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The Economic Effect of Urban Colleges on their Surrounding Communities

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Summary. Typical university impact studies in the US have focused on large institutions and their impact on an entire metropolitan region. We know little about the impact of small schools or the impact of a college on just its surrounding city or neighbourhood, despite recent interest in the relationship of colleges to city neighbourhood revitalisation. This article illustrates that, with two simple adjustments, the standard impact study can produce an estimate of a typical urban college's economic effect matched to its surrounding community, rather than to the urban region as a whole. A case study using this approach found that even a small US college with a predominantly commuter population had a significant effect on the city in which it was located.

Universities can be valuable contributors to a city's economy. They are immobile institutions fairly resistant to business cycle fluctuations, making them a steady presence in the community. They tend to attract revenue from outside the immediate area through tuition, endowment income or state tax allocations and to attract significant human capital—students and employees from a national market—that can contribute to the area's economic growth.

However, there are several gaps in our knowledge about the effect of a university on the local economy. Due to both data constraints and the public relations needs of the schools, most impact studies focus on the county as the region of economic impact. This leads to two problems. First, small institutions in urbanised areas do not even bother conducting the studies, assuming their impact would be trivial in such a large economy. The result is that we know little about the economic effect of the most common type of college—approximately half of the schools in US metropolitan areas have less than 2000 students and another 20 per cent have between 2000 and 5000 students.[1] Secondly, colleges do not report their effect on just the city or neighbourhood in which they are located, even though these are the areas most directly affected by their presence. Given recent claims that student and employee activity, much of it occurring after traditional business hours, can help to revitalise a city neighbourhood, documenting the scale of this economic stimulus would be useful (Flint, 2002; Initiative for a Competitive Inner City, 2002; Suarez, 2000).

This article addresses both of these issues—estimating the impact of small schools and the impact of any school on a small geographical area. A brief review of the traditional impact study is presented, followed by the modifications used to capture effects in a smaller area. The approach is then applied to a small, predominantly commuter college,

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illustrating that a significant proportion of its total metropolitan impact is captured by its immediate city and this impact as a percentage of economic activity is substantially greater than its impact in the county overall.

Traditional University Impact Studies

Most US university impact studies are based on regional input–output (I–O) analysis, using economic multipliers that the US Bureau of Economic Analysis creates for local regions (Goldstein, 1989; Treyz, 1993; US Department of Commerce, 1997, 1998). The county is the smallest geographical unit for which they do these calculations, leading it to be the default impact area. Release of economic data at the zip code level now permits adjustment of BEA estimators to smaller areas, as will be described below.

The core of the analysis typically is the university's expenditures for goods and services and its payroll. Expenditures are divided by product type and location of the company. Purchases from firms outside the impact area are considered lost to the local economy and subtracted from the total. Economic multipliers from the I–O analysis are applied to the remaining expenditures in each category to estimate the indirect effects—how much additional spending by local companies results from each dollar of university purchases. Total economic impact is the sum of the direct expenditures in the area and their indirect stimulus effects. The same analysis is applied to payroll dollars with the indirect impact based on multipliers representing propensity to consume specific goods. The standard assumption is that most income is spent within the community where the individual resides, so with the county as the impact area nearly all salary dollars remain in the local economy. Any large, specialised contributions to the region, such as unreimbursed care to local residents from a medical school or university-supported business start-ups, typically are described in the study but not subject to detailed economic analysis (Duke University, 2000; Harvard University, 1999; University of Pennsylvania, 1990).

Recent work has focused on expanding this basic framework to capture other significant economic effects generated by a university. Incorporation of human capital effects and different types of expenditure effects are the two primary issues. Beck *et al.* (1995) argued that the relative importance of human capital versus expenditure effects depends on the size of the economy where the school is located. In a small economy, typically a rural area some distance from a major metropolis, students specifically move to the area to attend college, bringing new dollars with them, but they do not stay after graduation. There is little long-term increase in local human capital, but the short-term influx of student expenditures can be significant in such an isolated economy.

In a large metropolitan area, the relative importance of the two factors is reversed. A higher percentage of students already live in the area, so their expenditures cannot be attributed to the university presence. But with extensive local job prospects, more students are likely to remain after graduation, including some who moved to the community to attend college. This long-term increase in human capital can outweigh the short-term stimulus from university and student expenditures (Blackwell *et al.*, 2002; Bluestone, 1993; Brown and Heaney, 1997; Felsenstein, 1996). One complication in determining the human capital impact is that large US metropolitan areas also are more likely to have several higher education institutions. While the aggregate addition to human capital across all schools can be large, substitution effects for the local residents will lower the influence of any single institution.

