EBA Business Education & Accreditation

VOLUME 12 NUMBER 1 2020

CONTENTS

# Business Education & Accreditation




Business Education & Accreditation, ISSN: 1944-5903 (print) and ISSN: 2157-0809 (online) publishes high-quality articles in all areas of business education, accreditation and related fields. Theoretical, empirical and applied manuscripts are welcome for publication consideration. The Journal is published once per year by the Institute for Business and Finance Research, LLC. All papers submitted to the Journal are blind reviewed. The Journal is distributed in print and through EBSCO*Host,* SSRN and RePEc.





This Journal is the result of the collective work of many individuals. The Editors thank the members of the Editorial Board, ad-hoc reviewers and individuals that have submitted their research to the Journal for publication consideration.





**ISSN : 1944-5903 (print) and ISSN: 2157-0809 (online)**

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 1-12
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# WHY UNIVERSITIES HAVE DIFFERENT GRADUATION RATES THAN PREDICTED: A RESIDUAL ANALYSIS APPROACH

Jeff Anstine, North Central College

**ABSTRACT**

*This paper examines differences in graduation rates at colleges and universities using both quantitative and qualitative analysis. Building on previous research this paper first uses regression equations to predict what variables influence graduation rates. After controlling for dozens of variables such as standardized test scores, this analysis then looks directly at those schools with significantly higher or lower predicted values. These schools are examined to see what variables might be important in determining graduation rates that are not easily quantified or are just not in data sets. In the quantitative section, results confirm that socioeconomic status, selectivity and other well-established variables highly influence graduation rates. The qualitative research suggests that information such as how well known schools are may influence outcomes, such as those with visible sports teams over-perform smaller, less well-known schools that do not have a visibility beyond academics.*

**JEL:** A20, A22, Z18

**KEYWORDS:** Graduation Rates, Colleges, Universities, Higher Education

## INTRODUCTION

As tuition rates at institutions of higher education in the United States have soared over the past two decades, students, parents and the general public have increasingly questioned the value of a college degree. Like it or not, stakeholders in academia need to address the legitimate concerns about affordability, retention, student debt, job opportunities and other challenges facing colleges and universities in the United States. There are a variety of approaches that can be used to examine these issues and potential solutions for them. Various disciplines use different techniques to study the organizations, including those in higher education.

The discipline of management examines all organizations, corporations, government agencies and non-profit organizations. It broadly looks at effectiveness, picking and obtaining organizational goals and efficiency, how well resources are used. In higher education, efficiency can be calculated with items like student to faculty ratios, teaching load, dollars spent per student credit hour and other numerical measures. Recently, in the *Chronicle of Higher Education*, Tugend (2019) discusses universities in the U.S. that are most efficient. In addition, while it is far from a perfect metric, effectiveness can be evaluated by graduation rates at schools after accounting for structural, selectivity and other institutional variables that vary significantly across institutions. (Comparing an Ivy League school with enormous endowments and other means to Historically Black Colleges and Universities with far less resources is like comparing apples and oranges.)

This research is unique and contributes to the existing literature because it combines elements of both quantitative and qualitative analysis whereas all previous investigations only use one. Prior quantitative

analysis uses regression to explain which variables impact graduation rates but do not delve into what missing variables in their models may cause differences. Qualitative research only focuses on observable characteristics at one or a few schools. This inquiry is the first to combine the two by first running regressions to determine variables that influence graduation rates and then looking at residuals of specific colleges and universities to see what variables not in the model explain the high or low difference from predicted graduation rates. While this research is unique, it is the third in a series. In the first paper I had a national data set with about 1,400 schools. This paper uses the same data set, but differently from the second paper in this series that is described in the data section.

In the following pages, I provide an overview of information on the value of college, then provide a literature review for both quantitative and qualitative research. I describe the data used in the analysis, followed by the results of the regressions. Next, I use the information on the schools that have the largest residuals to examine potential variables that these schools have, such as having four credit-hour classes, which are not in the model that might explain differences in their predicted and actual graduation rates. I finish the paper with how my results add to the literature and how qualitative analysis might add to the quantitative research in the future.

## LITERATURE REVIEW

Over the past few decades there has been quite a bit of research looking at factors influencing colleges and universities graduation rates. Recently, there is a growing body of information examining Returns on Investment (ROI) and what colleges offer the best value for students. Over the past few years, Money Magazine (Mulhere and Glum, 2018) has ranked schools according to the best colleges for your money. They rate schools based on three categories: educational quality, affordability and alumni financial success. Affordability is obviously direct expenses, alumni success is the monetary premium the schools graduates have over other similar schools and quality is based on graduations rates compared to other comparable schools. Thus, schools that cost less and have higher graduation rates compared to other similar schools with comparable demographics are better values than their peers are.

In an attempt to make sure that funding is used well, some states are tying money given to colleges based on the schools graduation rates. Hester and Ishitani (2018) try to address the effectiveness of this by looking at different expenditures, on instruction, research, public service, academic support and student services. Using data from the Integrated Postsecondary Education Data System (IPEDS) and then controlling for variables like standardized test scores and region, they found that only spending on instruction increased graduation rates at public colleges and universities. There was no significant increase in graduation rates with more money spent on research, public service or surprisingly money spent on student services.

This paper uses both quantitative analysis with regression and qualitative investigation by looking directly at specific colleges campuses and their websites. Thus, the next part of the literature review examines 'hard' research and the last section will provide an overview of some of the 'soft' papers. It is interesting, and not surprising, that the quantitative research is by physicists', mathematicians' and economists' while the qualitative investigations is by people in sociology and psychology.

Anstine (2013) studied approximately 1,400 colleges and universities and found that the percentage of faculty that is full-time positively affect graduation rates, and that liberal arts colleges' research and masters' universities have higher rates graduation than comprehensive ones. Learning communities and teaching centers at schools do not improve graduation rates. However, if they type of institution is broken down, the existence of learning communities does improve graduation rates at comprehensive universities but not at other types of schools.

Pike and Graunke (2015) provide one of the few studies on factors impacting graduation rates using sophisticated econometrics. One problem with using regression analysis is that there are likely important explanatory variables that could or should be included in the models but are unavailable. The authors do control for variables that have been shown to be extremely important such as standardized test scores and if the school is public or private. Then they use a fixed effect model to control for other factors that are not included.

Ober et. al. (2018) also use IPEDS data but narrow the schools to some two-year and approximately 500 four-year public institutions only from the years 2000 to 2015. They use a logistic growth function model that has been shown to accurately predict graduation rates at colleges and universities. In addition to confirming that family variables such as socioeconomic status and ethnicity highly impact graduation rates, schools with higher percentages of full-time students also have higher graduation rates than those with lower percentages of full-time students.

One of the most comprehensive studies on factors predicting graduation rates was by Horn and Lee (2016). They looked at approximately 1,500 colleges and universities. They broke the explanatory variables into four categories; structural (characteristics that do not change over time), demographic, financial and contextual (characteristics of the community around the school such as degree of urbanization and unemployment rates). Their results confirm that private schools have higher graduation rates than public and the more selective a school is, the higher its graduation rate.

There are many more papers looking at graduation rates at institutions of higher education using qualitative than quantitative analysis. Although many of these papers use data, it is very different from the research with large data sets. One example is Scott (2017) who asked twenty-one psychology students in upper level seminar classes about their perceptions of a college degree. The students who were predominantly white and economically well-off said that they were confident that their education prepared them for future work.

Einbinder (2018) examines eight faculty members at California State University Dominguez Hills after a one-semester experience in one type of High Impact Practice (HIP). The faculty, including the author, were put into a Faculty Learning Community where they were trained to incorporate collaborative teaching techniques into their courses and then say if it helped students learn more than they would otherwise. Seven of the faculty said they were able to incorporate the technique in their classes and four of them thought that it made them better teachers, while the other three did not think it improved their teaching.

Both Scott (2017) and Einbinder (2018) discuss the limitations of qualitative research. One is that the data uses convenience samples, so the students and/or faculty involved in the studies are not representative of not just the population in general but not even of the schools where the study is done. In addition, the studies tend to have very small sample sizes so projecting the results to other students and faculty is not applicable. Thus, assessing the validity and reliability of the studies is difficulty, if not impossible.

The research in this paper adds to the literature by first conducting quantitative analysis that is valid and reliable. First, I estimate regressions controlling for relevant characteristics that have been shown to impact graduation rates in previous studies, like socio-economic status, standardized test scores, type of school and ethnicity. Then using these variables, I compare each schools actual graduation rate to its predicted one. Then, I look at the schools with the largest differences, both higher and lower and conduct qualitative analysis, looking directly at these schools to find characteristics of importance that are not in the data used for the regression analysis.

## DATA AND METHODOLOGY

Data for this paper was gathered and used based on previous research in this area. It is from the same source as Anstine and Seidman (2017) but is slightly different. Schools Average ACT is in this data set while the ACT scores of students in the 25$^{th}$ and 75$^{th}$ percentiles was used in the earlier paper. Thus, based on the information in the literature review, I included variables that have the largest impacts on graduation rates while also including others that matter to control for the largest factors. Data was gathered from a variety of sources staring with the U.S. Department of Education. All data was gathered in 2016. The Integrated Post-Secondary Education Data System (IPEDS) gathers information from four-year institutions on graduation rates, retention, standardized test scores and dozens of other variables.

In addition, some variables were calculated directly by the author, such as if the school is public or private and the location of each school, urban, suburban or rural. All of the information was compiled in 2016. Since gathering data from all of the colleges and universities in the United States is a cumbersome, time-consuming process, the author narrowed the data to institutions of higher education in the Mid-West only. Thus, the author identified all four-year schools in Iowa, Illinois, Indiana, Kentucky, Michigan, Minnesota, Missouri, Ohio and Wisconsin. Also, The Chronicle of Higher Education provided data on faculty salaries. The data set ended up with 283 schools, thus 283 observations. Specialty schools (Culinary, Art and Design), Seminaries, for-profit institutions, and other non-traditional schools were excluded from the analysis.

I started with over 100 variables. Due to multicollinearity and overlap of information not all were included in the analysis. Variables such as the percentage of students that use the GI Bill were excluded because many schools did not report this. Due to the large number of variables, the descriptive statistics are broken into two tables. Table 1 summarizes time invariant variables and those related to quality. Time invariant are variables that do not change over time such as the type of school, or might change but would do so very slowly such as location measured by population density. Most schools, one hundred sixty-one are regional. Over two-thirds, sixty-seven percent are private. Approximately twenty-five percent of the schools are in rural areas and suburbia with just under fifty percent in cities. The number of schools corresponds closely to state populations with the most schools in Illinois and the fewest in Iowa.

Table 2 provides more information on different variables. Demographic characteristics provide information on the percentage of students in each school who are female, over twenty-five, out of state or from a country other than the U.S and ethnicity. Faculty information shows the percentage of faculty and employees who are full time and the average salary for Associate Professors. The student variables are intended to capture how 'connected' students are to their campus, such as the percentage that are on campus on the weekends, percent who live on campus and percent full-time. The financial variables provide an indication of how well-off the student body is and how stable the schools finances are. The percentage of students who receive Pell Grants shows the socio-economic status of the student body and Per Capita Endowment can be a proxy for the wealth of a school.

Table 1: Description of Variables

| Variable | Description of Variables | Data Source | Numb Obs | Min | Max | Mean | Number |
|---|---|---|---|---|---|---|---|
| GradRate | Graduation rate at each school. | IPEDS | 283 | 0.08 | 0.96 | 0.577 | |
| **TIME INVARIANT** | | | | | | | |
| Regional | If the school is a regional university (yes=1) | Carnegie Foundation | 283 | 0 | 1 | 0.57 | 161 |
| LibArt | If the school is a Liberal Arts College (yes=1) | Carnegie | 283 | 0 | 1 | 0.23 | 64 |
| National | If the school is a national university (yes=1) | Carnegie | 283 | 0 | 1 | 0.20 | 58 |
| Private | If the school is Private (yes=1) | Author | 283 | 0 | 1 | 0.67 | 191 |
| Urban | If the school is in an urban location (yes=1) | Author | 283 | 0 | 1 | 0.46 | 130 |
| Suburban | If the school is suburban (yes=1) | Author | 283 | 0 | 1 | 0.25 | 71 |
| Rural | If the school is in a rural location (yes=1) | Author | 283 | 0 | 1 | 0.29 | 81 |
| IA | If the school is in Iowa (yes=1) | Author | 283 | 0 | 1 | 0.08 | 24 |
| IL | If the school is in Illinois (yes=1) | Author | 283 | 0 | 1 | 0.16 | 46 |
| IN | If the school is in Indiana (yes=1) | Author | 283 | 0 | 1 | 0.12 | 35 |
| KY | If the schools is in Kentucky (yes=1) | Author | 283 | 0 | 1 | 0.09 | 25 |
| MI | If the school is in Michigan (yes=1) | Author | 283 | 0 | 1 | 0.11 | 32 |
| MN | If the schools is in Minnesota (yes=1) | Author | 283 | 0 | 1 | 0.08 | 23 |
| MO | If the school is in Missouri (yes=1) | Author | 283 | 0 | 1 | 0.11 | 30 |
| OH | If the school is in Ohio (yes=1) | Author | 283 | 0 | 1 | 0.14 | 40 |
| WI | If the school is in Wisconsin (yes=1) | Author | 283 | 0 | 1 | 0.10 | 28 |
| **QUALITY** | | | | | | | |
| Retention | The percentage of first-time, full-time undergraduate students who returned to school for their second year. | IPEDS | 283 | 0.46 | 0.99 | 0.764 | |
| PerClsU20 | Percentage of classes with fewer than 20 students | IPEDS | 283 | 0.234 | 0.94 | 0.570 | |
| PerClsO50 | Percentage of classes with more than 50 students | IPEDS | 283 | 0 | 0.62 | 0.041 | |
| StudFac | Student faculty ratio | IPEDS | 283 | 6 | 26 | 14.01 | |
| AccpRate | Percent of students accepted out of those who applied | IPEDS | 283 | 0.07 | 1 | 0.688 | |
| AveACT | The Average ACT scores of entering students. | IPEDS | 283 | 16 | 33 | 23.38 | |
| Fresh10 | Percentage of students who were in the top 10 percent of their high school class | IPEDS | 283 | 0.02 | 0.98 | 0.225 | |
| Fresh25 | Percent of students who were in the top 25 percent of their high school class | IPEDS | 283 | 0.09 | 1 | 0.474 | |

*The first and second columns in this table lists and defines the time invariant and quality variables. Time invariant variables are those that do not change over time. Quality variables provide information on retention, size of classes and average ACT scores. Data source is listed next, followed by the lowest and highest values. The last two columns average values and the number of observations if it is a categorical variable. This data is similar to that used in earlier research in a paper by Anstine and Seidman (2017).*

Table 2: Description of Variables

| Variable | Description of Variables | Data Source | Numb Obs | Min | Max | Mean |
|---|---|---|---|---|---|---|
| **DEMOGRAPHIC** | | | | | | |
| PerFemale | Percentage of students who are Female | IPEDS | 283 | 0 | 1 | 0.557 |
| Over25 | Percentage of students who are over 25 | IPEDS | 283 | 0 | 0.7 | 0.137 |
| OutState | Percentage of students who are out of state | IPEDS | 283 | 0 | 0.93 | 0.274 |
| Interntl | Percentage of students from another country. Those who originated in another country | IPEDS | 283 | 0 | 0.3 | 0.040 |
| Black | Percentage of students who reported Black | IPEDS | 283 | 0 | 0.83 | 0.081 |
| Asian | Percentage of students who reported Asian | IPEDS | 283 | 0 | 0.23 | 0.028 |
| Hispnc | Percentage of students who are Hispanic | IPEDS | 283 | 0 | 0.44 | 0.058 |
| White | Percentage of students who reported White | IPEDS | 283 | 0.25 | 0.97 | 0.727 |
| Other | Percentage of students who reported as Native American, Pacific Islander, Multiracial, or did not report | IPEDS | 283 | 0 | 0.3 | 0.067 |
| **FACULTY** | | | | | | |
| PerFTFac | Percent of faculty that is full time | IPEDS | 283 | 0.249 | 1 | 0.790 |
| PerinstrFT | Percentage of employees on instruction, research or service who are full-time | IPEDS | 283 | 0.109 | 1 | 0.599 |
| SasocProf | Average Associate Professor Salary | Chronicle of Higher Education | 283 | 36,549 | 117,600 | 66,147 |
| **STUDENT** | | | | | | |
| Students | Number of undergraduate students | IPEDS | 283 | 543 | 44,201 | 6,005 |
| WkendCmps | Percentage of students who are on campus on the weekends | IPEDS | 228 | 0 | 0.99 | 0.606 |
| PerLiveOn | Percentage of students who live in campus housing | IPEDS | 278 | 0 | 1 | 0.502 |
| PerStudFT | Percentage of undergraduates who attend full-time | IPEDS | 283 | 0.007 | 1 | 0.834 |
| **FINANCIAL** | | | | | | |
| PerHaveNBA | Percent determined to have financial need | IPEDS | 275 | 0.37 | 1 | 0.717 |
| PerFullMet | Percent who had need fully met | IPEDS | 268 | 0 | 1 | 0.252 |
| Pellgrant | Percentage of undergraduates receiving a Pell Grant | IPEDS | 282 | 0.062 | 0.926 | 0.342 |
| PerBorrow | Percent of graduating students who have borrowed | IPEDS | 263 | 0.08 | 0.98 | 0.722 |
| PerCapEndow | End-of-year endowment value per full-time equivalent student | IPEDS | 282 | 507 | 950,232 | 45,378 |
| ALUMGvRt | Percentage of alumni who give to the school | IPEDS | 282 | 0.01 | 0.51 | 0.128 |

*The first and second columns in this table lists and defines demographic, faculty, student and financial variables. Demographic variables show student body characteristics. Faculty variables provide an overview of faculty. Student variables are those that indicate how 'connected' students are to their school. Financial variables provide an indication of how well off students are. The data source and number of observations are in the third and fourth columns. The last three columns provide the smallest, largest and average values. This data is similar to that used in earlier research in a paper by Anstine and Seidman (2017).*

## RESULTS

### Quantitative Analysis

The regressions in Table 3 and Table 4 show the impact that different variables, such as Average Act scores have on graduation rates. The graduation rate of school i, depends on variables listed in Tables 1 and 2 and is presented in equation 1.

$$Graduation\ rate i = \beta 0 + \beta 1\ Time\ Invariant + \beta 2\ Quality + \beta 3\ Demographic + \beta 4\ Faculty + \beta 5\ Students + \beta 6\ Financial + \varepsilon i \quad (1)$$

There is a high degree of collinearity between some variables, thus only freshman in the top 10 percent of class was included. The percentage of students having need based aid and the percentage of students getting

Pell Grants are also highly correlated, thus only Pell Grants is included. A total of thirty-one variables were ultimately included in the regression. The variables I picked were selected based on findings in previous research but also include new variables such as Per Capita Endowment.

The regression in Table 3 is consistent with all other literature in the area with respect to important variables. Most major variables are statistically significant. Schools with students with higher standardized test scores have significantly higher graduation rates than those with lower scores. The coefficients for private schools and those with a higher percentage of females are also statistically significant at the 1% level. Schools with a larger portion of students receiving Pell Grants have lower graduation rates. Unfortunately, schools that have more students from lower socio-economic backgrounds are less successful in having their students' complete college. And schools with a higher percentage of Black students have lower graduation rates.

Table 3: OLS Regression: Dependent Variable: Graduation Rate

| Independent Variables | Coefficients | Standard Error | T-Statistics |
|---|---|---|---|
| Intercept | -0.337 | 0.104 | -3.234 |
| LibArt | 0.007 | 0.013 | 0.532 |
| National | 0.005 | 0.014 | 0.382 |
| Private | 0.076 | 0.018 | 4.292*** |
| Urban | 0-.004 | 0.010 | -0.413 |
| Suburban | 0.007 | 0.012 | 0.597 |
| IA | 0.022 | 0.020 | 1.09 |
| IN | 0.009 | 0.021 | 0.45 |
| KY | -0.074 | 0.020 | -3.717*** |
| MI | -0.014 | 0.017 | -0.819 |
| MN | 0.022 | 0.020 | 1.086 |
| MO | -0.0007 | 0.019 | -0.351 |
| OH | -0.004 | 0.017 | -0.221 |
| WI | 0.027 | 0.019 | 1.472* |
| PerClsU20 | -0.049 | 0.041 | -1.195 |
| AveACT | 0.025 | 0.004 | 6.411*** |
| Fresh10 | 0.107 | 0.068 | 1.567* |
| PerFemale | 0.139 | 0.041 | 3.398*** |
| OutState | -0.060 | 0.027 | -2.192*** |
| Interntl | 0.089 | 0.119 | 0.749 |
| Black | -0.146 | 0.067 | -2.174*** |
| Asian | -0.273 | 0.177 | -1.539 |
| Hispnc | 0.093 | 0.096 | 0.967 |
| Other | -0.028 | 0.100 | -0.28 |
| PerFTFac | 0.093 | 0.048 | 1.942*** |
| SalAssocProf | 0.0000001 | 0.000 | 1.478** |
| Students | 0.000003 | 0.000 | 3.366*** |
| PerLiveOn | 0.076 | 0.028 | 2.733*** |
| PerStudFT | 0.001 | 0.000 | 2.211*** |
| PellGrant | -0.001 | 0.000 | -2.856*** |
| PerCapEndow | -0.000000006 | 0.000 | -0.11 |
| AlmnGivRt | 0.158 | 0.081 | 1.958*** |
| Number of Obs | 283 | | |
| R-Squared | 0.863 | | |
| Adjusted R-Squared | 0.848 | | |
| F-Statistic | 50.9 | | |

*This table shows the regression: Graduation ratei = β0 + β1 Time Invariant + β2 Quality + β3 Demographic + β4 Faculty + β5 Students + β6 Financial + εi .The levels of statistical significance are: * at the 10% level, ** at the 5% level, *** at the 1% level. The excluded categories for the type of school is Regional (keeping Liberal Arts and National). Illinois is excluded for the different states. For ethnicity: Black, Asian and Hispanic are included and White is not.*

For this data set focusing on the Mid-West, colleges in Kentucky have lower graduation rates than those in other states. Intuitively this makes sense, while almost all institutions of higher education have seen their budgets cut over the previous decade; schools in some states such as Kentucky have had theirs cut more than others have. It is not surprising that less spending would contribute to lower graduation rates, compared to schools in other states.

I also have unique variables in this data set that are not in other studies. The signs of the coefficients and the levels of statistical significance conform to expectations. The coefficient for the percentage of students living on campus is positive and significant at the one percent level, implying that the more 'connected' students are to their schools the higher the graduation rate, all else constant. The alumni giving coefficient is the same, students that have a better experience likely graduate at higher rates and then tend to give more back to the school.

The F-statistic is about 51 and the R squared for the simple Ordinary Least Squares (OLS) regression is 0.863, (the Adjusted R squared is 0.850) showing that most of the variance in graduation rates is explained by these thirty-four variables. R squared in other studies was around 0.65, with the smallest 0.44 (Gansmer-Topf and Schuh, 2006) to the highest 0.85 (Scott, et al., 2006). My data is at the high end of including relevant variables impacting graduation rates.

Many other regressions were estimated. A Stepwise Regression suggested including almost the exact same variables, but I kept the regression in Table 3 because it conforms more with existing literature. Econometricians (Greene, 1993) have determined that many monetary variables are better estimated in logarithmic form so I transformed those such as per capita endowment. In addition, the percentage of freshman in the top 10 percent of their high school class was found to be increasing at a decreasing rate. Thus, the new regression included it both unchanged and also squared.

Table 4 shows a regression with some variables in logarithmic form with the other variables not transformed. Results are almost identical to those in Table 3. The F-statistic is slightly higher, 53.7 compared to 50.9, again illustrating that the model does a very good job explaining graduation rates. R squared is 0.866 (Adjusted R Squared is 0.848), compared to 0.863 and 0.850, showing that a large percentage of the variation in graduation rates in Midwestern schools is explained by the independent variables.

The results in Table 4 are comparable to those in Table 3. There were some trivial changes in a few coefficients, such as the sign on the Kentucky variable going from -0.074 to -0.093 but the level of statistical significance did not vary. Thus, the results, such as public schools having a lower graduation rates than private and demographic, such as schools with a lower percentage of males having a lower graduation rates, is the same as previous studies.

All of the current quantitative research on graduations rates at institutions of higher education stops after analyzing and interpreting the results of the regression. For example, Anstine and Seidman (2017) find that financial variables are more important than social variables, such as the percentage of students in Fraternities and Sororities in influencing graduation rates. This paper extends the analysis looking at the differences between actual and predicted graduation rates and looking at potential reasons why in the next section.

Table 4: OLS Regression: Dependent Variable: Graduation Rate, Some Variables Transformed

| Independent Variables | Coefficients | Standard Error | T-Statistics |
|---|---|---|---|
| Intercept | 0-.337 | 0.104 | |
| LibArt | 0.015 | 0.013 | 1.094 |
| National | 0.001 | 0.014 | 0.099 |
| Private | 0.083 | 0.019 | 4.317*** |
| Urban | -0.010 | 0.010 | -0.940 |
| Suburban | 0.008 | 0.012 | 0.646 |
| IA | 0.015 | 0.020 | 0.758 |
| IN | -0.001 | 0.020 | -0.033 |
| KY | -0.093 | 0.020 | -4.758*** |
| MI | -0.018 | 0.017 | -1.068 |
| MN | 0.021 | 0.019 | 1.060 |
| MO | -0.023 | 0.019 | -1.213 |
| OH | -0.011 | 0.017 | -0.643 |
| WI | 0.018 | 0.019 | 0.985 |
| PerClsU20 | -0.005 | 0.045 | -0.105 |
| AveACT | 0.025 | 0.004 | 6.569*** |
| Fresh10 | 0.265 | 0.113 | 2.345*** |
| Fr10Sqrd | -0.207 | 0.106 | -1.961*** |
| PerFemale | 0.080 | 0.042 | 1.916*** |
| OutState | -0.040 | 0.027 | -1.455** |
| Interntl | 0.017 | 0.119 | 0.142 |
| Black | -0.136 | 0.065 | -2.086*** |
| Asian | -0.237 | 0.176 | -1.346 |
| Hispnc | 0.110 | 0.095 | 1.156 |
| Other | -0.027 | 0.099 | -0.271 |
| PerFTFac | 0.103 | 0.047 | 2.183*** |
| LnStudents | 0.044 | 0.010 | 4.237*** |
| PerLiveOn | 0.060 | 0.027 | 2.194*** |
| LnEndow | 0.005 | 0.006 | 0.927 |
| LnGiving | 0.040 | 0.009 | 4.267*** |
| LnSalary | 0.017 | 0.040 | 0.423 |
| Number of Obs | 283 | | |
| R-Squared | 0.866 | | |
| Adjusted R-Squared | 0.850 | | |
| F-Statistic | 53.7 | | |

*This table shows a regression with the graduation rate as the dependent variable as a function of independent variables.*
*Graduation ratei = β0 + β1 Time Invariant + β2 Quality + β3 Demographic + β4 Faculty + β5 Students + β6 Financial + εi*
*Some variables have been transformed. The percentage of students in the top 10 percent has been squared. The number of students, per capita endowment, alumni giving and faculty salaries have been transformed into logarithms. For the qualitative variables with more than two options the excluded categories are as follows: a Regional, b: Rural, c: Illinois, d: White, The levels of statistical significance are: * at the 10% level, ** at the 5% level, *** at the 1% level.*

## Qualitative Analysis

The R squared for the first (OLS) regression is 0.863, and 0.866 for the second regression. Because they are so similar, I will use the first one for the qualitative analysis. Theoretically, an R-squared of 0.863 shows that 86.3 percent of graduation rates is explained by the thirty-four explanatory variables in the model. Hence, 13.7 percent is not explained.

