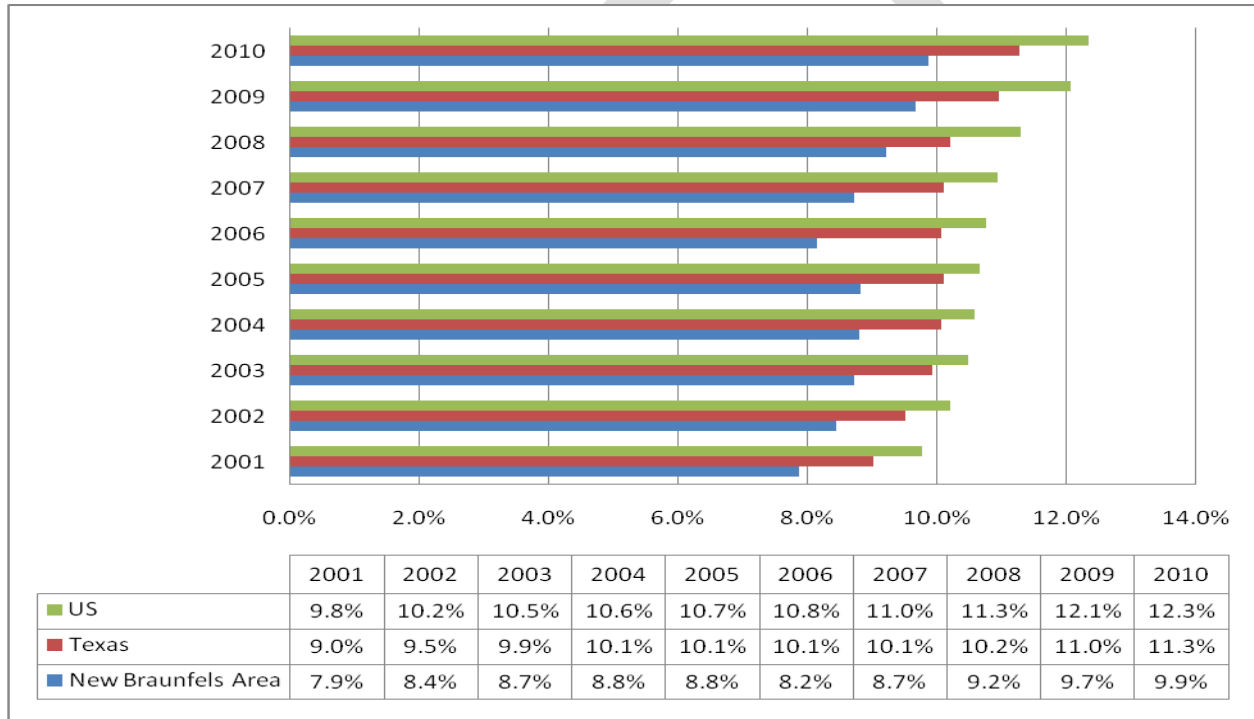


**A Preliminary Analysis of the Importance and Impact of the  
Health Care and Social Assistance Sector on the  
New Braunfels Area Economy**

**INTRODUCTION**

The health care and social assistance sector<sup>1</sup> is growing segment of the New Braunfels area<sup>2</sup> economy. As evidenced from Table 1, this sector's influence on total employment has been steadily increasing from 7.9% of total area employment in 2001 to 9.9% in 2010. At the state and national levels, this sector's share of total employment has increased from 9.0% and 9.8% in 2001 for Texas and the US, respectively, to approximately 11.3% for the state and 12.3% for the nation in 2010.

**FIGURE 1: Health Care Sector Share of Local, State and National Total Employment.**



SOURCE: EMSI<sup>3</sup> and Texas Comptroller of Public Accounts calculations.