The primary problem with this large–small distinction when applied at the county level is that it obscures the total effect of a very common case—a university located in a small community within a large metropolitan county. With the county focus, this is treated as a large economy case. Much of the student population is local and remains local, so human capital impacts would be the critical factor and student expenditure impacts would be small. However, the city

where the college is located is a small economy where the reverse pattern holds. The human capital impact is diluted because graduates remain in the area, but not necessarily in that particular city, and student expenditures constitute new money as commuter students come to a part of the MSA they otherwise would not frequent. Small cities or neighbourhoods, even though they are part of a large metropolitan area, are comparable to the small economy case—human capital impacts will be minor but expenditure effects can be large.

Relatively little work has been done on the estimating of these expenditure effects, especially the impact of commuter students and staff. Hedrick *et al.* (1995) found that the number of college students in a county was positively related to higher retail and service-sector employment, suggesting that their expenditures had a significant impact on the local economy, but they did not estimate the size of the effect. Several US universities have included student expenditures as part of their impact studies, but they have used standardised student budgets generated by their financial aid offices (Beck *et al.*, 1995; Bleaney *et al.*, 1992; Duke University, 2000; University of Colorado, 1995). This approach is appropriate only if several strong assumptions are met—all students are newcomers to the area; they live on this bare bones financial aid budget; and, the exact location of the spending does not matter. None of these conditions corresponds to the urban college situation where many students are already area residents, they work and attend school part-time resulting in different budget constraints and the location of their spending within the MSA is of interest. To estimate local effects of a school, especially a smaller one, information on actual expenditures and where they are made is necessary.

Modification of the Impact Analysis

Modifications to three parts of the typical study are necessary to capture local effects: to university expenditures on goods and services, to wages paid and to student spending. For all modifications, the first step is to define the new region. This can be either the single city in which the school is located if it is part of a fragmented metropolitan area or the adjacent neighbourhoods in a large metropolis, such as Chicago or Los Angeles. Zip codes are used to define these areas. While they do not provide a precise correspondence to political boundaries, for many small cities in a fragmented MSA they do come close. For neighbourhood analysis within a larger city, these areas may be a little too large, including areas that are not immediately adjacent to the school. But while they are not an exact match to either cities or neighbourhoods, zip codes do narrow the geographical region substantially and capture local effects more accurately than overall county values. Zip code regions also are used primarily to calibrate more accurate multipliers for the indirect economic effects, while a student and staff survey more precisely targets the location of their expenditures within the zip code areas.

Once the new region is defined, many of the impact analysis procedures are applied as usual but to this new base. Budget expenditures on goods and services are handled exactly that way. All purchases from companies outside the defined impact region are excluded from analysis because they do not contribute to the local economy. For the remaining subset, actual expenditures are the direct effects. Output multipliers are applied to each expenditure category to estimate the indirect effects. These multipliers are derived following the standard US Bureau of Economic Analysis (BEA) procedure—simply using location quotients based on the zip code areas rather than on the county to adjust for differences between the local and national economies.

The BEA produces I–O tables based on relationships between economic sectors in the national economy. For any sub-national I–O analysis, these relationships must be adjusted to reflect the ability of firms to purchase inputs within the defined regional economy (Miller, 1998; US Department of Commerce, 1997). The coefficients in the

national direct requirements table indicate the value of the good needed from each supplying (row) industry to produce $1 worth of final demand for the purchasing (column) industry. For example, $1 of automobile manufacturing may require 50 cents of steel (0.50), 30 cents of electricity (0.30), and 20 cents of rubber and plastics (0.20). To show the impact of demand from this industry on a local economy, these input coefficients are weighted by the likelihood that local products are used to meet the demand. A local location quotient (LQ) for a sector that is greater than or equal to one indicates a concentration of this industry in the local area that is at least as high as the national concentration. Under these circumstances, it is assumed that the producing sector will purchase all of that input factor from the local economy. The national direct requirements coefficient receives a weight of one. A local LQ less than one implies that there is a smaller concentration of this industry in the local economy than there is nation-wide. Even if the producing sector purchased all the available local output, it would still need to import some product to meet its necessary direct requirements. In this case, the value of the LQ is used as the weight for the direct requirement coefficient, reflecting the proportion of the necessary input that can be supplied from the local sector. For the simplified automobile manufacturing example, assume that the LQ for the electrical utility sector is 1.09, for steel is 0.70 and for rubber and plastics is 0.35. The direct coefficients for the local automobile manufacturing would be (0.1)*(1) for electricity, (0.5)*(0.7) for steel and (0.20)*(0.35) for rubber and plastics.

