The Economic Impact of Ramapo College on Surrounding Communities

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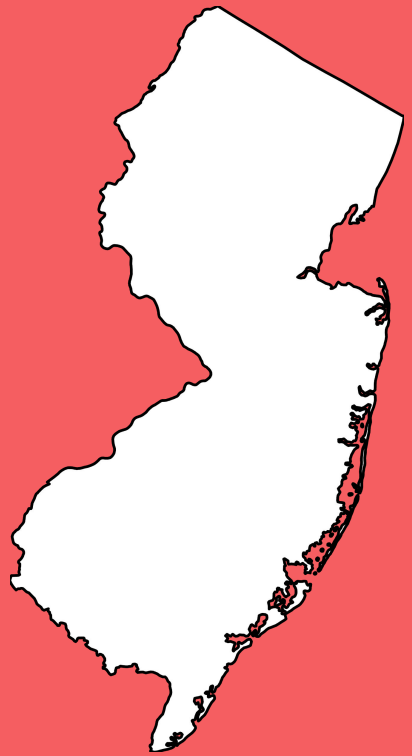


The Economic Impact of Ramapo College on Surrounding Communities: Initial Abstract

With the academic assistance and guidance from Dr. Steindel of the Anisfield School of Business (ASB), we (Kevin Duque and Robert Walshe) have prepared data that examine Ramapo College's direct and indirect local and state-wide economic impacts from 2016-to-2018. The project focuses on deriving "Gross Domestic Product (GDP)" calculations by utilizing three diverse methods. The first takes into account the difference between an economic entity's sales and purchases, otherwise denoted as the value added that inputs into production have accumulated through business operations. The second method permits an examination of the organization's generated income – for our case in particular, we had to accumulate and consider the salaries and wages of the staff over the past four years. The last and most inclusive method, required collecting salary data from the Bureau of Labor Statistics (BLS) and GDP estimates from the Bureau of Economic Analysis (BEA). Considering that Ramapo College is a public institution associated with the state government, the salaries at the college had to be compared, year by year, to the aggregated salary amounts earned by Bergen County employees who provide educational services, as well as those of New Jersey as a whole. Each of these three methods of calculating Ramapo College's direct impacts presented indistinguishable results.

In order to successfully calculate the indirect impact of Ramapo College, the multiplier effect had to be considered – how does the institution's existence affect consumer spending behaviors in Bergen County and New Jersey, and do the services provided attract more individuals than if the college itself had been replaced with another organization? These are the types of questions that we tackled with the inclusion of the multiplier effect. We will make it our priority to present the data with sincerity, in that we will avoid overstating the impact of the college.

RAMAPO COLLEGE OF NEW JERSEY

The Economic Impact of Ramapo College on Surrounding Communities: Updated Abstract

With the academic assistance and guidance from Dr. Steindel of the Anisfield School of Business (ASB), we (Kevin Duque and Robert Walshe) have prepared data that examine Ramapo College's direct statewide economic impacts from 2016 to 2018. The project focuses on deriving "Gross Domestic Product (GDP)" calculations by utilizing three diverse methods. The first takes into account the difference between an economic entity's sales and purchases, otherwise denoted as the value added that inputs into production have accumulated through business operations. The second method permits an examination of the organization's generated income – for our case in particular, we had to accumulate and consider the salaries and wages of the staff over the past four years. The last and most inclusive method, required collecting salary data from the Bureau of Labor Statistics (BLS) and GDP estimates from the Bureau of Economic Analysis (BEA). Considering that Ramapo College is a public educational institution associated with the state government, the salaries at the college had to be compared, year by year, to the aggregated salary amounts earned by New Jersey employees who provide educational services. The results of each of these three methods were averaged so that a total GDP calculation could be derived for each year.

