hospital employees and the employees of businesses affected by indirect and induced spending. The hospital's contribution to the statewide economy is provided in Appendix A.

Table 2. Annual economic contribution of County Hospital District operations to the County economy.

Impact Type	Output	Value Added	Labor Income	Employment
Direct Effect				
Indirect Effect				
Induced Effect				
Total Effect				

The output contribution includes \$## million in value added (GDP), most of which consists of \$## million in labor income to the County economy annually. Again, labor income is a component of value added, which is a component of output, so these figures cannot be summed.

Funding and revenues

The County Hospital District generated \$## million in funding through insurance and other external payments, local tax dollars, and patient payments in 2020. Contractual adjustments contribute \$## million to the value of services the district provides. The hospital district also provided \$## in charity or indigent care in 2020. The total value of care received through CHD was \$## million (Table 3).

Table 3. Hospital funding, revenues, and charity care, 2020.

Hospital tax funding
Collections from in-county patients
Collections from patients residing outside the county
Collections from insurance
Payments from other third-party sources, including government programs
Total Revenue
Contractual Adjustments
Charity/Indigent Care
Total Value of Services

The County Hospital District is partially funded by a hospital district tax. Tax collections accounted for % percent of the hospital’s \$## million funding (Figure 1). Tax dollars help to anchor the hospital, allowing it to attract spending from patients, public and private insurers, and specialists who contract to provide services at the hospital. Collections from patients in the form of payments and co-payments make up % percent of collections. Payments by private insurance companies on the behalf of patients contribute % percent of hospital collections, by far the largest share. Collections from other third-party payers, including government insurance and programs, contribute % percent of revenue. Revenues from other sources included COVID-19 payments in 2020. Hospitals do not collect the full value of services provided due to insurance companies and individuals negotiating lower contracted rates.

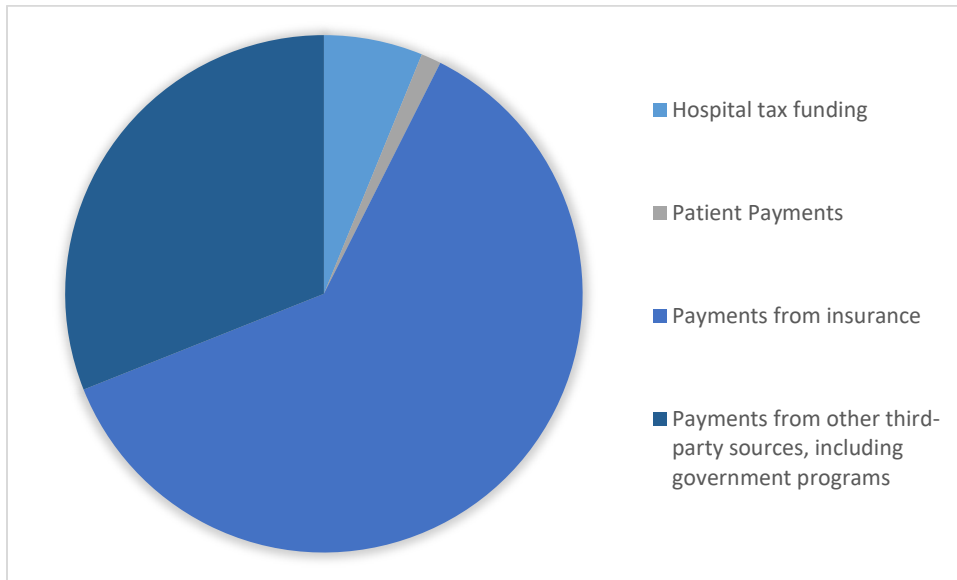


Figure 1. Share of collections by source, 2018.

Value of services and return on investment

The CHD provides \$## million in healthcare services annual, including almost \$## million in charity and indigent care. Every tax dollar invested in the hospital generates \$## in payments from other sources, including patients and insurance companies. Including the value of charity care and contractual adjustments, every tax dollar generates \$## in healthcare services.