Having adjusted the direct coefficients to reflect the likely amount of local inputs, the total requirements matrix (which provides the output multipliers) is then calculated as usual. For a direct requirements matrix $\mathbf{A}$, the total requirements matrix is $(\mathbf{I}-\mathbf{A})^{-1}$ or the Leontief Inverse matrix—the inverse of the direct coefficients matrix subtracted from an identity matrix. While calculating this inverse matrix is best done by a computer programme, a sense of how the values are related to the output multiplier can be seen through a power series expansion of the matrix values. In standard algebra, the term $(1-a)^{-1}$ can be approximated by the value $1+a+a^2+a^3+\cdots+a^k$. The comparable matrix algebra expansion is $\mathbf{I}+\mathbf{A}+\mathbf{A}^2+\mathbf{A}^3+\cdots+\mathbf{A}^k$. The identity matrix, $\mathbf{I}$, is the equivalent of one, which indicates that the final economic output must be at least as great as the initial one unit change in final demand for a product. The second term, $\mathbf{A}$, is the direct impact of that one unit change in final demand on the purchasing sector itself. $\mathbf{A}^2$ and all later coefficients show the indirect effects of the final demand change as it reverberates through the other sectors in the economy, where $\mathbf{A}^2$ (comparable to $a_{ij}\ {}^*a_{jk}$) will be the necessary inputs from sector k to meet the required new demand from sector j, necessary to meet the new final demand for the initial purchasing sector i. Each higher term adds the indirect effects from another sector; such that $\mathbf{A}^3$ ($a_{ij}\ {}^*a_{jk}\ {}^*a_{jl}$) reflects the impact of new inputs from sector l to meet the new demand from sector k to meet the new demand from sector j, and so on. All $\mathbf{A}$ values are the location-adjusted direct requirements coefficients. The total impact of a $1 change in final demand for the initial sector is then the sum of these direct and indirect effects, as represented by the sum of the column values in the total requirements matrix. This is also the output multiplier for that sector.

In any standard I–O software package, the preceding adjustments and determination of this total requirements matrix are straightforward. The only change is that the location quotients adjustments to the local economy are based on the area defined by the zip codes rather than the county or MSA.

The second modification to the standard I–O analysis is to the university wage-base. The impact will depend on both the total salary paid to those faculty and staff that live in the local region (defined by the set of zip code areas) plus some proportion of salaries from those outside the region that are captured by expenditures made when they commute to campus. For the local salary impact, only the

staff who indicate that they moved to the area specifically to take a job with the university are counted as providing economic stimulus attributable to the institution. Treatment of their salaries parallels the standard impact approach. For households, the equivalent of the direct requirements coefficients for industry demand are propensity to consume coefficients based on household income. They indicate for an additional $1 of income what is the increased demand in different economic sectors. These coefficients are also adjusted by local location quotients to reflect the proportion of goods likely to be purchased locally. The procedure mirrors that described above for translating direct requirements coefficients into total requirements coefficients, or multipliers.

For faculty and staff who live outside the specified zip code areas, only the purchases they make as a part of errands run near work or dining off-campus are included in the impact analysis.[2] Survey data from employees are used to estimate expenditures in various categories. Their reported consumption is the direct effect. The indirect impact on other sectors is again estimated by multiplying consumption in each category by the national multiplier for that sector adjusted by the local location quotient for that sector.

The third modification to the impact study is to include explicit information on student expenditures. The largest cost for most students is housing. For undergraduates living on-campus, these expenditures are already captured in the university budget data and do not need to be treated separately. Rent from students living off-campus is a direct stimulus to the local economy, but how the impact should be counted will depend on local circumstances. If there is an oversupply of rental housing in the area, student demand simply absorbs vacant units and all of the rental income can be considered new to the community. Where vacancy rates are low, student demand could drive up rental prices and only that increment should be considered an economic stimulus. Landlords would benefit, but the community as a whole might not if the increased prices drive up rents for established residents and eventually force them out of the neighbourhood. While there is still an aggregate benefit from student rent, the uneven distribution of that benefit (landlords gain, but local residents lose) may make this a politically controversial effect that universities would prefer not to report as a neighbourhood benefit. In these cases, the rental impact can be calculated but reported separately in the impact summary, permitting universities to drop it from the discussion if it appears contentious.

Less ambiguous in effect are other expenditures by students (food, entertainment and so forth). Treatment of these factors depends on where the student lives as well as whether he moved to the area to attend college. For those outside the impact neighbourhood, only expenditures from when they commute to campus are relevant. They are measured in the same way as staff expenditures—survey data to approximate the direct consumption, then multiplier coefficients adjusted by local location quotients applied to estimate the total effect. Even if these students did not move to attend college, they now commute to the university area and expenditures related to these trips are additions to that area's economy.