Three research setbacks were encountered and are worth mentioning. The first was related to the availability of needed data on the online software programs maintained by BLS and BEA. We initially planned on incorporating GDP and salary figures generated by state government institutions and comparing them to the salaries paid by Ramapo College – such a procedure came to a halt upon the realization that both the Departments of Labor and Commerce do not present online databases with similar industry titles. While the BEA presented GDP estimates for "Government Enterprises," the Bureau of Labor Statistics' wage-related platform did not. Thus, our focus of the data collection transitioned away from governmental institutions and toward educational services. The second setback was related to the lack of county-level data on the part of BLS – total annual wages earned by educational providers in New Jersey were available online, but according to several BLS records, those attributable to Bergen County were deemed "ND," or not disclosable (data did not meet BLS or State agency disclosure standards). The last complexity dealt with was related to the application of an education-related multiplier – we were indeed capable of providing theoretical background on the Multiplier Theory, but due to the coronavirus pandemic and the various due date ambiguities that ensued, we were unable to derive an exact figure and apply it mathematically. This then means that we were incapable of truly calculating the indirect impact of Ramapo College and answering relatable questions such as, "how does the institution's existence affect consumer spending behaviors in Bergen County and New Jersey, and do the services provided attract more individuals than if the college itself had been replaced with another organization?" These are the types of questions we were planning to tackle with the inclusion of the multiplier effect. **Regardless of the setbacks encountered here, we have made an attempt to provide a reasonable and sober estimation of Ramapo College's multiplier within a specified bound. The implications of the potential multipliers are subsequently explored.**

However, despite the recent complications brought about by the coronavirus pandemic, our research does indeed present an important implication. Ramapo College's GDP increased from 2016 to 2018, specifically by 3.326 percent between 2017 and 2018. The *real* incremental change is lower when one considers the inflation rate (calculated by the BLS by computing the percentage change in the Consumer Price Index (CPI)) of 1.9 percent during this same time frame (the growth in GDP is still positive nonetheless). This may suggest that the college itself has been expanding over the past three years, a reality that is supported by the fact that the institution's revenues have increased by 4.37 percent since 2016 and that total salaries and wages have risen by 9.05 percent. Thus, the research conducted lends support to the various business initiatives and programs that were launched since 2016.

Presentation Outline: A Review of all Three Approaches to Calculating Ramapo's Gross Domestic Product (GDP)

Value-Added Approach

Calculated by Subtracting a Business'/Organization's Purchases from Sales

Concerned with the additional value gained by the purchases through operational activities

Contributes to Regional Wealth Accumulation

Ramapo's Sales = All Revenues (Including State Appropriations)

Ramapo's Purchases = Non-Salary Expenses less Debt Service

Commonly Referred to as the Net Product Approach

Income Generated Approach

Concerned with the Income Generated by an Entity's Factors of Production (Labor and Capital)

Basic Premise: The Total Value of Expenditures *Should* Equal the Total Income of All Production Inputs (utilized for the goods and services purchased)

Calculation: Salaries and Wages + (Debt Service - Interest Earned) + Rentals and Leases + Depreciation of Capital

Depreciation of Capital: Applied to Ramapo's Buildings and Equipment – This figure is approximately = $16 million annually

Sector Comparison Approach

Entails the Comparison of Ramapo's Salary Data (as an Educational Service) to those of total Bergen County and New Jersey Salaries

Derivation of Ratios between Salaries -- Multiplying corresponding ratios to total GDP generated by Bergen County and the State as a Whole

Salary/Wage Data Retrieved from the Bureau of Labor Statistics (BLS)

Gross Domestic Product (GDP) data Retrieved from the Bureau of Economic Analysis (BEA)

Pitfalls in Gathering Data: Discussed in Presentation

The *Direct* Impact of Ramapo College: Value-Added Approach

Full Year 2016	
All Revenues	$153,589,454.00
Interest Income	$141,892.00
Total Sales	**$153,447,562.00**
Non-Salary Expenses	$55,223,691.00
Debt Service	$16,729,077.00
Total Purchases (2016)	**$38,494,614.00**
Total GDP Generated	$114,952,948.00