<sup>1</sup> This represents industries that make up code number 62 of the North American Industry Classification System. This group is composed of the following industries:

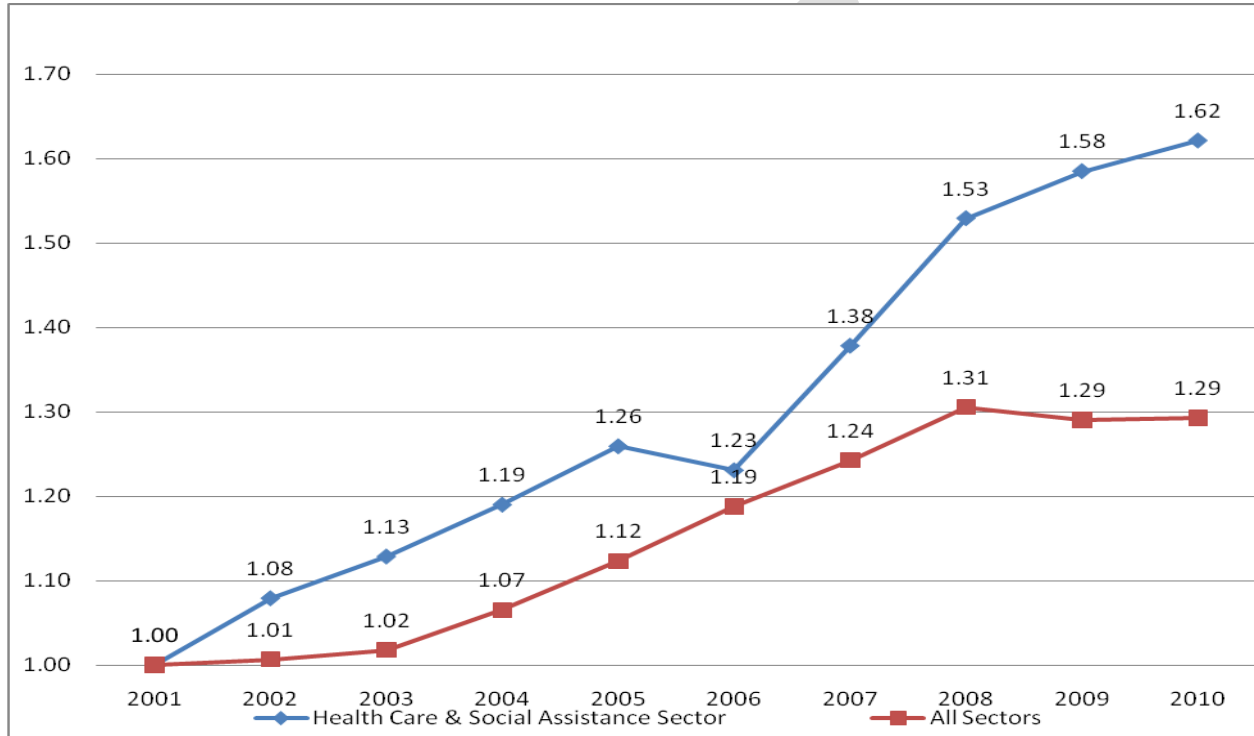
1. Ambulatory Health Care Services (Offices of Physicians, Dentists, other Health Practitioners, Outpatient Care Centers, Medical and Diagnostic Laboratories, Home Health Care Services, and other ambulatory care services);
2. Hospitals;
3. Nursing and Residential Care Facilities; and,
4. Social Assistance.

<sup>2</sup> For the purpose of this analysis, the New Braunfels area is composed of Comal and Guadalupe Counties.

<sup>3</sup> Economic Modeling Specialists, Inc. (<http://www.economicmodeling.com/>).

Over a ten-year period (2001 to 2010), employment growth in the New Braunfels area health care and social assistance sector has grown at a faster pace than the overall area economy. From 4,252 workers in 2001, employment in this sector has added 2,641 workers to reach an estimated 6,893 by 2010. This 62% increase in employment has overshadowed the 29% increase in overall area employment for the same time period. Figure 2 shows the annual employment growth rates for this sector and the overall economy of New Braunfels area.