For those living within the impact neighbourhood, including on-campus housing, most of their expenditures will occur in that area. Students who identify themselves on the survey as living in the local zip code areas also answer questions on their overall consumption patterns. Reported spending is the direct economic impact; total impact again is this value multiplied by the location-adjusted output coefficients. Only economic activity from students who identify themselves as moving to the area to attend college is counted in this section. This approach is preferable to simply treating household income from students with the standard propensity to consume coefficients, given that tuition and limited work hours distort student budgets compared with those of the average consumer. Focusing solely on reported expenditures in the campus survey may underestimate student spending

somewhat, but the bias in the impact study would then be towards a more conservative estimate of the university's effect.

Application to a Small College in a Fragmented US Metropolitan Area

The case used to illustrate these changes is a small private school, Claremont Graduate University (CGU), with a large percentage of students who commute to campus, often considerable distances. The university is located in a small city, Claremont, at the edge of Los Angeles County. It has approximately 2000 master and doctorate students, with about 700 enrolled in continuing study and 1300 taking coursework on campus. There are approximately 90 full-time faculty and 140 full-time administrators and staff.

The geographical location of this school clearly illustrates the drawbacks to a typical impact study. The campus is on the edge of Los Angeles County, which would be the traditional base for the study—with a population of 9.5 million, an area of over 4000 square miles and retail sales of about $700 million. Not only is the school a small institution in a large urban economy, its peripheral location means that only a part of its regional impact would occur in that county. Zip codes were used to define two alternative areas of influence. The local impact area was the city of Claremont, composed of one zip code area, of approximately 13 square miles and with a population of 34 000. A regional impact area that crossed county lines was composed of Claremont and another 8 contiguous cities surrounding the campus, with a combined size of about 180 square miles and 700 000 population—an area roughly comparable to the urbanised county that is the basis for most impact studies. Detailed results for both this Inland Empire region and the immediate city of Claremont are reported below.

Economic multipliers were derived from the BEA's 1999 table of direct requirements (US Department of Commerce, 2000). Local location quotients were created with 1999 Zip Code Business Pattern data (US Department of Commerce, 2001). A mail survey was conducted in the spring of 2000 of all students and employees, asking about the frequency of campus visits and spending off-campus associated with those visits, specifically spending in the downtown district near campus. Those living in the Inland Empire cities answered additional questions about consumption patterns in a broader set of categories, including questions about purchases at specifically identified shopping centres. Response rates were 44 per cent of all students, 61 per cent of students enrolled in coursework and 67 per cent of faculty and staff. Since changes to the operating expenditure portion of the impact study are straightforward and represent a small portion of the local economic impact, the following comparison will focus on the effects of adding information on student expenditures and of reallocating faculty salaries to different areas. Summary information for the estimated impact in Los Angeles County is provided to illustrate the college's relative effect within its immediate area, compared with the standard impact study results.

Student Commuter Impact

Expenditures patterns for commuting students are exhibited in Table 1. Results are shown separately for both the city of Claremont and the Inland Empire region, which includes Claremont. The most commonly used services were gas stations, general retail and photocopy services. Between 40 per cent and 48 per cent of commuting students made purchases in these categories at least occasionally, defined as less than once a month. A substantial number used these services more frequently, with gas stations not surprisingly having the highest use, but with 23 per cent of commuters also making general retail purchases at least once a month. Purchases of other services, such as auto repair or dry cleaning, were made by about 10 per cent of students at least occasionally.

When the city of Claremont is defined as the local economy, about 75 per cent of the student body lived outside the area and were

Table 1. Economic activity from commuting students: Claremont and Inland Empire as the local economies

Panel 1: Frequency and type of purchase (percentages)

	Claremont only			Inland Empire		
	Never	< 1x month	At least 1x month	Never	< 1x month	At least 1x month
Gas station	22.0	42.2	35.7	19.8	43.7	36.4
General retail	28.8	48.1	23.1	29.7	50.3	20.0
Copy services	46.1	40.8	13.0	49.9	38.3	11.8
Oil/Auto repair	90.1	9.0	1.0	95.6	3.8	0.6
Car wash	84.8	11.2	4.0	88.4	8.8	2.8
Dry clean	90.4	6.2	3.4	95.2	3.4	1.4
Beauty salon	88.9	7.7	3.4	93.8	5.4	0.8

	Claremont only				Inland Empire			
	Never	< 1x week	1x week	1x + week	Never	< 1x week	1x week	1x + week
Food	12.3	42.5	13.8	31.4	10.6	45.5	15.4	28.5
Drink	23.4	45.2	10.0	21.4	23.8	46.3	10.4	19.4

Panel Two: Annual expenditures per student (30 weeks) (US$)