Forty schools are within one percentage of their predicted graduation rate being equal to their actual graduation rate. There do not seem to be any major differences between these schools. There are large, public, Research 1 (University of Illinois- Urbana, slightly above and University of Missouri, slightly below and small, private ones (Loras College in Iowa and Judson in Illinois).

In examining the characteristics of schools with largest positive difference between their predicted and actual graduation rates, two stand out, the University of Wisconsin-Madison and Perdue University are well known, 'name universities. Otherwise, there does not seem to be any 'magic bullet' for schools with higher than predicted graduation rates. They are small, medium and large, public and private in rural, suburban and urban areas. Looking at their academics there is nothing unusual such as offering four-credit hour classes instead of three.

The main characteristic of the ten schools with actual graduation rates significantly below their predicted ones is that none of them is a 'name' school with national recognition (which is not to imply that they are not good schools). In addition, through size of school is included in the regression they are smaller than most other schools with some enrollments under 1,000 students. There is likely some other unobservable or unmeasurable characteristics related to size.

One potential factor that may lead to lower graduation rates is that some of the schools seem to an 'identity crisis.' Brescia University was founded as a Junior College for Women, but then later transformed into a coeducational, four-year school and did not become a university until 1998. Perhaps, male, female or both, students are not comfortable with the schools culture after they arrive on campus. Lindsey Wilson College is listed as a four-year, private institution, but in addition to offering Bachelor's Degrees it also offers two-year associate degrees and Ph.D.'s. Possibly by trying to be all things to different students with different needs and goals the typical four-year degree students are not given the necessary support.

Large, well known schools with huge endowments and extremely stable finances are getting more applications and graduate students at high rates, there are many institutions at the other end who are struggling. Northland College is one of these, thus the Higher Learning Commission has required a financial recovery plan for it. This likely played a large role in it being one the schools with it graduation rate being significantly below its predicted one.

While this research examines some unmeasurable characteristics that likely impact graduation rates, its biggest shortcoming is not addressing all of these potential influences. With the increase in the number of students with depression and other mental illnesses attending college, it is very likely that variables such as the resources provided for mental health impact retention and graduation. In addition, I have not looked at factors such as the existence of, and quality of First-Year seminar classes that may increase retention and graduation rates.

## CONCLUSION

The goal of this paper was to extend previous literature by combining both quantitative and qualitative analysis to determine why some colleges and universities have significantly higher or lower graduation rates than predicted. Data is from The Integrated Post-Secondary Education Data System (IPEDS) and calculated directly by the author, such as the location of each school.

The first part of this research uses regression analysis on dozens of variables, controlling for different characteristics in schools to determine what variables impact graduation rates. Standardized test scores, ethnicity, the type of school, financial viability and socio-economic status predict the majority of differences on graduation rates between institutions of higher education.

The second section on methodology extends the analysis by examining specific schools with either very high or low actual graduation rates compared to their predicted graduation rates. In higher education, in many situations it seems as though the rich are getting richer (Ivy League schools) and the poor, poorer (small regional schools). The qualitative analysis section provides support for this. Some large, well know schools have higher graduation rates than predicted and smaller schools with few resources have lower graduation rates than predicted.

Educators could use this information in the following manner. They would start controlling for differences using econometrics and then focus on specific schools that underperform compared to their peer institutions. Specifically, many institutions apply High Impact Practices (HIPs), but it is likely that there are differences in the how they are implemented and resources provided for them. Qualitative analysis could look at differences, for example, in Professional Advising, after controlling for other relevant variables.

A limitation of this research is that are likely more variables that impact graduation rates that are not in the data set. The qualitative analysis tries to address this, however there are likely other influences determining graduation rates that the author did not see or was unobservable. Thus future research could examine more specific factors at different schools that influence why some schools have significantly lower graduation rates than predicted.

## APPENDIX

This data looks at colleges and universities, that is, post-secondary institutions. The Integrated Post-Secondary Education Data System (IPEDS) defines a postsecondary institution as an organization that is open to the public and has as its primary mission the provision of post-secondary education or training beyond the high school level, NCES, 2016). Colleges and universities provide post-secondary education and while often used interchangeably are different. Officially a college is an educational establishment for higher or professional education. A college is also an independent part of a university. A university is an educational institution, composed of one or more colleges and graduate schools that provides instruction and facilities for research in many branches of advanced learning and awards degrees. While we recognize the difference we use the words interchangeably.

There are slight differences in definitions of the Midwest. The Encyclopedia Britannica calls the "Middle West**,** also called Midwest, or North Central States, region, northern and central United States, lying midway between the Appalachian and Rocky Mountains and north of the Ohio River and the 37th parallel. The Middle West, as defined by the federal government, comprises the states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin." Kansas, Nebraska, North Dakota, and South Dakota are also considered part of the Great Plains and are not included but due to its proximity to the other states we have included Kentucky instead.

## REFERENCES

Anstine, Jeff and Megan Seidman. (2017) "Graduation Rates at U.S. Colleges and Universities In The Midwest," *Business Education & Accreditation* vol. 9(1) p. 43-54.

Anstine, Jeff. (2013) "Graduation Rates at U.S. Colleges and Universities: A Large Data Set Analysis," *Business Education & Accreditation* vol. 5(2) p. 55-64.

Einbinder, Susan. (2018) "A Process and Outcome Evaluation of a On-Semester Faculty Learning Community: How Universities Can Help Faculty Implement High Impact Practices," Insight*: A Journal of Scholarly Teaching* vol. 13 p. 40-58.

Gansmer-Topf, A. M., and Schuh, J. H. (2006) "Institutional Selectivity and Institutional Expenditures: Examining Organizational Factors that Contribute to Retention and Graduation" *Research in Higher Education* vol. 47 p. 613-642.

Greene, William. (1993) "Econometric Analysis," Macmillan Publishing Company, Second edition.

Hester, Brian and Terry Ishitani. (2018) "Institutional expenditures and State Economic Factors Influencing 2012-2014 Public University Graduation Rates." *Planning for Higher Education Journal* vol. 46(4) p. 41-47.

Horn, Aaron, and Giljae Lee. (2016) "The Reliability and Validity of Using Regression Residuals to Measure Institutional Effectiveness in Promoting Degree Completion," *Research In Higher Education* vol. 57(4) p. 469-496.

Mulhere, Kaitlin and Julia Glum. (September, 2018) "The Best Colleges for Your Money." *Money Magazine*, p. 46-55.

National Center for Education Statistics, The Integrated Post-Secondary Education Data System (IPEDS), 2016, retrieved from http://nces.ed.gov/ipeds/

Ober, David, Beekman, John and Rebecca Pierce. (2018) "Analyzing Four-Year Public University and Two-Year College Graduation Rates," Journal of Education and Training Studies vol. 6(4) p 221-247.

Pike, Gary, and Steven Graunke. (2015) "Examining the Effects of Institutional and Cohort Characteristics on Retention Rates," *Research In Higher Education* vol. 56(2) p. 146-165.

Scott, M., Bailey, T., Kienzl, G. (2006) "Relative Success? Determinants of College Graduation Rates in Public and Private Colleges in the U.S. *Research In Higher Education* vol. 47 p. 249-279.

Scott, Paul. (2017) "Student Perception of College Value: Opportunities for Future Research." *Scholarship of Teaching and Learning in Psychology* vol. 5(4) p. 299-303.

Tugend, Alina. (July 19, 2019) "What Does It Mean to Be an Efficient University?" *The Chronicle of Higher Education*. Vol 65 issue 37, p. A9-A11.

## ACKNOWLEDGEMENTS

I would like to thank the two anonymous reviewers and the editor for helpful comments that improved this paper. Any remaining errors is the authors'.

## BIOGRAPHY

Jeff Anstine is a Professor of Quantitative Business and Environmental Management. He teaches a wide range of classes from statistics to environmental economics. His research examines topics in higher education and environmental issues. He can be reached at North Central College in Naperville IL.

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 13-26
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# A PRIMER ON TRADE: REQUIRED CONDITIONS, GAINS, AND CONSEQUENCES

Nicholas Busko, Salisbury University
E. Tylor Claggett, Salisbury University

**ABSTRACT**

*This paper is intended to teach students, business managers, and policy makers about the fundamentals of trade. Whether it is between countries, firms, or individuals, the basics are universal. We start by describing the production possibility frontier. This frontier defines the combinations of maximum possible outputs in a two product system. Such a model can be expanded to more than two products; however, the two product model demonstrates the important aspects of production and avoids unnecessary complexity. Next, we introduces the concept of consumer preferences as this societal attribute determines what is eventually produced and consequently consumed in a closed system without trade. The no trade restriction is then relaxed and the potential advantages of trade are highlighted. Product price ratios must be within a suitable range to allow trade because traders do not typically trade their products directly for other products. These concepts are demonstrated with appropriate graphics. The next two sections state conclusions and policy implications. The paper concludes with suggestions for assessing student learning outcomes. At the end of the paper, there are several example practice problems and solutions related to the paper's content.*

**JEL:** A22, F120, F410

**KEYWORDS:** Undergraduate Teaching, International Trade

## INTRODUCTION

In today's world of commerce, trade (both domestic and international) is integral. The purpose of this paper is to inform the reader of the bases and benefits of international trade because many senior business students, as well as many seasoned business managers, do not fully understand the underlying requirements, advantages, and numerous other facets of trade. This appears especially true in the current political environment given the propensity of politicians to threaten international trading partners with tariffs and quotas. This paper is timely given the present geopolitical trade environment. For example, the recent retaliatory tariffs imposed by China on American grown soybeans have reduced that market 72 percent during the October 2018 – May 2019 period compared to the previous like period. During 2017, US soybean exports to China were valued at $12.3 billion. (Both sources: Economic Research Service of the USDA.) For beneficial trade to occur, certain economic conditions must exist. However, even if the proper economic conditions exist, they are necessary conditions but not sufficient conditions. In addition to the necessary economic conditions, prices and exchange rates must be in place to support trade. This paper outlines and discusses the necessary economic conditions for beneficial trade and then shows why supporting prices and/or exchange rates are also necessary for desired trade to occur. The next section of the paper provides a brief literature review. The third section is a presentation and discussion of the production possibility frontier (PPF). The fourth section combines the PPF with societal preferences. The fifth section introduces the concept of appropriate product prices that support international trade. The sixth and seventh sections state conclusions and policy impactions derived from the previous three sections. The final section contains suggestions that should allow for accessing student learning outcomes. Also, the final

section includes three example practice problems and solutions that illustrate many of the topics discussed in the paper.

## LITERATURE REVIEW

The origin for much of the literature surrounding the concepts featured in this paper come from early 19th century writers such as Robert Torrens and David Ricardo. The theory of comparative advantage is a crucial component of this paper and is well described in Ricardo's seminal work, *On the Principles of Political Economy and Taxation* (1817). In this book, Ricardo is one of the first advocates for free markets and unrestricted international trade. Building upon these beginning, much of the theoretical framework for this paper is based on the Heckscher-Ohlin Theory. The basis of this theory is found in models developed by two Swedish economists - Eli Heckscher and his graduate student, Bertil Ohlin. (See Heckscher, Eli. 1919. "The Effect of Foreign Trade on the Distribution of Income." In *Ekonomisk Tidskrift*. p. 497-512. Bertil Ohlin first explained the theory in a book, *Interregional and International Trade*, published in 1933. Ohlin wrote the book alone, but he credited Heckscher with many of the model's core components, which were derived during Heckscher's prior work. (Heckscher supervised Ohlin's doctoral thesis; from which many of the ideas in the final Heckscher-Ohlin model originated.) Their work has been examined and expanded by many later writers.

Many writers and researchers have since extended these earlier works. First published in 1984, the Handbook of International Economics, edited by Ronald W. Jones and Peter B. Kenan, explains international trade and the results of these transaction. Some of the topics addressed in the first volume of this handbook are: prices for goods and input factors, resource allocation, income distribution, and other microeconomic aspects of international trade. The second volume addresses balance of payments, exchange rate determinants, and other macroeconomic aspects of international trade. A more recent Federal Reserve Bank of Dallas working paper by Giri, Yi, and Yilmazkuday (2018) is technical in nature. It attempts to determine whether higher gains from international trade are derived from more (rather than less) sectorial heterogeneity. In the process, the authors develop a trade model with multiple countries and multiple sectors. Peter Kallis (2015) tested for value-added real actual exchange rates as the result of international trade by countries with higher degrees of vertical specialization. He found no relationship in the short run, but evidence in the long run for countries with higher levels of vertical specialization.

*The Production Possibility Frontier (Ppf):* Firms, as well as countries, have choices as to *what* goods and services to produce. They also have choices as to *how much* of each selected good and/or service to produce. Nevertheless, these choices are always constrained by the physical, and perhaps the cultural, realities associated with the current sphere of operation. The physical restrictions generally reflect resource scarcities, but could be such things as a shortage of space to engage in the preferred economic activity. In addition, consumption preferences also guide production choice through the efficient exchange of goods and services in competitive markets. For the purposes of this paper, we ignore cultural restrictions such as religious and ethical preferences of the decision makers.

To demonstrate, let us assume a particular country decides to produce two products: personal computers ($PCs$) and TV sets ($TVs$). Given these two products, the country could decide to produce all $PCs$ and no $TVs$ or it could decide to produce all $TVs$ and no $PCs$ or a combination of the two. Furthermore, let us assume the resources to produce each are similar and interchangeable. How many $PCs$ and how many $TVs$ the country can produce is limited because the resources required to make them exist in limited amounts.

Figure 1: The Combined Production Possibility Frontier. The Production Possibility Frontier

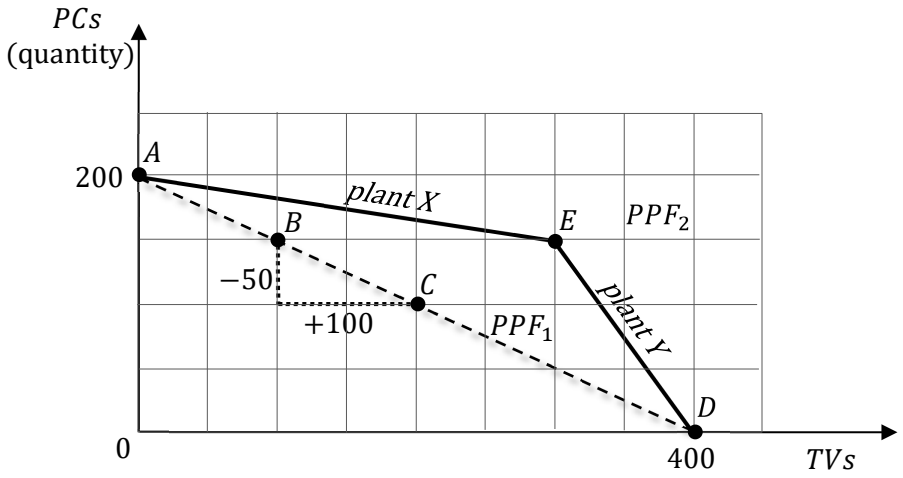



*Figure 1: The Combined Production Possibility Frontier. $PPF_1$ is a linear production possibility frontier between points A and D. $PPF_2$ is a two-segment frontier that represents how the linear trade-off in production within two different production plants are joined to form a combined production possibility frontier.*

To further this example, let us assume the country can produce a maximum of 200 $PCs$, if all of the available resources are devoted to the production of $PCs$ and none to the production of $TVs$ during a specific period (maybe one day). Likewise, if all of the available resources are instead devoted to the production of only $TVs$, then a maximum of 400 $TVs$ can be produced. With these extremes, the simplest production trade-off between $PCs$ and $TVs$ is linear where one $PC$ is equivalent to two $TVs$. Please see the dotted straight line in Figure 1. When all of the country's resources are efficiently put to task, there are literally 201 combinations of production such as 150 $PCs$ and 100 $TVs$ (point $B$) or 100 $PCs$ and 200 $TVs$ (point $C$), etc. The trade-off between $PCs$ and $TVs$ is described by the slope of the line $ABCD$ and is one $PC$ for every two $TVs$. This ratio (1:2) may be because it takes twice as many hours of labor to produce a $PC$ as it does to produce a $TV$, or because of some other constraint or production reality. Furthermore, the dotted line represents maximum production possibilities and is therefore known as the linear production possibility frontier ($PPF_1$). Any combination of $PCs$ and $TVs$ produced along the frontier requires the efficient use of the country's resources. If production of $PCs$ and $TVs$ is inefficient, production will be below and to the left of the dotted line. Efficient production combinations of $PCs$ and $TVs$ are only on the dotted line.

The dotted line $PPF_1$ is perhaps the simplest production possibility frontier model as it defines all of the possible combinations of $PCs$ and $TVs$ that can be efficiently produced by the country, but it is also the least realistic. Following the dotted straight line, if one $PC$ is forgone, an additional two $TVs$ can be produced at any point along the line (the slope of the dotted line). However, in the real world, the productivity trade-off seldom remains constant. If all production is devoted to $PCs$, giving up a few $PCs$ in order to produce $TVs$ would most likely result in more than two $TVs$ being produced for every $PC$ given up. This is because the most productive $TV$ producing resources would be employed first when converting to $TV$ production. But, as more and more $TVs$ are produced by giving up more $PC$ production, the conversion rate would decrease according to the law of diminishing marginal returns. (According the *Investopedia*, the law of diminishing marginal returns states that, at some point, adding an additional factor of production results in smaller increases in output. Read more: Law of Diminishing Marginal Returns.)
To better demonstrate the law of diminishing marginal returns, let us assume the production of $PCs$ and $TVs$ is accomplished by two plants – plant $X$ and plant $Y$. Assume further they are different with respect to their ability to convert from producing $PCs$ to $TVs$. For example, if plant $X$ converts from producing $PCs$ to $TVs$, it can forego one $PC$ and gain six $TVs$. However, if plant $Y$ converts from $PC$ production to

$TV$ production, it gains only two thirds of one $TV$ for every $PC$ foregone. This would imply the $PC$-only capacity for plant $X$ is 50 $PCs$ per day and for plant $Y$ it is 150 $PCs$ per day. And, the $TV$-only capacity for plant $X$ is 300 $TVs$ per day while $TV$ only capacity for plant $Y$ is just 100 $TVs$ per day. If we assume the plants use the same amount of resources, then plant $X$ has an absolute advantage in producing $TVs$ and plant $Y$ has an absolute advantage in producing $PCs$. Since plant $X$ only has to reduce production of $PCs$ by 1 unit to gain six $TVs$ compared to plant $Y$'s conversion performance, plant $X$ has a comparative advantage in producing $TVs$. By looking at the problem the other way and referencing the inverse-slope of both lines, plant $X$ will gain only one-sixth of a $PC$ for every $TV$ it foregoes while plant $Y$ will gain one and a half $PCs$ at a cost of one $TV$. Therefore, plant $Y$ has a comparative advantage in producing $PCs$. A country can use comparative advantage to allocate resources and production efficiently between the two plants. The result is the combined production possibility frontier $PPF_2$ shown in Figure 1.

The "kinked," solid line of Figure 1 depicts the more realistic $PPF_2$ which incorporates the law of diminishing marginal returns at the "kink" (point $E$). The "kinked" $PPF_2$ is the new, more realistic, schedule of all the combinations of $PC$ quantities and $TV$ quantities the country can produce efficiently given the difference between plant $X$ and plant $Y$ described in the previous paragraph. It is more realistic in the sense that if the country wants to produce $TVs$ and forego some $PCs$, the country will chose to convert plant $X$ to $TV$ production before it will convert plant $Y$ to $TV$ production. That is because the opportunity cost (what must be given up to produce one $TV$) is lower for plant $X$ than it is for plant $Y$. (1/6 of a $PC$ vs 1.5 $PCs$). This means that plant $X$ has a comparative advantage in producing $TVs$ relative to plant $Y$. In other words, to convert from one product to another product, the best choice is to covert where the opportunity cost is lowest. Again, points below and to the left of the kinked $PPF_2$ represent inefficient production combinations. Additionally, any points above and to the right of $PPF_2$ are beyond the production capability of the country. In a closed economy, $PPF_2$ also describes the limit of consumption.

Societal Preference Combined with the *PPF*

In a more complex world, there would be many, many "kinks" and this would result in the curved production possibility frontier $PPF_3$ that is concave to the origin, similar to curve $AFD$ of Figure 2. In this case, societal preferences are a function of the quantities of $PCs$ and $TVs$ consumed by the society. Not shown in Figure 2 is a family of iso-preference curves, all of which would be convex to the origin. Each iso-preference curve represents a different level of societal satisfaction from consumption (i.e. standard of living). The further away from the origin, the more societal satisfaction or higher the standard of living. One, and only one, of these iso-preference curves ($u_1$) is exactly tangent to the $PPF_3$ at $F$. Point $F$ represents the optimal combination of $PCs$ and $TVs$ that is both desired by the society and possible due to domestic production limits. Therefore, if the society is producing at any point other than $F$ along $PPF_3$, consumption preferences will alter relative prices in competitive markets, forcing production to point $F$ on the $PPF_3$. The slope of any straight line tangent to $PPF_3$ represents the relative prices of $PCs$ vs. $TVs$ at that point on the production possibility frontier. However, due to society preferences, equilibrium is not established until production moves to point $F$. At that point, the relative prices of $PCs$ to $TVs$ exactly match the relative prices that will maximize societal benefit (standard of living). This is depicted by the slope of the line tangent to both the $PPF_3$ curve and tangent to the iso-preference curve $u_1$. The relative prices are given by the slope of straight line $w_1$. In other words, production at any point other than $F$ will create relative prices that are inconsistent with maximizing societal preferences. Pressure on prices, brought on by the purchasing choices of domestic consumers, will change production quantities of $PCs$ and $TVs$ until societal preference is maximized, given the limits of production resources, at point F.

Figure 2: A Closed Economy Equilibrium. Societal Preference without International Trade

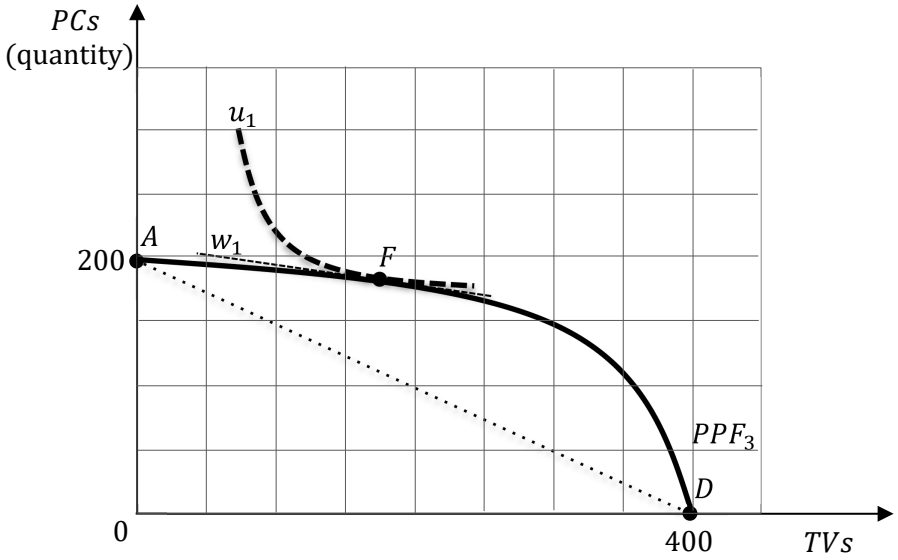



*Figure 2: A Closed Economy Equilibrium. $PPF_3$ is a concave production possibility frontier between points A and D that represents the non-linear trade-off in production when many different production plants are sourced to form a combined production possibility frontier. Point F is where consumption preferences are maximized and in equilibrium with efficient production in a closed economy.*

Up until this point, we have assumed a closed economy, which means no trade with entities outside of the country. However, if trade is possible, a country's consumption can become free of the production limits imposed by its $PPF_3$. In Figure 3, the slope of the straight line $w_1$ (the domestic wealth budget line) represents the relative domestic prices between $PCs$ and $TVs$ inside the country. But, if trade with the rest of the world is possible, world prices for $PCs$ and $TVs$ will most likely have a different ratio. Referring to Figure 3, line $w_2$ is one of a family of parallel straight lines (not shown), all with the slope of the relative world prices for $PCs$ and $TVs$. However, $w_2$ is the only one that is tangent to the domestic country's $PPF_3$. The difference in domestic and world price ratios is shown as the different slopes of line $w_1$ and line $w_2$.

