

THE ECONOMIC CONTRIBUTIONS OF HIGHER INSTITUTIONS OF LEARNING TO REGIONAL COMMUNITIES: THE CASE OF UNIVERSITY OF HOUSTON-VICTORIA

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Abstract

The study uses IMPLAN modeling software to estimate economic contribution of recent “downward expansion” of University of Houston-Victoria (UHV). According to the study, the economic impact of UHV to the economy of Victoria County and Texas region is \$92 million. UHV is one of the largest employers in Victoria County and its total impact supports over 1,185 jobs in the region providing incomes totaling more than \$55 million with an average salary of over \$46,000 per year. The study estimates that total impact related to downward expansion in the region to be \$12,408,184 with a generation of 130 extra jobs.

Keywords: University impact analysis, income multipliers, economic multiplier, IMPLAN

JEL Codes:

1. Introduction

Institutions of higher learning often receive resources from both regional and national economies even though their operations are mostly locally based. Because of this, colleges or universities find it necessary to conduct economic impact studies to justify their contributions to the host localities/communities as they claim to create jobs, boost tax revenue and thereby stimulate the local economy. Economic impact studies are, therefore, conducted to quantify the contribution of an institution of higher education, including secondary spending effects, justify requests for state funding and financial assistance, defend against criticism, or promote fund-raising (Siegfreid, Sanderson, and McHenry, 2006; Ohme, 2003).

Universities and colleges have an expansive economic impact on host communities that goes beyond their primary function to educate people and to provide them with opportunities to earn higher wages and live longer (Sanchez, 2010). University impact studies, therefore, attempt to quantify as many of these impacts as possible to justify the high level of public support that higher education often receives. The most expected and direct impacts of higher institutions of learning to the local economies include activities that are associated with creation of local jobs and increases in local expenditures. Also, these impacts might include the value of intangibles including human capital as well as the value of local amenities provided by these institutions (Ambargis, McComb, and Robbin, 2011).

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This study attempts to quantify the economic impact of University of Houston-Victoria (UHV) to the state of Texas and the Victoria region. UHV was created in 1973 as degree granting University to offer junior, senior and graduate level courses. From 1973 to 2008, UHV did not offer lower division courses and all students were transfers from 2-year community colleges or from 4-year institutions. This, however, changed in the spring of 2009 when the Texas legislature approved a bill allowing UHV to offer lower division courses. This change allowed UHV to transition from an institution offering only upper division undergraduate courses to a comprehensive residential institution. UHV has three campuses in Victoria, Sugarland and Cinco Ranch. In the fall of 2010, UHV had a headcount of 4,330 students, 208 faculty members and 260 staff members. UHV had 13,146 alumni by the fall of 2010 (UHV Fact Book, 2012).

The study is organized as follows. The first section introduces the basic framework of economic impact analysis using Social Accounting Matrix (SAM) modeling system, specifically IMPLAN (Impact analysis for PLANing). The second section discusses survey data collection and other data sources. The third section reports the economic impact results based on UHV budgeted expenditures, student spending, and visitor spending including some discussions. In the last section we present our conclusion and some closing policy recommendations.

2. Methodology

Social Accounting Matrix Analysis

Regional economic impact studies rely on SAM analysis; a comprehensive extension of input-output modeling. While input-output analyses focus only on financial flows associated with production sectors in the economy; SAM modeling systems also account for taxes, investments, savings, and financial flows between institutions including government and households. Economic base theory states that economic impact of a new or existing project on the local economy generates a larger impact than the initial level of direct spending to the project itself so long as the project does not cannibalize existing spending from the region. Because of inter-industry linkages spending from one sector requires inputs from other sectors. Also, incomes earned from one sector will be spent in other sectors of the economy creating other rounds of re-spending within the region's economy (see figure 1). The final impact of the initial exogenous impact is therefore the sum of all additional impacts associated with the initial project (multiplier effect).

The study used IMPLAN, a SAM modeling software system developed by the U.S. Forest Service. The IMPLAN model first breaks the economy into more than 500 separate economic sectors including government and households. The model is then able to use a sectoring scheme and build a square matrix that tracks inter-sector financial flows. The IMPLAN model is therefore able to measure the total impact of the project on the local economy and identify the impact on each sector. IMPLAN model uses county level data, which was obtained from the IMPLAN Group and the Bureau of Economic Analysis EA (Carroll and Smith, 2006).