	Claremont only		Inland Empire	
	Weekly	Annually	Weekly	Annually
Food and drink	14.24	427	13.36	401
General retail/services	20.68	620	19.90	597
Total	34.92	1047	33.26	998
Total annual expenditures	Direct impact	Total impact	Direct impact	Total impact
Lower bound, actual respondents	690 450	976 296	497 850	793 573
Upper bound, all commuter students	953 817	1 348 697	688 620	1 097 660

counted as commuters. As shown in Table 1, total expenditures per student for food and drink were approximately $14 a week plus another $20 for all retail and services combined. Assuming students commute to campus only during the academic semesters (15 weeks in each), the total annual expenditure per student in all categories is about $1050. Based only on actual survey respondents, there was a direct stimulus to the economy of $690 450 from commuting students. If we assume non-respondents exhibit similar spending patterns, the maximum direct impact would be about $954 000.[3] Including the indirect stimulus effect of these expenditures generates a total impact of slightly less than $1 million to $1.3 million dollars, corresponding to the minimum and maximum values of the direct effect.[4]

Treating the entire Inland Empire as the local economy moves about 25 per cent of the respondents from the commuter to resident category. Patterns of expenditures and their average values were very similar, with the major difference being a drop in the frequency of purchase for other services. Only 5 per cent of commuters reported making at least occasional purchases in these categories. Weekly expenditures per student for food and drink were about $13 and for general retail about $20. Annual direct expenditures per student were about $1000. Estimates of the total impact are smaller than for Claremont because of the number of students involved, with upper and lower limits again based on actual and projected survey responses. The direct impact from students commuting from outside the Inland Empire communities was between $500 000 and $700 000. The total impact including the stimulus effects was between $790 000 and $1 100 000.

Commuter impact may be particularly low for this university because of the nature of the student body and the school's relationship with the community. Graduate classes meet only once a week and about two-thirds of the students attend part-time. Most reported being on campus only once or twice a week, suggesting that they visit only to attend class. For schools where classes meet more frequently, the number of campus trips and related commuter expenditures might well increase. Additionally, the campus is separated from the primary retail area by a 15-minute walk and the local community does not cater specifically to student needs. Both factors suggest that these per capita expenditures are probably lower than would be the norm at other campuses that are more integrated into the fabric of the neighbourhood. Nonetheless, even in this case commuter effects are not negligible—providing an economic impact of at least $1 million annually to the immediate Claremont neighbourhood.

Student Resident Impact

Only residents who reported moving specifically to attend CGU were considered to have an economic impact attributable to the university. This effect was calculated in two ways. Students were asked to estimate the frequency and average value of their purchases at nine specific local shopping districts or malls. A map with the shopping areas marked was provided with the survey. Given the businesses in these shopping areas, most purchases would be for general retail, some on restaurants and entertainment. Expenditures from this set of questions can be unambiguously assigned to the cities where the facilities are located. Secondly, students were asked to estimate monthly expenditures in the four categories of groceries, dining out, entertainment and general retail, plus the average distance travelled for each type of purchase. Based on their city of residency and the reported distance travelled, expenditures were allocated to either Claremont or the rest of the Inland Empire. Estimates of total expenditures based on both methods were comparable, with spending at the specific shopping districts slightly below that generated by the more inclusive budget category approach. Given the similarity in total expenditure estimates, only the more detailed estimates from the budget category approach are reported here.

The results are shown in Table 2. Any student who moved to one of the nine cities in the Inland Empire is treated as a new resident. Focusing on the Inland Empire as the local economy, each new student would spend about $4800 per year somewhere in this region. The largest single category is groceries, about $3000 per student, which is also the type of purchase most likely to occur close to home.[5]

Calculating the impact of new students on the city of Claremont specifically is slightly more complicated and more dependent on behavioural assumptions. All expenditures from students living in Claremont were assumed to occur within that city. For those living in other parts of the Inland Empire, Claremont expenditures were based on how far they reported travelling for specific goods. Annually, each new Claremont resident spent about $3500 on groceries and another $1100 on retail and entertainment expenses, making a total of $4600. New residents in the rest of the Inland Empire contributed about another $560 per student. Given the distribution of students across Claremont and the surrounding communities, on average each new student that the university attracts to the area adds slightly over $3000 in purchases each year to the city of Claremont alone.

Total annual expenditures from the new students were again bounded by the value from the survey respondents and the projected value for all students. Direct impact on the Inland Empire as a whole was between $1.38 and $3.1 million, with the total impact about 40 per cent higher at $2–4.5 million. Direct impact in only the city of Claremont was $930 000 to $2.1 million; total impact was about 30 per cent higher, between $1.2 and $2.7 million. Both the per capita and total impact numbers suggest that, even for a small school, student expenditures can be a significant contribution to the local economy.

