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Key Points:

- More than 38,000 central Ohioans worked in a Franklin County hospital in 2013, with total wages of \$2.4 billion.
- Local hospital systems directly contribute more than \$5.6 billion annually to the region's economy.
- Including hospitals' purchases from local suppliers and employees' purchases of household goods and services from their wages, the total annual impact on the regional economy is \$10.2 billion.
- This activity sustains full - and part-time employment of 69,600 throughout the region.

Franklin County Hospitals Contribute \$10.2 Billion in Economic Benefit

The hospitals in Franklin County operated by the four systems, Mount Carmel Health System, Nationwide Children's Hospital, OhioHealth, and The Ohio State University Wexner Medical Center, have a substantial impact on the economy of the 10-county Columbus Metropolitan Statistical Area. Together, these hospitals make a direct net contribution of \$5.66 billion to Franklin County's total output, including \$221.2 million in charity care provided free of charge to individuals who could not otherwise afford care.

The hospitals' operations directly increase household and business earnings by \$2.3 billion and increase regional employment by 34,900. The hospitals' purchases of goods and services from local suppliers and the household purchases of direct and supplier employees from their wages add a further \$4.6 billion to regional output, for a total of \$10.2 billion.

Household and business earnings are increased by an additional \$1.4 billion for a total earnings impact of \$3.8 billion. The economic activity of these suppliers and households also sustain 30,700 jobs elsewhere in the regional economy for a total employment impact of 69,600.

It is important to note that without the hospitals' operation, this other economic activity would not have occurred, so it is as much a part of the total economic impact as are the impacts of the hospitals themselves.

Hospitals' Visitor Impact Pegged at \$34 Million

The level of care that local hospitals provide attracts inpatients from outside of the region – 46,400 in 2013, 20 percent of total admissions. These patients not only bring their own spending on medical services into the region, they also bring family and friends who come to visit and also spend money on goods and services while they are in the area.

The total impact of this spending is difficult to estimate, but the resulting impacts is approximately \$34.4 million in additional output and \$13.8 million in household and business earnings. More than 400 jobs are sustained.

Franklin County Hospital Systems Among Area's Top Employers

In 2013, the Franklin County hospital systems employed 38,172 central Ohioans and provided more than \$2.4 billion in wages that support families. These households go on to generate \$5.7 billion in economic activity in the region. In fact, Franklin County hospitals employ more people than many of the area's largest employers.

The hospitals' economic impact extends to local businesses. In 2013, Franklin County hospitals sustained an additional 30,700 jobs through the purchase of goods and services from area businesses. This makes the hospitals' total employment impact 69,600 jobs, generating more than \$10 billion in local economic activity.

Hospitals tend to be stable employers -- during good times and bad. Regardless of economic conditions, people still need health care services. As a result, hospital employment holds steady during bad economic times.

Jobs comparison: central Ohio hospitals & top area businesses

Sector	# of Jobs
Banking Sector	
JPMorgan Chase	19,200
Huntington Bancshares	5,330
Park National	823
Fifth Third	777
Total	26,130
Energy Sector	
American Electric Power	3,383
Columbia Gas	1,194
Total	4,577
Insurance Sector	
Nationwide Mutual	11,300
United Healthcare	1,200
State Auto	963
Grange Insurance	910
CareWorks	868
Motorist	601
Safe Auto	555
Total	16,397
Schools	
Columbus City	8,293
Southwest	2,471
Olentangy Local	1,869
Dublin	1,845
Hilliard	1,769
Westerville	1,516
Worthington	1,118
Pickerington	1,020
Gahanna Jefferson	809
Upper Arlington	800
New Albany	596
Total	22,106
Hospitals	
Mount Carmel	5,650
Nationwide Children's	9,062
OhioHealth*	9,792
OSU Wexner	13,668
Total	38,172

Source: Top 100 Largest Employers, Columbus Business First, July 2013

*Franklin County hospitals only

Methodology Behind Franklin County Hospitals' Economic Contributions Analysis

The Franklin County Hospital Economic Contributions analysis was conducted using the most recent (2012) I-RIMS (Regional Industrial Multiplier System), an economic input-output model developed by the Bureau of Economic Analysis (BEA), a division of the U.S. Department of Commerce. RIMS estimates the economic impact generated by specific economic segments using "multiplier effects." RIMS is well respected as an industry standard for projecting economic impacts.