Figure 3: An Open Economy Where Standard of Living is Maximized Through Trade. Societal Preference with International Trade

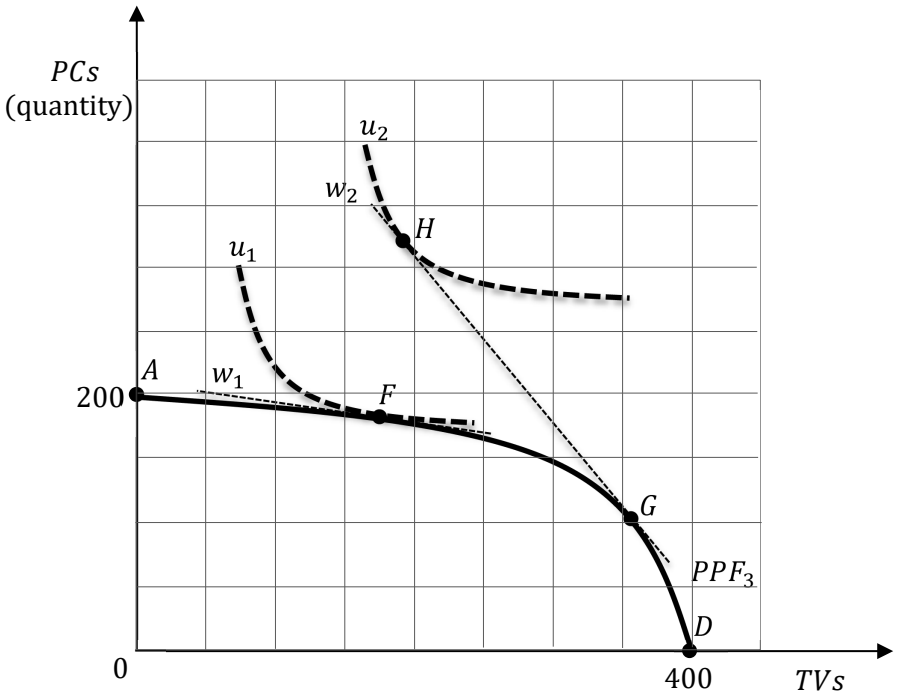



*Figure 3: An open economy where standard of living is maximized through trade. In a closed economy, the iso-standard-of-living curve $u_1$ is achieved at point F along $PPF_3$ where consumption preferences are in equilibrium with efficient production tangent to the domestic price ratio (the slope of $w_1$). In an open economy, point G is where production coincides with the world price ratio (the slope of $w_2$). The country can produce at point G and trade internationally along the wealth budget line $w_2$ to increase their standard of living to $u_2$ at point H.*

If the country can engage in the world trade of $PCs$ and $TVs$, production should slide from point $F$ to point $G$. Relative world prices will cause domestic production to move from point $F$ to point $G$ much like domestic consumption preferences influenced domestic relative prices and caused production to move to point $F$ without world trade. At production point $G$, the country can trade up the straight line $w_2$ to point $H$. To do this, the country would produce excess $TVs$ to trade for foreign $PCs$. Point $H$ is at the point of tangency with $u_2$. As stated before, there is a family of iso-preference lines with higher levels of preference the further the distance from the origin so that the country prefers to consume anywhere on $u_2$ more than $u_1$. Iso-preference curves, other than $u_2$, are either unattainable (even with trade) or provide lower levels of societal benefit (i.e. a lower standard of living). The end result is, the higher standard of living at point $H$ is because the society can now consume a larger combination of $PCs$ (~320) and TVs (~190) than at any point on the $PPF_3$, which would be the case without world trade.

Necessary Prices for Trade

Figure 3 implies that a country trades exported goods and services for imported goods and services. In reality, the producer of exported goods and services wants to be paid in local currency, not in other imported goods and services. This is so production expenses can be paid in local currency. Therefore, $w_2$ has a slope that represents the relative world prices for $PCs$ and $TVs$. Consequently, currency exchange rates must support international trade. Said differently, different opportunity costs are necessary conditions for international trade, but not sufficient conditions. Different opportunity costs must also be accompanied by accommodating currency exchange rates for international trade to occur and to be sustainable.

Currency exchange rates are determined by the supplies and demands for various national currencies. Currency supplies and demands come from such things as total international trade – not just two products between two countries as is the example in this paper. Other forces impacting currency exchange rates are the various national monetary policies and market conditions in the numerous worldwide capital markets. Therefore, currency exchange rates are the result of many, many factors and their complex interactions. All of these aspects of currency exchange rate determination are beyond the scope of this paper. Nevertheless, it should be noted there is a range of possible exchange rates that will support international trade in a particular good or service. This phenomenon could be depicted in Figure 3 by different slopes for $w_2$, the wealth budget line, as long as the slope of $w_2$ is different than the slope of $w_1$.

## CONCLUSIONS

Our goal was to provide a framework for understanding the requirements and conditions that foster meaningful international trade. This we have attempted to do using a simple example of two products (*TVs* and *PCs*) and a series of graphs that depict moving from the basic production trade-off to production with increasing marginal opportunity costs and from a closed domestic market to a world market with free international trade. The primary conclusion is quite straight forward. If we can trade with partners that have different opportunity costs, our country can enjoy a higher standard of living with trade than without trade. The basic reason for this conclusion is a given country can produce specific goods and services, for export, at a lower cost, in real terms, than other countries. Being able to do this allows for said country to import more desired goods and services than can be produced internally, even though said country may be able to produce all types of goods and services for domestic consumption. **A**t best, tariffs (and similar trade restrictions) should be temporary measures. They should probably be put into place to ease the transition from a closed economy to one that is engaged in free world trade.

### Policy Implications

Unfortunately, to various degrees, real-world bounds prevent the realization of the actual benefits stated in our conclusion. In addition to transportation challenges and cultural restrictions, these include obstructions, such as tariffs, quotas, isolationism, and artificial currency exchange rates. Therefore, policy makers and business leaders must innovate and work to eliminate these barriers, if the full promises of worldwide free trade are to be attained. Consequently, more research is called for to create work arounds and to reduce the impediments to international trade. These efforts may take place in the fields of Finance, Economics, Political Science, Operations Management, etc.

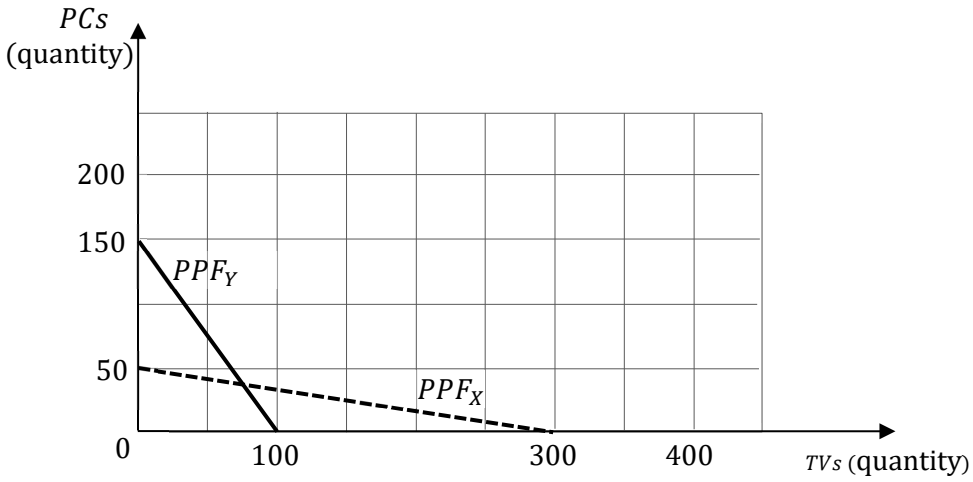
### Assessment with Practice Problems

After presenting the contents of this paper, the instructor can assess the knowledge gained by his or her audience using the following three practice problems and associated solutions. The practice problems can be assigned as out of class homework or as an in class exercise and can be graded or non-graded. Regardless of the approach, after students complete their solutions to the problems, the instructor can show the authors' solutions. The assessment can conclude with discussions that address a variety of related topics.

### Example Trade Problems with Solutions

1-A country has two production plants that can trade-off manufacturing personal computers ($PCs$) and televisions ($TVs$) at a constant rate. For the same amount of resources, the production possibility frontier of plant $X$ is given by $PPF_X$ and the production possibility frontier of plant $Y$ is given by $PPF_Y$ in the figure below.

Figure 4: The PPF's of Two Production Plants, $PPF_Y$ And $PPF_X$, for Pcs and Tvs. Graph for Problem 1




a-Which plant has an absolute advantage in producing $PCs$ and why?
b-Which plant has an absolute advantage in producing $TVs$?
c-Calculate the opportunity cost of plant $X$ to produce one additional $TV$.
d-Calculate the opportunity cost of plant $Y$ to produce one additional $TV$.
e-Which plant has the lower opportunity cost and hence has a comparative advantage in producing $TVs$?
f-Calculate the opportunity cost of plant $X$ to produce one additional $PC$.
g-Calculate the opportunity cost of plant $Y$ to produce one additional $PC$.
h-Which plant has the lower opportunity cost and hence has a comparative advantage in producing $PCs$?
i-Draw a *Combined PPF* into the figure above that shows the production possibility frontier of the country when both plants are producing efficiently.
j-If the country prefers to produce and consume 150 $TVs$,
i-what is the maximum number of $PCs$ the country can both produce and consume at the same time? Label this point $A$ on the *Combined PPF*.
ii-what is the total number of $PCs$ and $TVs$ plant $X$ will have to produce? Label this point $B$ on $PPF_X$.
iii-what is the total number of $PCs$ and $TVs$ plant $Y$ will have to produce? Label this point $C$ on $PPF_Y$.

Solutions to Problem 1

a-Plant Y has the absolute advantage in producing PCs because they are able to produce more PCs than plant X with the same amount of resources when only PCs are being produced (along the vertical axis).

b-Plant X has the absolute advantage in producing TVs as shown along the horizontal axis.

c-Use the slope to calculate the opportunity cost of the variable on the horizontal axis

$$\text{Opp Cost of TVs for plant X} = \frac{-50 \text{ PCs}}{+300 \text{ TVs}} = -\frac{1}{6} \text{ PC per one TV.}$$

d-Use the slope to calculate the opportunity cost of the variable on the horizontal axis

$$\text{Opp Cost of TVs for plant Y} = \frac{-150 \text{ PCs}}{+100 \text{ TVs}} = -1.5 \text{ PC per one TV.}$$

e-Plant X has the comparative advantage. It only gives up 0.167 of a PC to make one TV compared to plant Y that must give up 1.5 PCs. Said another way, plant X can produce six TVs by giving up one PC but plant Y can only produce 2/3 of a TV by foregoing the same.

f-Use the inverse slope to calculate the opportunity cost of the variable on the vertical axis

$$\text{Opp Cost of PCs for plant X} = \frac{-300 \text{ TVs}}{+50 \text{ PCs}} = \ -6 \text{ TV per one PC.}$$

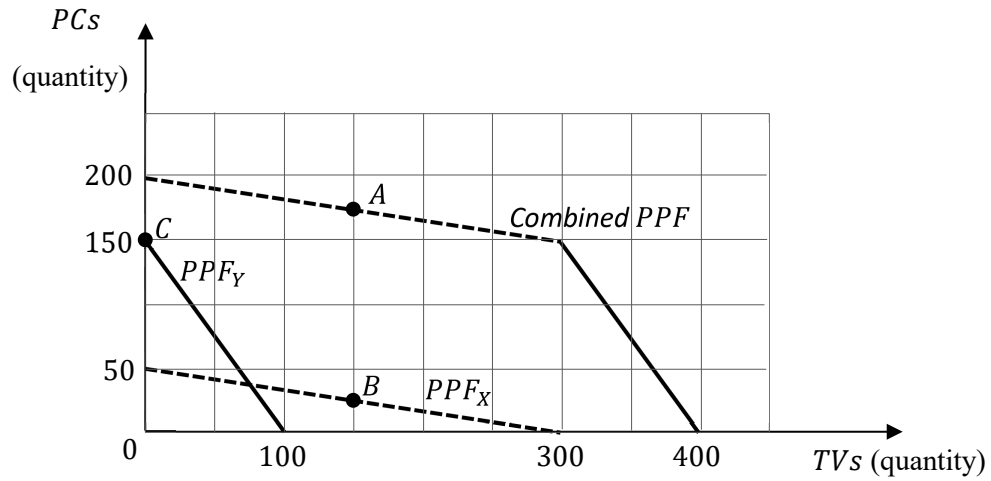
g-Use the inverse slope to calculate the opportunity cost of the variable on the vertical axis

$$\text{Opp Cost of PCs for plant Y} = \frac{-100 \text{ TVs}}{+150 \text{ PCs}} = \ -2/3 \text{ TV per one PC.}$$

h-Plant Y has the comparative advantage. It only gives up 0.667 of a TV to make one PC compared to plant X that must give up 6 TVs. Said another way, plant Y can produce 1.5 PCs by giving up one TV but plant Y can only produce 1/6 of a PC by foregoing the same.

i-Graphic Solution for Problem 1i

Figure 5: The Combined PPF of Two Production Plants with Production Levels A = B + C.




j. If the country prefers to produce and consume 150 $TVs$,

i-From the graph, when the country is producing 150 $TVs$, the maximum number of $PCs$ that can be produced along the Combined PPF is 175 $PCs$. This is shown as point $A$ on the graph.

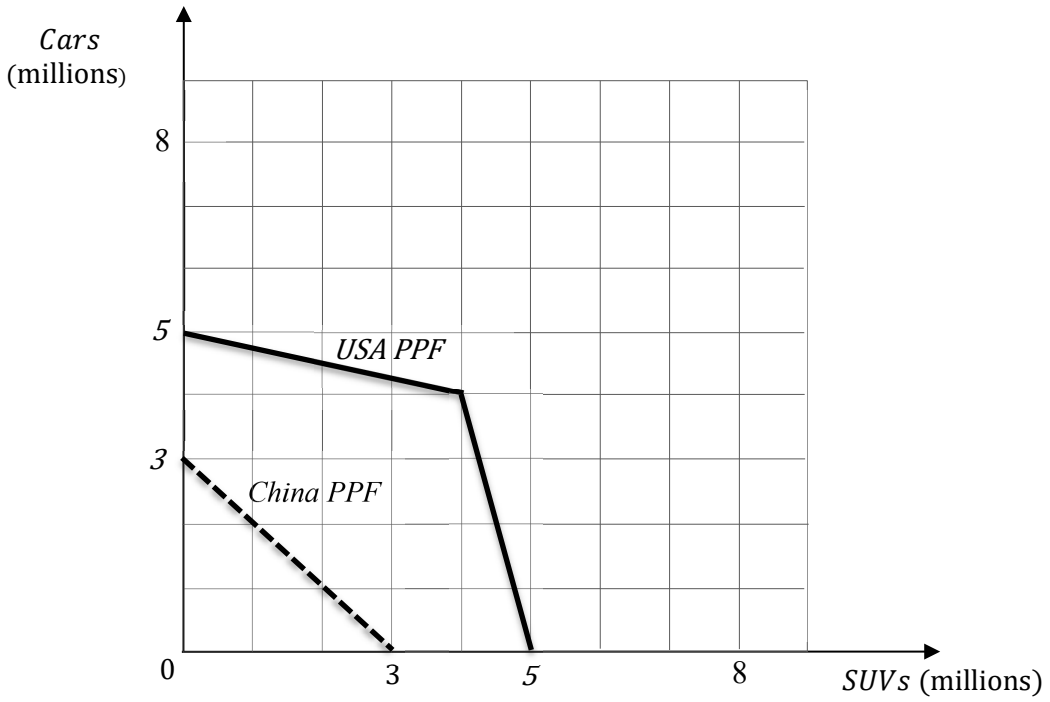
ii-Since plant $X$ has a comparative advantage in producing $TVs$ and an absolute capacity of producing as much as 300 $TVs$, plant $X$ should produce all 150 $TVs$. Moving along $PPF_X$, plant $X$ has enough resources to also make 25 $PCs$. This production combination is shown as point $B$ on the graph.

iii-Since plant $Y$ has a comparative advantage in producing $PCs$ and an absolute capacity of producing as much as 150 $PCs$, plant $Y$ should produce the remaining 150 $PCs$. However, it has no

resources remaining to produce any $TVs$, hence *TV production is zero. This production combination is shown as point* $C$ *on the graph.*

2-Two countries, the USA and China, on a monthly basis can produce both cars and SUV's according to the two production possibility frontiers shown in the graph.

Figure 6: The PPF's of Two Production Plants for USA And China. Graph for Problem 2




a-From the social planner's perspective, if both countries are currently making 100 percent cars and no SUV's, which country has the comparative advantage in SUV's and therefore should make the first SUV?

b-From the social planner's perspective, if both countries are currently making 100 percent SUV's and no cars, which country has the comparative advantage in cars and therefore should make the first car?

c-To maximize efficiency, the country with the comparative advantage should always be the one to make the next unit of a good. *Neatly* draw the production possibility frontier for the combined USA + China on the graph if they are allowed to trade (*this might be tricky*).

Solutions to Problem 2

a-When the USA operates at the point of 5M cars and 0 SUV's, the opportunity cost of making 1 SUV is

$$\text{USA opp. cost of SUV at point } (0, 5\text{M}) = \frac{-1\text{M cars}}{4\text{M SUVs}} = -\frac{1}{4} \text{ car/SUV}$$

When China operates at the point of 3M cars and 0 SUV's, the opportunity cost of making 1 SUV is

$$\text{China opp. cost of SUV at point } (0, 3\text{M}) = \frac{-1\text{M cars}}{1\text{M SUVs}} = -1 \text{ car/SUV}$$

Since the USA has the lower opportunity cost from a point of making 100 percent cars, the USA has the comparative advantage and should make the first SUV.

b-When the USA operates at the point of 0 cars and 5M SUV's, the opportunity cost of making 1 car is

$$\text{USA opp. cost of cars at point } (5\text{M}, 0) = \frac{-1\text{M SUVs}}{4\text{M cars}} = -\frac{1}{4} \text{ SUV/car}$$

When China operates at the point of 3M cars and 0 SUV's, the opportunity cost of making 1 SUV is

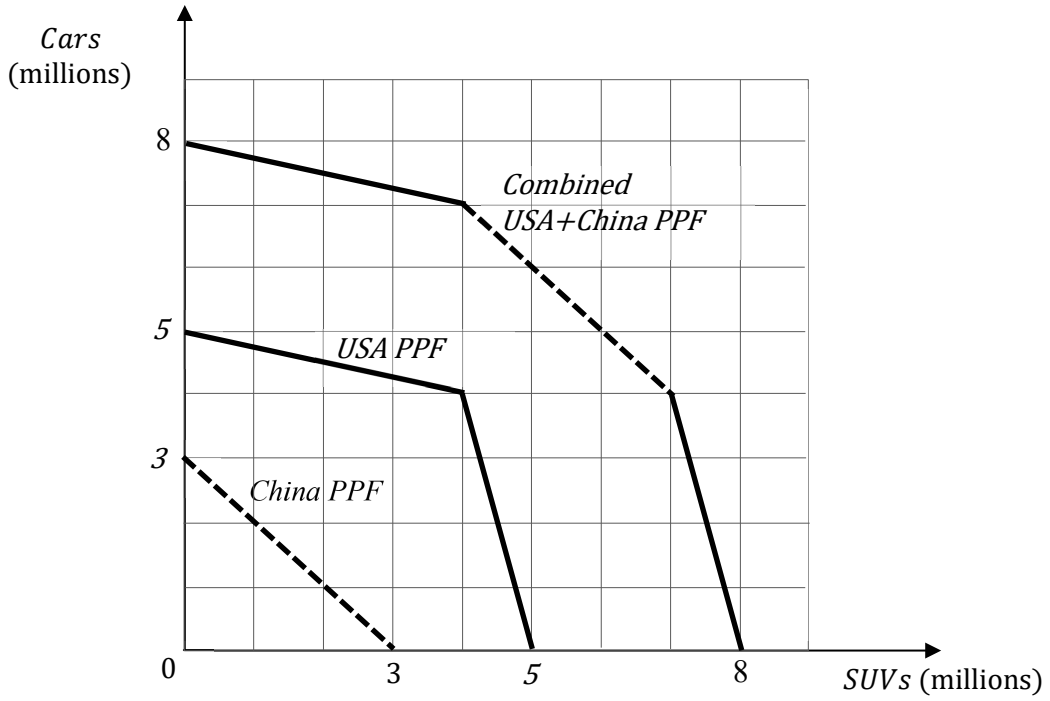
$$\text{China opp. cost of cars at point } (3\text{M}, 0) = \frac{-1\text{M cars}}{1\text{M SUVs}} = -1 \text{ SUV/car}$$

Since the USA has the lower opportunity cost from a point of making 100 percent SUVs, the USA has the comparative advantage and should make the first car.

NOTE: Since the USA has a "kink" in their PPF at point (4M, 4M), they have a comparative advantage in both goods.

c-Start from 100 percent all cars. The combined PPF of USA + China will intersect the vertical axis at 8M cars total and 0 SUVs. Since the USA has the comparative advantage from this point as was determined in (a), the USA should make the first 4M SUVs. The slope of the combined PPF from point (0M, 8M) to point (4M, 7M) is the same as the USA,$-\ 1/4\ \text{car/SUV}$. At point (4M, 7M), China is making 3M cars and 0 SUVs and the USA is making 4M cars and 4M SUVs.

Figure 7: The Production Possibility Frontier for Combined USA + China Production. Graphic Solution to Problem 3c




If the USA makes even 1 more SUV past (4M, 4M) on its PPF, the USA will be operating past the kink in its PPF such that its opportunity cost for making SUV's changes dramatically worse to $-4\ car/SUV$ .

At point (4M, 7M) of the combined PPF, China now has the comparative advantage in making SUVs with a lower opportunity cost of $-1\ car/SUV$ . Hence, China should make the next 3M SUVs. The slope of the combined PPF from point (4M, 7M) to point (7M,4M) is the same as China's, $-1\ car/SUV$ . At point (7M, 4M), China is making 0 cars and 3M SUVs and the USA is making 4M cars and 4M SUVs.

At point (7M, 4M), China is making 3M SUVs and cannot make any more. The USA can still make 1M more SUVs, but it must trade off 4M cars to do so. Hence, the USA will make the last 1M SUVs and the combined PPF will intersect the X axis at 8M units of SUV and 0 cars.

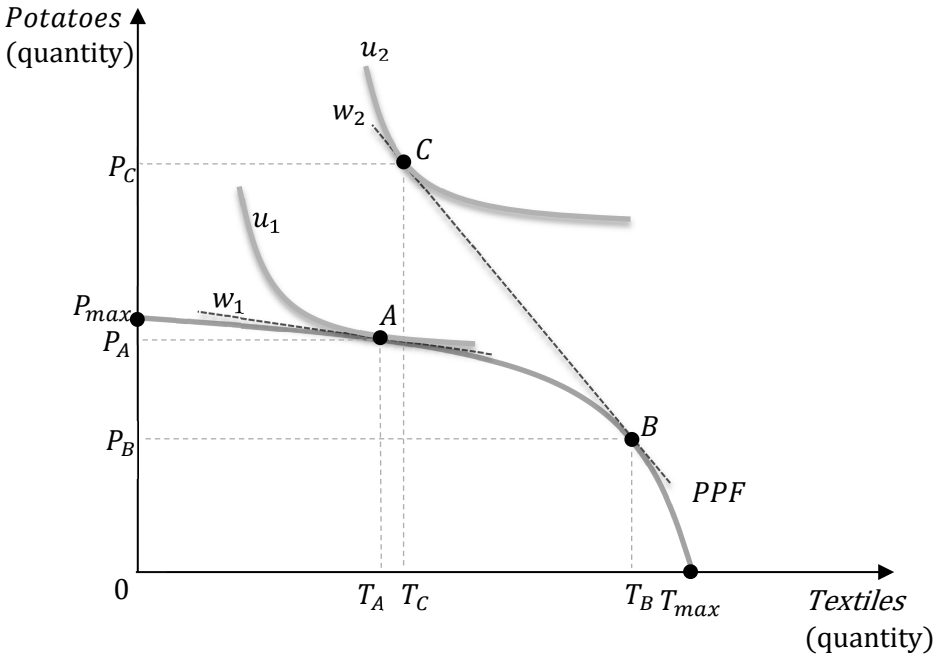
3-Consider a country that produces and consumes only Potatoes and Textiles. Use a graph and narration, a production possibility frontier, and utility curves to answer the following:
(Graph Potatoes on the vertical axis and Textiles on the horizontal axis)

Describe how the country with a closed-economy reaches a stable equilibrium of production and consumption and show and discuss the relevance of the domestic price ratio of the two goods.

Describe what will happen to production and consumption when the country opens its border to international trade when the world price ratio is different from the domestic price ratio.

Solution to Problem 3

Figure 8: Societal Equilibrium Without and with International Trade. Graphic Solutions to Problem 3a and 3b




a-In a closed economy, the iso-standard-of-living curve $u_1$ is achieved at point $A$ along $PPF$ where consumption preferences coincide with efficient production and the domestic price ratio (the slope of $w_1$).

b- In an open economy, point $B$ is where production coincides with the world price ratio (the slope of $w_2$). The country can trade internationally along the wealth budget line $w_2$ to increase the standard of living to $u_2$ at point $C$.

**REFERENCES**

Giri, R., Yi, K.M., and Yilmazkuday, H., "Gains from Trade: Does Sectoral Heterogeneity Matter?," Working Paper No. 341, Federal Reserve Bank of Dallas, Globalization and Monetary Policy Institute, March 7, 2018.

Keith Good, "ERS Report: 'Interdependence of China, United States, and Brazil in Soybean Trade'," *Farm Policy News*, June 30, 2019.

Peter A. Kallis, "Value-Added Real Effective Exchange Rates: Testing for Countries with High and Low Vertical Specialization in Trade," *The Developing Economist*, 2015, Vol. 2, No. 1.

Kenen, P.B., and Jones, R.W. - editors, "Handbook of International Economics, Vol. 1 & Vol. 2," published by North-Holland, ISBN 9780444867926, January 1984.

Bertil Ohlin, *Interregional and International Trade* (1933).

David Ricardo, *On the Principles of Political Economy and Taxation* (1817).

## ACKNOWLEDGEMENTS

The authors would like to thank two anonymous reviewers of this journal for their requested changes and suggestions which greatly improved an earlier version of this paper.

## BIOGRAPHY

Nicholas Busko is a visiting Assistant Professor of Economics at Salisbury University. Previously, he worked in industry as an electrical engineer designing microchips. His interests include developing hands-on teaching techniques.

E. Tylor Claggett is Professor of Finance at Salisbury University. His research appears in journals such as the *Southern Economic Journal*, *Managerial and Decision Economics*, and the *Journal of Applied Corporate Finance*.