Full Year 2017	
All Revenues	$158,516,282.00
Interest Income	$218,234.00
Total Sales	**$158,298,048.00**
Non-Salary Expenses	$56,201,958.00
Debt Service	$16,855,085.00
Total Purchases (2017)	**$39,346,873.00**
Total GDP Generated	$118,951,175.00

Full Year 2018	
All Revenues	$160,301,391.00
Interest Income	$468,688.00
Total Sales	**$159,832,703.00**
Non-Salary Expenses	$57,948,163.00
Debt Service	$17,779,566.00
Total Purchases (2018)	**$40,168,597.00**
Total GDP Generated	$119,664,106.00

The *Direct* Impact of Ramapo College: Income Generated Approach

Full Year 2016	
Total Salaries and Wages	**$90,237,342.00**
Debt Service	$16,729,077.00
Interest Earned	$141,892.00
Total Difference	**$16,587,185.00**
Rentals	$871,289.00
Leases	$106,404.00
Total (Rentals + Leases)	**$977,693.00**
Depreciation of Capital	$16,000,000.00
Total GDP Generated	$123,802,220

Full Year 2017	
Total Salaries and Wages	**$92,445,132.00**
Debt Service	$16,855,085.00
Interest Earned	$218,234.00
Total Difference	**$16,636,851.00**
Rentals	$857,531.00
Leases	$106,379.00
Total (Rentals + Leases)	**$963,910.00**
Depreciation of Capital	$16,000,000.00
Total GDP Generated	$126,045,893

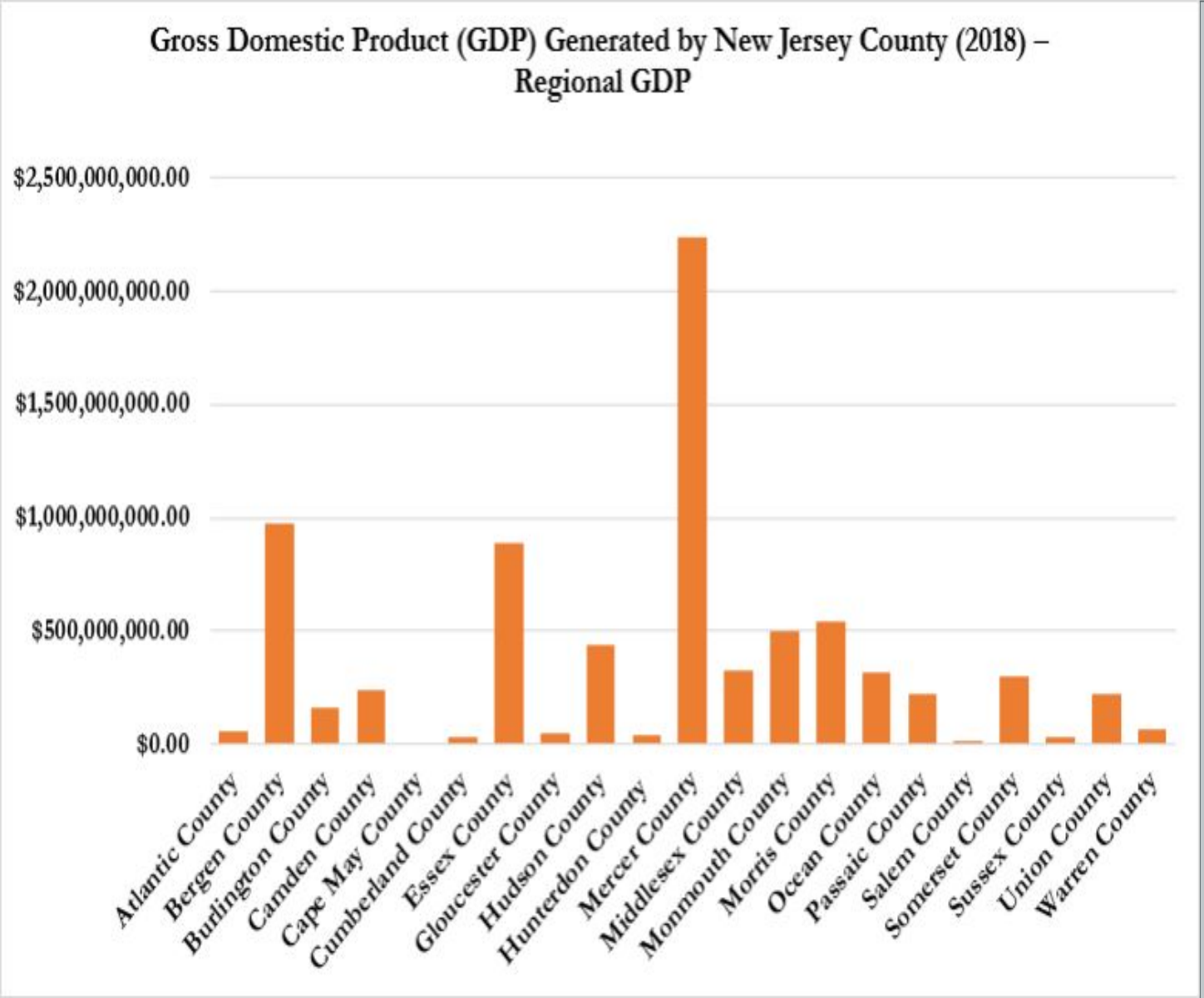
Full Year 2018	
Total Salaries and Wages	**$98,406,126.00**
Debt Service	$17,779,566.00
Interest Earned	$468,688.00
Total Difference	**$17,310,878.00**
Rentals	$982,249.00
Leases	$111,387.00
Total (Rentals + Leases)	**$1,093,636.00**
Depreciation of Capital	$16,000,000.00
Total GDP Generated	$132,810,640