The Franklin County Hospitals' Economic Contributions analysis was conducted for the Central Ohio Hospital Council by:

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**THE IMPACT OF FRANKLIN COUNTY HOSPITALS
ON THE COLUMBUS MSA ECONOMY**

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December 12, 2014



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Summary

- Franklin County hospitals directly contribute more than \$5.6 billion annually to the economy of the 10-county Columbus Metropolitan Statistical Area (MSA) economy. Including the hospitals' purchases from local suppliers and hospital and supplier employees' purchases of household goods and services from their wages, the total annual impact on the regional economy is \$10.2 billion.
- The \$10.2 billion includes \$3.76 billion received as earnings by local households and businesses.
- This activity sustains full-time and part-time employment of 65,600 throughout the region.
- It is incorrect to compare output to Gross Domestic Product (GDP) to deduce the hospitals' impact on the region. The correct comparison uses a more restrictive measure of activity called value added. The hospitals' total value added was \$6.5 billion in 2013, or 5.7 percent of the Columbus MSA's \$114.3 billion GDP.
- The hospitals attracted 46,400 patients from outside the MSA in 2013, 20 percent of all inpatients. These patients came from all 88 counties of Ohio, 48 states and the District of Columbia, and several U.S. territories. These patients in turn attracted family and friends as visitors. The spending of these visitors generated an impact on the order of \$34.4 million.
- Franklin County hospitals provide \$221 million annually in charity care to patients who otherwise could not afford it. This amount is valued at the hospitals' cost, so its impact is understated relative to the remainder of the estimates. Charity care fills an important role by improving quality of life, improving worker productivity (and hence the local economy), and saving lives.
- Hospitals promote healthy living and medical knowledge through community and continuing professional education.

The hospitals in Franklin County operated by the four systems, Mount Carmel Health System, Nationwide Children's Hospital, OhioHealth, and The Ohio State University Wexner Medical Center, have a substantial impact on the economy of the 10-county Columbus Metropolitan Statistical Area (MSA).

Together, these hospitals make a direct net contribution of \$5.66 billion to Franklin County's total output, including \$221.2 million in charity care provided free of charge to individuals who could not otherwise afford care. The hospitals' operations directly increase household and business earnings by \$2.3 billion and increase regional employment by 34,900.

The hospitals' purchases of goods and services from local suppliers and the household purchases of direct and supplier employees from their wages add a further \$4.6 billion to regional output, for a total of \$10.2 billion. Household and business earnings are increased by an additional \$1.4 billion for a total earnings impact of \$3.8 billion. The economic activity of these suppliers and households also sustain 30,700 jobs elsewhere in the regional economy for a total employment impact of 69,600. It is important to note that without the hospitals' operation this other economic activity would not have occurred, so it is as much a part of the total economic impact as are the impacts of the hospitals themselves.

The level of care that these hospitals offer attract inpatients from outside of the region – 46,400 in 2013, 20 percent of the total. These patients not only bring their own spending on medical services into the region, they also bring family and friends who come to visit and also spend money on goods and services while they are in the area. The total impact of this spending is difficult to estimate, but the resulting impacts may be on the order of \$34.4 million in additional output and \$13.8 million in household and business earnings. More than 400 jobs are sustained.

Franklin County hospitals offer a variety of benefits that cannot be easily quantified. These include promoting wellness and healthy living through community outreach and education, clinical training and continuing education for medical students and professionals, and providing an important community amenity that attracts both residents and employers. None of these benefits can be quantified as easily as can those enumerated above, but that does not make them any less real.

The Concept of Economic Impact

The purpose of this study is to measure the operating impact of the hospitals operated by Mount Carmel Health System, Nationwide Children’s Hospital, OhioHealth, and The Ohio State University Wexner Medical Center. The point of an economic impact study such as this is to measure the increase in **output** of a geographical area’s economy resulting from a specific economic activity – in this case, the operation of hospitals – and, as will be discussed, the spending of family and friends from outside of the region. These activities bring spending into the region, increasing regional economic activity, income, and employment. The geographical area in this study is the ten-county Columbus Metropolitan Statistical Area (MSA)¹. Even though the study considers only hospitals in Franklin County, the MSA is the appropriate area of analysis. MSAs reflect worker commuting patterns, so the Columbus MSA is the area from which the largest number of the hospitals’ workers commute and where they spend their income on goods and services.