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 27-50
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# TEACHING FINANCIAL MARKETS STUDENTS ABOUT REPURCHASE AGREEMENTS: THREE EASY LESSONS

Lynda S. Livingston, University of Puget Sound

**ABSTRACT**

*Repurchase agreements are critical financing tools that lubricate the financial system. They have been complicit in financial crises, yet they may hold the key to post-recession "normalization." Despite their importance in practice, they are all but ignored in the traditional undergraduate finance curriculum. In this paper, we present a short repo module for financial markets courses. Its three lessons cover both basic and fairly complex quantitative applications, as well as providing an overview of three market disruptions in which repos played a starring role.*

**JEL**: G1, G2, G23

**KEYWORDS:** Repurchase Agreements, Repos, Financial Crisis, Normalization

## INTRODUCTION

Sometimes, what you can't see can hurt you. Financial market participants were reminded of that—the hard way—when the repurchase agreement (repo) market dried up during 2007-8, taking companies like Bear Stearns along with it. Repos lubricate the financial markets; without them, the machine grinds to a halt. Why, then, do finance students learn so little about them?

Repos finance trades in the cash market and thereby facilitate the day-to-day functioning of many financial institutions—they are "the lifeblood of Wall Street." But they are also "murky" (Craig and Spector, 2010). Even Congressional reforms enacted after the financial crisis mostly ignored them, despite their involvement in the market's problems (an oversight that Acharya and Öncü, 2011, deem a "significant mistake"). Their lack of visibility has no doubt contributed to the short shrift they receive in financial textbook coverage. For example, the classic principles text, Brealey, Myers, and Allen (2014), offers only three paragraphs on repos (in its working capital chapter). The practitioner literature is no better. The CFA Institute's 600-page investments book devotes three sentences to repos (McMillan, *et al.*, 2011). Teall (2018) offers one.

Even textbooks devoted to financial markets are stingy on repos. Mishkin and Eakins (2006) include a few paragraphs on the Fed's use of repos, calling them "temporary open-market purchases," then add a few more paragraphs on dealers' use, noting that for them a repo is a "short-term collateralized loan." (These authors do offer a bit of color, mentioning two firms that went bankrupt after using the same securities as collateral for multiple loans.) Kidwell, *et al.* (2006) devote three pages to repos, and include stylized transaction illustrated by T-accounts, as well as a discussion of the calculation of the yield on a repo. (They also add even more detail to the tale of one of those unethical securities firms, noting that one of its principals had two airplanes and gold-plated bathroom fixtures.) And while Madura (2007) mentions repos in multiple chapters, he offers substantive comments only on the same topics as Kidwell, *et al.* (2006), although with less detail.

In this paper, we present a repo module that can be used in a senior-level undergraduate financial markets course. It starts with a silly interactive "play" that introduces students to the players and the motivations behind basic repo transactions. It then describes three historical periods during which repos had a starring role in either market disruptions or recovery: the aftermath of the terrorist attacks of 9/11; the odd negative repo-rate incident of 2003; and the financial crisis of 2007-8. Finally, it details a fairly extensive scenario involving both cash and repo market transactions, which should really stretch students' analytical skills and demonstrate their command of repos. This scenario includes a numerical example using actual market quotes.

The paper proceeds as follows. After describing relevant background literature in the next section, we present the three lessons: the "play," the history, and the scenario. We conclude with a summary and a brief appeal to financial markets professors to give repos the attention they deserve.

## BACKGROUND AND LITERATURE REVIEW

As part of the ominously named "shadow banking" system, the repo market allows highly levered nonbanks to lend and invest daily with relatively little government regulation (Acharya and Öncü, 2011). Repo market activity allows dealers to finance their inventories, allows bullish investors to leverage their long positions, and allows bears to short Treasuries. It is also an increasingly critical tool for the Fed's implementation of monetary policy.

Despite the market's importance, the pedagogical literature on repos is essentially nonexistent. There appear to be no articles on Google Scholar devoted to teaching repos; even a general Google search yields no relevant results. This is, perhaps, not surprising, given that even regulators and policymakers had little information on the repo market prior to the 2007-8 crisis, and that the Federal Reserve began a pilot study on bilateral repos only in 2014 (Baklanova, *et al.*, 2016).

There are, however, calls for such a literature: Daniel Tarullo, a member of the Board of Governors of the Federal Reserve System, noted the following in his keynote address to the Conference on the New Pedagogy of Financial Regulation at Columbia Law School in 2016:

> I would urge everyone teaching in this area to place more emphasis on the liability side of the balance sheet of financial institutions…Particularly in the context of systemic risk, funding and liquidity issues…deserve something close to the attention devoted to capital if students are to understand the origins of the [2007-8 financial] crisis, the regulatory response, and the challenges of regulation going forward…An emphasis on runnable funding [like repos] will help them see why systemic concerns extend beyond [systemically important financial institutions].

While there are no pedagogical treatments of repos, there are academic and practitioner articles covering their basics. In this section, we identify several of these articles that will provide students with necessary background. Because there are so many institutional details that may be unfamiliar to students, we break this overview into several subsections, highlighting several key features of the market.

### Rate Relationships and Other Basics

There are two articles in particular that provide a thorough introduction to repurchase agreements. The first is Fleming and Garbade (2004). This article covers many fundamental topics: the "immense" size of the repo market; the reasons that dealers would want to short Treasuries (rate increases, hedging, and customer accommodation); how the Fed lends securities from its own portfolio; how dealers handle failures to deliver securities (including their own strategic options to fail on purpose); and how market participants can change standard deal terms to cope with market disruptions (using as their example the "guaranteed-delivery special collateral" repos that were created in 2003).

The second article is Ihrig, *et al.* (2015). One of this article's strengths is its clear explanation of the differences among the various relevant money market rates. While textbooks will usually note that a repurchase agreement is like a collateralized loan, and that the difference between the "sale" price of the collateral and its repurchase price determines the repo rate, students need to be able to put that rate into context. In Ihrig, *et al.* (2015), students learn how the relationships among the rates are driven by policy, how they are affected by collateral, and how they reflect the types of market participants that use them.

In particular, this exposition clarifies the relationships among the key short term rates: the fed funds rate, interest on excess reserves, the primary credit rate (discount rate), and the repo rate. The discount rate is the rate at which institutions can borrow from the Fed. It is usually considered a penalty rate, charged to borrowers who access the Fed as the lender of last resort. We would expect this to be the highest of the four rates. The lowest should be the interest on excess reserves (IOER). The Fed's payment of this rate allows eligible institutions to earn interest on reserve balances above the required amount; institutions that can park unlimited funds at the IOER should not accept a lower rate elsewhere. The combination of the discount rate and the IOER, both set by the Fed, should provide a collar on the fed funds rate, the market-determined rate on loans of reserves among institutions. Finally, the repo rate should be below the fed funds rate, since the former is collateralized while the latter is not.

Although these rate relationships should hold in theory, in practice they may not. The biggest impediment to realizing these rate relationships is the fact that different rates may apply to different financial market participants. For example, government sponsored enterprises (GSEs) cannot earn interest on excess reserves, and may therefore be willing to lend at a rate below the IOER. The current "superabundant" level of reserves in the system—the result of the Fed's extraordinary quantitative easing—is also an impediment. All the reserves sloshing around make it much more difficult for the Fed to raise rates using the traditional scale of its open market operations. The repo market is therefore taking a more prominent place in the Fed's rate-setting toolkit, as we will discuss further below.

Specials Rates

Before students can appreciate how the Fed can use the repo tool, however, they must understand that there is no single repo rate. Since a repo is like a collateralized loan, the desirability of the collateral has an effect on the rate on the loan. Broadly, there are two kinds of collateral: general and special. There are also two motivations for lending in the repo market: finding a short-term parking place for cash, and lending to gain access to a specific security that is pledged as collateral.

If a lender simply wants to deploy cash, she is content to receive as collateral any security from an acceptable class of security (called "general collateral," or GC). General collateral actually may change day to day over the course of a multi-day ("term") repo (Copeland, *et al.*, 2014). Since the lender has no need for specific collateral, she will not accept a rate lower than the GC rate (Fisher, 2002).

However, if a lender's motivation is to acquire ("reverse in") a specific security, then only that security will do, and she will be willing to lend at a lower rate to get it. This lower rate is called a "specials rate," and the desirable collateral is "trading special." Special securities may be hard to get because holders of collateral may be unable (legally) or unwilling (because of transactions costs or portfolio preferences) to supply that collateral to the repo market (Duffie, 1996; Fisher, 2002). There may be as many specials rates as there are types of desirable collateral; in fact, Duffie (1996) calls the degree of specialness "an index of the cost of renting specific collateral."

The potential to borrow at a low specials rate and lend at a higher GC rate can create an arbitrage opportunity. Duffie (1996) exploits this insight to link specials rates, general collateral rates, and the prices for special and GC bonds. He shows that the specials price will exceed the GC price by the present value

of the lower borrowing costs afforded by being able to lend the desirable collateral (which Fisher, 2002, calls the "repo dividend").

Jordan and Jordan (1997) extend Duffie's work empirically. Using a sample of issues trading on special, they find that on-the-run issues (the securities of a particular type that were mostly recently issued) often trade special: 64% of special days in their sample were for on-the-run bonds. The difference between special and GC rates can be material, averaging 123 bp in their early-1990s sample, when the average GC rate was just below 4%. Fisher (2002) provides a stylized timeline of the supply of special collateral, showing that the supply available to the repo market is greatest when the security is issued, but falls over time as more bonds move into the portfolios of non-traders. Supply remains constrained until the new on-the-run security is announced and its when-issued (forward) trading begins. For 13-week securities auctioned quarterly, Fisher estimates that the repo spread increases from zero at issuance to its maximum 11 weeks later, declining thereafter to reach zero at week 13 when the next security is issued.

Not all issues follow this pattern, of course. Jordan and Jordan (1997) describe two prolonged periods of specialness that occurred in the early 1990s, both of which were driven by large dealer short positions in the cash market. In 2003, there was an even more unusual period when specials rates actually went negative. Fleming and Garbade (2004), in explaining this disruption, provide a vivid example of the arbitrage opportunity afforded by low specials rates. (This event is the basis for the second in-class repo lesson, which we cover below.)

The 2003 case illustrates the importance of on-the-run Treasuries. That year, rates on intermediate-term Treasuries had risen significantly mid-year, and market participants long in fixed-income hedged their portfolios by selling short an unusually large amount of the on-the-run Treasuries. Dealers typically take their large positions—and hedge—using the most liquid issues. Somewhat counterintuitively, this then implies that short positions in the most liquid issues are most likely to be "squeezed" (Fisher, 2002). In extreme cases, the Treasury may choose to alleviate a material, ongoing shortage in an issue by actually issuing ore of it; this is called a "reopening." These reopenings may actually serve as a substitute for a new issue, increasing the time the reopened security remains on-the-run (Fisher, 2002). In lesson two, below, we will discuss an unusual reopening that occurred after 9/11.

Tri-party Repos and the Financial Crisis

Not all shortages result from benign market activity. In 2006, several large financial institutions were accused of trying to create a shortage and manipulate the specials rate by borrowing scarce bonds and "parking" them at custodian banks, out of reach from other traders (Ng and Zuckerman, 2006). (At least one Credit Suisse trader and two UBS traders "left their firms" as a result of this incident; Morris, 2006.)

This sort of game happens in the tri-party repo market, where an agent—either JPMorgan Chase or the much more active Bank of New York Mellon—stands between the borrower and lender. These banks manage payments and ensure that the posted collateral meets the lender's requirements, substituting assets if necessary. Tri-party repos are general collateral arrangements, in which the cash lender is simply trying to earn interest. (See Acharya and Öncü, 2011; Fisher, 2002; Hilsenrath and Rappaport, 2012; and Federal Reserve Bank of New York, 2015.)

One service provided by the clearing banks has led to increased regulatory interest in the market since the financial crisis: intraday funding. Traditionally, the banks unwound the prior day's repos every morning, giving cash borrowers access to their collateral securities during the day, in case they needed to deliver them to a counterparty. The repo was then "rewound" in the afternoon, perhaps with different collateral. For the hours between the morning unwind and the afternoon rewind, the clearing bank provided financing to the borrower—concentrating funding, and therefore risk. This risk has been a concern for regulators.

Copeland, *et al.* (2014) studied the performance of the tri-party market during the financial crisis, and found that it was surprisingly stable. Lenders (like money market mutual funds) who faced troubled borrowers (Lehman in particular) simply pulled their funding from the market, rather than changing their rates; this left margins effectively unchanged. These authors conclude that the tri-party market was not a source of general instability during the 2007-8 period, despite problems in the bilateral market. Nonetheless, the potential for problems led the Fed to create a task force on tri-party repo infrastructure reform, and intraday credit has fallen from 100% of tri-party repo volume in 2012 to less than 5% today (Federal Reserve Bank of New York, 2015).

While the tri-party market may have functioned reasonably well during the financial crisis, the repo market was nonetheless intimately involved with some headline failures. If an entity (e.g., Bear Stearns) that relies on daily repo funding suddenly finds itself unable to roll over its repos, it can be forced to sell its portfolio assets at fire-sale prices. (This risk is systematic: since repo financing is secured, it is a market event—not firm-specific credit risk—that shuts a firm out of the market.) Acharya and Öncü (2011) describe such a 2007 "run" among the shadow banks in the repo market, which destroyed some major players (e.g., Bear Stearns), while forcing some to merge (Merrill Lynch) and others to transform into bank holding companies (Morgan Stanley and Goldman Sachs). Ultimately, "the entire Wall Street system of independent broker-dealers collapsed in a matter of seven months" (Acharya and Öncü, 2011).

The Fed's Post-Crisis Use of Repos

Despite complicity in the market collapse, the repo market was critical to Fed's response to the crisis, and is an increasingly important part of the ongoing efforts of "normalization." Ihrig, *et al.* (2015) describe how repos are uniquely suited to normalization, since they are the only one of the Fed's policy tools that can work through all three of its "channels of influence." First, the Fed can use repos to encourage arbitrage, since the rate the Fed sets can act as a floor for other money market rates. Second, repos expand the Fed's sway, because its repo facility is open to counterparties including nonbanks. Finally, the Fed can decrease the amount of reserves on its balance sheet by increasing the size of its repo operations.

Frost, *et al.* (2015) consider in more detail how the Fed has been using reverse repo operations, begun in 2013, to effect normalization, and how those interventions will proceed. As noted earlier, since current reserve balances held by banks are much larger than the normal quantity demanded, the Fed is unable to control the fed funds rate by simply fine-tuning reserves through open market operations. (Prior to the financial crisis, reserve balances were about $15 B, including $2 B of excess reserves; at the end of 2104, there were $2.6 T in reserves, $2.51 T of which were excess. Meanwhile, the Fed's securities holdings more than quintupled; Ihrig, *et al.*, 2015.) Because the reserve balances are expected to remain high for some time, the Fed will not focus its repo activity on draining reserves (its traditional role); instead, reverse repos (through which the Fed borrows from market participants) will be used primarily to help set a floor under money-market rates.

Frost, *et al.* (2015) note that a large Fed reverse repo facility can potentially disrupt markets—perhaps by crowding out private borrowers and exacerbating runs during flights-to-quality—and examine ways to mitigate any negative impact, such as making the facility temporary and setting caps on its use. We will consider the Fed's reverse repo facility in more detail in a later section.

International Issues

While this paper's lessons are concerned solely with the U.S. repo market, the use of repo financing is growing internationally as well. In Europe, for example, "where national barriers persistently inhibit" cross-border clearing and settlement, repos facilitate fast delivery of securities across borders (McGrory, 2014). Armakolla, *et al.* (2017) demonstrate the recent growth of the repo market in Europe, and provide

an overview of the institutions involved. The authors highlight several differences between the U.S. and Eurozone markets that may interest students. For example, the majority of these international repos are cleared through a central clearing counterparty (CCP), an intermediary that guarantees performance on both sides of the trade, and takes collateral from both borrower and lender to ensure it. If the margin collateral involves a different currency than that of the repo collateral, the CCP faces currency risk—a wrinkle students need not consider in the exercises we cover in this paper.

(Note that CCP-cleared repos are distinct from tri-party repos, in which a third party agent provides some back-office services; tri-party repos exist, but are much less common, in the Eurozone. For a detailed explanation of the differences between CCPs and tri-party agents, see McGrory, 2014.)

Eurozone repos can be backed by general or special collateral, as in the U.S., but their sovereign-debt component is much more complicated: since there are multiple countries involved, there are multiple types of sovereign debt, some more creditworthy than others. Thus, as noted by McGrory (2014), the general collateral repo market in Europe is fragmented by country (e.g., there is a French market and a German market, but there is no co-mingled "Eurozone" market). This sort of distinction is also clear from the "haircuts" imposed by CCPs when accepting margin collateral. Armakolla, *et al.* (2017) document significant differences in the desirability, and associated intermediary haircuts, of various countries' debt during the European sovereign debt crisis, when countries like Ireland and Portugal were subjected to severe collateral haircuts, while France and Germany were relatively unaffected. (Armakolla, *et al.*, 2017, also touch on the broader 2008 financial crisis. For an in-depth examination of the different responses by the Fed, the Bank of England, and the European Central Bank to that crisis, which highlights the latter's use of repos, see Pisani-Ferry and Wolff, 2012.)

Finally, regulatory issues will be different in the European market and in the U.S. (See McGrory, 2014, for an overview of current and proposed regulations.) For example, Armakolla, *et al.* (2017) expect that a financial transactions tax will eventually apply to certain types of European repos, which should decrease overall repo volume and completely kill overnight transactions. McGrory, 2014, agrees that such a tax—which could be imposed on both legs of a repo—would destroy the market, but concludes that revisions to the initial proposal make it unlikely now that repos would be included in a final version of any regulation.

Having described the basics of the repo market, we turn now to three lessons that should help students remember them.

## FIRST LESSON: A TWO-ACT PLAY

In a senior-level financial markets course, repos can be covered in two, 80-minute class periods. These should happen after the instructor has covered the basic structure of the money market, has introduced the assets that trade there, and has discussed how the Fed's interventions affect the market. With this background in hand, the instructor would use the first repo day to go over repos and reverses using two very simple sets of drawings (like a simplified version of Figure 2, described in lesson three, below). The second day covers the historical applications from lesson two, described in the next section.

The first day's exposition would start with the idea that the dealer (whose perspective the class takes) has an expectation about the path of future T-bond prices. (It is easier to introduce the transactions in terms of prices, since students find it natural to think of buying low and selling high. The price forecast is then translated it into the equivalent rate forecast: rates are expected to fall in the repo case, and rise in the reverse case.) Suppose that the dealer thinks prices will rise. Thus, to make a profit, she wants to "buy low, sell high": buying low first (at t=0), and selling high later (at t=1). She therefore needs to begin by buying a T-bond in the market at t=0.

However, we assume that the dealer starts with nothing. Anything she wants to do in the cash market must be accommodated in the repo market. Thus, she needs to use the repo market to get the money she needs to buy her T-bond. She will be doing a repo, and her counterparty will be doing a reverse. (There is a tremendous amount of terminology in the repo market, and it can be difficult to keep it all straight. One helpful mnemonic is "rep**o** = b**o**rrow." Another is "rep**o** **o**ut; reverse in," where the "out" and "in" refer to what is happening with the collateral—going out from the dealer, or coming in to her.) Thus, at t=0, our dealer gets a loan from her repo counterparty, uses that money to buy a T-bond in the cash market, then hands that T-bond right over to her repo counterparty as collateral for her loan. At the end of t=0, she is again left with nothing (except the obligation to unwind her repo, of course).

At t=1, it is time for the dealer to cash in on her market insight. (We assume that she was right, and that prices will rise.) To complete her "buy low, sell high," it is time to sell high: she will sell at T-bond to a market participant at the new, higher price. She gets the bond by retrieving her collateral from her repo counterparty. She then sells the bond in the cash market, using part of her proceeds to repay her loan to her repo counterparty, and keeping the rest as her profit. Thus, her profit is the change in price of the bond, less the interest on her loan.

The reverse repo illustration proceeds similarly, although it begins with the dealer's expectation that prices will fall (as rates rise). She therefore must sell high first, and buy low later. (The short perspective does not come naturally to many students, and most may not have heard of short selling at all. The instructor may therefore want to briefly describe shorting stocks, taking a short position in futures, using long puts or short calls to express bearish bets, or whatever other positions may help her students appreciate the potential to make money in down markets.) The dealer now accommodates her t=0 sale of a T-bond by reversing in collateral (lending cash against collateral); at t=1, she will buy a bond in the cash market (at a lower price, she hopes), returning that bond to her repo counterparty and getting her loan repaid with interest. In this case, her profit will come not only from the decrease in price, but also from the interest she earns in the repo market.

Once students have gone through these two basic examples, they are ready for two "plays." Each play—repo and reverse—has two scenes: t=0 and t=1. To remind students what time it is, one student can play "Father Time"; this student gets large cards with "t=0" and "t=1" printed on them, which he can hold up to announce the scene. Another student can play "the market"; this student has cards with the prices of T-bonds printed on them (three cards, one each for the two-, three- and four-pen prices). All of the other parts noted below are also played by students (except for the dealer, who is played by the instructor). Each actor gets a card telling her what she wants to do (buy a bond, sell a bond), plus perhaps a prop (a "T-bond" and/or some pens, which is the currency of the realm).

In classrooms whose the desks are arranged in a horseshoe shape, it is easy for the instructor to be in the center of the group and to pass things (pens and bonds) around. (For classrooms arranged more traditionally, with all desks facing forward, having the actors stand can help dramatize the exchanges.) It is more fun when both the instructor and the actors try to be as overly dramatic as possible. Students should enjoy this activity, but instructors should be warned: they will probably respond at the end with something like, "Cool! That worked! Wait, how did that work again?" Thus, instructors should provide diagrams for them to study afterward. (Another possible pitfall: If they are asked later to explain the process on a test, they might respond in terms of pens. Students will probably laugh when reminded that a pens-to-dollars translation is necessary, but it is a good reminder. Lesson three, below, can also help make this translation explicit.) Tables 1 and Table 2 describe the repo and the reverse repo plays, respectively.

Table 1: A One-Act Repo Play

| **CAST** | |
|---|---|
| **Character/Mission** | **Endowment** |
| FATHER TIME | two cards noting times (t=0 and t=1) |
| THE MARKET | three cards noting prices (2, 3, and 4 pens) |
| DEALER | nothing |
| profit when T-bond price rises: buy low, then sell high (borrowing cash to finance a long T-bond position) | |
| REPO COUNTERPARTY | 2 pens |
| profit on cash loan (e.g., a money market mutual fund) | |
| INVESTOR #1 | T-bond |
| sell a T-bond at t=0 | |
| INVESTOR #2 | 4 pens |
| buy a T-bond at t=1 | |
| **SCENE 1: t=0** | |
| **Character** | **Action** |
| FATHER TIME | shows "t=0" card |
| THE MARKET | reveals the price of a T-bond: 2 pens |
| REPO COUNTERPARTY | gives DEALER 2 pens |
| DEALER | uses 2 pens to buy T-bond from INVESTOR #1 |
| DEALER | gives T-bond to REPO COUNTERPARTY |
| **SCENE 2: t=1** | |
| **Character** | **Action** |
| FATHER TIME | shows "t=1" card |
| THE MARKET | reveals the price of a T-bond: 4 pens |
| DEALER | sells T-bond to INVESTOR #2 for 4 pens |
| DEALER | gives 3 pens to REPO COUNTERPARTY |
| REPO COUNTERPARTY | gives collateral T-bond back to DEALER |
| DEALER | gives T-bond to INVESTOR #2 |

*This table outlines the first "play," in which the DEALER enters into a repo transaction. She is borrowing money to finance her long position in T-bonds (she thinks T-bond prices will rise as rates fall). The dealer starts with nothing. At t=0, she borrows money (2 pens) from her REPO COUNTERPARTY, using the 2 pens to buy a T-bond (which she then gives to the REPO COUNTERPARTY as collateral for the loan). At t=1, after prices have risen to 4 pens, she retrieves this collateral bond from the REPO COUNTERPARTY, sells it at the new, higher price, then repays her loan with interest (a total of 3 pens: a 2-pen loan, plus 1 pen in interest). Because the price has risen by more than the interest charge she incurs, she profits by one pen. Note that the transactions are roughly coincident, so students need not worry that the DEALER sells or pledges something she does not (yet) have.*

Table 2: Reverse Repo: A One-Act Sequel

| **CAST** | |
|---|---|
| **Character/Mission** | **Endowment** |
| FATHER TIME | two cards noting times (t=0 and t=1) |
| THE MARKET | three cards noting prices (2, 3, and 4 pens) |
| DEALER | nothing |
| profit when T-bond price falls: sell high, then buy low (lending cash as part of a short T-bond position) | |
| REPO COUNTERPARTY | T-bond and 1 pen |
| borrow cash using collateral (e.g., a hedge fund) | |
| INVESTOR #1 | 3 pens |
| buy a T-bond at t=0 | |
| INVESTOR #2 | T-bond |
| sell a T-bond at t=1 | |
| **SCENE 1: t=0** | |
| **Character** | **Action** |
| FATHER TIME | shows "t=0" card |
| THE MARKET | reveals the price of a T-bond: 3 pens |
| REPO COUNTERPARTY | gives DEALER a T-bond |
| DEALER | sells T-bond to INVESTOR #1 for 3 pens |
| DEALER | gives 3-pen loan to REPO COUNTERPARTY |
| **SCENE 2: t=1** | |
| **Character** | **Action** |
| FATHER TIME | shows "t=1" card |
| THE MARKET | reveals the price of a T-bond: 2 pens |
| DEALER | buys T-bond from INVESTOR #2 for 2 pens |
| DEALER | gives T-bond to REPO COUNTERPARTY |
| REPO COUNTERPARTY | gives 4 pens to DEALER (loan + interest) |
| DEALER | gives 2 pens to INVESTOR #2 |

*This table illustrates the reverse repo, in which the DEALER manages a short position in T-bonds. She must reverse in a T-bond from her REPO COUNTERPARTY at t=0, using the money she gets from selling it (3 pens) as a loan to the REPO COUNTERPARTY. At t=1, the REPO COUNTERPARTY repays this loan with interest; the DEALER uses this money to buy a T-bond in the market (at the new, lower price), returning the collateral. The DEALER profits from the interest on the loan and on the decline in the bond's market price.*

Now that students have this necessary background, they should be ready to apply their knowledge in lesson two.

## SECOND LESSON: REPOS THROUGH HISTORY

Studying instances of significant financial market trauma can help students appreciate the integral nature of the repo market. In this section, we describe three such instances: the broad market's flight to quality and consequent dislocation after the 9/11 terrorist attacks; the specials market stress in 2003 that led to negative repo rates; and the great recession in 2007-8 and the Fed's ongoing response.