Tax dollars and local patients' co-pays together constitute "local funds". Insurance payments can be considered nonlocal because insured patients would pay for insurance regardless of where they access healthcare but by accessing care locally, those patients bring money back to County. Similarly, federal government reimbursements are funded by taxpayers, and the presence of a local hospital funnels those funds back to the local economy. For every dollar of local funding, the hospital receives \$## from state and federal sources, insurance companies, and other sources. This is new money introduced into the County economy as a result of having a local hospital.

Return on investment based on revenue and charity care.

- For each tax dollar, the hospital provides \$\$\$ in healthcare services, including charity care.
- For each local tax dollar paid by County residents, the hospital provides \$\$\$ in healthcare services, including charity care.
- For each tax dollar, the hospital generates \$\$\$ from other sources, including patient co-pays.
- For each dollar in tax and local patient collections, the hospital generates \$\$\$ from state & federal sources, insurance companies, and other nonlocal sources.

It is important to realize that costs and benefits should be compared based on direct benefits, and not total economy-wide contribution including multiplier effects. Public or private investment in other sectors or activities would also generate economic contributions.

Charity care requires % percent of the hospital district's tax funding (Figure 2). In fact, charity care requires % of the hospital's overall funds received.

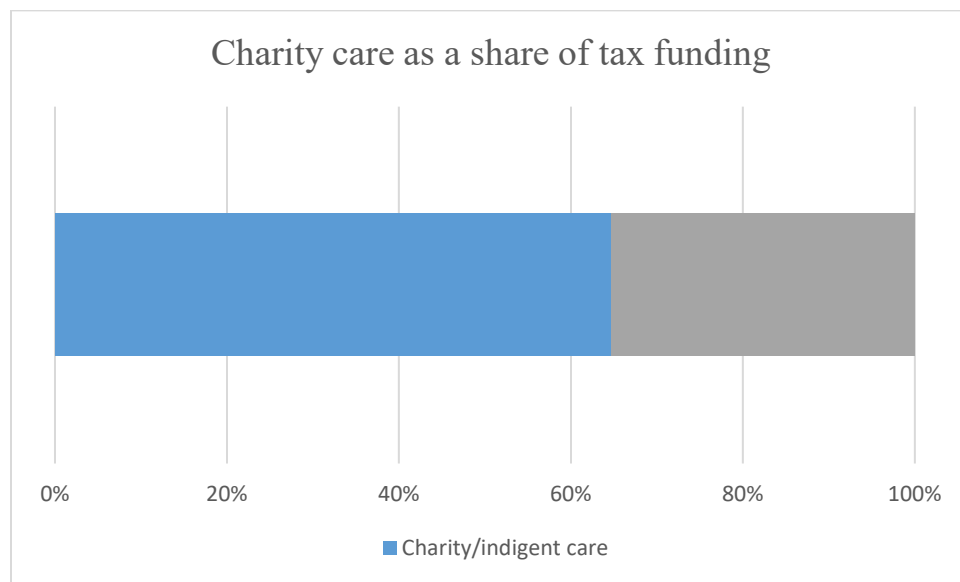


Figure 2. Charity care as a share of local hospital tax receipts, 2020.

Return to other businesses, economic development, and the community

The economic contribution study demonstrates that the hospital has an effect on other businesses through its own local purchases and the spending of its employees. Such spending is just one way a hospital interacts with the local economy. The IMPLAN analysis captures only backward linked spending from spending. It does not capture forward-linked economic activity. For example, after leaving the clinic or being discharged from the hospital, a patient's first stop is often a local pharmacy. Without a local health system, related businesses such as pharmacies

and medical supply stores, would need to retain local customers despite healthcare providers being in another town.