3. Review of the Literature

Studies on the economic impact of higher institutions on regional economic development are not without criticism. University impact studies are often considered to be less than robust compared to other academic research (Siegfried, Sanderson, and McHenry 2006; Ambargis, McComb, and Robbin 2011). Siegfried , et al (2006) note that university impact studies frequently overstate the true impact of universities on local economies. They argue that these studies fail to differentiate between the impact of universities located within a cluster of other universities and those located within several hours driving distance to another university. The impact in this case would be inflated because it does not account for the cannibalization effect.

Other possible issues mentioned are the potential to double-count household spending, loosely defined study areas and the alternative use of public funds had they not been spent on universities.

Locality and Data Sources

This study selected Victoria County and surrounding counties, Fort Bend County and surrounding counties as the two regions of analysis, which represent their capture market as they are relevant to the audience to whom the results will be addressed. First, since UHV has three campuses within the selected study area, which share capital and human resources, it makes sense to first quantify the economic impact of UHV on their capture market. Second, since UHV's main campus is located in Victoria County and the state legislators, University administrators and the local community aim to make the institution a destination campus it makes sense to quantify the potential contribution of UHV to the local community.

Victoria County is located on the coastal plain of southeastern Texas. The county is almost synonymous with the city which bears the same name and is the county's seat and its largest town. According to the 2000 U.S. Census, Victoria County's population was 87,545 with about 73 percent of county residents residing in its county seat making the county predominantly urban. The median age of the county is 34 years with median income per household of \$38,732 (US Census Bureau, 2012).

The 2011 audited financial reports for the University of Houston-Victoria were used to extract data that formed the base for the analysis. The data included university expenditures on items such as purchases of tangible goods and related services, staff payroll, capital improvements, physical plant and inventory. The study also included revenues such as interest income, grants and appropriations, gifts, and sales of auxiliary goods. All the revenue and expenditure transactions were reconciled and any non-cash transactions, such as depreciation, accruals, etc., were eliminated. As noted by previous studies, these non-cash transactions are bookkeeping transactions only and therefore have no impact on the local economy (Carroll and Smith, 2006). Detailed definitions of the terms used in the study are listed in the appendix.

This study administered face-to-face questionnaires to more than 100 undergraduate students on the UHV Victoria campus in fall of 2012. We sampled purposively to ensure a representative sample of the students based on class level, ethnicity, time status, residence status, and gender. The survey aimed to target both those students who reside in the dormitories and those who live off-campus with the

goal of trying to quantify how much expenditure or business students conduct with local businesses in the Victoria capture market. For those students who are not residents of the capture market, the questionnaire tried to capture expenditures from their visits including how frequently they visit the study area, the size of the visiting party and the length of their stay.

4. Economic Impact Results

According to analysis using IMPLAN, UHV direct spending of \$47,809,123 resulted in a total output of \$91,552,804. Each \$1 of direct spending from the University results in another \$0.91 spent outside of the University in the local economy. The impact of UHV's 791 employees is an additional 394 employees in the local economy generating an employment multiplier of 1.5. Income for UHV's employees was estimated at \$39,424,604 with an additional impact on income in the local economy of \$15,241,098, an income multiplier of 1.39. A full breakdown of these numbers is summarized in Table 1.

Table 1. Impact Summary

Impact Type	Employment	Labor Income	Total-Value-Added	Output
Direct Effect	791	39,424,604	44,989,799	47,809,123
Indirect Effect	7	294,900	484,596	941,108
Induced Effect	387	14,946,198	25,962,219	42,772,572
Total Effect	1,185	54,665,701	71,436,614	91,522,804

Table 2. Top Ten Sectors impacted: Employment

Description	Total Employment	Total Labor Income	Total Value-Added	Total-Output
* Employment and payroll only (state & local government, education)	783	39,413,349	44,640,959	44,640,958
Food services and drinking places	37	660,535	989,437	2,167,393
* Employment and payroll only (state & local government, non-education)	20	942,043	1,066,992	1,066,992
Offices of physicians, dentists, and other health practitioners	20	1,675,997	1,940,209	2,894,350
Retail Non-stores - Direct and electronic sales	16	136,788	441,217	632,411
Nursing and residential care facilities	15	491,747	509,546	740,992
Retail Stores - General merchandise	15	374,113	556,192	876,312
Private hospitals	14	796,375	836,061	1,670,192
Retail Stores - Motor vehicle and parts	14	569,599	755,526	1,047,138
Retail Stores - Food and beverage	13	433,536	657,821	1,025,463

The economic impact of UHV on employment, labor income, total value-added, and output for the top ten sectors are presented in Tables 2, 3, 4, and 5. The impact estimated is based on UHV 2012 annual budget of \$43.9 million and student spending. Table 2 shows UHV impact on employment for the top ten sectors affected. The largest share of employment is generated directly by UHV with 783 Full-Time Equivalent jobs (FTE). An additional 164 FTE jobs are indirectly related to UHV economic activity with the two single largest sectors affected being Food services and drinking establishments (37 FTE) and Offices of physicians, dentists, and other health practitioners (20 FTE). Income directly and indirectly generated by UHV induces another round of spending by households generating an additional 387 FTE jobs (induced impact). The total number of jobs that can be attributed to UHV is 1,185 FTE jobs.