**FIGURE 2: Employment Growth Rates for New Braunfels AREA Overall Economy and Health Care Sector.**



SOURCE: EMSI and Texas Comptroller of Public Accounts calculations.

## INDUSTRY CONCENTRATION

A location quotient (LQ) is a tool that describes the degree to which an industry in a particular geographic area is concentrated<sup>4</sup> vis-à-vis a larger reference area. LQ values that exceed one (1) indicates that a local industry is more concentrated than its reference region counterpart.

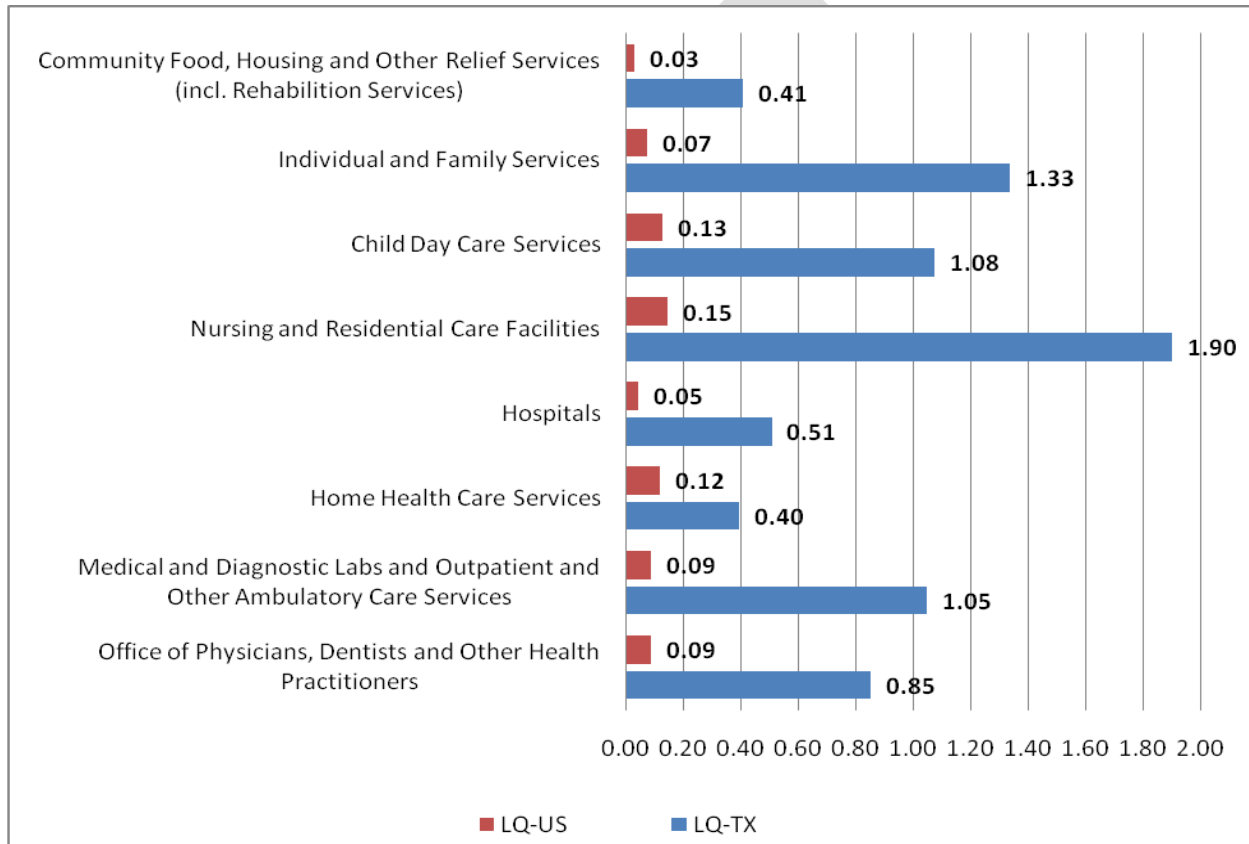
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<sup>4</sup> For the purpose of this analysis, concentration (as measured using LQs) refers to the proportion of industry employment in a region in relation to employment in the same industry in a larger region. Industry concentration based on location quotients has been used as a measure of the degree of specialization (and export base potential) for a regional industry. LQ values greater than one indicate that the industry under study is a base industry for the local economy.