Output is measured by the value of goods and services produced in the Columbus MSA over a given period of time. The production of output requires labor, thereby generating earnings to business owners and workers. The economic impact assessment also estimates both these earnings and the jobs that are created or sustained as a result of the target activity.

The output of the hospitals, earnings of workers, and hospital employment constitute the **direct** impact of the activity. But direct impacts are only part of the total impact. Local suppliers of goods and services to the hospitals generate output by providing those goods and services, and increase their own purchases of supplies to accommodate the increased activity. Their employment may increase as well. These supplier activities are referred to as **indirect** impacts. In addition, business owners will earn profits and their employees will earn salaries, wages, and tips. These workers will use their earnings to purchase household goods of all kinds. To the extent that these payments for purchases and wages and salaries are made to suppliers and employees within the Columbus MSA, the region’s economic activity and output is increased further. This household spending is referred to as an **induced** impact. It is important to emphasize that the direct activities cause the indirect and induced spending, and this other spending would never have occurred had the operation of the hospitals not generated economic activity in the first place. For this reason, the indirect and induced impacts are as much a part of the total

¹ Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Morrow, Perry, Pickaway, and Union Counties.

economic impact as are the direct impacts. This is the essential point that makes economic impact analysis legitimate.

These impacts are specific both to a given industry and to a given region. The array of suppliers that benefit from the spending of a hospital is generally the same regardless of where the hospital is. But if the structure of the Columbus MSA economy is such that the hospital is forced to make most of its purchases from vendors outside the region, then most of the impact will leak from the economy. Conversely, a broad economy with many local suppliers will keep more of the impact of the output increase circulating within the economy, and the indirect and induced impacts will be much greater. Thus, the values within the input-output table are unique to the geographical area as well as to the industry.

This study uses the most recent (2012) I-RIMS data from IMPLAN, Inc. These data consist of unique impact factors (multipliers) for each of 406 detailed industries within the Columbus MSA. The multipliers implicitly reflect the structure of the region's economy and the presence or absence of local suppliers. However, it is important to keep in mind that the results of this (or any) economic impact study represent only the order of magnitude of the actual impacts and cannot be regarded as precise.

Estimating Economic Impacts of Franklin County Hospitals

A key consideration in estimating the economic impact of Franklin County's hospitals is that payments by local residents (i.e., those of the Columbus MSA) for hospital services generally do not create an economic impact. The only impacts are created from outside dollars coming into the economy. This is because local patients' hospital payments are generally made with funds that would otherwise be spent on other goods and services within the area. Thus, the payments that increase the output of hospitals result in corresponding decreases in the output of other local goods and services. These payments constitute a shifting of economic activity rather than an increase in activity, so the net impact on the regional economy is zero (or nearly so).

One exception to this general rule arises from the fact that if the array of top-notch medical services were not available in Franklin County, some local patients would be required to travel to Cleveland, Cincinnati, or elsewhere to access the services that they need. The payments of these patients would thus leak out of the Central Ohio economy, but this leakage is prevented by the quality of local hospitals. Dollars that are prevented from leaving have the same effect as dollars that are brought in. This is called a **blockage impact**. There is no way to estimate this impact, so it is assumed that 10 percent of local patients' payments are blocked.

Unlike other types of local services, though, local residents' purchase of healthcare services does have an impact to the extent that the expenditures are covered by public and private insurance. Because the patient does not have to divert spending from other purchases to cover the insured portion of the hospital bill and because insurance payments come into the region from outside, they represent new flows of funds into the local economy and thus increase output.² Hospital revenues creating an impact

² This is true even if the payments are made by a locally-based insurer. Because most of the funds used to pay those claims come from insured parties outside the MSA, they can be treated as dollars newly released into the local economy.

are thus total revenues from patients living outside the MSA plus the insured expenses of local patients plus the blockage impact.

This line of reasoning leads to an important point. As insurance reimbursements decline and required copays increase, more spending of local households will be shifted from other goods and services to hospital spending and the impact of a dollar of hospital activity on the regional economy will decrease.