Rental contributions were also substantial. Ninety per cent of the students living in Claremont were renting, about 30 per cent in campus housing. The median rent paid off-campus was $600 per month, generating an impact between $998 400 (survey respondents) and $2 192 100 (all students) per year. Given the nature of the rental market, most of this value could be considered an addition

Table 2. Economic activity of new student residents (US$)

	Annual value per student in Claremont only			
	New Claremont residents	Other new Inland Empire residents	All new residents	All Inland Empire[a]
Grocery	3 492	276	2 376	3 432
Dining	660	0	432	600
Recreation	144	84	120	216
Retail	312	204	276	528
Total	4 608	564	3 204	4 776
New student resident impact on Claremont only				
	Direct	Total		
Lower bound, actual respondents	929,160	1,195,829		
Upper bound, projected students	2,117,847	2,725,669		
New student resident impact on Inland Empire				
	Direct	Total		
Lower bound, actual respondents	1,385,040	1,973,682		
Upper bound, projected students	3,156,936	4,498,634		

[a]Expenditures of all new Inland Empire residents occurring within the entire nine-city Inland Empire region. This includes new Claremont residents and expenditures in Claremont.

to the local economy rather than a substitute for other tenants. In Claremont, there is little demand for rental units outside the student market. Few apartment buildings exist. Many students rent carriage houses or other non-traditional units. Housing values are high, including the neighbourhoods near campus, and most units have remained owner-occupied, not converted to rental property. Nonetheless, rental impacts are reported separately in the accompanying tables and can be excluded from the projected university impact for a conservative estimate.

The impact of student rent on other Inland Empire communities is harder to determine. Several cities are predominantly single-unit, owner-occupied housing markets that would be little affected by additional students. Others do have substantial rental communities targeted to non-student populations, which could be subject to rent increases driven by student demand. However, at the time the study was done, the average vacancy rate for rental units across these communities was greater than the rate in Los Angeles County, suggesting this was not an extremely tight rental market. In this case, treating student rent as new income for the region could be justified. Monthly rents were fairly comparable between Claremont and the rest of the Inland Empire, leading to an annual impact of between $775 000 and $1.7 million in the rest of the communities. Again, housing impacts are reported as a separate category in the overall analysis and can be omitted from the total estimate if desired.

Faculty Impact

As seen in Table 3, employee expenditures related to commuting trips were similar to those of students. Per capita spending on food and general retail were comparable, about $14 and $21 respectively per week. They varied the most in frequency of purchase of other services, with close to 20 per cent of employees making purchases at least occasionally versus 5–10 per cent for students. Annual impacts were based on the assumption that faculty and staff are year-round employees and would be on campus 50 weeks of the year rather than 30 weeks for students. Total estimated impact is, however, still very low because of the small size of the staff (approximately 230 faculty, administrative and clerical positions). Direct annual impact was between $175 000 and $274 000; total impact $245 000–390 000. Within the Inland Empire region, per capita spending patterns were slightly higher, with annual expenditures close to $2000 and about 30 per cent of the commuters purchasing other services at least once a month. However, the total impact was still small, only between $100 000 and $165 000 for direct effects and $165,000–260,000 for total effects.

Resident spending is the staff's biggest economic contribution. Salaries paid to residents of Claremont were about $4.5 million and to residents of the Inland Empire were over $8 million. Approximately 24 per cent of employees indicated that they had moved to Claremont specifically to take their jobs and 32 per cent to the Inland Empire. When salary figures are deflated to include only these employees, the impact in Claremont was still about 70 per cent of all salaries—$3.1 million direct and $3.6 million total. For the Inland Empire, including only new residents reduced the salary pool by about half, reflecting that this region is the source of most of the office staff who could find comparable jobs outside the university. The direct impact from new residents was still about $4 million and total impact was close to $6 million. The salary multiplier effect was weaker in Claremont than in the Inland Empire due to the differences in size and diversity of their economies. As a small city, Claremont does not have concentrations in manufacturing or wholesale sectors, so the indirect ripple effects from consumer expenditures die out quickly.