Figure 3 shows the 2001-2010 average location quotients for eight New Braunfels area health care industries. The degree of concentration of these local industries has been estimated in relation to their counterparts at the state (Texas LQ) and national (US LQ) levels.

When the eight health care industries in New Braunfels are compared with their national counterparts (red bars in the Figure), these local industries do not exhibit any strong concentration. In fact, none of these industries could be considered as base industries. The analysis changes when these local industries are compared to their state-level counterparts.

**FIGURE 3: New Braunfels Area Health Care Industries Location Quotients (2002-2009 Average).**



SOURCE: EMSI Texas Comptroller of Public Accounts calculations.

Comparing New Braunfels' eight health care industries to their state-level counterparts shows that half of these industries have LQs in excess of 1.00 which indicates higher concentration (than their state counterparts) and an indication that these are base<sup>5</sup> industries for the local economy. Of the four industries exhibiting LQs greater than one, the *Nursing and Residential*

<sup>5</sup> A base industry is one which draws in (export) earnings for a community. In most cases, a base industry is a key driver of local economic growth.

*Care Facilities* industry shows that employment in this local industry is close to twice as large (LQ = 1.9) as its state-level counterpart.

*Individual and Family Services* (LQ = 1.33), *Child Day Care Services* (LQ = 1.08) and *Medical and Diagnostic Laboratories, et.al.* (LQ = 1.05) round off the other local health care base industries.

## COMPETITIVENESS OF THE NEW BRAUNFELS AREA HEALTH CARE SECTOR

In the preceding sections, the focus on the analysis has been on employment growth and level of concentration in the industries that comprise the New Braunfels area's health care sector.

The present section provides an analysis of the following items:

- What factors<sup>6</sup> influence employment change in these local industries?
- Which of these local industries are competitive?

To answer these questions, Shift-Share Analysis (SSA) is utilized. SSA is a quantitative tool that decomposes the change in a variable, such as employment, into several components. Using New Braunfels area-level employment values for various health care industries as the variable under consideration, SSA breaks down the change in employment into the following components:

- National (State) Share Effect (NS) – This represent the portion of change in New Braunfels area-level health care industry employment that is due to national or state (economy-wide) conditions. The employment level shown by this component represents the change in industry employment in the local area that would occur if it grew at the same rate as the national economy;
- Industry Mix Effect (IM) – This shows the portion of change in New Braunfels area-level health care industry employment that is due to conditions in the national counterpart of the local health care industry under consideration. Positive (negative) IM values are indicative of fast (slow) growing industries in the Area under study; and,
- Competitive Effect (CE) – This component shows the portion of change in New Braunfels area health care industry employment that is due to local factors. Positive (negative) CE values indicate the fact that the local area has a competitive advantage (disadvantage) in the industry under study vis-à-vis the nation (state).

For the purpose of this analysis, two SSAs have been undertaken. While both analyses look at employment changes in eight New Braunfels area-level health care industries between 2001 and 2010, the first SSA, whose results are shown in Table 1, analyses the change in employment in comparison with the state. The second SSA, whose results are shown in Table 2, compares the change in employment to the nation. The reason for these two sets of analyses is due to the fact that the state and national factors may have differing effects on the change

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<sup>6</sup> Given the fact that there may be a substantial number of factors that may influence the change in employment, this analysis limits the number of potential causes to the components of change utilized in shift-share analysis.

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local area employment. In addition, the degree of competitiveness that a local industry may possess will differ in relation to the reference area that the local industry is being compared with.