Another aspect of hospital operations is charity care. This provides a vital community service for those who cannot otherwise afford care. In contrast to many other communities, those needing charity care in Franklin County are not forced to turn to a separate hospital, but are welcomed into the same hospitals as the rest of the community. Individuals needing charity care include the working poor, for many of whom incapacitation would mean a total loss of income. Charity care preserves this income (and its associated economic activity), improves the quality of life for these individuals, and saves lives that would otherwise be lost. Franklin County hospitals provided \$215.2 million in charity care in 2012. This is part of the region's output, but because no money changes hands it is not reflected as output and direct impacts are thus understated. But because supplies are purchased and employees are paid to provide this care and these activities are observed, the indirect and induced effects are correctly stated. However, an important point is that unlike compensated care, charity care is valued at the hospitals' cost and consequently its impact is somewhat understated.

Each hospital system provided its total patient count, inpatient days, and payments by Medicare and Medicaid, private insurance, and out-of-pocket payments. These are as follows. It is assumed that hospital provided the same level of charity care in 2013 as they did in 2012. The 2012 total is inflated to 2013 dollars using the Consumer Price Index for All Urban Consumers (CPI-U) for medical services in large Midwestern cities.

Medicaid:	\$ 314,716,584
Medicaid Managed Care:	666,048,346
Private insurance:	2,516,133,092
Medicare:	1,308,348,847
Out-of-pocket payments:	698,904,864
Other:	<u>439,942,095</u>
Total compensated care:	\$ 5,944,093,828
Charity care:	<u>221,158,966</u>
Total care:	<u>\$ 6,165,252,794</u>

Patient residence was given in total for all the hospitals. The distribution of patients by residence is given in Table 1 on the next page. Franklin County hospitals in 2013 drew patients from all 88 Ohio counties, 48 of the 50 states, the District of Columbia, and several U.S. territories. (The additional geographic detail in Table 1 is needed to assess visitor impacts, discussed below.)

Table 1
Origin of Patients Treated at Franklin County Hospitals, 2013

Area	Number	Percentage
Within Columbus MSA	188,279	80.2%
Outside Columbus MSA, within 75 miles	29,882	12.7%
Within Ohio, beyond 75 miles	12,653	5.4%
Other states and District of Columbia	3,856	1.6%
US territories	4	0.0%
Total outside Columbus MSA	46,395	19.8%
Total identified	234,674	100.0%
Unidentified	177	---
Total	234,851	---

Because the allocation of payments between local and non-local patients is not available, it is assumed that the share of payments by category and in total is equal between the two groups. This implicitly assumes that local and non-local patients spend the same amount of time in the hospital. In fact, the patients traveling from further distances may be sicker initially and thus spend more days in the hospital. If this is true, assuming the contrary causes the non-local share to be somewhat underestimated, and thus all of the impacts to be underestimated as well. However, this has the advantage of making the impact estimates conservative.

Table 2 presents the allocation of the payments above between local and non-local patients and the amounts that are used in deriving the economic impact. Note that outside pay (public and private insurance) and out-of-pocket amounts of non-local patients are both carried over in full to the direct impact, as is the outside pay amount of patients from within the MSA. However, only 10 percent of the out-of-pocket payments of these local patients is carried over; this is the blockage impact. The remainder is assumed to be displaced from other local spending and have no impact. Note also that charity care is not included here because those impacts are already included everywhere but in direct and total output.

Table 2
Local/Non-Local Allocation of Payments and Amounts Used in Impact Calculation

	Compensated care			Direct impact		
	Within MSA	Outside MSA	Total	Within MSA	Outside MSA	Total
Outside pay	4,208,216	1,036,973	5,245,189	4,208,216	1,036,973	5,245,189
Out of pocket	560,732	138,173	698,905	56,073	138,173	194,246
Total	4,768,948	1,175,146	5,944,094	4,264,289	1,175,146	5,439,435

Table 3 on the next page shows the economic impacts of Franklin County hospitals on the Columbus MSA economy. Charity care impacts only direct and total output impacts because, as explained above, these impacts are already included elsewhere. The hospitals contributed more than \$10 billion in output to the economy in 2013, including nearly \$2 billion in supplier impacts and \$2.6 billion in employee purchases. Earnings impacts are \$3.761 billion for the year, and 65,600 jobs are sustained in the region. The direct employment impact of 34,931 is less than the actual total headcount of 38,172 and the direct earnings of \$2.3 billion are less than the 2013 payroll of \$2.556 billion because of displacement effects.