The *Direct* Impact of Ramapo College: Sector Comparison Approach – Research Stumbling Blocks

- The Bureau of Labor Statistics (BLS) presents incomplete wage and salary data by county and industry:
  - Either only several counties' figures are presented, or none at all
- While the Bureau of Economic Analysis (BEA) provided data on the Gross Domestic Product generated by Government Enterprises in each county, the BLS did not present an industry entitled "Government Enterprises"
  - We thus decided to rely on the industry referred to as "Educational Services" – This most certainly includes Ramapo College– Both organizations (BEA and BLS) shared this same industry option when deriving data
- BLS' data regarding state-wide wages and salaries paid for Educational Services were *not* incomplete – Thus, we were able to derive a ratio of Ramapo College's wages and salaries to those of the State for each year and then multiply such ratios by the GDP of New Jersey's Educational Services – To derive an estimate of Ramapo College's GDP

BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

U.S. BUREAU OF LABOR STATISTICS



Such Data was also Compiled for 2016 and 2017

Bureau of Economic Analysis (BEA)

These numbers are particularly concerned with the Gross Domestic Product (GDP) generated through the provision of Educational Services

Ramapo College is indeed a Public Entity in that it is governed by State Government Officials

The Bureau of Economic Analysis also provided GDP generated by government entities – But the Bureau of Labor Statistics presented limited data in relation to such state organizations

Bergen County's corresponding GDP levels ranked at number two between 2016 and 2018 – GDP generated:

- 2016 = $895,301,000.00
- 2017 = $886,768,000.00
- 2018 = $976,157,000.00

**Mercer County produced the highest levels of GDP for each year:

- 2016 = $2,141,419,000.00
- 2017 = $2,164,953,000.00
- 2018 = $2,240,062,000.00

The *Direct* Impact of Ramapo College: Sector Comparison Approach

Full Year 2016	
Salaries and Wages	$90,237,342.00
Employee Benefits	$26,374,440.00
Total Difference = Ramapo's Salary	**$63,862,902.00**
Total State Government Salary/Average Wages (Educational Services)	**$2,914,108,000.00**
Ratio of Ramapo's Salary to State Government Salary (Educational Services)	**2.1915%**
	Multiplied by…
Total GDP Generated by State Government (Educational Services)	**$7,470,647,000.00**
Ramapo's Generated GDP	$163,719,806.28