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**TABLE 1: Shift-Share Analysis of the New Braunfels Area Health Care Industries (vis-à-vis Texas).**

<b>Shift-Share (TX): 2001-2010</b>	<b>NS</b>	<b>IM</b>	<b>CE</b>	<b>Total</b>
Office of Physicians, Dentists and Other Health Practitioners	79	282	436	797
Medical and Diagnostic Labs and Outpatient and Other Ambulatory Care Services	12	62	241	314
Home Health Care Services	36	295	-398	-66
Hospitals	55	82	223	360
Nursing and Residential Care Facilities	124	156	651	930
Child Day Care Services	32	21	33	86
Individual and Family Services	14	103	107	224
Community Food, Housing and Other Relief Services (including Rehabilitation Services)	4	7	-16	-5

SOURCE: Texas Comptroller of Public Accounts calculations.

**TABLE 2: Shift-Share Analysis of the New Braunfels Area Health Care Industries (vis-à-vis US).**

<b>Shift-Share (US): 2001-2010</b>	<b>NS</b>	<b>IM</b>	<b>CE</b>	<b>Total</b>
Office of Physicians, Dentists and Other Health Practitioners	229	-7	575	797
Medical and Diagnostic Labs and Outpatient and Other Ambulatory Care Services	34	24	256	314
Home Health Care Services	106	191	-363	-66
Hospitals	159	-56	257	360
Nursing and Residential Care Facilities	358	-107	680	930
Child Day Care Services	94	-50	42	86
Individual and Family Services	41	71	113	224
Community Food, Housing and Other Relief Services (including Rehabilitation Services)	12	-7	-9	-5

SOURCE: Texas Comptroller of Public Accounts calculations.

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Based on Tables 1 and 2, six of the eight health care industries in New Braunfels posted employment growth between 2001 and 2010. The *Home Health Care Services* and the *Community Food Housing and Other Relief Services* industries were the only industries to post. What factors account for these changes in employment? These factors vary depending on the influence of state and national economic conditions.

Sources of Change in New Braunfels Health Care Employment in Relation to Texas Conditions

Table 1 shows the potential sources/reasons for employment change in the New Braunfels health care sector in relation to statewide conditions. A perusal of the table shows that overall economic conditions in Texas have a positive influence on health care sector employment in New Braunfels. This is manifested by the positive NS values for all of these local industries.

Statewide health care sector conditions also have a positive impact on employment growth in these same industries at the local level. The positive IM values indicate that these eight local health care industries are growing at a faster rate than their state-level counterparts.

Except for the *Home Health Care Services* and the *Community Food Housing and Other Relief Services* industries, local conditions have been favorable for six health care industries. These positive CE values imply that the local community has a competitive advantage in these six industries vis-à-vis the state. This competitive advantage can stem from factors such as the abundance of resources (e.g., skilled labor, infrastructure, etc.).

In the case of the two industries that experienced job losses between 2001 and 2010, the negative CE values for these industries played a significant role. This factor accounted for more than 50 percent of the job losses in these industries.<sup>7</sup>

Sources of Change in New Braunfels Health Care Employment in Relation to US Conditions

Table 2 shows the potential sources/reasons for employment change in the New Braunfels health care sector in relation to national conditions. A perusal of the table shows that overall economic conditions in the US have a positive influence on health care sector employment in New Braunfels. This is manifested by the positive NS values for all of these local industries.

Unlike the case of the Texas health care sector in Table 2, national health care sector conditions have a mixed effect on local health care industries. Only three of the eight local health care industries exhibit positive IM values. This means that these three local industries<sup>8</sup> have grown at a faster pace in relation to their national counterparts between 2001 and 2010. The remaining five industries that show negative IM values indicate that these local industries have growth at a slower rate than their national equivalents.

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<sup>7</sup> For example, if we took the absolute values of the NS, IM and CE components for the Community Food, Housing and Other Relief Services industry, the total change in jobs will be 27 [4(NS) + 7(IM) + 16(CE) = 27]. The CE component accounts for 59% of the change in employment in this industry.

<sup>8</sup> Medical and diagnostic laboratories, et. al.; home health care services and individual; and, family services industries.