### 9/11

The 9/11 attacks destroyed significant amounts of financial market infrastructure in Manhattan, disrupting the (generally ignored) "pipes" that keep the money market functioning. Here, the big lessons for students of the repo market are that repo counterparties can "fail," and that the government can relieve a security shortage by reopening an issue. Fleming and Garbade (2002) describe these effects in detail. However, students may be more engaged if the instructor uses contemporary *Wall Street Journal* articles to motivate the relevant classroom discussion, because it is interesting to watch the Treasury's response as it unfolds across several articles. Specifically, students can get a good overview of events by reading Ip and Zuckerman (2001, from October 5), Zuckerman and Ip (2001; October 8), Downey and Derby (2001; October 10), and Christie (2001; October 11).

A "fail" is simply a failure to deliver a security. A counterparty may fail to deliver a specific security because it misunderstood the terms of the trade, because it is having operational problems, or because it simply does not have the security (having not yet received it from another counterparty, for example, in a "daisy chain" of fails; Fleming and Garbade, 2002). Failing is not viewed as defaulting (Duffie, 1996); in fact, a "fail is understood to be an economic decision by the lender…and carries no particular stigma" (Jordan and Jordan, 1997).

Fails can happen in either the cash or the repo market. If a short seller fails to deliver in the cash market, the delivery is rescheduled for the next day at the same price, and the short loses the time value of the purchase price for a day. In the repo market, if a repo borrower fails to deliver on the first leg of the transaction, the transfer is rescheduled for the next day, but the repo borrower still must pay the agreed-upon interest. Term repos (repos lasting longer than one day) that experience fails will still terminate on the originally scheduled date. Finally, if a reverse lender fails to deliver on the second leg of a transaction, the transfer is rescheduled for the next day; the borrower pays 0% interest for the extra day. (See Fleming and Garbade, 2004, and Fleming and Garbade, 2002.)

After 9/11, a tsunami of fails occurred, going from about $45 B per week before the attacks to $1.4 T for the week ending September 19 (Ip and Zuckerman, 2001). The earliest problems were spurred by the operational problems created by the damage suffered by one of the only two clearing banks, Bank of New York. Then, once the market reopened, many market participants fled to the safety of Treasury securities, and held them as rates fell. Lower rates meant less incentive for bond mutual funds—usually active participants in the repo market—to lend there. Foreign central banks also held their Treasuries, fearing fails. Mortgage-backed securities were repaid early, and their owners reinvested in Treasuries. Thus, as Treasuries were held or absorbed into "off-the-street" portfolios, the supply available for repo transactions dwindled.

Shortages leading to chronic fails can be eased by increasing the lendable supply of a security or increasing the cost of a fail (for example, by instituting a penalty fee; Fleming and Garbade, 2002). The Fed therefore increased supply by increasing the proportion of a specific issue that it would lend from its own portfolio (from 45% to 75%), and almost tripled the dollar amount available to any one dealer. However, the Fed can only lend what it owns, and to meet demand after 9/11, it did not own enough. As the volume of fails

grew and settlement continued to be "stone-age," regulators "worried that it might only be a matter of time before a dysfunctional repo market began to impair the Treasury market itself" (Zuckerman and Ip, 2001).

Thus, on October 4, the Treasury held a "snap" auction and reopened the ten-year note, increasing the size of the issue by 50% with no notice and with no underlying need to borrow. The reopening was simply meant to alleviate the shortage of the note—which it did—leading its specials rate to rise from less than 0.40% to more than 1%. This was the first time that the Treasury had reopened a note in a snap auction, and it "surprised the bond market" (Zuckerman and Ip, 2001).

The move led market participants to expect another reopening (in the five-year note), but this one did not materialize. On October 10th, market strategists had been saying that "At this point, the biggest surprise would be for [the five-year reopening] not to happen," but by the 11th , their line had switched to "We're now skeptical that they're going to do this additional five-year" sale (Downey and Derby, 2001, and Christie, 2001, respectively).

The fact that Treasury did not reopen the five-year underscores how unusual the ten-year move was. As Fleming and Garbade (2002) note, reopening an issue can have significant drawbacks. Some market participants think reopenings reward short-sellers and penalize long-term investors by driving down bond prices (Downey and Derby, 2001). In addition, by disrupting the Treasury's auction patterns—and by borrowing money that is not needed—reopenings introduce market uncertainty, which can increase borrowing costs. Thus, as an analyst commented after the ten-year reopening, "Treasury doesn't want the market to think it's going to respond to every whiff of a squeeze" (Christie, 2001).

These repo market impacts of 9/11 offer students both macro and micro insights into the financial markets. The big picture is that there is a lot of plumbing that keeps financial markets functioning, unhyped by ringing bells and media coverage. The government can influence—not control—this market, but some sorts of interventions are extremely rare. The micro lesson is that the repo market, in particular, has many norms governing the behavior of its participants, including around failing. We will now consider how those norms were severely tested just two years later.

Negative Repo Rates

In 2003, specials rates actually went negative. Fleming and Garbade (2004) provide an excellent analysis of this unusual market period, which forms the basis for this vignette in lesson two. Instructors should assign this short paper as preparatory reading.

At the time of this disruption, short-term rates were at their lowest levels in 45 years. However, as mentioned earlier, intermediate rates rose sharply during the summer, and market participants began short selling the on-the-run ten-year note to hedge further rate increases. As they then tried to obtain the note to cover these shorts, their demand caused the note's specials rate to fall to zero, and shorts began to fail.

With a 0% specials rate, failing to deliver leaves a short-seller in the same position as if she had reversed in the securities to avoid a fail: either way, she delivers the securities to someone tomorrow, with no change in price. If she fails to deliver on her short sale, she has to wait an extra day to receive her cash. If she instead avoids the fail by reversing in the securities, she lends at 0%, waiting a day to receive the same amount of cash. Thus, since she can always choose to fail, a short-seller should not *pay* money—lend at a negative specials rate—to avoid a fail.

Not surprisingly, in 2003, dealers found a way to turn the market's incentive structure into profits: failing on purpose. First, they arranged a term repo, borrowing money at the 0% specials rate. This obliged them to pay interest, even if they failed, but—at a rate of 0%—this stipulation was hardly onerous. Then, they

waited for the specials rate to rise. When it did, they lent at this new, higher rate, borrowing the loan money using the original 0% repo (which had been sitting dormant, waiting to be called upon). Borrowing at 0% while lending at more than 0% equals profit!

Eventually, the epidemic of fails—and the associated strategic games—had to end. Dealers were expending back-office resources to keep track of fails, and customers were getting annoyed that their securities were not being delivered. Dealers also had to hold additional capital against "aged" fails, tying up resources. Finally, dealers began to accept negative specials rates, paying interest to lend money, just to clear up their fails.

Going through this unusual 2003 example demonstrates not only the conventions around fails, but also that collateral can sometimes be so valuable that lenders will charge negative interest rates to get it.

From 2008 to Today

The lessons of 2001 and 2003 should prepare students to examine the repo market during the great recession: flights to quality, decreased supply, fails…it is all there. The novelty of the more recent period lies in the breadth of the Fed's response and the repercussions that linger to this day.

According to Gorton, *et al.* (2017), there is "no consensus on the cause of the crisis"; nonetheless, they conclude that the repo market was at the center of it. In mid-2007, financial market participants, facing volatile asset prices and increasing uncertainty, began to worry about the liquidity of their investments and the stability of their counterparties (Hördahl and King, 2008). In the ensuing flight to quality, lenders became less willing to lend in traditional markets—a "virtual shutdown of the unsecured interbank lending market"—so borrowers moved to the repo markets.

However, there was little comfort there. Margin requirements rose as repo lenders refused all but the shortest and highest quality collateral. Term repos "dried up," and by September, "the entire US GC repo market was trading at rates associated with special collateral" (Hördahl and King, 2008). As lenders demanded Treasuries for collateral, while those with Treasuries refused to lend them, the repo rate for Treasuries fell near zero. As was illustrated in 2003, low repo rates reduce the cost of failing; during the 2007-8 crisis, fails increased almost 30 times, exacerbating the supply disruption.

This disruption was devastating for the investment banks that were accustomed to using the repo market to finance highly levered portfolios of assets like mortgage-backed securities and CDOs. For example, Bear Stearns' treasurer "had never worried about the disappearance of repo lending," but as the market dried up, it only took a few weeks for Bear Stearns to fail (Egan, 2018). Copeland, *et al.* (2014) show that the other marquee name, Lehman Brothers, also experienced severe funding stress immediately before its bankruptcy filing, almost like a bank run. In fact, Gorton, *et al.* (2017) assert that the 2007-8 financial crisis was actually "a repo run in two directions": lenders holding non-Treasury collateral ran to get their money back, while borrowers who had used Treasuries for collateral ran to get those Treasuries back.

The government responded to the market upheaval with significant interventions on multiple fronts. As in 2001, the Treasury reopened issues—four this time—to alleviate collateral shortages. They also instituted a 3% fee on fails (Driessen, 2016). Thus, the government used both of Fleming and Garbade's (2002) tools: increasing supply and increasing the cost of failing.

The government also created several new facilities specifically designed to address the crisis. (See Gorton, *et al.*, 2017, for a clear breakdown of the differences among the various facilities created by the Fed in response to the financial crisis.) The Term Auction Facility (TAF) lent cash to depository institutions, backed by collateral. (See Armakolla, *et al.*, 2017, for a discussion of similar measures undertaken by the

European Central Bank.) From 2008-2010, the Primary Dealer Credit Facility (PDCF) did the same for the Fed's primary dealers. The PDCF was designed as the primary dealers' liquidity backstop, consistent with the Fed's desire to have large institutions reduce their reliance on tri-party repos for funding (Reddy, 2008). The PDCF did, in fact, help stabilize the tri-party market (Copeland, *et al.*, 2014), and was especially in demand after the Lehman bankruptcy.

Of most interest for us is the Term Securities Lending Facility (TSLF), which was an auction facility that permitted primary dealers to exchange tri-party market-acceptable collateral for Treasuries for 28 days. This allowed dealers to upgrade non-Treasury collateral, which had been subject to increasing haircuts from a wary market; it also allowed dealers who needed Treasuries to unwind rehypothecation chains to get them. (In a rehypothecation chain, dealers who had received Treasuries in one transaction later sold them in a second unrelated transaction; the TSLF allowed them to return Treasuries to the first counterparty.)

Thus, the repo market was an important conduit for government intervention during the financial crisis. It has continued to grow in importance, as the Fed's extraordinary involvement throughout the great recession—which almost tripled the size of its balance sheet—has led to a need for "normalization" (Leong, 2013). As noted above, this normalization will be effected through the repo market, using a tool that "has the potential to change the fundamental structure of short-term lending markets; alleviate collateral scarcity; reinforce the push for simpler bank capital regulation; and approximate a Fed backstop for big swathes of US money markets" (Mackenzie, *et al.*, 2013). That tool is the overnight reverse repo facility (O/N RRP).

This facility, started in September of 2013, allows a relatively broad set of money market participants (such a money market funds, banks, primary dealers, and government sponsored enterprises) to lend money to the Fed in exchange for some of the Fed's $2 T in Treasury securities. This activity does not change the size of the Fed's balance sheet, since the Treasuries remain as Fed assets, while repos are substituted for reserves on the liability side. Thus, this facility is not designed to shrink the balance sheet (the Fed eventually will effect that by not rolling over maturing securities), but rather to "sop up" the excess cash generated by quantitative easing (Federal Reserve Bank of New York, 2017).

The overnight RRP facility offers multiple benefits. It provides a relatively elastic source of the highest quality collateral to the broad market, helping alleviate the collateral shortage that attended quantitative easing (Durden, 2013). Even more importantly, it provides the Fed the with an effective tool to establish a floor for the fed funds rate.

The Great Recession accelerated to 2008 the Fed's payment of interest on reserves, an innovation originally scheduled to begin in 2011. Allowing banks to earn interest on excess reserves (IOER) meant that they would be unlikely to lend those reserves in the fed funds market for less than the IOER rate, helping the Fed set a floor for the fed funds rate. However, since market participants like money market mutual funds and government sponsored enterprises are not allowed to earn the IOER, their activity in the fed funds market often forced rates below the Fed's target rate (Ihrig, *et al.*, 2015).

Enter the O/N RRP facility, which may create a new "de facto floor for official borrowing costs," "plugging the gap in the interest on excess reserves facility" and "potentially relegating the benchmark fed funds rate to a purely symbolic role" (Spicer and De Costa, 2013). Since cash lenders can park up to $30 B per day with the Fed at a fixed rate, other potential borrowers are forced to compete with "by far the biggest (and most creditworthy) borrower in the repo market" (Durden, 2013). Those potential cash lenders include money market mutual funds and government sponsored enterprises, so the repo facility has broad influence.

The facility thus has given the Fed more control over money rates. The O/N RRP offering rate has become "an anchor for repo rates quoted at different times during the day, reducing intraday volatility" (Senyuz and Tase, 2017). While the Fed has stated that it will use the current RRP facility "only to the extent necessary

and will phase it out when it is no longer needed to help control the federal funds rate" (Federal Reserve System Board of Governors, 2014), the effectiveness of repo rate targeting suggests that repo interventions will remain an important tool for monetary policy, justifying students' investment in studying them.

Having highlighted several examples of the integral nature of the repo market to the economy, we now turn to the third lesson: a more detailed set of transactions examples.

## THIRD LESSON: THE STUDENT IS THE DEALER

The final repo lesson for students involves diagramming several typical sets of repo transactions, taken from Fisher (2002). Going through these helps students understand how repos are often deployed, as well as how the step-by-step details play out. Their responses to these scenarios also provide instructors with a tool for assessing the efficacy of the repo module. (The actual assignment is given in the appendix.)

### Qualitative Examples

The three scenarios Fisher (2002) presents are a simple cash market intermediation, a "matched book" transaction, and a complicated multi-period hedged position. In this section, we will consider these qualitatively. In the next section, we will use actual recent market data to reconsider the final scenario quantitatively.

In all cases, we will make a few simplifying assumptions. First, we assume that transactions in both the cash market and the repo market settle on the day of the trade. In fact, however, cash Treasury transactions are settled the next day, while repo trades settle the same day (Jordan and Jordan, 1997; also see Duffie, 1996, for a theoretical model incorporating this timing issue.) Second, in the multi-period example, we show the exchange of cash and securities going back and forth at intermediate periods. However, in actual "open" repos, which are renegotiated daily, these exchanges would only occur when the repo arrangement was terminated (Jordan and Jordan, 1997). Third, we will assume that the on-the-run bonds (labeled "new T-bonds" in the graphic) are on special, as is commonly the case (Jordan and Jordan, 1997). Finally, we assume that we are evaluating the transactions from the position of a dealer, so that a "repo" implies borrowing and a "reverse" implies lending. (Note that these terms are switched when a non-dealer, such as the Fed, is the subject; thus, when the Fed borrows, it is said to be doing a "reverse repo." See Fabozzi, 2000, for a discussion of repo market terminology.)

The market participants with whom we may transact in this lesson are listed in Table 3.

Table 3: Market Participants for Third Lesson

| | |
|---|---|
| BASKERVILLE | He wants to sell an on-the-run T-bond, but not until day after tomorrow (t=2). |
| IRENE | She always wants a safe, short-term (overnight) investment. She doesn't care if her collateral is on- or off-the-run. She is in the market every day. |
| HUDSON | She wants to buy a T-bond today (t=0). She doesn't care if it's on- or off-the-run. |
| BENEDICT | He needs overnight financing for a leveraged position in on-the-run T-bonds. He is in the market every day. |
| MYCROFT | He wants to buy a T-bond, but not until day after tomorrow (t=2). He doesn't care if it's on- or off-the-run. |
| WATSON | He wants to sell an (old) T-bond today (t=0). |

*This table identifies the cash and repo market participants with whom we may transact in the three scenarios of the third lesson.*

In the first scenario, the dealer buys an old T-bond and sells it today. (The convention in the Treasury market is to call an issue "old" as soon as it goes off-the-run; when the next issue come out, this "old" issue becomes "old, old," and so on. We use "old" just to mean "off-the-run.") This scenario helps orient students to the players and their motivations, and illustrates the simplest way that a dealer can make money.

All she needs to do here is buy a bond at her bid from WATSON in the cash market, then sell it at her ask to HUDSON in the cash market, earning the spread. Easy!

The second scenario brings in the repo market. This is a "matched book" transaction (see Jordan and Jordan, 1997, for another example here). Whereas the first example required the dealer to take offsetting positons in the cash market, here she will do so in the repo market. Reviewing the list of market participants, we see that IRENE and BENEDICT are the repo market players: IRENE is an investor (like a money market mutual fund, perhaps), while BENEDICT is a borrower (perhaps a broker or other institution without access to funding sources like customer deposits). The dealer accommodates both.

The dealer enters into a repo transaction with IRENE, borrowing her money against suitable collateral. Where does that collateral come from? From BENEDICT. With BENEDICT, the dealer does a reverse: reversing in his securities (so she can give them to IRENE) and lending him IRENE's money.

The next day, both repo market transactions unwind. BENEDICT repays his loan to the dealer, plus interest; the dealer takes that money, repays her own loan to IRENE, retrieving the collateral which she then returns to BENEDICT. The dealer profits on the difference between the money paid to IRENE and the money received from BENEDICT.

Now that students have seen both a cash market and a repo market transaction, they are ready to put them together. The third scenario not only asks them to use both markets, but also requires them to deal with multiple days. In this case, the dealer buys an old T-bond today, but must wait two days before a buyer appears. In the meantime, she will want to hedge her long position in the old bond by selling short an on-the-run bond (recall that hedging is easiest using the most liquid bond).

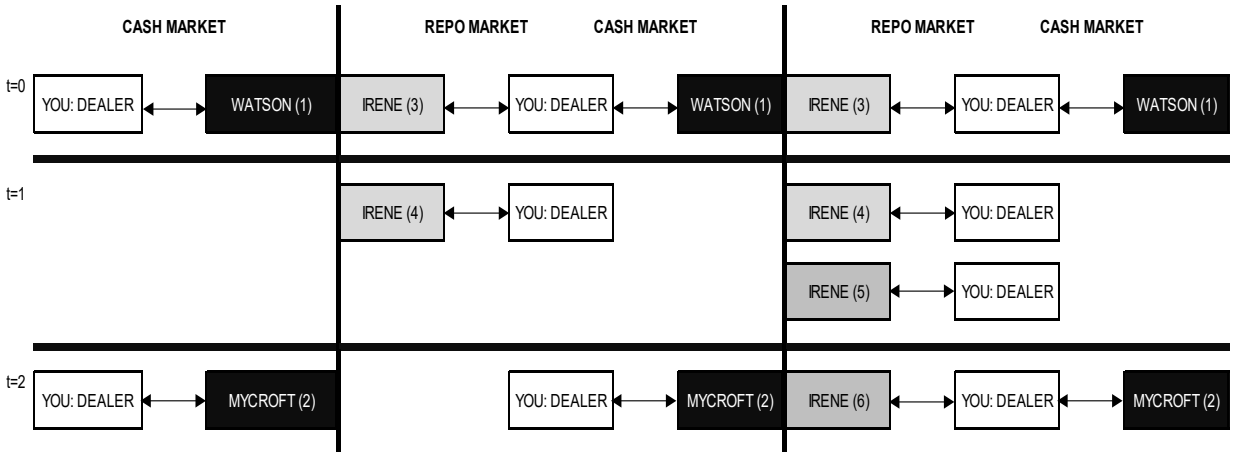
The full three-period scenario is diagrammed in Figure 2, which includes detailed step-by-step notes. However, students should approach this complex sequence in a smaller-picture, systematic way, as we demonstrate in Figure 1. This approach encourages them to focus on the underlying position (here, a long position in the old bond), and to recognize that the repo market transactions are used simply to accommodate that position.

In Figure 1, we work from left to right. The leftmost panel diagrams the underlying position: a long position in an old bond. This position is motivated by the dealer's expectation that prices will rise. She therefore needs to buy low at t=0: this is the cash market transaction shown at the top, in which the dealer buys from the cash-market seller, WATSON. This long position will be unwound at t=2, when the dealer sells this old bond to the cash-market buyer, MYCROFT. (If all goes as the dealer expects, the selling price to MYCROFT at t=2 will exceed the buying price from WATSON at t=0.) Everything that happens in the repo market simply happens to accommodate these two transactions.

To make the t=0 purchase happen, the dealer needs money. She will borrow this in the repo market. She can use the old bond she bought as collateral for a loan from IRENE. We see this in the middle panel of Figure 1: the dealer employs the repo market to get what she needs to effect her fundamental transaction in the cash market.

The problem with borrowing money from IRENE at t=0 is that the dealer needs to repay that loan at t=1. Where will she get the money? From IRENE! At t=1, the dealer and IRENE simply repeat their repo transaction. (Again, most repos are "open" repos, where the cash-for-collateral arrangements are renegotiated daily.) The central panel of Figure 1 shows the t=0 transaction with IRENE unwinding at t=1; the third panel then adds the additional t=1 repo and its t=2 unwind. Now, we've made all the links between t=0 and t=2.

Figure 1: The Step-by-Step Approach to Scenario #3 (without Hedge)




*In this figure, we diagram the essentials of the long position for the third scenario. The left-hand panel isolates the underlying long transaction: we buy low at t=0, and sell high at t=2. The middle panel adds the repo transaction that allows the dealer to buy a bond at t=0. The right-hand panel completes the picture by adding the second repo that allows the dealer to keep the position open from t=1 to t=2.*

Figure 1 describes the long position, but we also need to consider the hedge. Since the underlying position is long, the hedge must be short. The dealer will therefore take a short position in the hedging instrument, an on-the-run bond. First, at t=0, the dealer sells the new bond in the cash market to HUDSON. She will close this short at t=2 by buying a new bond from BASKERVILLE. To effect these transactions, she must reverse in a bond at t=0, with BENEDICT as counterparty; BENEDICT gets a loan, using the money from the bond sale. This reverse repo then must be unwound and repeated at t=1. All of these transactions are diagrammed and described in Figure 2.

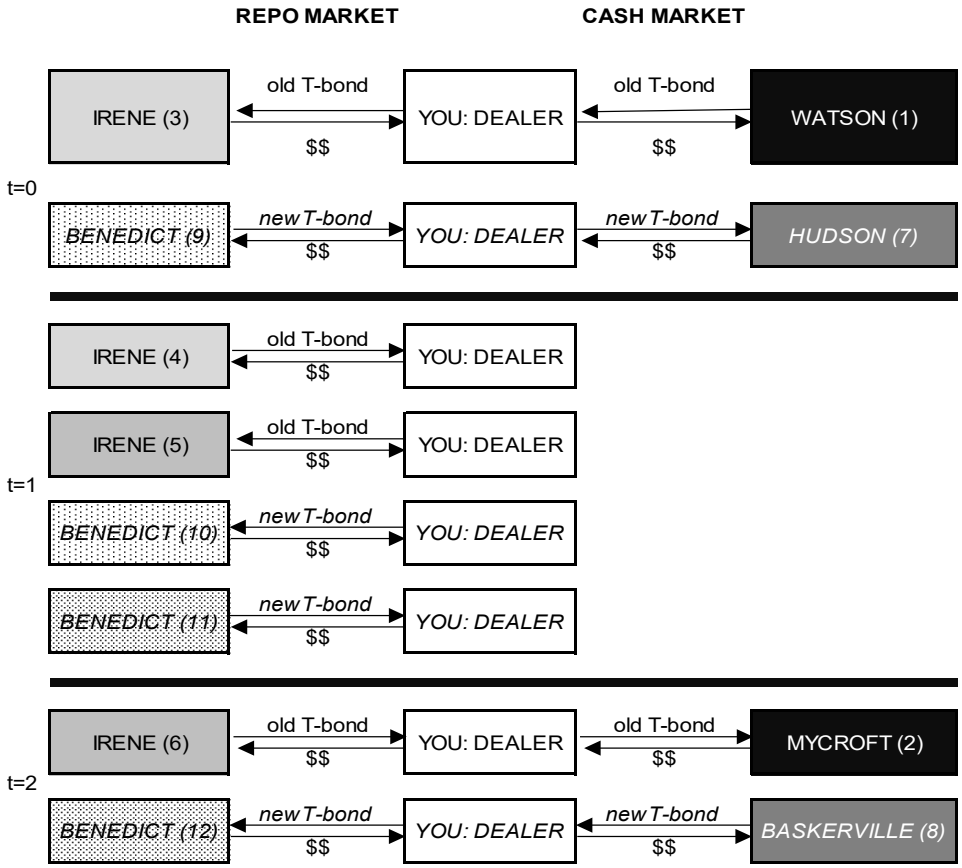
With this qualitative description in hand, we are ready to use actual quotes to see how the dealer makes money from these sorts of transactions.

Numerical Example Using the Two-Period Hedged Transaction

We will assume that the old bond purchased at t=0 is a 5-year T-note with a coupon rate of 2.875% and a YTM of 2.997%. (These are the characteristics for the note issued 10/1/18, with a maturity date of 9/30/23.) The price of this bond at t=0 is therefore $994.3740, assuming 10 periods to maturity. We will ignore accrued interest and any "haircut"—a discount in the amount lent against collateral to account for default risk—throughout this example. (For a numerical demonstration incorporating these issues, see Duffie, 1996. Incorporating accrued interest in the repo price has been standard practice since 1982, when a government securities' dealer's strategy of borrowing securities at prices excluding interest while selling them short at prices that included interest led to the dealer's "spectacular collapse"; see Acharya and Öncü, 2011.)

We use the New York Fed's broad general collateral rate (BGCR) of 10/11/18, 2.14%, for the general collateral repo rate (Federal Reserve Bank of New York, 2018). In Jordan and Jordan's (1997) sample of 50 T-notes that were on special in the early 1990s, the special rates were 10-400 bp below the general collateral rate, with an average discount of 123 bp (32% of the GC rate). Applying this same discount to our GC rate of 2.14% implies a specials rate for our example of 1.46%.