Full Year 2017	
Salaries and Wages	$92,445,132.00
Employee Benefits	$28,104,274.00
Total Difference = Ramapo's Salary	**$64,340,858.00**
Total State Government Salary/Average Wages (Educational Services)	**$3,040,708,000.00**
Ratio of Ramapo's Salary to State Government Salary (Educational Services)	**2.1160%**
	Multiplied by…
Total GDP Generated by State Government (Educational Services)	**$7,458,787,000.00**
Ramapo's Generated GDP	$157,826,649.33

The *Direct* Impact of Ramapo College: Sector Comparison Approach (Cont.d)

	Full Year 2018
Salaries and Wages	$98,406,126.00
Employee Benefits	$30,536,149.00
Total Difference = Ramapo's Salary	**$67,869,977.00**
Total State Government Salary/Average Wages (Educational Services)	**$3,172,700,000.00**
Ratio of Ramapo's Salary to State Government Salary (Educational Services)	**2.1392%**
	Multiplied by...
Total GDP Generated by State Government (Educational Services)	**$7,654,573,000.00**
Ramapo's Generated GDP	$163,745,608.93

- We decided to average out the GDP estimates derived from all three approaches for each of the three years (2016 to 2018)
- 2016 GDP Calculations:
  - Value-Added Approach: $114,952,948.00
  - Income Generated Approach: $123,802,220.00
  - Sector Comparison Approach: $163,719,806.28
  - Average: $134,158,324.76
- 2017 GDP Calculations:
  - Value-Added Approach: $118,951,175.00
  - Income Generated Approach: $126,045,893.00
  - Sector Comparison Approach: $157,826,649.33
  - Average: $134,274,572.44
- 2018 GDP Calculations:
  - Value-Added Approach: $119,664,106.00
  - Income Generated Approach: $132,810,640.00
  - Sector Comparison Approach: $163,745,608.93
  - Average: $138,740,118.31

Ramapo's direct Gross Domestic Product (GDP) contributions increased by 3.326% from 2017 to 2018

The Multiplier's Conceptual Origins

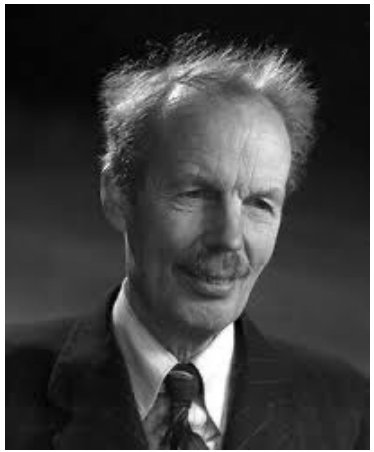
One of the earliest mentions of the theoretical underpinnings of the Multiplier Effect came from economist Bagehot in the latter parts of the 19th century.

Bagehot first noted that in an economic system beyond a mere subsistence model, where interdependent labour is present, the potential exists for a loss suffered by one agent to "spread and multiply" through all agents.

Indeed, in many of the original conceptualizations of possible multiplier effects, the ramifications were typically interpreted insofar as they could be applied to contractionary economic movements as opposed to expansionary ones.

The Multiplier Begins To Emerge

Pigou asserted that a given number of men set to work in producing a consumable product would have the potential to create jobs beyond the initial injection (the initial injection here being the original number of men employed)



In the 1920s, Professor Pigou attempted to hypothesize in which the government might attempt to decrease unemployment wherein an inchoate multiplier effect may occur.