Similar to Table 1, six of the eight local health care industries exhibited positive CE values indicating competitive advantage. In the case of the two industries that experienced job losses between 2001 and 2010, the negative CE values for the *Home Health Care Services* industry played a significant role (over half of the employment loss). As far as the *Community Food, Housing and Other Relief Services* industry is concerned, not only is the local industry exhibiting a competitive disadvantage (-CE) but it is also a slow growth industry (-IM) when compared to its national counterpart.

## **CONTRIBUTIONS OF THE NEW BRAUNFELS AREA HEALTH CARE SECTOR TO THE LOCAL ECONOMY**

In light of identifying industry concentration and competitiveness, it is important to understand the contributions of these industries to the New Braunfels area economy as a whole. This section focuses on the level of employment and income that would be generated or impacted given a change in demand for local health care sector services.

### Employment Impact of New Braunfels Area Health Care Sector<sup>9</sup>

Using information obtained from the IMPLAN Input-Output model for Comal and Guadalupe Counties, Table 3 shows the estimated number of jobs that would be needed or affected in the New Braunfels area if the demand for local health care services increases by \$1 million. The number of jobs needed/affected is broken down into the following categories:

- Direct – represents the number of jobs that would be needed by the local health care industry which is experiencing a \$1 million increase in demand for its services;
- Indirect – refers to the number of jobs that will be needed/affected in local industries that will supply inputs to the directly affected industry;
- Induced – pertains to local jobs that produce/provide the consumer goods and services<sup>10</sup> associated with household spending of workers in the directly and indirectly impacted industries; and,
- Total – sum of the direct, indirect and induced jobs.

A perusal of Table 3 shows that the *Individual and Family Services* industry has the largest number of workers needed (direct jobs = 27) to meet a \$1 million demand for this industry's services. An additional 2 jobs in local input supplying industries (indirect jobs) will be needed to support the work of the 27 workers in the directly impacted industry. In addition to the 2 indirect jobs associated with the direct employment needs of the *Individual and Family Services* industry, 2 other jobs (induced jobs) will be impacted in industries that have to meet the consumer spending needs of households in the directly and indirectly impacted industries.

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<sup>9</sup> The IMPLAN model does not make a distinction between fulltime equivalent and part-time jobs.

<sup>10</sup> Examples of these industries are grocery stores, banks, schools, clothing retailers, etc.



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Overall, a \$1 million increase in demand for *Individual and Family Services* industry services will lead to the utilization of 31 jobs in all sectors of the New Braunfels area economy.

**TABLE 3: Number of Jobs Needed in the New Braunfels Area to Meet a \$1 Million Increase in Demand for Health Care Services.**

NAICS Code	Industry	Direct	Indirect	Induced	Total
6211-3	Offices of Physicians, Dentists, and Other Health Practitioners	9	1	3	13
6216	Home Health Care Services	25	1	3	29
6214-5,6219	Outpatient Care Centers, Medical and Diagnostic Labs, and Other Ambulatory Health Care Svcs	10	2	2	14
622	Hospitals	9	2	2	13
623	Nursing and Residential Care Facilities	22	1	3	26
6241	Individual and Family Services	27	2	2	31
6242-3	Community, Food and Housing and Emergency and Other Relief Services, Voc Rehab Services	24	2	2	28
6244	Child Day Care Services	22	2	2	26

SOURCE: IMPLAN Input Output Model for Comal and Guadalupe Counties, Texas.

Despite the fact that the *Individual and Family Services* industry affects the most number of jobs in the area economy, this industry is not the most significant job creator in the local health care sector. This distinction goes to the *Offices of Physicians, Dentists, and Other Health Practitioners* and *Hospitals* industries.