The presence of a local hospital is also important to economic development. The relationship of rural hospitals to economic development is long-established in the academic literature (Doekson et al., 1998; Hart, Pirani, and Rosenblatt, 1991) with Doekson, Cordes, and Shaffer (1992) noting that the health system is often the second largest employer, following the school district. Facing rural hospital closures, local leaders and researchers have expressed concern about communities' ability to attract new industry as well as retirees (Wishner et al., 2016; Farmer, 2019). Some industries have needs related to inherent danger and/or drug screening. In other industries, location decisions are based in large part on business leaders (and their spouse's) perceptions of community amenities including access to healthcare and schools. Further, IMPLAN (2020) data show that expenditures in 10 healthcare-related sectors make up 6.3 percent of the induced effect of employee spending within County.

Presence of a local hospital and clinic, especially a system that offers a number of specialists, also allows residents to access care without traveling. Patients and their caregivers are spared travel costs and additional time away from work to drive to larger cities. In cases of hospitalization, the patient has access to visitors within the community. Specialty services are also a draw from patients from surrounding counties.

References

- AAMC. Number of people per active physician in the U.S. in 2017, by specialty . <https://www.statista.com/statistics/439725/people-per-physician-by-specialty-in-the-us/> (accessed 4/24/19, 1:19 PM).
- Bureau of Economic Analysis (BEA). 2021. 2019 Interactive Tables: Regional Accounts Data, Table CAEMP25N Total Full-Time and Part-Time Employment by NAICS Industry. Washington, DC, November.
- Doekson, Gerald A., S. Cordes, and R. Shaffer. 1992. Health care's contribution to rural economic development. Unpublished manuscript. Rockville, MD: Office of Rural Health Policy.
- Doekson, Gerald A., Tom Johnson, Diane Biard-Holmes, and Val Schott. 1998. A Healthy Health Sector is Crucial for Community Economic Development. *The Journal of Rural Health* 14(1): 66-72.
- Dudensing, Rebekka, and Daniel Hanselka. 2018. Economic Contribution Analysis: A Brief Introduction, EAG-055, Texas A&M AgriLife Extension Service, The Texas A&M University System, College Station, Texas, May.
- Farmer, Blake. 2019. Economic Ripples: Hospital Closure Hurts A Town's Ability To Attract Retirees. Shots: Health News from NPR. April 7. <https://www.npr.org/sections/health-shots/2019/04/07/703932131/economic-ripples-hospital-closure-hurts-a-towns-ability-to-attract-retirees>
- Hart, L. Gary., Michael J. Pirani, and Roger Rosenblatt. 1991. Causes and Consequences of Rural Small Hospital Closures from the Perspectives of Mayors. *The Journal of Rural Health* 7(3): 222-244.
- IMPLAN Group, LLC. 2020. 2018 County and Texas data and software, <http://www.implan.com/>.
- Wishner, Jane, Patricia Solleveld, Robin Rudowitz, Julia Paradise and Larisa Antonisse. 2016. A Look at Rural Hospital Closures and Implications for Access to Care: Three Case Studies. The Henry J. Kaiser Family Foundation, July.

Appendix A. Annual economic contribution of County Hospital District operations to the Texas statewide economy.

Table A-1. Contribution of hospital employee compensation to the Texas economy.

Impact Type	Output	Value Added	Labor Income	Employment
Direct Effect				
Indirect Effect				
Induced Effect				
Total Effect				

* Labor income is a component of value added, which is a component of output, so these figures cannot be summed.

Table A-2. Annual economic contribution of County Hospital District operations to the Texas economy.

Impact Type	Output	Value Added	Labor Income	Employment
Direct Effect				
Indirect Effect				
Induced Effect				
Total Effect				

* Labor income is a component of value added, which is a component of output, so these figures cannot be summed.



Gouthami Nandhyala and Rebekka Dudensing, PhD, Department of Agricultural Economics, Texas A&M AgriLife Extension Service, College Station, TX, January 2021, rmdudensing@tamu.edu