Table 3
Economic Impact of Franklin County Hospitals on the Columbus MSA, 2013

	Direct	Indirect	Induced	Total
Output (\$000)				
Total compensated care	\$ 5,439,435	\$ 1,981,471	\$ 2,600,823	\$ 10,021,729
Charity care*	221,159	---	---	221,159
Total output impact	\$ 5,660,594	\$ 1,981,471	\$ 2,600,823	\$ 10,242,888
Household and business earnings (\$000)				
Total compensated care	\$ 2,338,630	\$ 624,468	\$ 797,688	\$ 3,760,787
Charity care*	---	---	---	---
Total earnings impact (\$000)	\$ 2,338,630	\$ 624,468	\$ 797,688	\$ 3,760,787
Employment				
Total compensated care	34,931	13,073	17,629	65,633
Charity care*	---	---	---	---
Total employment impact	34,931	13,073	17,629	65,633

*2012 amount inflated to 2013 dollars.

An important question is the size of this activity relative to that of the MSA's economy. The economy's size is measured by Gross Domestic Product (GDP), the total value of goods and services produced in the MSA during the year. The Columbus MSA's GDP in 2013 was \$114.253 billion. Comparing output to GDP is incorrect, however, because it includes the value of goods brought into the region, which are not a part of the region's GDP. Thus, comparing output to GDP overstates the contribution of the hospitals. For this we need a more restrictive measure of activity called value added. The direct, indirect, and induced value added as a result of the hospitals' activity in 2013 (including charity care) was \$6.459 billion. Thus, the hospitals operated by the four systems directly and indirectly generated 5.7 percent of the Columbus MSA's GDP in 2013.

Visitor Impacts

An often-overlooked economic impact of major hospitals such as those in Franklin County is the incidental spending of those coming from outside the area to visit patients. These impacts can be substantial. Visitors may purchase restaurant meals, gifts for the hospitalized individual, other goods and services for themselves, and overnight lodging. Similar to the spending of tourists, all of these purchases create impacts on regional output, earnings, and employment.

There is no direct information on the amount of visitor spending by friends and family of hospital patients, but 2003 survey data from Experience Columbus provide the amount and breakdown of spending of the typical visitor to Columbus. Average daily expenditures per visitor are given for food and restaurants, retail, auto and other transportation expenditures, recreation, and lodging. These averages can be adapted to the likely spending of hospital visitors. They are inflated to current-dollar amounts using the CPI-U for large Midwestern cities and for the specific category of commodity whose price is being inflated. Lodging costs, however, were derived by collecting the tax-inclusive AAA rates of 10 moderately-priced and mid-grade hotels in Franklin County and averaging them. The resulting cost was \$98.20 per night. Two visitors are assumed to share a room. The **full-day** average expenditures per person for each category are as follows:

Food and restaurants:	\$ 72.55
Retail and miscellaneous:	52.58
Auto (gasoline and rental):	64.70
Other transportation:	7.11
Recreation:	12.52
Lodging:	<u>49.10</u>
Total:	<u>\$ 258.56</u>

It is assumed that visitors are from the same location as the patient: local patients have no out-of-town visitors and out-of-town patients have no local visitors. None of the hospital systems had a current estimate of the number of visitors per patient, but for a 2007 impact study by the author, Nationwide Children's indicated that out-of-town patients had on average 2.5 visitors. Because children may have more visitors than adults and to be conservative, two visitors on average are assumed on each day that the patient is in the hospital.

As is the case for patient expenditures for medical services, visitors living within the MSA spend dollars that they would likely have spent within the region in any case. Thus, the expenditures of these local visitors provide no incremental economic impact. Somewhat arbitrarily, it is assumed that all visitors living outside the MSA but within 75 miles of Columbus come in for a relatively short visit and return home. The restaurant and retail spending of these visitors is thus half the daily average. Auto expenses are the full daily average, but recreational and lodging expenditures are zero. Visitors of patients living more than 75 miles from Columbus, but within Ohio, spend the full daily average for all expenditure categories except lodging; it is assumed that only one-quarter stay overnight in a hotel. Three-quarters of those living outside Ohio stay overnight in a hotel; the other one-quarter stay with local friends or relatives.