Table 3 summarizes the economic impact on labor income for the top ten sectors affected. Total income labor generated was \$54.7 million. UHV direct impact on labor income is \$39.4 million. The indirect impact is \$0.3 million and the induced impact is \$15 million. The average income for all FTE jobs is \$46,131. This number is significantly above the average income per capita of \$24,571 for Victoria County and \$25,548 for the State of Texas¹.

Table 3. Top Ten Sectors Impacted: Labor Income

Description	Total Employment	Total Labor Income	Total Value-Added	Total-Output
* Employment and payroll only (state & local government, education)	783	39,413,349	44,640,959	44,640,958
Offices of physicians, dentists, and other health practitioners	20	1,675,997	1,940,209	2,894,350
* Employment and payroll only (state & local government, non-education)	20	942,043	1,066,992	1,066,992
Wholesale trade businesses	13	905,582	1,543,237	2,238,453
Private hospitals	14	796,375	836,061	1,670,192
Food services and drinking places	37	660,535	989,437	2,167,393
Support activities for oil and gas operations	8	647,702	1,194,349	2,321,887
Retail Stores - Motor vehicle and parts	14	569,599	755,526	1,047,138
Nursing and residential care facilities	15	491,747	509,546	740,992
Retail Stores - Food and beverage	13	433,536	657,821	1,025,463

Total value-added measures the share of economic activity that stays and circulates within the local economy. Out of \$92 million of economic activity that is attributable to UHV, \$71 million stays within the local economy. Table 4 is a breakdown of the top ten sectors with the largest value-added. UHV adds \$45 million of value-added to the local economy. The next largest sector is Imputed rental activity for owner-occupied dwellings with \$4 million of value-added to the local economy.

¹ U.S. Census

Table 4. Top Ten Sectors Impacted: Value Added

Description	Total Employment	Total Labor Income	Total Value-Added	Total-Output
* Employment and payroll only (state & local government, education)	783	39,413,349	44,640,959	44,640,958
Imputed rental activity for owner-occupied dwellings	0	0	4,050,215	7,028,856
Offices of physicians, dentists, and other health practitioners	20	1,675,997	1,940,209	2,894,350
Wholesale trade businesses	13	905,582	1,543,237	2,238,453
Support activities for oil and gas operations	8	647,702	1,194,349	2,321,887
* Employment and payroll only (state & local government, non-education)	20	942,043	1,066,992	1,066,992
Food services and drinking places	37	660,535	989,437	2,167,393
Monetary authorities and depository credit intermediation activities	6	366,723	962,289	1,394,927
Electric power generation, transmission, and distribution	2	258,516	937,127	1,153,858
Private hospitals	14	796,375	836,061	1,670,192

Table 5. Top Ten Sectors Impacted: Output

Description	Total Employment	Total Labor Income	Total Value-Added	Total-Output
* Employment and payroll only (state & local government, education)	783	39,413,349	44,640,959	44,640,958
Imputed rental activity for owner-occupied dwellings	0	0	4,050,215	7,028,856
Offices of physicians, dentists, and other health practitioners	20	1,675,997	1,940,209	2,894,350
Support activities for oil and gas operations	8	647,702	1,194,349	2,321,887
Wholesale trade businesses	13	905,582	1,543,237	2,238,453
Food services and drinking places	37	660,535	989,437	2,167,393
Private hospitals	14	796,375	836,061	1,670,192
Monetary authorities and depository credit intermediation activities	6	366,723	962,289	1,394,927
Electric power generation, transmission, and distribution	2	258,516	937,127	1,153,858
* Employment and payroll only (state & local government, non-education)	20	942,043	1,066,992	1,066,992

The total impact on output is \$92 million. The direct impact on output is \$48 million, the indirect is \$1 million and the induced impact is \$43 million. Table 5 lists the top ten sectors impacted.

State and local tax impact and federal tax impact are presented in Tables 6 and 7. Economic activity of UHV generates \$1.02 million in sales tax revenue and \$1.06 million in property tax revenue to the Victoria County.