The total number of jobs created/impacted in these 2 industries is the lowest in the local health care sector<sup>11</sup>; however, they have the largest job creation potential (multiplier effect) on a per-job created/affected basis. Based on Table 3, the 9 jobs needed by each of these two sectors to meet a \$1 million increase in demand for service will necessitate the use of 4 additional jobs in indirect and induced local industries. On a per-job basis this means that for every job that is created by the *Offices of Physicians, Dentists, and Other Health Practitioners* industry or the *Hospitals* industry, an additional 0.44 jobs in other industries in the New Braunfels area will be needed<sup>12</sup>.

As far as the *Individual and Family Services* industry is concerned, the 27 jobs that the industry needs to meet a \$1 million increase in demand will necessitate the need for 4 jobs in other local industries. On a per jobs basis this means that for every job created by the *Individual and Family Services* industry, an additional 0.15 jobs in other local industries will be affected.

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<sup>11</sup> Table 3 shows that for every \$1 million increase in demand for the services of the local *Offices of Physicians, Dentists, and Other Health Practitioners* or *Hospitals* industry, 9 direct jobs will be needed. These jobs will be supplemented by 4 indirect and induced industry jobs. In total, 13 jobs in the local economy will be created/affected as a result of a \$1 million increase in demand for these industries' services.

<sup>12</sup> Jobs Multiplier Effect = Total Jobs / Direct Jobs.

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Income Impact of New Braunfels Area Health Care Sector<sup>13</sup>

Using information obtained from the IMPLAN Input-Output model for Comal and Guadalupe Counties, Table 4 shows the estimated income that would be generated in the New Braunfels area if the demand for health care services increases by \$1 million. The amount of income generated is broken down into the following categories:

- Direct – represents the income that would be generated in the health care industry which is experiencing a \$1 million increase in demand for its services;
- Indirect – refers to the income that will be created in industries that supply inputs to the directly affected industry;
- Induced – pertains to income paid to workers in industries that produce/provide the consumer goods and services associated with household spending of workers in the directly and indirectly impacted industries; and,
- Total – sum of the direct, indirect and induced income.

**TABLE 4: Income Impacts on New Braunfels Area Health Care Industries Associated with a \$1 Million Increase in Demand for Health Care Services.**

NAICS Code	Industry	Direct	Indirect	Induced	Total
		(Thousands of Dollars)			
6211-3	Offices of Physicians, Dentists, and Other Health Practitioners	593.71	53.51	81.53	728.75
6216	Home Health Care Services	604.66	45.94	81.84	732.44
6214-5,6219	Outpatient Care Centers, Medical and Diagnostic Labs, and Other Ambulatory Health Care Svcs	359.81	64.95	53.52	478.27
622	Hospitals	505.75	68.24	71.56	645.54
623	Nursing and Residential Care Facilities	602.11	40.96	80.14	723.21
6241	Individual and Family Services	382.41	65.52	55.91	503.84
6242-3	Community, Food and Housing and Emergency and Other Relief Services, Voc Rehab Services	536.21	62.19	74.61	673.01
6244	Child Day Care Services	520.90	66.69	73.23	660.82

SOURCE: IMPLAN Input Output Model for Comal and Guadalupe County, Texas.

NOTE: Totals may not add up due to rounding off error.

An examination of Table 4 shows that the *Home Health Care Services* industry receives the largest amount of income (\$604,655) resulting from a \$1 million increase in demand for its services. Indirect and induced industries supporting this health care industry will receive \$127,783 in income. Overall, a \$1 million increase in demand for local *Home Health Care Services* industry services will create \$732,438 in income for the local economy.

While the *Home Health Care Services* industry has the potential to generate the most amount of income, it does not have the largest multiplier effect<sup>14</sup>. The *Outpatient Care Centers, Medical*

<sup>13</sup> For the purpose of this analysis, the income impact focuses on labor income (employee compensation and proprietor's income).

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and Diagnostic Labs, and Other Ambulatory Health Care Services industry generates the largest income multiplier effect among the eight local health care industries.