Summary of Results

Table 4 summarises the sources of economic input to the Claremont and Inland Empire communities. An estimate of the effect on Los Angeles County based on the standard

Table 3. Economic activity from commuting faculty: Claremont and Inland Empire as the local economies

Panel 1. Frequency and type of purchase (percentages)

	Claremont only			Inland Empire		
	Never	< 1x month	At least 1x month	Never	< 1x month	At least 1x month
Gas station	32.3	35.4	32.3	26.4	41.5	32.0
General retail	27.1	40.6	32.3	26.4	39.6	34.0
Oil/Auto repair	82.3	16.7	1.0	79.2	20.8	0.0
Car wash	80.2	14.6	5.2	81.1	15.1	3.8
Dry clean	81.3	6.3	12.5	88.7	3.8	7.5
Beauty salon	69.8	14.6	15.6	69.8	15.1	15.1
Medical	71.9	21.9	6.3	75.5	20.8	3.8
Copy services	71.9	22.9	5.1	67.9	26.4	5.7

	Claremont only				Inland Empire			
	Never	< 1x week	1x week	1x + week	Never	< 1x week	1x week	1x + week
Food	9.4	27.1	14.6	49.0	7.5	22.6	17.0	52.8
Drink	39.6	34.4	3.1	22.9	34.0	37.7	5.7	22.6

Panel 2. Annual expenditures per employee (50 weeks) (US$)

	Claremont only		Inland Empire	
	Weekly	Annually	Weekly	Annually
Food and drink	14.69	735	16.50	825
General retail/services	21.46	1073	22.65	1132
Total	36.15	1808	39.15	1957
Total annual expenditures	Direct impact	Total impact	Direct impact	Total impact
Lower bound, actual respondents	173 500	245 156	103 750	166 104
Upper bound, all commuter students	274 816	388 315	164 388	263 185

Table 4. Comparison of economic impact in three areas

Los Angeles County as the local economy	Direct (US$)	Total (US$)	Percentage of retail activity
Salary	14 959 009	23 485 644	
Operating expenditures	5 959 572	11 740 357	
Total	20 918 581	35 226 001	0.05
Inland Empire as the local economy (includes the city of Claremont)			
Staff, new residents	4 086 127	5 843 162	
Staff, commuters	164 388	263 185	
Total staff	4 250 515	6 106 347	
Student expenditures, new residents	3 156 936	4 498 634	
Student expenditures, commuters	688 620	1 097 660	
Student, rent	3 899 702	4 656 244	
Total Students	7 745 258	10 252 538	
Total staff and students	11 995 773	16 358 885	
Total without student rent	8 096 071	11 702 641	0.26
Claremont as the local economy			
Staff, new residents	3 113 239	3 455 695	
Staff, commuters	274 816	388 315	
Total staff	3 388 055	3 884 010	
Student expenditures, new residents	2 117 847	2 725 669	
Student expenditures, commuters	953 817	1 348 697	
Student rent	2 192 102	2 555 991	
Total student	5 263 766	6 630 357	
Total staff and student	8 651 821	10 514 367	
Total without rent	6 459 719	7 958 376	4.31

impact approach applied to wages and university operating expenditures is included for comparative purposes. To provide an indicator of relative effect across the three geographical areas, the estimated impacts as percentages of the most relevant local economic activity (retail and service sales) are also provided.

Several factors stand out across these three estimated impacts. First, traditional impact studies report only salary and operating budget impacts, but this case illustrates that student impacts can be at least as important for smaller schools. The total economic effect from students was nearly double the impact from staff salaries in Claremont alone ($6.6 versus $3.4 million) and it was about 75 per cent higher for the Inland Empire region ($10.2 versus $5.8 million). Even compared with the impact of the operating budget in all of Los Angeles County, which was the only geographical region where it had a substantial effect, student influence was considerable. In Claremont, the student impact was more than half that of the operating budget effect ($6.6 versus $11.7 million) and, in the Inland Empire, student activity generated nearly the same amount of economic stimulus ($10.2 versus $11.7 million). For small institutions with moderate budget and salary outlays, student economic activities can make up a significant portion of the university's economic influence.

Secondly, commuter students alone generated a substantial financial contribution with most captured by the neighbourhoods immediately adjacent to the school. In Claremont, commuters accounted for 33 per cent of all student non-housing expenditures and 20 per cent of the student impact when rent is included. This value drops as the region gets larger since by definition students who were commuters to the smaller region are now treated as residents of the larger one. Nonetheless, for the Inland Empire as a whole, commuters were responsible for 20 per cent of all non-housing expenditures and 10 per cent of the

total impact. While requiring more effort to measure, student commuter expenditures can play a notable role in the neighbourhoods near campus and are worth reporting.

The same was not true of staff commuter expenditures. This impact consistently showed up as trivial, at most accounting for only 10 per cent of the total employee impact in Claremont and dropping to less than 5 per cent in the region. Given that the faculty is very widely dispersed across the southern California region, if commuter effects contribute little here, they probably would for most other schools.