The main advancement made in this hypothesis came in Pigou's delineation of the separate impacts that may be produced if the government opines to employ a specified number of men to produce a consumable good as opposed to a non-consumable item (referring to an item that cannot be purchased thereafter).

The Multiplier Begins to Emerge (Continued)

Eventually when Mund took up the mantle, a more extensive analysis of the Multiplier effect was applied to incomes accumulated by factory workers.

Mund postulated that an immense increase in demand for the goods produced in Company A (without any proportional decreases in demand of other goods) would increase the total incomes earned by laborers in the factory (as more are hired).

This increased total income leads to a subsequent increase in demand for goods produced by other companies (as the new workers now demand additional food, clothing, appliances, etc.)

Therefore, the original increase in demand for the product produced by Company A has ramifications that increase the demand for Company B and so on.

What is the Multiplier Theory? Implications

The theory of the multiplier essentially postulates that the increase in demand for a commodity propagates an expansionary process which eventually is transmitted through the entire economy.

The multiplier itself is an attempt to numerically capture the effects of this process, hence providing a quantitative measurement of the process mentioned above. It attempts to capture the total effects produced from an initial injection by deriving a multiple which may then be applied to that initial injection in order to determine its complete effect on an economy.

Estimating A Reasonable Range For The Multiplier

Various colleges have produced a wide array of Multipliers in attempting to measure the total economic impact their institution has on the economy. Frankly, many of these estimations are overwrought (especially when they are in excess of five, which is in itself rather excessive).

Rutgers University produced a Multiplier of just over one which seems as legitimate and sober an estimate as can be reasonably expected. Since Rutgers University has a far larger research component than does Ramapo College, we would expect our own multiplier to be less than this (perhaps considerably so).

Therefore we conclude that a reasonable range for Ramapo College's Multiplier would be between one and two (most likely the lower end of this range).

Implications Of The Estimated Range (Between One and Two)

1. Were the Multiplier for Ramapo College found to be one, then we would conclude that Ramapo College's economic impact on the surrounding community is no greater than its direct impact. An impact of $119,664,106 (Value-Added Approach) for the year 2018.

2. If it were discovered to be two (as was the case in "A College and its Community: The Economic Impact of Ramapo College" by Professors Raciti, Johnson and May); the total impact would be $239,328,212.

3. Finally, a Multiplier estimation of 1.3 is what we expect to be a more likely Multiplier for Ramapo than either of the previous extremes. A Multiplier of 1.3 would set Ramapo's total impact at $155,563,338.

Other Considerations Worth Mentioning

Ramapo's economic impact should be interpreted with caution. The estimations of such impacts are reliant upon the degree of localization (of the region being analyzed).

To Illustrate: The bars, grocery stores and restaurants in close proximity to Ramapo College are likely to reap the benefits of the college's existence (as it draws in students from other regions to this area). However the broader we make the geographic scope, the more dubious is Ramapo College's impact.

It is worth mentioning that the benefits accrued to the bars, grocery stores, and restaurants in the region local to Ramapo College would have likely been received by similar businesses in other areas if the college had never been founded.

References Utilized (MLA Citation Style)

"Bureau of Economic Analysis." *U.S. Bureau of Economic Analysis,* U.S. Bureau of Economic Analysis (BEA), 2020, www.bea.gov/.

Irving, Will, and Michael L. Lahr. "Contribution of Rutgers University to the New Jersey Economy." Rutgers University – Edward J. Bloustein School of Planning and Public Policy, 2017.

Raciti et al. "A College and Its Community: The Economic Impact of Ramapo College." 1982.

"U.S. Bureau of Labor Statistics – Quarterly Census of Employment and Wages (QCEW)." *U.S. Bureau of Labor Statistics,* U.S. Bureau of Labor Statistics (BLS), 2020, www.bls.gov/.

Wright, A. LL. "The Genesis of the Multiplier Theory." *Oxford University Press,* 1956.