Table 6. State and Local Tax Impact (\$)

Description	Employee Compensation	Proprietor Income	Indirect Business Tax	Households	Corporations
Dividends					166,068
Social Ins Tax-Employee Contribution	30,704				
Social Ins Tax-Employer Contribution	132,101				
Indirect Bus Tax: Sales Tax			1,021,630		
Indirect Bus Tax: Property Tax			1,061,086		
Indirect Bus Tax: Motor Vehicle Lic			18,519		
Indirect Bus Tax: Severance Tax			185,931		
Indirect Bus Tax: Other Taxes			130,893		
Indirect Bus Tax: S/L NonTaxes			\$82,657		
Corporate Profits Tax					
Personal Tax: Income Tax					
Personal Tax: NonTaxes (Fines-Fees)				287,641	
Personal Tax: Motor Vehicle License				52,448	
Personal Tax: Property Taxes				31,986	
Personal Tax: Other Tax (Fish/Hunt)				\$16,710	
Total State and Local Tax	162,805		2,500,714	388,784	166,068

Table 7. Federal Tax Impact (\$)

Description	Employee Compensation	Proprietor Income	Indirect Business Tax	Households	Corporations
Social Ins Tax-Employee Contribution	2,996,651	194,441			
Social Ins Tax-Employer Contribution	3,030,523				
Indirect Bus Tax: Excise Taxes			142,424		
Indirect Bus Tax: Custom Duty			66,328		
Indirect Bus Tax: Fed NonTaxes			109,487		
Corporate Profits Tax					667,655
Personal Tax: Income Tax				3,439,047	
Total Federal Tax	6,027,173	194,441	318,238	3,439,047	667,655

UHV Downward Expansion

The downward expansion added 553 students to UHV campus at Victoria. Majority of these students reside in UHV student dormitories or are housed within the community. According to the survey conducted by this study, each student that is housed within Victoria campus spends on average of \$642.23/month when we exclude housing expenses since majority of the students (91%) related to downward expansion reside in the university dormitory. This translates to \$355, 706/month for all the students who reside in the dormitory. The study, therefore, estimates that \$2,845,648/year of expenses within Victoria County and Texas region can be directly attributed to downward expansion. If we add the cost of housing, then the direct expenditure increases to \$601,736/month or \$4,813,888 in one academic year. Using an income multiplier of 1.39, the study estimates that the student expenditure generated an extra expenditure of \$1,877,416 through additional layer of spending and the total impact of spending related to students as a result of downward expansion is estimated to be \$6,691,304.

Full time employment at UHV campus grew at an average rate of 8% in the 5 years preceding downward expansion from 187 employees in 2005 to 203 employee in 2008. Thereafter, growth of full time employment increased by 28% in the next 5 years following downward expansion from 203 employees in 2008 to 260 employees in 2011. This study assumes that the excess of 20% growth (over the previous historical 8%) in employment or 52 employees to be attributed to growth resulting from downward expansion. The study, therefore, estimates that downward expansion resulted in additional \$2,392,000 direct impact on labor income with an additional impact on income in the local economy of \$3,324,880 (income multiplier of 1.39). The

52 additional jobs from downward expansion resulted in an additional 78 employees in the local economy when we take into account the employment multiplier of 1.5. The study, therefore, estimates that total impact related to downward expansion in the region to be \$12,408,184 with a generation of 130 extra jobs.

5. Conclusion

The University of Houston–Victoria (UHV) has been providing higher education to many of the Victoria County residents and the state of Texas for more than forty years. After granting its first four-year degree in 1976, UHV has grown into an institution with enrollment of over 4,000 students and an offering of 31 baccalaureate and twenty master’s degrees in various disciplines. In addition to the human capital that the institution helps to produce, the growth of the University has provided jobs, income, and other non-monetized benefits to the host communities.

According to this study, the economic impact of UHV to the economy of Victoria County and Texas region is \$92 million. UHV has become one of the largest employers in Victoria County and its total impact supports over 1,185 jobs in the region, providing incomes totaling more than \$55 million, and an average salary of over \$46,000 per year. The study estimates that total impact related to downward expansion in the region to be \$12,408,184 with a generation of 130 extra jobs.

The impact estimated in this study provides a partial characterization of the benefits UHV contributes as there are additional non-monetized benefits that a university contributes to a community. Prior research reveals that these additional externalities include reduced crime, higher civic participation, less reliance on welfare and public assistance and better health outcomes. Other social returns include the spillover impacts on the non-degreed workforce as the degreed workforce and productivity grow and lead to higher wages for everyone.

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