Finally, note the contrast between the results from a typical impact study using Los Angeles County as the economic region and the progressively smaller impact areas. A large proportion of the economic influence from a small institution is concentrated in its immediate area. Claremont captured 65 per cent of the impact on the Inland Empire region ($10.5 out of $16 million) and 30 per cent of the impact in the Los Angeles metropolitan area ($10.5 out of $35 million). The relative importance of the university also increased in the smaller economies, as measured by the percentage of retail sales that could be attributed to the institution's effects. While a drop in the bucket at 0.05 per cent of the Los Angeles retail economy and still relatively small at 0.26 per cent in the Inland Empire, the college's impact jumped significantly in its surrounding city. The university accounted for over 4 per cent of Claremont's economic activity—more than 15 times its regional effect and 85 times its county effect. For a small institution with less than 250 employees, this is a sizeable outcome. These results confirm that while small schools have only a minor impact on large metropolitan economies, whether defined here as the massive Los Angeles County or the standard-size Inland Empire region, they can make a noticeable contribution to the local city economy.

Conclusion

Adjustments to reflect a university's impact on its local community can reveal a very different picture of the school's influence. The absolute dollar value of the impact does drop because the smaller scope excludes some economic activities, but it can still be considerable. With the most conservative estimation choices—not counting any student rent and not including any indirect multiplier effects for expenditures—the city of Claremont still experienced a $6.5 million impact from a school with about a $30 million total budget. Addition of the indirect stimulus effects and student rent increased the impact to $10.5 million. The relative economic importance of the institution also increased substantially in the smaller locales—going from less than 1 per cent of a large metropolitan economy to more than 4 per cent of the local city economy.

The composition of a small institution's impact can be quite different from that emphasised in a traditional impact study. Student expenditures and rents, which are usually omitted from analysis, are critical features for these schools. A substantial portion of that impact came from commuter students, simply through expenditures on dining and errands run near campus. With direct incorporation of student expenditure effects, both residential and commuter, it is clear that even small campuses can play a very strong economic role in their home-towns.

Two trends suggest that information about the local, rather than metropolitan-wide, impact of urban colleges will be of increasing interest. First, discussions about the role of universities in neighbourhood revitalisation focus in part on the demand from students, staff and visitors for local products or services. But based on previous studies, we do not have a good idea what that level of demand might be, especially from the typical small US urban college. The approach outlined in this paper and its application to one school suggests a way to address that issue. Secondly, with rising fiscal stress in cities, US politicians have been calling for universities to make greater civic contributions either through increased payments-in-lieu-of-taxes or through involvement in community programmes (Abraham, 2002; Peterson, 2003).

Documenting local economic impacts can illustrate some of the benefits the community derives from the campus and can establish a more comprehensive view of the university's role in the city. Simply reporting these local effects can indicate university appreciation of the inordinate impact it has on the surrounding community rather than the greater metropolitan area.

Notes

1. Results from the Peterson's Guide to Colleges on-line college and university detailed search process, available at www.petersons.com. Combination of location (urban and suburban options identify metropolitan areas) and enrollment size.
2. The size of this impact will depend on the supply of businesses near the college, which can vary tremendously across different campuses. There obviously is a simultaneity issue here between the level of demand for goods and services by university personnel and the level of supply in the community. If there are few local businesses, there will be few expenditures; but if there are few expenditures from commuters, there will be few businesses that can survive. However, for the purpose of the impact study, the reason for the current level of activity does not need to be determined; it only needs to be reported. Any policy recommendations to increase local commerce or any forecasts of future economic activity would need to take account of this issue.
3. Tests for non-response bias showed only one significant difference between the respondent and non-respondent groups—whether the student was still enrolled in coursework or not. Therefore, all projected estimates of impact are based only on the student population still taking coursework and the relationships found for this group.
4. The output multiplier for these expenditures was deflated compared with the typical county output multiplier of 2.0 or higher. However, these values were deflated less than the total economic multiplier would be because they include only certain sectors (restaurants, retail and personal service sectors). The dominant inputs for these consumer sectors are factors that are still strongly represented in small economies, especially those near universities—finance, communication, professional and personal services. These high concentrations mean that local needs will be meet by local producers, so less deflation in the multiplier occurs. Manufacturing sectors, which exhibit much greater variation in concentration across local areas, contribute more to the total local multiplier and the absence of many of these sectors in a given locality causes that multiplier to drop more substantially. The same principle also causes the general salary multiplier to decline more than specific-sector multipliers. To capture most benefits from increased salary expenditures, a diverse economy is necessary, including some of the manufacturing sectors that capture the indirect effects of consumer expenditures.
5. Reported travel distances did indicate that most consumption occurs close to home. Seventy per cent of grocery shopping, which had the highest expenditure level, was done within 2 miles of home; 95 per cent within 5 miles. Slightly less than half of the general retail and recreation expenditures occurred within 5 miles; 75–90 per cent within 10 miles, with recreation generating the most trips beyond 10 miles.

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