Figure 2: Scenario #3 by Period




| STEPS | THE POSITION | |
|---|---|---|
| 1&2 | original long position | You buy an old T-bond at t=0 (step 1). This is a long position. You will profit by selling this old bond for a higher price at t=2 (step 2) |
| 3&4 | finance your long position for first period | You need money to buy the old bond at t=0. You get it from IRENE in the repo market: you repo out the bonds and get an overnight loan (step 3). You pay her back at t=1 and get the old bond back (step 4). |
| 5&6 | finance your long position for second period | You still need financing at t=1, because you don't yet have a buyer for your old bond. You repeat your repo with IRENE (step 5). At t=2, you repurchase your old T-bond from IRENE (step 6), completing the second repo, then sell the bond to MYCROFT to complete your long trade (step 2). |
| | ***THE HEDGE*** | |
| *7&8* | *hedge your long with a short* | *You take a long position in the old T-bond, so you need to hedge with a short. You thus must sell a new T-bond at t=0. You sell to HUDSON. (Step 7 hedges step 1.) You will unwind this short hedge by buying a new T-bond from BASKERVILLE at t=2 (step 8).* |
| *9&10* | *accommodate the hedge with a reverse repo* | *You need a new T-bond that you can sell to HUDSON for your hedge. You reverse in this bond from BENEDICT (step 9). You lend to him the money you get from selling the new T-bond to HUDSON (step 7).* |
| *11&12* | *repeat the reverse* | *At t=1, you need to return the bond to BENEDICT (step 10). But, as with IRENE, you're not ready to unwind your position yet. You therefore repeat your reverse at t=1 (step 11). At t=2, you will return the bond that you reverse in, using the loan repayment from BENEDICT to pay for the new T-bond from BASKERVILLE (step 8).* |

*Figure 2 provides the complete long-position-plus-hedge diagram, building on the transactions from Figure 1. The steps are described, and are color-coded to match the relevant parts of the diagram.*

To find the implied price of the special 5-year T-note, we will use the no-arbitrage pricing equation from Jordan and Jordan (1997) (based on Duffie, 1996):

$$\text{price of bond on special} = \textit{price of general collateral} * \left[\frac{(1+m*general\ collateral\ rate)}{(1+m*specials\ rate)}\right], \qquad (1)$$

where $m$ is the number of days that the bond is expected to trade special, and the daily rates are the relevant quoted rates divided by 360 (the annualizing convention in the money market).

We will assume that our special note has $m$=2, to correspond with the length of our hedge. Our specials price is therefore \$994.3740*{[1 + 2*(.0214/360)]/[1 + 2*(.0146/360)]} = \$994.4115. This is \$0.0375 higher than the GC note, a difference equal to 2*[\$994.370*(.0214/360) - \$994.4115*(.0146/360)] = $m$*[GC price*(GC daily rate) – specials price*(specials daily rate)].

Since the special's price falls as the term of its remaining "specialness" falls, we will see the special's price fall at t=1 to \$994.3740*{[1 + 1*(.0214/360)]/[1 + 1*(.0146/360)]} = \$994.3928 (we will assume that the GC note's price stays the same; as Duffie, 1996 notes, this is a common real-world practice when repos are renewed). At t=2, the note goes off special, so its price will converge to the GC price. We will assume that our long position is profitable: yields fall by 24.7 bp to 2.750% at t=2, making the 5-year note price \$1,005.8022.

Now we can quantify the outcome of our two-period hedge. We will consider it both by period and by function. We start with the latter.

The fundamental position is long in the old (GC) T-note. We buy the bond at t=0 for \$994.3740 and sell it at t=2 for \$1,005.8022, making \$11.4282 (steps 1 and 2 in Figure 2). To hedge, we sell short the special T-note at t=0, receiving \$994.4115; we close our short at t=2 by buying the bond for \$1,005.8022, paying \$11.3907 for the hedge (steps 7 and 8). The net for these cash-market transactions is \$0.0375.

We facilitate the cash market trades using two repos with IRENE (borrowing to finance the long position) and two reverses with BENEDICT (lending the proceeds from our short). Since we assume the GC note is priced at \$994.3740 at both t=0 and t=1, the cost of borrowing from IRENE at the GC rate is 2*(\$994.3740)*(.0214/360) = \$0.1182. The interest we earn from BENEDICT equals [\$994.4115*(.0146/360) + \$994.3928*(.0146/360)] = \$0.0807; the net interest cost is therefore \$0.0375. Overall, considering both the cash market and the repo market trades, we end up at \$0. Now we see why Jordan and Jordan (1997) term the specials-pricing relationship as a "no-arbitrage" result, and why Fisher (2002) describes "convergence trades"—trying to profit from the predictable capital loss that occurs when a bond goes off special—as not profitable on average, since "the systematic movement in prices is offset by the relative financing costs."

Looking at this period by period, we start by earning \$0.0375 by selling the special to HUDSON for more than the cost of the old bond we buy from WATSON. At both t=1 and t=2, we lose \$0.0187, because we have to pay IRENE interest at a higher rate on our repo (the GC rate) than we receive from BENEDICT on our reverse. The rest of what we do at t=2—sell our old bond to MYCROFT and buy a new bond from BASKERVILLE—does not change anything, since the GC and specials prices have converged.

If a dealer expects a profit of zero, why is she going to all this trouble? Fisher (2002) answers by noting that "[i]f all goes well, the dealer earns a bid-ask spread that compensates for the cost of holding and hedging the inventory." In our simplified example, we have ignored the frictions that form the very basis for the dealer's business model. Of course, the dealer must also hope that the expected repo spread (the general

collateral rate less the specials rate) does not fall, forcing her to repurchase the special at a higher price than she expected.

To round out this example, let us consider how this baseline, no-profit situation changes as we change the most novel input *m*, the number of days that the new bond will stay on special.

The *m* term affects the price of the special bond, which in turn affects the interest received on the short hedge. (The GC price is not a function of *m*: thus, the long profit and long interest paid remain constant as *m* rises.) Since *m* falls every day, so does the special's price; when *m* falls to zero, the special's price converges to the GC price. Because the pricing of the special capitalizes the "repo discount," buying the special so that you can borrow cheaply against it is a zero-sum game: any benefit you get from the lower specials rate is taken away by the higher specials price. As we noted above, as long as rates do not change, our twelve-step plan will result in zero profit.

However, our twelve-step plan was initiated by our belief that rates would fall and bond prices would rise—that is why we start everything by buying a bond. In this case, *m* can matter, but it depends on its relationship to our holding period (which we will call *n*). As we have seen, if $m = n$, then the special's price at t=*n* equals the GC price at t=*n*, so *m* only affects the initial specials price and the interest we earn as we lend out the special for *n* days, and the arbitrage-pricing relationship ensures we end up at zero profit. This will also occur if $m < n$, since once the prices converge at t=*n*, there is no further price or rate difference between the long and short legs of our hedged position, so there is no room for profit or loss.

If, on the other hand, the bond will remain on special beyond our holding period ($m > n$), then we will not realize zero profit if rates change. We see this by considering *m* values through 91, restricting our analysis to a reasonable quarter-long period. Also, we still assume that the short price at t=*m* is found using the Jordan and Jordan (1997) equation, so that the specials price at t=*m* is a function of the GC price at t=*m*. (This is consistent with Fisher's, 2002, assertion that on-the-run bonds' prices "tend to move up and down" with off-the-run prices.) At a given value of *m*, the long interest paid exceeds the short interest received; this net interest loss outweighs the gain on the long and short positions. As *m* rises, this gets worse: even though the short interest received rises, more money is lost on the short sale. Thus, the dealer's livelihood is clearly contingent on her ability to earn a bid-ask spread.

## CONCLUSIONS

Characterizations of the repo market are consistent: "obscure but massive" (Hilsenrath and Rappaport, 2012); "little known but critical" (Ip and Zuckerman, 2001); "large but relatively opaque" (Hördahl and King, 2008). If the market is so important, why do standard undergraduate textbooks skim over repos by simply noting that they are like collateralized loans?

In this paper, we present three lessons that can help instructors give much more depth and context to their classroom discussions of repos. We start by describing a silly interactive play that should introduce the basic market players and their intentions while illustrating the various interactions among them.

We then outline three historical periods in which repos figured prominently. The most important take-away here is that the repo market undergirds much of the more visible market activity with which students are more familiar. This importance will only increase as the Fed begins to work toward "normalization" after the great recession, a process that will involve increased use of repos. Finally, we go through several dealer scenarios, going from the most basic to the fairly involved. Quantifying the most difficult of these scenarios highlights the value of hedging and the dependence of dealer profits on spreads. Instructors also can use students' ability to graph and explain the qualitative aspects of these scenarios as a way to assess the effectiveness of the repo module.

The lessons in this paper provide a broad overview of the repo market, but they form only a two-day sequence meant to be embedded in a financial markets survey course. More specialized finance courses, and macroeconomics courses focused on monetary policy, could incorporate many more aspects of this complicated market. For example, our third lesson contains two very basic and one very hard example; there is a lot of room for instructors to create scenarios of intermediate difficulty. These could be couched in terms of an examination of the various types of organizations that usually find themselves on either side of a repo transaction (e.g., money market mutual funds and hedge funds: how might they interact in a repo transaction?), a context only tangentially addressed here. Students could even be encouraged to create their own "plays" to describe these interactions. More advanced courses also could extend the numerical example by addressing the transaction timing differences in the repo and cash markets, and incorporating the haircuts applied to various sorts of repo collateral. Finally, there is much room to expand the consideration of international issues, such as the differences between CCP trades and tri-party repos, which our lessons do not address.

While lesson three serves as a type of assessment of the module's efficacy, a more careful examination is warranted. As repos become a much more important and visible part of monetary policy, and thus a more integral part of markets courses, instructors will want evidence identifying the types of exercises that provide students with lasting insight. Thus, assessment is clearly a fruitful avenue for future research. Another is—as just noted—the expanding ways in which the Fed and other central banks use reps to effect monetary policy. The 2007-8 financial crisis demanded new tools, and repos have answered the call. Now, pedagogy just needs to catch up.

## APPENDIX: ASSIGNMENT BASED ON FISHER (2002)

(This assignment is assigned as homework, with students encouraged to work in pairs to develop their answers.)

You are a dealer. You start with nothing. You goal in this problem is to figure out how you can take/finance/accommodate various positions that you'd like to take, based on your expectations for Treasury bond prices. You can transact in both the spot/cash (regular) market, and in the repo/reverse market. (We'll just call the latter the "repo" market from now on.)

Remember:

> We can clarify how repos work by considering what happens to the collateral (T-bonds in our example):
>
> **REPO OUT, REVERSE IN**.
>
> You can obtain financing in the repo market, and can also find investment opportunities there (it all depends on which side you're on). When we refer to the "repo" market, we really mean the "repo and reverse" market—both sides are possible. All repo market transactions have two parts: today's and tomorrow's. Don't forget to unwind your transactions!

Here is some background on *you*:

> When dealing with investors in the spot market, you buy at a bid (lower) price and sell at an ask (higher) price. Thus, you earn a spread.
>
> You are able to set different interest rates for your repo and reverse repo transactions. Thus, you have the potential for another spread.

All of the repo market transactions in your world are overnight.
You must finance (fund/accommodate) every position you take, since you start with nothing.

To repeat: you can't buy anything without money, and you can't sell something you don't have!

You may choose to hedge your positions. You use *shorts* to hedge *longs*, and vice versa.

When you hedge, you use the most liquid securities (the on-the-run securities). Thus, the assets you use to hedge may not perfectly match the assets you're hedging. (This is called "basis risk.")

We only care about *your* positions—if your counterparties have positions other than those they have with you, we don't care about how they finance them.

Your potential counterparties are described in Table 3 in the text. Note that some of these potential counterparties sometimes may be unavailable to you, depending on the details of the scenario.

For each of the three scenarios below, explain carefully how you can accomplish your goals (i.e., do what the scenario wants done, and make money). Identify the counterparties you will use (**who**), **how** you will work with them, and **when** your trades will happen. You may need several days to accomplish your objectives, or you may just need today. Be sure to note how you make money in a given scenario. Since we haven't specified any rates or prices, you can just say "higher" or "lower" for "price" and/or "rate." Again, some counterparties may not make sense in a given scenario. Others may be used multiple times in a given scenario. You must be part of every trade: you cannot simply match two counterparties together without your intervention (why would you do that?).

Note that diagrams help enormously with repo problems.

Scenario #1:

You buy an old T-bond today and sell it today.

Scenario #2:

A "matched book" transaction. Here, you just want to be an intermediary. You aren't trading T-bonds for your own portfolio. You take two offsetting positions in the repo market, a long and a short.

Scenario #3:

You buy an old T-bond today, but can't find a buyer today. You will have to wait a few days before a buyer appears. You will hedge the risk of your position using an on-the-run T-bond.

## REFERENCES

Acharya, Viral V. and T. Sabri Öncü (2011) "The Repurchase Agreement (Repo) Market," Chapter 11 in *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance* by Viral V. Acharya, Thomas F. Cooley, Matthew Richardson, and Ingo Walter, Wiley.

Armakolla, Angela, Raphael Douady, Jean-Peaul Laurent, and Francesco Molteni (2017) "Repurchase Agreements and the European Sovereign Debt Crises: The Role of European Clearinghouses," working paper, 10/6. Accessed June 25, 2019 at: laurent.jeanpaul.free.fr/Armakolla_et_al_2017.pdf

Baklanova, Viktoria, Cecilia Caglio, Marco Cipriano, and Adam Copeland (2016) "The U.S. Bilateral Repo Market: Lessons from a New Survey," Office of Financial Research Brief Series, No. 16-01, 1/13.

Brealey, Richard A., Stewart C. Myers, and Franklin Allen (2014) *Principles of Corporate Finance*, 11th ed, McGraw-Hill Irwin, New York.

'Repo' Market Ease," *Wall Street Journal*, Credit Markets, October 11.

Copeland, Adam, Antoine Martin, and Michael Walker (2014) "Repo Runs: Evidence from the Tri-Party Repo Market," Federal Reserve Bank of New York Staff Report No. 506, August.

Craig, Susanne and Mike Spector (2010) "Repos Played a Key Role in Lehman's Demise," *Wall Street Journal*, March 13. Accessed October 25, 2018 at: https://www.wsj.com/articles/SB10001424052748703447104575118150651790066

Downey, Jennifer and Michael S. Derby (2001) "Treasurys Fall as Wall Street Urges the Treasury to Sell More 5-Year Notes to Ease 'Repo' Problems," *Wall Street Journal*, Credit Markets, October 10.

Driessen, Grant A. (2016) "How Treasury Issues Debt," Congressional Research Service, August 18.

Duffie, Darrell (1996) "Special Repo Rates," *The Journal of Finance*, vol. 51(2), June, p. 493-526.

Durden, Tyler (2013) "The Logic Behind the Fed's Overnight Reverse Repurchase Facility: Not Taking, But Adding Liquidity," Zerohedge, August 25. Accessed November 16, 2018 at: https://www.zerohedge.com/news/2013-08-25/logic-behind-feds-overnight-reverse-repo-facility-adding-liquidity

Egan, Matt (2018) "The Stunning Downfall of Bear Stearns and Its Bridge=Paying CEO," CNN Business, March 16. Accessed November 28, 2018 at: https://www.cnn.com/2018/09/30/investing/bear-stearns-2008-crisis-jimmy-cayne/index.html

Fabozzi, Del J. (2000) *Fixed Income Analysis for the Chartered Financial Analyst Program*, Association of Investment Management and Research, Charlottesville, VA.

Federal Reserve Bank of New York (2018) "Treasury Repo Reference Rates." Accessed October 11, 2018 at: https://www.newyorkfed.org/markets/treasury-repo-reference-rates

Federal Reserve Bank of New York (2017) "FAQs: Reverse Repurchase Agreement Operations." Accessed November 16, 2018 at: https://www.newyorkfed.org/markets/rrp_faq.html

Federal Reserve Bank of New York (2015) "Update on Tri-Party Repo Infrastructure Reform," June 24. Accessed October 25, 2018 at: https://www.newyorkfed.org/newsevents/statements/2015/0624_2015.html

Federal Reserve System Board of Governors (2014) "Policy Normalization Principles and Plans," press release, September 17. Accessed November 16, 2018 at: https://www.federalreserve.gov/newsevents/pressreleases/monetary20140917c.htm

Fisher, Mark (2002) "Special Repo Rates: An Introduction," *Federal Reserve Bank of Atlanta Economic Review*, Second Quarter, p. 27-43.

Fleming, Michael J. and Kenneth D. Garbade (2004) "Repurchase Agreements with Negative Interest Rates," *Current Issues on Economics and Finance*, Federal Reserve Bank of New York, vol. 10(5), p. 1-7.

Fleming, Michael J. and Kenneth D. Garbade (2002) "When the Back Office Moved to the Front Burner: Settlement Fails in the Treasury Market after 9/11," *FRBNY Economic Policy Review*, Federal Reserve Bank of New York, November, p. 35-57.

Frost, Josh, Lorie Logan, Antoine Martin, Patrick McCabe, Fabio Natalucci, and Julie Remache (2015) "Overnight RRP Operations as a Monetary Policy Tool: Some Design Considerations," Finance and Economics Discussion Series 2015-010, Washington: Board of Governors of the Federal Reserve System.
Gorton, Gary, Toomas Laarits, and Andrew Metrick (2017) "The Run on Repo and the Fed's Response," working paper, Stanford Economics, November 8.

Hilsenrath, Jon and Nat Rappaport (2012) "Heat is on Triparty Repos," *Wall Street Journal*, May 4.

Hördahl, Peter and Michael R. King (2008) "Developments in Repo Markets During the Financial Turmoil," *BIS Quarterly Review*, December, p. 37-53.

Ihrig, Jane E., Ellen E. Meade, and Gretchen C. Weinbach (2015) "Monetary Policy 101: A Primer on the Fed's Changing Approach to Policy Implementation," Finance and Economics Discussion Series 2015-47. Washington: Board of Governors of the Federal Reserve System. Accessed June 25, 2019 at: http://dx.doi.org/10.17016/FEDS.2015.047

Ip, Greg and Gregory Zuckerman (2001) "Treasury Sale Averts a Crisis in the 'Repo' Market," *Wall Street Journal*, Credit Markets, October 5.

Jordan, Bradford D. and Susan D. Jordan (1997) "Special Repo Rates: An Empirical Analysis," *The Journal of Finance*, vol. 52(5), December, p. 2051-2072.

Kidwell, David S., David W. Blackwell, David A. Whidbee, and Richard L. Peterson (2006) *Financial Institutions, Markets, and Money*, 9th ed., John Wiley and Sons, Inc., New Jersey.

Leong, Richard (2013) "Fed Considers Reverse Repo Plan to Achieve Rate Target," Reuters, August 21. Accessed November 16, 2018 at: https://www.reuters.com/article/us-usa-fed-minutes-repo/fed-considers-reverse-repo-plan-to-achieve-rate-target-idUSBRE97K0ZN20130821

Mackenzie, Michael, Tracy Alloway, and Cardiff Garcia (2013) "Fed Considers New Repo Tool to Smooth Policy Exit," *Financial Times*, August 29.

Madura, Jeff (2007) *Financial Markets and Institutions*, 7th ed., Thomson South-Western, Mason, OH.

McGrory, Eugene (2014) "An Overview of the European Repo Market," BNP Paribas presentation. Accessed June 25, 2019 at: econ.sciences-po.fr/sites/default/files/file/mcgrory.pdf

McMillan, Michael G., Jerald E. Pinto, Wendy L. Pirie, and Gerhard Van de Venter (2011) *Investments: Principles of Portfolio and Equity Analysis*, John Wiley and Sons, New Jersey.

Mishkin, Frederic S. and Stanley G. Eakins (2006) *Financial Markets + Institutions*, 5th ed., Pearson/Addison-Wesley, Boston.

Morris, Graham (2006) "Two UBS Traders Said Left Firm in Midst of Probe," HITC, November 3. Accessed December 10, 2018 at: https://www.hitc.com/en-gb/2006/11/03/two_ubs_traders_said/

Ng, Serena and Gregory Zuckerman (2006) "SEC Shines Light on Obscure Market," *Wall Street Journal*, Credit Markets, November 1.

Pisani-Feryy, Jean and Guntram B. Wolff (2012) "Propping Up Europe?" Bruegel Policy Contribution No. 2012/07. Accessed June 20, 2019 at: http://hdl.handle.net/10419/72125

Reddy, Sudeep (2008) "Bernanke Defends Policy of Low Rates," *Wall Street Journal*, August 23.

Senyuz, Zeynep and Manjola Tase (2017) "Overnight Reverse Repurchase (ON RRP) Operations and Uncertainty in the Repo Market," FEDS Notes, October 19. Accessed November 16, 2019: https://www.federalreserve.gov/econres/notes/feds-notes/overnight-reverse-repurchase-operations-and-uncertainty-in-the-repo-market-20171019.htm

Spicer, Joseph and Pedro da Costa (2013) "Fed Wants Yet Another Tool in its Swelled Policy Kit," Fed Focus, Reuters, September 8. Accessed November 16, 2018 at: https://www.reuters.com/article/usa-fed-repo/fed-focus-fed-wants-yet-another-tool-in-its-swelled-policy-kit-idUSL2N0H01QB20130908

Tarullo, Daniel K. (2016) "Pedagogy and Scholarship in a Post-Crisis World," keynote speech at the Conference on the New Pedagogy of Financial Regulation, Columbia Law School, New York, 10/21. Accessed June 20, 2019 at: https://www.federalreserve.gov/newsevents/speech/tarullo20161021a.htm

Teall, John L. (2018) *Financial Trading and Investing*, 2nd ed., Academic Press, UK.

Zuckerman, Gregory and Greg Ip (2001) "Unscheduled Auction Boost the 'Repo' Market, Though Difficulties Remain with Five-Year Note," *Wall Street Journal*, Credit Markets, October 8.

## BIOGRAPHY

Lynda S. Livingston is a professor of finance at the University of Puget Sound in Tacoma, WA, and a founder of the not-for-profit educational investment company Four Horsemen Investments.

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 51-59
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# CLASSROOM FLIPPED: EVIDENCE OF SIGNIFICANT LEARNING IN INDUSTRIAL ECONOMICS UNDERGRADUATE STUDENTS

Martin Romero Castillo, Escuela Nacional de Estudios Superiores Unidad Leon,
Universidad Nacional Autónoma de México

**ABSTRACT**

*The objective of this paper is to analyze implementation of the Flipped Classroom model. The analysis included a sample of 30 students, through the application of a questionnaire with individual interviews. We gather information on the student experience using the flipped classroom. Results revealed significant improvements in the learning process of the students who used the Flipped Classroom model in the course Theory of Econometrics.*

**JEL:** A22, I21

**KEYWORDS:** Flipped Classroom, Significant Learning, Education

## INTRODUCTION

This paper describes the results of an innovative teaching experience that introduces the Flipped Classroom model for students in the course econometrics theory. Data were gathered in 2017-2018, for undergraduate students of Industrial Economy at the National School of National School of Higher Studies Leon Unit of the Universidad Nacional Autónoma de Mexico. The university has head office in the city of Leon, Guanajuato, Mexico. A problem that arises in higher education is the lack of selflessness, low utilization, and students that play a passive role in their own learning. It is the responsibility of the teacher to foster motivation for students to actively participate and produce their own knowledge. Students at the University examined are digital natives. They use different information and communication technologies including smartphones, tablets and computers. They regularly use technology for entertainment or social communication with friends or family. However, technology is used far less for educational purposes to help improve the learning. Professors must adapt technology meet current student needs and become a mediator-facilitator for students in higher education.

The Flipped classroom model inverts the roles of traditional teaching. Unver the Flipped Classroom model, class activities, usually taught by the teacher, are now carried out by the student from his/her home (study of the previous reading of indicated material). This is done through the use of multimedia technologies (smartphone, tablet, laptop, others). Classroom time involves activities that require a greater participation and interaction, where the teacher participates only as a facilitator (Estes, Ingram and Liu, 2014). This study examines use of the Flipped Classroom model to promote a more active role among the students. The goal of the flipped classroom is to motivate students to learn and find new knowledge through the use of digital devices or their applications. This is done in such a way that, from their home or any site, they use the technologies for a didactic purpose. Students, guided by the teacher as facilitator, can carry out work that makes possible a more active, participative role in the construction of their learning. Time in the classroom is used for activities that require greater participation and interaction. The objective of this work is to analyze the Flipped Classroom model as a strategy for education that stimulates significant learning

of students. The research question is: To what extent the Flipped Classroom model favors learning by undergraduate in Industrial Economics students?

Flipped classroom teaching approaches may result in more autonomous, independent, self-constructive and participatory students with a high confidence in themselves. They may develop other competencies that will facilitate the tasks of their profession. This document is organized as follows: The next section presents a review of the flipped classroom literature. The following section presents the methodology. The paper continues with a presentation of results. Finally, the paper closes with some concluding comments.

## LITERATURE REVIEW

The origin of the inverted classroom was first reported by Lage, Platt and Treglia (2000) and later as it relates to a specific economics course by Tucker (2012). Bergmann and Sams (2012) sought a solution to prevent students from missing classes. They began recording the content of their classes and distributing the videos to students for review. They referred to this process as the Flipped Classroom model (Bergman and Sams, 2012; Talbert, 2014). The Flipped Classroom model brought a change in the dynamics of the work in the classroom. It reverses the roles of traditional teaching. Activities of class, usually given by professor, are now performed by the student at home (study of the previous reading of indicated material), through the use of information and communication technologies (videos, forums, chat, email, social networking). This approach allows a constant interaction of the student with the teacher and with their classmates. Face-to-face lectures are reserved for activities which require greater participation and interaction. The teacher participates only as a facilitator (Bergman and Sams, 2014; Lage, Platt and Treglia, 2000).

The integration of emerging technologies in learning offers more options for content and redefines class time as an environment focused on students (MacKinnon, 2015). In addition to items of technology, the theoretical framework of learning is related to the model construct (Davies, Dean and Ball, 2013). Specifically, with regard to the process of collaborative construction, questioning and resolution of problems in a joint work program (Vigostky, 2012). Therefore, the classroom becomes a context of collaboration and exchange between students. It stimulates and encourages the teaching and learning of the students, promoting group participation, group discussions and the resolution of problems (Angelini, 2016). Experiential learning is based on a process of "student-centred continuous learning", in which the student experiences, reflects, contemplates and acts on what is learned (Coufal, 2014). In the case of the flipped classroom, experiential learning allows the student to practice in class, experiment, reflect, think and act in the construction of knowledge (Yeganeh and Kolb, 2009).

The flipped classroom model focuses on the identification of competencies to be developed in the student. The teacher must classify course content into direct instruction items (video-conference) and those that are better in experimentation. To reach these goals professors should proceed with a methodology centered on the student (Bishop and Verleger, 2013). This leads to the implementation of active tasks and collaboration, involving the deployment of mental activities within the classroom where the teacher participates as facilitator (Baepler, Walker and Driessen, 2014). The flipped classroom has been transformed in recent years as a didactic resource of great relevance. The approach demonstrates the benefits available from the development of some programming. It inserts in a culture of digital learning (Coufal, 2014).