One modification needs to be made to the purchase amounts above. Goods impact regional output only to the extent that their price reflects activity within the region. The price of a good includes the margin of the manufacturer, the cost of transportation into the area, the wholesale margin, and the retail margin. Unless the manufacturer is local, only the retail and possibly the wholesale margin reflects activity within the area. Because of the high concentration of wholesale distribution in the Columbus MSA, both wholesale and retail margins are reflected in the output estimates but the manufacturer margin and transportation cost are excluded. The IMPLAN files include these margins; they are multiplied by the retail price to yield the relevant total. Services (including hospital services) are valued at their full price because they are generally produced entirely in the location where they are consumed and goods are a relatively minor share of the total cost of these services.

Table 4 on the next page summarizes the results of the calculations outlined above. The spending of friends and family visiting patients of Franklin County hospitals adds more than \$34 million per year to the output of the Columbus MSA economy and sustains 439 direct, indirect, and induced jobs. These estimates should be considered separately from those in Table 3 because they are not impacts of the hospitals, their suppliers, or employees, but are byproducts of the hospitals' ability to attract patients from outside of the region. They must also be regarded as provisional and illustrative rather than definitive because of the lack of direct information on the number of visitors, their origin, or their spending behavior. In any case, it is safe to say that the economic impacts of visitor spending are material and deserving of further study.

**Table 4
Economic Impact of Franklin County Hospital Visitors' Spending on the Columbus MSA**

	Direct	Indirect	Induced	Total
Output (\$000)				
Food and restaurants	\$ 11,369	\$ 3,618	\$ 4,416	\$ 19,403
Retail and miscellaneous	3,464	827	1,436	5,727
Auto (gasoline and rental)	1,383	330	573	2,286
Other transportation	1,487	418	1,010	2,915
Recreation	932	308	400	1,640
Lodging	1,341	589	451	2,381
Total output impact	\$ 19,976	\$ 6,090	\$ 8,286	\$ 34,353
Household and business earnings (\$000)				
Food and restaurants	\$ 4,560	\$ 1,234	\$ 1,561	\$ 7,355
Retail and miscellaneous	1,585	299	507	2,392
Auto (gasoline and rental)	633	119	203	955
Other transportation	1,159	170	364	1,693
Recreation	404	123	144	671
Lodging	365	227	159	752
Total earnings impact	\$ 8,706	\$ 2,173	\$ 2,938	\$ 13,817
Employment				
Food and restaurants	204	24	36	264
Retail and miscellaneous	46	6	12	64
Auto (gasoline and rental)	18	2	5	26
Other transportation	31	3	8	42
Recreation	16	2	3	22
Lodging	13	5	4	21
Total employment impact	329	42	68	439

Non-quantifiable Impacts on Franklin County and the Region

Not all impacts of a business on its region can be reduced to dollars and cents. This is particularly true of entities such as Franklin County hospitals, which have a substantial impact on the health, well-being, and quality of life of residents of the region and beyond. In addition to patient care, one highly visible example of this impact is community outreach and education. All four systems offer community education programs and information that promote wellness and healthy behaviors, allowing members of the community to obtain knowledge that will improve their health and decrease the incidence of illness.

Another aspect of education is that provided to medical students and professionals, including both professionals associated with the individual hospital system and those from elsewhere. All four systems offer clinical training for students completing their medical education. All systems also offer a variety of opportunities for continuing education for established professionals, including seminars and conferences, continuing professional education programs (both live and online) and a variety of customized offerings. The outcome is more knowledgeable healthcare professionals, who bring this knowledge into their own practice.

The existence of the clinical student education program has significant implications for the region's workforce development. The ability of students to work in their field of study in the community –

regardless of the industry – opens access to the Central Ohio economy and its relevant employment opportunities to these students. Those enjoying this access are more likely to develop the professional contacts that will encourage them to stay to take local jobs and develop their career in the region.

Finally, the availability of top-notch medical care in Franklin County elevates the profile and desirability of the community. It is a strong selling point for both prospective residents considering moving to Columbus and to companies considering opening facilities in the region. None of these benefits can be quantified as easily as can those studied earlier, but that does not make them any less real.