Table 4 shows that for every \$1 million increase in demand for the *Outpatient Care Centers, Medical and Diagnostic Labs, and Other Ambulatory Health Care Services* industry's services, its workers have the potential to receive \$359,805. Local indirect and induced industries supporting this direct industry stand to generate \$118,469 in income. Overall, the New Braunfels area economy can earn \$478,274.

Dividing the total amount of local income generated by the direct income created in the local *Outpatient Care Centers, Medical and Diagnostic Labs, and Other Ambulatory Health Care Services* industry, shows that for every \$1 of income generated by this industry, an additional \$0.33 of income is created in other sectors of the local economy. In contrast, only \$0.21 of income will be generated in the local economy resulting from a \$1 increase in income accruing to the local *Home Health Care Services* industry.

Estimated Employment and Income Impacts of Selected Industries Locating to the New Braunfels Area

Based on information provided by Ms. Holly Covington<sup>15</sup>, four health care-related companies have recently started (or are planning to start) operations in the New Braunfels area. Data on the number of jobs and payroll associated with each firm are as follows:

**TABLE 5: Estimated Number of Jobs & Payroll Associated with the Current (or Expected) Operations of Selected Health Care Firms in the New Braunfels Area (2011).**

NAICS Code <sup>16</sup>	Number of Jobs	Payroll (\$Millions)
453990	1,500	75.0
622110	800	40.0
623110	90	6.0
623311-2	40	2.0

SOURCE: e-mail correspondence with Ms. Holly Covington (Fri 6/10/2011 2:57 PM).

To view the estimated impacts of this infusion of jobs and payroll on New Braunfels, Tables 6 and 7 provide further detail.

**TABLE 6: Estimated Impact of New Health Care Jobs on Total Employment in the New Braunfels Area.**

NAICS Code	Direct	Indirect-Induced	Total
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<sup>14</sup> Income Multiplier Effect = Total Income / Direct Income.

<sup>15</sup> E-mail correspondence with Ms. Holly Covington (Fri 6/10/2011 2:57 PM).

<sup>16</sup> In the interest of privacy, NAICS codes are utilized to identify the firm.

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	(Number of Jobs)		
453990	1,500	163	1,663
622110	800	394	1,194
623110	90	16	106
623311-2	40	8	48

SOURCE: IMPLAN Input Output Model for Comal and Guadalupe County, Texas.

Table 6 shows that the four new companies have (or will have) a total of 2,430 new jobs in the New Braunfels area. A firm listed as part of the retail trade sector (NAICS 453990) accounts for over 61 percent of this employment increase (1,500 direct jobs). The remaining 930 jobs are expected to be associated with one general medical and surgical hospital (NAICS 622110), one nursing care facility (NAICS 623110), and one community care facility for the elderly (NAICS 623311-2).

Given the number of direct jobs that the retail sector firm is expected to employ, an additional 163 jobs will be created in indirect and induced industries in the New Braunfels area. The 930 direct jobs that the health care sector firms are planning to bring, an additional 418 jobs will be created in other industries (indirect and induced) in the New Braunfels area. Overall, the 2,430 jobs that these new firms are planning to bring to the New Braunfels area, an additional 581 jobs will be generated in other industries in the local economy.

As far as payroll is concerned, Table 7 shows that the four new firms are planning to pay a total of \$123 million to all of its workers. Close to 61 percent (\$70 million) of this payroll will go to workers of the retail firm.

**TABLE 7: Estimated Impact of New Health Care Payroll on Total Income in the New Braunfels Area.**

NAICS Code	Direct	Indirect-Induced	Total
	(\$Millions)		
453990	75.00	18.07	93.07
622110	40.00	11.06	51.06
623110	6.00	1.21	7.21
623311-2	2.00	0.40	2.40

SOURCE: IMPLAN Input Output Model for Comal and Guadalupe County, Texas.

In order for these four new firms to produce their goods/services, they will have to rely on the services of backward linked industries in the local area. These indirect and induced industries are estimated to generate \$30.74 million in payroll for its workers. Overall, due to the operations of these four new firms, a total of \$153.74 million in payroll will be generated in the New Braunfels area economy.