### Flipped Classroom Model and Experiential Learning

Experiential learning is based on a process of "continuous learning student-centered", in which the student experience, reflects, contemplates and acts on what is learned (Coufal, 2014). In the case of the classroom flipped, experiential learning allows the student to do the practice in class, experiment, reflect, think and act in the construction of knowledge (Yeganeh and Kolb, 2009). Emphasizing that they require the help of

the educator to reach its full potential, in addition to highlighting the importance of collaboration and interaction of the active participants between the students and the teacher. Therefore, the implementation of the classroom invested in class, in a context of collaboration and exchange among the students, stimulates and promotes the teaching of students learning, promoting group participation, group discussions and resolution of problems (Findlay-Thompson and Mombourquette, 2014). As a basis for the above, the Flipped Classroom model, considers as an essential element, the identification of target competencies that must be developed in the student. At this point, the teacher must classify the contents that need to be learned by direct instruction (video-conference) and those that are better placed in the experimentation (Davies, Dean and Ball, 2013). To reach the goals we should proceed with a methodology centered on the student (Bishop and Verleger, 2013); which leads to the implementation of active tasks and collaborative involving the deployment of mental activities superiors within the classroom where the teacher participates as facilitator (Kong, 2014). The flipped classroom has been transformed in recent years into a didactic resource of great relevance, whose extension and dissemination demonstrates the advantages it can offer for the development of optimal learning and inserts in a culture of digital learning throughout life (Baepler, Walker and Driessen, 2014; Galway, Corbett, Takaro, Tairyan and Frank, 2014).

Flipped Classroom Model and Active Learning

This section describes theories about how the Flipped Classroom model offers an alternate method of study. The environment, the mediation teacher and multimedia technologies provide an essential element for the improvement of learning. Lage, Platt and Treglia (2000) argue for the need to improve the learning of a group with different types of learning that existed in one area. This was important given the diversity of students gathered in a group and the traditional styles of teaching of professor. The authors developed an environment of media, designed for students with different abilities, so that students could access easily and to integrate into the group (Mason, Shuman and Cook, 2013; Mattis, 2014). The Flipped Classroom model, through the support of multimedia technologies, allows the student to choose the best method, time and space to acquire knowledge at his/her own pace (Cheung, 2014). The material is in the multimedia system at different levels, for which the student can easily access. Knowledge acquisition is the responsibility of both students and professors with the professor having the role of facilitator to guide the practical activity and learning (Angelini, 2016; Enfield, 2013).

To implement the Flipped Classroom model successfully, from the beginning of the academic cycle, the teacher notifies students of the steps to follow on the use of the methodology. These include items such as: outlining the objectives, planning to implement the new model, and training in the use of the Flipped Classroom model. This structure provides the student numerous opportunities to demonstrate, with practice, the apprehension of the content (Blair, Maharaj y Primus, 2015). The central investigation of this work is to analyze whether the Flipped Classroom model and the use of multimedia technologies favors the learning by students. If strategies like the inverted classroom are used more in higher education schools, we may form more autonomous, independent, self-constructive, participatory students with a high confidence in themselves. These students can develop other skills that will facilitate the tasks of their professions.

## METHODOLOGY

The methodology used is qualitative descriptive. The method involved the analysis of a sample of 30 students. The purpose of the study is to obtain information about the perception and experience of the students regarding the Flipped Classroom model. The method of observation and semi structured interviews was used with the intention of thinking about how to understand the perspective of the participants. We study experiences, perspectives, opinions and meanings regarding the Flipped Classroom model (Cohen, Manion and Morrison, 2007). Since the method is qualitative, the research is non-probabilistic, and the results cannot be generalized. However, the results obtained are of great importance. The results indicate

student's perception and experiences in the natural classroom (Cohen, Manion and Morrison, 2007). The results allow analysis and evaluation of whether the Flipped Classroom model stimulates and favors learning. in the students participating that course theory econometric in the undergraduate in Industrial Economics program of the National School of Studies Superior unit Leon, in the period 2017-2018.

The sampled students were observed and asked semi-structured interviews questions. The 30 students were divided into 5 teams in groups of 6 students, who voluntarily, attended classes and participated in the implementation of the Flipped Classroom model.

Table 1 presents a summary of the methodology applied a group of 30 students that participated in the observation process and the application of the instrument with semi-structured interviews. The six teams interviewed, participated voluntarily in the process of implementing the flipped classroom Table 1 shows a summary of the methodology applied, described in the five following phases: The first phase is to exchange. Students are now completing activities at home which were previously performed in class. The second phase is completed in class is to perform activities. In this stage, students present work done at home, and get feedback from peers through the guidance and advice of the professor. In the third phase, the students design and develop videos with information about the activity studied. Finally, students by teams present the video in class, thereby creating interest, participation and collaboration among students. This tool is useful because it allows you to reinforce the exercises performed in class. In addition, some students cannot attend class and review of these videos at home helps them obtain the information.

Table 1: Summary of the Methodology to Implement Semi-structured Interviews to Students

| **Methodology** | **Qualitative Analysis** |
|---|---|
| Method | Participant observation<br>Interviews with semi-structured questions |
| Sample of the participant group | 30 students (group-class) |
| Instrument with semi-structured questions for data collection | Notes for observation in various class sessions<br>Interviews with semi-structured questions to students:<br>Team 1: Interview 1,<br>Team 2: Interview 2,<br>Team 3: Interview 3,<br>Team 4: Interview 4,<br>Team 5: Interview 5. |
| Analysis type | Analysis of observations<br>Analysis of responses of semi-structured interviews |

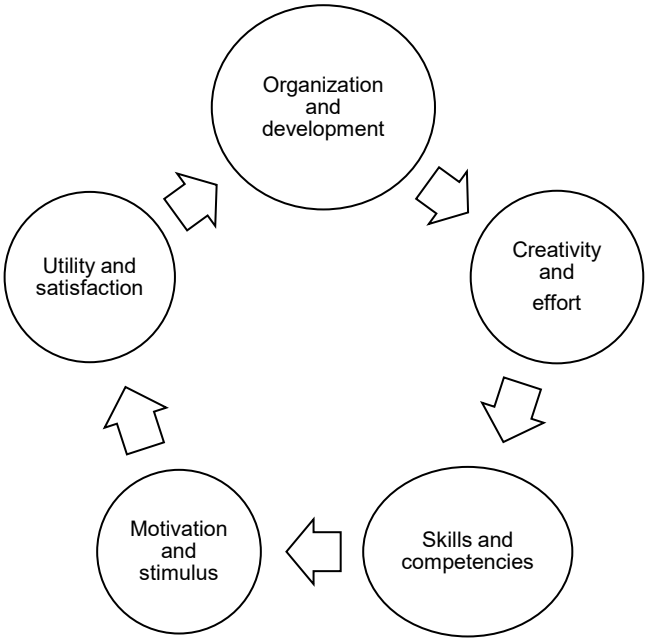
*Table 1 presents a synthesis of the methodology to implement the semi-structured interviews to a sample of 30 student, divided into 5 teams in groups of 6 students who participated in the implementation of the Flipped Classroom model. The experiment was implemented a Theory of Econometrics course in the period 2017-2018.*

Once the participant observation process was completed, the semi-structured individual interviews were conducted. From the results obtained, five levels or categories were identified: Organization and development, creativity and effort, skills and competencies, motivation and encouragement, utility and satisfaction.

## RESULTS AND DISCUSSION

In the analysis of the data, categories appear that give meaning to the development of the study. Figure 1 shows the categories or levels identified as a result of interviews with students made up of teams of five students.

Figure 1: Categories or Levels for Conducting the Interviews of Students




*This figure shows the categories identified through interviews with a sample of 30 students, grouped into by 5 teams of six students each, who participated in the implementation of the Flipped Classroom model. The model was implemented in a Theory of Econometrics course in the undergraduate in Industrial Economics program, in 2017-2018. Categories identified are: organization and development, creativity and effort, skills and competencies, motivation and encouragement, usefulness and satisfaction.*

In the category organized and development, students were asked how they organized and planned to work from home. We want to know how they study and understand topic assigned for the first activity, before coming to class. The teams interviewed commented that initially they did a reading of the subject in the book, and consulted other documents and videos available on websites. The results were as follows:

"For the first activity, we started the work practically out of nowhere, we had some notion on the subject (...)" "We divided the themes of the first activity, we read the book, such as bibliographies online, we seek explanations in video, we summaries and among ourselves we clarified the doubts that were emerging" (Interview 1).

"For the development of the activity, my partner and I divided the work; we read, analyze and consider carefully the chapter (…) and be able to write a good summary since this information is rise directly to the website (…)" (Interview 2).

"(…) Our team is available to develop a summary where each identified the main ideas and secondary of that topic, to consequently, develop a brainstorming where we all make the ideas more relevant to the text, describing objectively and relevant types of forecasts more used, its purpose and the tools used for this (…)" (Interview 5).

For the second, category creativity and effort, students indicate that developing the video called for greater effort and time. Students had to investigate teaching tools and skills on how to design and create videos on the internet. The results are as follows:

"At first we had a hard time making the first video, clearly it was the hardest part, teach us about the march and even more complicated was to find the perfect didactic tool so that our companions could attend and

understand the topic, in a way fun and interesting, beyond what is commonly done in classes (…)" (Interview 1).

"We decided to carry out a free blog in an internet page, because we believe that anyone can access the website from the comfort of your home, school or work (…)" (Interview 2).

"The development of the video was developed using Apple's IMovie program (...) " "We have a previous meeting (...) Filming small fragments of the video by means of a Smartphone and analyzed possible corrections or improvements to it, consequently the video was edited in the program earlier mentioned" (Interview 3).

"(…) the team decided for realizing an interactive video in the platform Powtoon, where every member, already in its house, was responsible for the synthesis of a specific point of the chapter already knowing the general context (...)" (Interview 4).

In the third category skills and competencies generated, students interviewed noted that once they were able to acquire the skills and tools needed to design and create a video, it was easier for them to elaborate the videos with content on the activity. The results obtained are:

"Finally it was decided by the blog "webnode", here you could use graphics and images to call the attention of the user and with videos of auto-recordings of exercises that explains the activity (…)" (Interview 2).

"The video was presented to our classmates in the class assigned to expose this activity (…)" having good acceptance from our peers, facilitates the learning and create greater interest in the class (...)" (Interview 3).

For the category motivation and stimulation, the process for the elaboration of a video differed by team. However, each wanted to achieve the same goal: to make a video that had a creative activity, that was entertaining and understandable to stimulate and motivate learning of the viewing students. Once they acquired and developed the skills to make the videos, it was easier for them to use the videos to study and review the topics to be investigated. The results obtained in the teams interviewed are:

"(…) When we exposed the video in class, our classmates were very nervous because it was the first time, but it was very friendly, in the classroom an excellent atmosphere has been perceived, there is a lot of understanding and tolerance, with the time everyone has been able to develop their expression skills (...) " (Interview 1).

"At the end of the session, a brief feedback was made by our team on the structure to develop the script with the content on the subject of the video, as well as the motivation and initiative for the elaboration of the video delivered "(Interview 3).

"The video caused interest and kept the attention of the companions. During the presentation there were questions on the part of our colleagues and arguably the issue was clear because, was very well synthesized the video and also reason for the roommates to investigate and read the topic (...)" (Interview 4).

Finally, the category utility and satisfaction makes reference to results obtained in developing the videos by teams of students. The interview results show comments on the importance and usefulness of the videos for the understanding and learning of the activity in class. Subsequently, the effort was rewarded when they presented the videos in class.

"We understood the meaning of the inverted classroom, encouraged the interest to learn, use all possible means, generated more empathy for the teaching work of our teacher (...)" "It is good to exchange roles and

feel the responsibility of doing a good job for Our companions learn a theme, it was a very pleasant experience (...)" (Interview 1).

"(…) The implementation of video tutorials on the internet really pleased our classmates; It serves as a tool to reinforce the exercises we do in class, some students for various issues can not attend in class and the review of these videos at home would help them to review the Class View, and thus not be delayed "(interview 2).

"The presentation of the video in the class created major interest, participation and collaboration in the companions, facilitating the creativity and understanding of the topic (...)" " After the class we speak and decide that it was a good form of work and that we would keep on implementing it" (Interview 3).

"At the end of the class, we concluded that the change of roles through the work of the students in team at home, and presenting the video with the work at the end in class, creating enthusiasm and good disposition by the companions, we all participate in the activities achieving a Better understanding of the subject, benefits the creativity and innovation of the activities (...)" (Interview 5).

## CONCLUDING COMMENTS

The objective of this work is to study and evaluate the effects of the Flipped Classroom model on students who studying Theory Econometric in the undergraduate in Industrial Economics program, in the period 2017-2018. We explore the extent that the Flipped Classroom model favors learning. We establish categories of consideration. From these categories we infer some patterns and guidelines of action of the students. Categories were selected based on answers given by the teams on the usefulness and implementation of the inverted classroom.

Students were organized and planned to work to create a video which is linked to collaboration and interaction between the teams. All students who participated in the development of the video, were stimulated by the learning results, which in turn is linked to the category of utility and satisfaction. To develop a video according to an assigned activity, meant that the students made an effort through work at the home. Students agree on the positive influence of professor for the development and understanding of the activity assigned in class.

Students found the methodology to be a valuable teaching aid. The approach improved the student's academic performance. It allows reinforcement of exercises and practices carried out in the classroom, without the distractions of the class. Some students cannot attend class. The review of these videos at home helps them understand materials. The inverted classroom has substantial potential in Industrial Economics and in other races of the National School of Higher Studies Unit Leon, as well as in academic institutions of higher education. A limitation of the present study is that many teachers do not use innovative classroom techniques.

## REFERENCES

Angelini, M. Ls. (2016), "Integration of the Pedagogical Models 'Simulation' and 'Flipped Classroom' in Teacher Instruction, SAGE Open, vol. 6, nº 1, p. 1-8.

Baepler, P., Walker, J.D. & Driessen, M. (2014), "It's not about seat time: Blending, flipping, and efficiency in active learning classrooms", *Computers & Education*, vol. 78, September, p. 227-236

Bergmann, J. & Sams, A. (2012), *Flip Your Classroom. Reach Every Student in Every Class Every Day*, 1th ed., Copublished by ASCD and ISTE, Eugene, OR: Alexandria, VA

Bergmann, J. & Sams, A. (2014), "Flipped learning: Maximizing face time", *TD Magazine*, 68(2), p. 28-31

Bishop, J.L. & Verleger, M.A. (2013), "The Flipped classroom: A survey of the research". *ASEE National Conference Proceedings, Atlanta, GA*, vol. 30(9), p. 1-18

Blair, E., Maharaj, C. & Primus, S. (2015), "Performance and perception in the flipped classroom", *Education and Information Technologies,* vol. 21(6), p.1465-1482

Cheung, S. (2014), "Developing information literacy and critical thinking skills through domain knowledge learning in digital classrooms: An experience of practicing flipped classroom strategy". *Computers & Education*, vol. 78, September, p. 160-173

Cohen, L., Manion, L. & Morrison, K. (2007), *Research Methods in Education.* 6th ed., Routledge, London and New York

Coufal, K. (2014), "*Flipped learning instructional model: perceptions of video delivery to support engagement in eighth grade math*", (doctoral thesis), Lamar University, Retrieve of *ProQuest, UMI Dissertations Publishing*. (UMI 3634205)

Davies, R., Dean, D. & Ball, N. (2013), "Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course". *Educational Technology Research and Development*, vol. 61(4), p. 563-580

Enfield, J. (2013), "Looking at the impact of the flipped classroom model of instruction on undergraduate multimedia students at CSUN", TechTrends, vol. 57(3), p.15-27

Estes, M. D., Ingram, R. & Liu, J.C. (2014), "A review of flipped classroom research, practice, and technologies". *International HETL Review*, vol. 4, article 7, Retrieve Web site: https://www.hetl.org/feature-articles/a-review-of-flipped-classroom-research-practice-and-technologies

Findlay-Thompson, S. & Mombourquette, P. (2014), "Evaluation of a flipped classroom in an undergraduate business course". *Business Education & Accreditation*, vol. 6(1), p. 63-71

Galway, L., Corbett, K., Takaro, T., Tairyan, K. & Frank, E. (2014), "A novel integration of online and flipped classroom instructional models in public health higher education". *BMC medical education,* 14(191), p. 1-9

Kong, S. (2014), "Developing information literacy and critical thinking skills through domain knowledge learning in digital classrooms: An experience of practicing flipped classroom strategy". *Computers & Education*, vol. 78, p. 160-173.

Lage, M., Platt, G. & Treglia, M. (2000), "Inverting the classroom: A gateway to creating an inclusive learning environment". *The Journal of Economic Education*, vol. 31(1), p. 30-43

MacKinnon, G. (2015), "Determining useful tools for the flipped science education classroom", *Contemporary Issues in Technology and Teacher Education*, vol. 15(1), p. 44-55

Mason, G., Shuman, T. & Cook, K. (2013), "Comparing the effectiveness of an inverted classroom to a traditional classroom in an upper-division engineering course". *Education, IEEE Transactions on Education*, vol. 56(4), p. 430-435

Mattis, K. (2015), "Flipped Classroom versus Traditional Textbook Instruction: Assessing Accuracy and Mental Effort at Different Levels of Mathematical Complexity". *Technology, Knowledge and Learning*, vol. 20, October, p. 231-248

Talbert, R. (2012), "Inverted classroom". *Colleagues*, vol. 9(1), article 7. Retrieve Web site: http://scholarworks.gvsu.edu/colleagues/vol9/iss1/7

Tucker, B. (2012), "The flipped classroom", *Education Next*, vol. 12(1), p.82–83. Retrieve Web site: http://educationnext.org/the-flipped-classroom/

Yeganeh, B. & Kolb, D. (2009), "Mindfulness and experiential learning". *OD Practitioner*, vol. 41(3), p. 13-18

Vigotsky, L.S. (1980), *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press, USA. ISBN 0-674-57629-2

## BIOGRAPHY

Martín Romero Castillo. Physical and Master degree in Operations research at the National Autonomous University of Mexico (UNAM), master in corporate Finance from the University of La Salle Bajio, and is a PhD in education from the American continent University of Celaya. Professor of the undergraduate in Industrial Economics of the National School of Higher Studies Unidad Leon, of the Universidad Nacional Autonoma de Mexico.

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 61-70
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# DIRECT SERVICE AND PROFESSIONAL DEVELOPMENT DURING DISASTER RECOVERY EFFORTS

Lucas Martin, State University of New York Polytechnic Institute
Rafael Romero, State University of New York Polytechnic Institute

**ABSTRACT**

*Disaster recovery professionals often focus on activities such as coalition building, grant development, and technical assistance in impacted communities. While these capacity-building activities are crucial for setting a solid foundation to help any disaster-affected community, direct rebuild services that occur in the field serve the immediate needs of disaster victims. Disaster recovery professionals who participate in direct rebuild services, gain important first-hand knowledge of personal and communal factors that can only be understood at the ground level. This study explains the differences between direct and indirect rebuild services and spotlights how engaging in both service areas help one become a more resilient leader. Following the devastating 2017 hurricane season, many direct service-based disaster rebuild efforts were initiated, including efforts in Puerto Rico through a special program set-up by the State University of New York (SUNY). Volunteer service-based initiatives allow students to develop competencies and insights from experiential-based learning, which ultimately can help students forge careers in disaster recovery.*

**JEL:** L3, O1

**KEYWORDS:** Disaster Recovery, Volunteer Management, Resilience

## INTRODUCTION

The 2017 hurricane season was the most devastating recorded to date, totaling $344 billion dollars in global damages. A total of 330 natural catastrophes occurred in 2017, including tropical storms Harvey and Maria, two of the most destructive storms in United States history. The National Oceanic and Atmospheric Administration (NOAA) estimated that the damage caused by Hurricane Harvey was at least $125 billion, making it the second-costliest US tropical storm ever. This massive cyclone greatly impacted the Texas Gulf Coast and Greater Houston. According to the Federal Emergency Management Agency (FEMA), the primary threat from Hurricane Harvey occurred due to historic flooding and record rainfall with totals of 60.58 inches. Hurricane Maria devastated Puerto Rico as a Category-4 hurricane. NOAA estimated that Hurricane Maria's damage to Puerto Rico and the U.S. Virgin Islands was more than $90 billion. These figures make Hurricane Maria the third most costly storm in US history to date, just behind Hurricanes Katrina in 2005 and Harvey in 2017.

FEMA supports the United State's emergency management programs and has identified five *Mission* areas of emergency management for properly handling catastrophic damage. These *Mission* areas include Prevention, Protection, Mitigation, Response, and Recovery. Following a major disaster, FEMA utilizes the National Disaster Recovery Framework (NDRF) to support their Recovery Mission's collaborative efforts for the restoration and revitalization of the affected region's damaged infrastructure and economy.

This framework also establishes important responsibilities for all involved stakeholders as they plan to rebuild.

In addition to FEMA, the Corporation of National and Community Service (CNCS) is the federal agency that supports national service programs, including AmeriCorps. AmeriCorps programs are diverse in services available and therefore defines the distinction between direct and indirect service types. Direct services are more explicit in nature. They can involve individually working with service recipients and/or stakeholders through activities that include mentoring, food/supplies distribution, manual labor, and project supervision. In contrast, indirect services more developmental and are carried out through capacity building activities that can include coalition building, volunteer recruitment, grant writing, and project coordination. Disaster recovery *Missions* often constitute both direct and indirect relief support services. The contrasts are made in processes that are more strategic (indirect) versus those that execute the plans (direct).

Because of experiential-based direct rebuild service programs that were implemented after 2017 hurricanes, the author was able to gain invaluable on-site hands-on experience which taught important leadership aptitude and career advancement. Results will show a concrete example of how participation in direct service activities can lead to valuable professional development in fields relating to community recovery and building capacity. The remainder of this study will be organized with sections that include a literature review, data and methodology, results, a path forward, assessment, and concluding comments.

## LITERATURE REVIEW

Interest in disaster management often engages scholars and professionals of different backgrounds to study specific topics and then publish their findings and conclusions. The following are just a few interesting examples.

In the book, *The Student Leadership Challenge: Five Practices for Becoming an Exemplary Leader, authors* James Kouzes and Barry Posner identify leadership traits that can be utilized and matured when taking on leadership roles of mission operations. The book's authors account first-hand stories of students and how they defined their leadership objectives using progressive steps of action led by a set of guiding principles. These practices are broken down as model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. Such practices are very beneficial to utilize when volunteering and performing any type of disaster relief service.

L*essons learnt from innovation: Red Cross volunteers* by Georgia Hay reveals how Red Cross volunteers in Australia fostered disaster resilience in communities by practicing resiliency measures themselves. Red Cross's "Emergency Services Volunteer Leadership Group" (ESVLG) volunteers that were assigned to the most challenging projects, had the greatest leadership experiences. These volunteers were then identified as having the best potential to support emergency preparedness, response, and recovery activities within their collaborative projects.

Further research explored elements that make an effective volunteer program. *The Limits and Possibilities of Volunteering: A Framework for Explaining the Scope of Volunteer Involvement in Public and Nonprofit Organizations* by Rebecca Nesbit, Robert Christensen, and Jeffrey Brudney illustrates eight dimensions of volunteer involvement and management. These dimensions are based on the choices of organizations and individual volunteers. They include how an organization decides to use volunteers, how many volunteers are needed, the scope of volunteer work, the volunteer status of contributors, how volunteers enter & exit a program, the characteristics of the volunteers, the duration of volunteer commitment, and the quality of volunteer work. Many choices and strategic decisions must be made when organizing and managing a volunteer program. Common methods of measuring impact focus on

quantitative elements such as the number of volunteers required for volunteer hours dedicated. However, the article explains how additional elements should be evaluated such as culture, community relations, and leadership attributes. Ultimately, a sustainable volunteer program can be crafted through strategic planning, compelling work, and the efficient allocation of resources.

On the other hand, in the article *Improving disaster response through the science of work,* Natalie Wright and Lori Foster explain how disaster responders who are not properly vetted or trained can often produce a negative impact to disaster response efforts because of the negative psychological attitudes and outcomes they can create. Wright and Foster explore the relationship between Industrial Organization (I-O) psychology and disaster response. I-O psychology addresses the thoughts, attitudes, and "human elements" of poorly trained workers that contribute to a variety of workplace challenges. Their scientific research shows that good response can be optimized when there is a strong focus on workers' well-being. Therefore, they conclude that those working in the realm of disaster services must have the right characteristics and proper training that will allow successful work in stressful, chaotic, and uncertain crisis situations.

Some believe that traits such as volunteerism and leadership are hereditary. The article *Is Volunteerism in Your DNA?* by Marc P. Palker attempts to show how parents can influence one's likelihood to volunteer. The focus is on examples in upbringing that develop attitudes that support commitments to causes. Palker then explains how the ability to gain diverse experiences through volunteerism can prove to be more valuable than immediate monetary compensation.

The history and goals of the New York Stands with Puerto Rico initiative are detailed in the article *New York Helps Puerto Rico Recover from Hurricane Maria* by Susan Milligan. There was public criticism following Hurricane Maria related to the lack of support Puerto Rico received from the US Federal Government and FEMA. The State of New York, in contrast, was very assertive in their aid for Puerto Rico, largely due to the state's large Puerto Rican population and aspirations of Governor Andrew Cuomo. The state deployed emergency personnel to the island immediately after the storm, donated supplies and equipment. Immediate efforts set the foundation for over 500 SUNY and City University of New York students to volunteer on the island during 2018. The initiative for students was formed to also be transformative for participants to gain valuable skills while earning university credit.

Successful disaster response and recovery efforts also need collaboration between direct and indirect disaster service professionals as stated by Jason Ford, Vice President of Regional Economic Development at the Greater Houston Partnership in his article *Economic Development Leadership.* Ford explains that the successful response in Houston following Hurricane Harvey was due to the implementation of strong community partnerships, effective volunteer infrastructures, and organized fundraising efforts. Ford delves deeper into the role of economic developers where tasks were expanded to include both recovery and economic resilience when natural disasters happen. Examples include wealth attraction, job retention, and workforce development strategies. He notes that specific economic development tasks help minimize various negative impacts both prior to and after disasters, as well as promote the aftergrowth of strong and resilient communities.

However, not all recount the response to Hurricane Harvey in a positive light. The article *What We Didn't Learn from Harvey* by Mimi Swartz is an account of the destruction that occurred due to the storm in Houston and concerns for the future of the city. With over $89 billion in federal aid to assist all 2017 Hurricanes, the belief is that individualism, "sluggish" response and a growing threat of climate change will threaten the city. Reflections indicate that future disaster will occur, especially if lessons are not learned from Hurricane Harvey.

Furthermore, *Designing, planning, and managing resilient cities: a conceptual framework,* by Kevin Desouza and Trevor Flanery, explores economic feedback loops present in urban development that can promote the progress of resilient ecosystems. In their study, they introduce several strategies that lead to resilience which are: the assumption of change and uncertainty; nurturing conditions for recovery; and renewal after disturbance. Desouza and Flanery explain that citizen-driven response can be nurtured by creating opportunities that improve social connection, education, and community cooperation.

*Disaster Preparation and Recovery: Lessons from Research on Resilience in Human Development,* by Ann Masten and Jelena Obradovic, defines and compares studies of resilience. Development, both to both human or ecosystem, can be hindered by trauma that disrupts development. Intelligent resilience that is incorporated into disaster recovery requires high-levels of knowledge integration, information analysis, and an in-depth understanding of how systems operate together. Resilient frameworks are needed for disaster planning and must integrate fields such as science, engineering, healthcare, engineering, and more. Doing so allows an individual to learn from past mistakes to judge future risks and to sustain functionality under pressure.

## METHODOLOGY

In the spring of 2018, New York State Governor Andrew Cuomo announced the "SUNY Stands with Puerto Rico" initiative. This program mobilized college students from the State University of New York (SUNY) and City University of New York (CUNY) to join rebuild projects in Puerto Rico that were managed by various "on-the-ground" nonprofit organizations. At the time, the "SUNY Stands With Puerto Rico" initiative addressed an immediate need for direct rebuild services in Puerto Rico. The author of this report, a student at SUNY Polytechnic Institute, was assigned to work with NECHAMA Jewish Response to Disaster, a 501(c)(3) organization that aids with the recovery of homes and businesses impacted by natural disasters. This nonprofit's methodology was founded on the Jewish principle of "Tikkun Olam," meaning "repairing the world."

The primary focus of this paper is to report on the author's two weeks of fieldwork and the lessons learned while participating in the "SUNY Stands with Puerto Rico" during June of 2018, in San Juan, Puerto Rico. This assignment was an experience-based volunteer opportunity that involved hands-on labor such as concrete scraping, power washing debris, chiseling out of damaged cracks, and re-sealing roof leaks on private homes damaged by the storm. This work involved personal interaction with local property owners and neighborhood residents who were directly impacted by Hurricane Maria and who shared feedback about the relief efforts being carried out. As a result of the "SUNY Stands with Puerto Rico" initiative, in 2018 was New York State students reported 41,000 hours of combined service to help restore 178 homes.

While volunteering in Puerto Rico from June 15th, 2018 to June 29th, 2018, the author recorded fieldwork activities, labor work progress, and feedback from conversations with residents in a daily journal. The journal's input captured a variety of opinions and reflections of all who were involved during the program through observations and testimonials gained while volunteering in San Juan, Puerto Rico. Assets captured by the journal included contemplation on regular faculty-led discussions and lectures regarding the status of disaster recovery, cultural appreciation, and situational awareness.

The author of this report also participated in FEMA's Emergency Management Institute (EMI) to ensure that the study delved deeper into best practices related to emergency management. The EMI courses utilized are IS-2900.A: National Disaster Recovery Framework (NDRF) Overview that explores the national approach to disaster recovery, and "IS-240.B: Leadership and Influence" that explores how to achieve shared goals during emergency management.

An AmeriCorps Volunteer in Service to America (VISTA) role set the precedent for indirect service methodologies utilized from 2017-2018. AmeriCorps VISTA is a federal volunteer program supported by the Corporate of National and Community Service (CNCS) where members commit a year towards projects at nonprofits & public agencies in the mission of poverty alleviation. As a VISTA, indirect operational tasks are completed to support capacity building. For example, administrative tasks are performed that can leverage both cash and in-kind resources for a nonprofit organization or community.

At the time of the Puerto Rico trip in 2018, the author was finishing a 1-year assigned role as a VISTA Leader supporting the US Economic Development Administration (EDA). Duties included the management of volunteers, designated to specific regional communities, to fulfill the EDA's mission of leading "the Federal economic development agenda by promoting innovation and competitiveness, preparing American regions for economic growth and success in the worldwide economy." By leading the VISTA team's professional development goals, progress was made to support regional economic development, with an emphasis placed upon sustainable and resilient strategies. FEMA's National Preparedness Goal defines resilience as "the ability to adapt to changing conditions, as well as withstand and rapidly recover from disruption due to emergencies."

## RESULTS

Numerous skills were gained by participating in the "SUNY Stands with Puerto Rico" initiative including: adapting to challenging situations, collaborating with teammates from diverse backgrounds, and to accepting multiple levels of program's intent when working in vulnerable communities.

Understanding how to adapt to challenging situations was a main theme of the Puerto Rico service project. During the weeks leading to departure, many program changes had to be made which impacted the trip's logistics. Some examples included modifications to the project's service dates, switching the nonprofit organization that would host our specific group, and continuous revisions to the project's work scope requirements. With all these requirement changes, it became important for the group members to retain a sense of flexibility of expectations since on-the-ground assignments would likely change daily. Although team members had prior experience in construction work before deployment to Puerto Rico, many had to quickly adopt a new set of skills required for major roof repair.

When assigned to project site in Puerto Rico, the cohort had to be prepared for surprises that would impact daily tasks. For example, sudden rain storms would require the shift of daily priorities. In addition, there were instances where tools would malfunction or break. This would require changes to how tasks at hand would need to be completed. Furthermore, the team of volunteers performed their tasks in very hot and humid conditions. Because the physical labor was intensive, frequent breaks were required to ensure the team could be productive and endure long workdays.

To complete a multitude of challenging rebuild projects in ever-changing work conditions, teammates within the cohort had to be interdependent on each other for needed support. Extensive roof repair could not be completed without an elevated level of team collaboration. Individual volunteers would take turns removing old concrete, sealing cracks, removing debris, and cleaning equipment. Strong teamwork was crucial to guarantee that proper levels of work safety were maintained. SUNY students came from different regions of the New York state, from where they brought a variety of unique life perspectives from different areas of study. Successful team cohesive was the result of the student's ability to learn and trust one another which allowed them to achieve the common goal being successful in their disaster repair efforts while stationed in Puerto Rico.

Building trust from within the communities being served was also necessary for the initiative to be successful. Being New Yorkers working within various Puerto Rican neighborhoods, it was important for

students to work with a strong purpose and resolve, as for many resident's homes and businesses had been ravaged by the storm. As ambassadors from our respective universities, it was our duty to clean up the construction site before leaving, to treat homeowners with dignity, and to be accountable for all issues that arose.

One local homeowner expressed tears of gratitude after her roof was repaired. She was thankful that there were no more leaks after months of living in a damaged home. She went on to tell her neighbors about the repairs on her home. These neighbors would eventually request services from the nonprofit NECHAMA. Through the application of intentionality during the assignment work, deeper connections and trust was instilled with local Puerto Rican homeowners. Word-of-mouth marketing led to new leads for services requested.

After two weeks of direct service in Puerto Rico, personal outputs achieved were seventy-six total hours of direct service committed towards disaster repair, while working on a team that repaired roofs on three homes. SUNY students embraced the challenges and trusted new teammates. A new level of professionalism was established by being intentional in the field. A progression towards more resilient Puerto Rican nonprofits was observed with lessons learned in the face of demanding projects.

A crossover in skills acquired between direct service in Puerto Rico and AmeriCorps VISTA service is displayed while performing indirect capacity building services. For example, my volunteer assignment managed volunteers deployed to regional communities with their own economic opportunities and threats. To fulfill a successful VISTA year, an individual must face the adversity of living on a stipend in a temporary volunteer role. Beneficial practices that applied to both direct volunteer work in Puerto Rico and indirect service as an AmeriCorps VISTA were inspired by the novel, *The Student Leadership Challenge: Five Practices for Becoming an Exemplary Leader.* This novel was assigned reading for the cohort of SUNY students that volunteered in Puerto Rico during the summer of 2018. Practices highlighted in the book include modeling new frameworks to measure results, executing a shared vision for volunteers, updating work processes, empowering volunteers during challenging situations, and inspiring volunteers to make more community calls during projects.

The outputs of the author's 2017-2018 VISTA Leader year were over $1,000,000 in combined in-kind and cash resources that were leveraged through successful grants and donations. The author helped manage volunteers that implemented regional economic development strategies and hazard mitigation plans. In addition, the author completed 30 hours of "mucking and gutting" direct disaster services in South Texas during the summer of 2018.

Following the service year as an AmeriCorps VISTA, an opportunity arose to fulfill a temporary role at the EDA, specifically related to disaster recovery. The role involved the processing of disaster funding opportunities in communities impacted by Hurricane Harvey. The author applied both experiences from the direct service opportunity in Puerto Rico and the service year as an AmeriCorps VISTA to adapt to the new full-time position. Although the newly acquired position to support the EDA did not involve direct repair services on homes, it did support the administration of recovery dollars invested in the community for construction, infrastructure, and technical assistance recovery projects.

## A PATH FORWARD

SUNY Stand with Puerto Rico is a student volunteer program that sent over seven hundred state students to Puerto Rico for disaster recovery during the summer of 2018. This program was an example of an effective recovery volunteer program that saw joint partnerships with State government, local universities, and nonprofit organizations. The program led to the professional development of students through direct service. The SUNY Stands with Puerto Rico program is an offshoot of the New York Stands with Puerto

Rico effort, which was started in 2017 following Hurricane Maria. The state-led program helped deploy professionals and supplies to impact regions. University professionals reading this article may consider SUNY Stands with Puerto Rico as a model for implementing successful disaster recovery programs.

This article gives identifies steps that university professionals can take to develop the capacity of a successful student volunteer program. The developed student volunteer program should include both indirect strategic planning and direct student engagement in the impacted area. Student volunteer programs can be initiated at any college level, in the United States, and abroad. Actionable steps can be seen as the following activities: (1) resource map development; (2) complete a needs assessment; (3) strategize with a timeline; (4) execute project steps; and (5) feedback loop.

The first step is resource map development to identify key inputs toward program development. Secondary research is to be utilized to identify organizations that work in disaster recovery, the location of where the potential partner organization operates, the type of organization (nonprofit, faith-based, governmental), the organization's mission and a brief synopsis of their work, and primary points of contact for the organization. Primary research can be conducted by reaching out to points of contact at potential partner organizations to set up site visits or informational interviews. Take special note to identify philanthropic groups or project donors. State and Federal programs may also offer integration efforts to financially support student volunteer programs.

The second step is to complete a needs assessment which can be conducted simultaneously to resource map development. University professionals looking to begin a student volunteer program can utilize in-depth research to identify key stakeholders. Potential project partners working on the ground in the disaster impacted are can support the work of students. Be sure to initiate joint communication with the existing rebuild efforts in impacted areas. Create a document compiling the identified needs of organizations and stakeholders to see if a student volunteer program can fill such a gap.

While developing a needs assessment, university professional should begin to identify the scope of work to be completed during a student volunteer mission. Ensure that students are qualified for the type of recovery work needed to be completed. Both human and equipment resource needs should be identified and budgeted for. Consider partnering with other schools and their study abroad programs or career centers. Consider building a syllabus for credit-earning electives or independent studies that students can apply to degree earning programs.

The third step is to strategize with a timeline to develop programmatic logistics. Items to include in this framework include the timeframe to initiate fundraising, program promotion, student recruitment, to set the deployment dates, and to create travel itineraries. In the development of the program, safe and reasonable accommodations for students should be setup. Examples of student residences during service include partner school campuses, faith-based organization, or local host families. The initial project steps, programmatic goals, duties for leadership roles, volunteer assignments, and target initiation dates should be set during this step.

The fourth step is to execute the project steps. At this point, the student volunteer program transitions from strategic planning to direct community service. Project coordinators should assign the primary team leaders, university chaperones, and points of contact for the service trip. The team leaders will oversee creating communication channels, setting meeting times, and scheduling deployment exercises. Prior to departure, a daily agenda should be drafted along with a list of key milestones to be accomplished chronologically over the course of the volunteer assignment. During deployment to a project site, student volunteers should be split into project teams to accomplish the identified recovery tasks in the impacted community. Direct service initiative could be distributing supplies, site clean-up, and critical repairs. Special attention should be paid to safety and self-care. While working, it is important to hydrate and to

regular break during demanding labor. At the end of each workday, all teams should congregate to reflect on work accomplished during the day.

The fifth step is to set up methodologies for a feedback loop that ensures that the student volunteer program can improve and continue to hit recover needs. Prior to service, program coordinators should set up key performance indicators to gauge the project's progression. Examples include volunteer hours committed or the total number of jobs completed. Both quantitative and qualitative results should be tracked and recorded. A suggestion would be for student volunteers to keep journals to record daily entries or to contribute to online forums, internet access permitting. Surveys can be utilized to assess each participant's experience, lessons learned, and professional development because of the student volunteer program. The outputs collected can be used to validate future results and to benchmark the success of the new student volunteer initiative.

## ASSESSMENT

The assessment of student volunteer programs should focus on (1) ability to meet key performance indicators set before deployment, (2) the attainment of qualitative research and testimonials, and (3) the collection of follow-up surveys to assess the longer-term impact of a program.

The first step in the assessment process is to measure the outputs of the key performance indicators set while building the capacity of the program. During both the needs assessment and timeline development phases, project coordinators are to create quantitative goals to be achieved by project completion. Examples include the target number of volunteers recruited, the number of hours dedicated towards the mission, or the number of activities completed over the course of the project. These results can be tallied in a chart or listed in a report for reference.

The second step is to collect qualitative research and testimonials during and after the mission trip. Such feedback set the scene for the activities that occurred during the project. Included can be success stories and records of interactions with stakeholders in the impacted region. This step can include pictures from the volunteer site. Course work can be set up before or during the trip. A final project can be included in the syllabus of coursework to encapsulate the totality of experience-based learning. Project coordinators can get creative at this step in the assessment process to build interactive final projects. Qualitative research can integrate with various topics that relate to economic development, disaster management, healthcare management, information systems, education, energy management, and other career pursuits. There is the opportunity to spur discussions around next steps towards resilience and long-term development.

The third assessment step is to initiate surveys that gather volunteer feedback on the impact of programs and areas to improve the program. Leadership competencies can be developed while working in new and challenging conditions. The survey can occur directly after the project or several weeks after completion. Student volunteer programs can advance further educational and career pursuits, as shown in this paper. Experience-based educational opportunities run by universities have tremendous potential to enrich lives with meaningful work and inspire future professional endeavors.

A multidimensional assessment of a student volunteer project is enabled through assessments. Program coordinators can then synthesize results with the intent to scale operations for future deployments. Both quantitative and qualitative results should be captured, along with longer-term assessments to gauge the impact the volunteer program had on a student's professional development.

## CONCLUDING COMMENTS

Disasters and their destruction can be unpredictable and destructive often leaving communities completely uprooted. After damaging tropical storms, like those that hit the United States in 2017, important leadership is needed to effectively respond, repair, and provide recover to the catastrophic area. According to FEMA a leader is, "someone who sets the direction and influences people to follow that direction." The goal of this paper is to show how participation in student volunteer programs can lead to new career opportunities, as well as a path forward towards the creation of effective student volunteer programs. This study uses the SUNY Stand with Puerto Rico initiative as a model. Results are collected through the author's observations as a student volunteer and as an AmeriCorps VISTA.

This study provides the support that direct services build indirect leadership competencies that can advance one's career. However, this study report is based solely on the author's personal experience when working on projects in the fields of disaster management and economic development. Some limitations of this study are that work occurred only in the United States through New York state schools. and that the study did not delve into any healthcare and education direct services. The report also did not survey other volunteers working in Puerto Rico. It may be possible that the correlation between direct service and career advancement in indirect capacity building work may be related to other factors such as the individual's educational background or socioeconomic status. Future research could include the creation of more intensive fieldwork and/or conducting an empirical study with statistical analyses that would show how student volunteers advance their careers after service.

## REFERENCES:

Berg, R., Pasch, R., & Penny, A. (2018). "National Hurricane Center Tropical Cyclone, Hurricane Maria," Retrieved October 18, 2018, from the National Hurricane Center website: https://www.nhc.noaa.gov/data/tcr/AL152017_Maria.pdf

Blake, E. & Zelinsky, D. (2018). "National Hurricane Center Tropical Cyclone, Hurricane Harvey," Retrieved October 18, 2018, from the National Hurricane Center website: https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf

Desouza, K. & Flanery, T. (2013). "Designing, planning, and managing resilient cities: A conceptual framework," *Cities*, Vol. *35*, p. 89-99

FEMA. (2014). "IS-0240.b - Leadership and Influence," Retrieved November 15, 2018, from the FEMA - Emergency Management Institute website: https://emilms.fema.gov/IS0240b/LNIsummary.htm

FEMA. (2011). "National Disaster Recovery Framework, Strengthening Disaster Recovery for the Nation," Retrieved December 15, 2018, from the FEMA website: https://www.fema.gov/pdf/recoveryframework/ndrf.pdf

Hay, G. (2018). "Lessons learnt from innovation: Red Cross volunteers," Retrieved December 8, 2018, from the Australian Institute for Disaster Resilience website: https://knowledge.aidr.org.au/resources/ajem-jul-2018-lessons-learnt-from-innovation-red-cross-volunteers/

Kouzes, J. & Posner, B. (2014). *The Student Leadership Challenge: Five Practices for Becoming an Exemplary Leader.* The Leadership Challenge, second edition

Masten, A. & Obradovic, J. (2008). "Disaster Preparation and Recovery: Lessons from Research on Resilience in Human Development," *Ecology and Society*, Vol. 13, p. 9

Nesbit, R. , Christensen, R. K. and Brudney, J. L. (2018). "The Limits and Possibilities of Volunteering: A Framework for Explaining the Scope of Volunteer Involvement in Public and Nonprofit Organizations". *Public Admin Rev*, 7,: p. 502-513

Milligan, S. (2018). New York Helps Puerto Rico Recover From Hurricane Maria. U.S. News - The Report. Issued on 6/1/2018. p. C24-C27

Palker, M. (2018). "*Is Volunteerism in Your DNA?"* Strategic Finance, Vol. 100, Issue 5. p. 71

Swartz, M. (2018). "What Houston Didn't Learn from Harvey". *The New York Times*. Published Aug. 25, 2018, Section A, p. 19

Wright, N. & Foster, L. (2018). "Improving Disaster Response through the Science of Work," *International Journal of Disaster Risk Reduction*, Vol. 31. p. 1-1384

## ACKNOWLEDGMENT

Special thank you to SUNY Polytechnic Institute professor Rafael Romero from the College of Business Management for leading frameworks to support this study. To SUNY Oswego professor Joanne O'Toole for leading the cohort of 29 SUNY students in Puerto Rico. Also to UNICEF USA and the State of New York, facilitated by Gov. Andrew Cuomo, who joined forces to launch the SUNY Stands with Puerto Rico initiative.

## BIOGRAPHY

Lucas Martin is currently acquiring a Master of Business Administration in Technology Management from the State University of New York at Polytechnic Institute. Martin also received a B.S. in Business Administration from the State University of New York at Oswego in 2014 and holds a certification in Social Impact Strategy from the University of Pennsylvania. Martin is a certified Economic Development Finance Professional (EDFP) and has a strong passion for volunteering, previously served as a two-term Volunteers in Service to America (VISTA) with a national service program AmeriCorps.

Dr. Rafael Romero serves as an Associate Professor of Finance and MBA Program Coordinator at SUNY Polytechnic Institute in Utica, New York.

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 71-83
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# PROFESSIONAL ASSOCIATIONS AND BUSINESS SCHOOL UNDERGRADUATES' INDEPENDENT PROJECTS: ONLINE RESOURCES FOR BUSINESS PROFESSORS

George Steven Swan, North Carolina Agricultural and Technical State University
Cindi J. Khanlarian, North Carolina Agricultural and Technical State University
Charles F. Malone, North Carolina Agricultural and Technical State University

**ABSTRACT**

*The 2020 Covid-19 pandemic drove innumerable higher education courses online. Professors teaching business law, accounting, finance, or other courses found a new way to teach ethics online. Consistent with the Association to Advance Collegiate Schools of Business International's 2020 Guiding Principles and Standards for Business Accreditation, business professors can assess voluntary, independent projects available online. This paper describes three online projects that can be used within a variety of business classes. Through the National Association of State Boards of Accountancy's Center for the Public Trust's Ethical Leadership Certification Program, undergraduates can earn the Ethical Leadership Certification online at no cost. Thanks to the Mortgage Bankers Association, undergraduates passing its Introduction to Mortgage Banking webinar course earn their coursework Certificate of Completion. Also, the American Bankers Association provides an online Ethical Issues for Bankers course. Therein, undergraduates can earn the American Bankers Association's Ethical Issues for Bankers' coursework Certificate of Completion.*

**JEL:** M00

**KEYWORDS**: AACSB International, Business Ethics, Business Law, Legal Environment, Social Responsibility, National Association of State Boards of Accountancy, Ethical Leadership Certification Program, American Bankers Association, Mortgage Bankers Association, Business School Course Credit

## INTRODUCTION

The spring 2020 Covid-19 pandemic swept the United States and drove countless undergraduate courses online, abruptly. That shift to distance learning proved sharply unsettling to some. Institutions, in only weeks, moved courses from on-campus to online by the hundreds of thousands. By May, schools including Harvard University, were considering a 2020 autumn semester completely online contingent upon whether the Covid-19 menace endured. For as early as April, colleges in America less flush than Harvard already had their backs to the wall (Belkin, 2020; Korn, Belkin, and Chung, 2020).

In this physical and financial context, the spirit as well as the letter of the Association to Advance Collegiate Schools of Business (AACSB) International's 2020 *Guiding Principles and Standards for Business Accreditation* proves of some importance to business schools' professors of business law, finance, and accounting. AACSB International calls for business curricula to reflect the needs of organizations employing graduates. Truly, colleges of business constitute an interface of pragmatic business and academics. Within this context, many business schools' lawyer-professors teach one or more among the Legal Environment of Business, Business Law, and Business, Ethics and Social Responsibility courses

which must include an element of ethics. This is a direct reflection of the AACSB 2020 Business Standards which state:

> Societal impact as an expectation of all accredited schools reflects AACSB's vision that business education is a force for good in society and makes a positive contribution to society, as identified in the school's mission and strategic plan. This includes an expectation that the school explicates its intended strategies to effect a positive impact on society, that the school's curriculum contains some components relating to societal impact, that the school's intellectual contributions portfolio contains some contributions focused on societal impact, and that the school is fostering and promoting curriculum and/or curricular activities that seek to make a positive societal impact. (AACSB 2020 Guiding Principles and Standards, p .15)

This paper invites online business faculty to investigate a potential trio of voluntary, independent projects for their students. Each project proves topically relevant to several business courses. The National Association of State Boards of Accountancy (NASBA) makes possible student participation in the Ethical Leadership Certification Program. Their website provides an online program which allows participants to acquire background in ethics. On passing tests over the content presented, a student earns the Ethical Leadership Certification from the NASBA Center for the Public Trust. The Mortgage Bankers Association (MBA) offers a series of webinar courses. Its *Introduction to Mortgage Banking* course examines, inter alia, regulatory compliance. Therein the student mastering an online final examination earns an MBA Certificate of Completion. Finally, the American Bankers Association (ABA) provides an Ethical Issues for Bankers Course online where the student can earn the ABA's Ethical Issues for Bankers' coursework Certificate of Completion. In many classes including ethics education, college students' extra credit activities are a common sight. Extra credit can prove awardable for attendance at an on-campus ethics speaker's presentation. Similarly, extra credit can be amassed for keeping a character journal or writing about ethical issues found in newspaper articles. We do not know of any other paper that recommends the use of these certifications for extra credit in business courses.

However, for 2021, the more critical actor involving accreditation of many business schools is not the NASBA nor the MBA nor the ABA. Rather, it remains the AACSB International and its new requirements for accreditation renewal. In 2004, the AACSB published "Ethics Education in Business Schools" saying, "At issue is no less than the future of the free market system, which depends on honest and open enterprise to survive and flourish… the threat of corporate malfeasance … continues to weigh on investors' trust of the marketplace" (AACSB International, 2004, p. 7). That being the case, awarding extra credit today for successful completion of a NASBA project (in conjunction with learning about compliance or business ethics) appears strikingly fitting.

Therefore, we propose 1.) to connect students (however tenuously) to real professional organizations; 2.) to have their knowledge (however modest) validated by real professional organizations; and 3.) to put professional organizations' names on our students' resumes. These three aims are modest. These three extra credit projects are modest. Those three certifying bodies are NOT.

The following section will present the literature review and the names of three organizations that offer online certifications that would aid in business courses. As would be expected, the material proves somewhat broad. However, with much more specificity, this discussion does address assurance of learning as well as successful evaluation techniques. It will be followed by a discussion of specific online resources, suggestions for the future, and concluding comments.

## LITERATURE REVIEW

Standard 8 of the AACSB International's 2020 Standards for AACSB Business Accreditation, states: "Curriculum management captures input from key business school stakeholders and is influenced by

assurance of learning results, new developments in business practices and issues, and revision of mission and strategy that relate to new areas of instruction" and "Competencies and curriculum management processes reflect currency of knowledge and expectations of stakeholders, including but not limited to organizations employing graduates, …" (AACSB, Standard 5). The Philosophy of AACSB Accreditation states: "The business school, through the articulation and execution of its mission, should make a difference in business and society as well as in the global community of business schools" (AACSB, Standard 4). As this Philosophy more specifically pronounces: "Society is increasingly demanding that companies become more accountable for their actions, exhibit a greater sense of social responsibility, and embrace more sustainable practices" (AACSB, Philosophy, p. 9).

The AACSB Philosophy anticipates reconciling the business college's sensitivity to its environment's profit orientation with an indispensably qualitative social perspective. "Accreditation should encourage an appropriate intersection of academic and professional engagement that is consistent with quality in the context of a school's mission" (AACSB, Philosophy, p. 9). Such explanation helps clarify AACSB International's standard of the requisite teaching performance in undergraduate business schools to aid programs in preparing for their next AACSB review. Based on AACSB requirements, we believe several business courses could potentially be reinforced by online certifications.

Business, Ethics and Social Responsibility

The very philosophy of AACSB Accreditation declares awareness of mounting public clamor for companies to display a deepening disposition toward "social responsibility" and "more sustainable practices" (AACSB, Standard 5, p. 8). Meanwhile, the Educational Testing Service's Major Field Test (2016) for the bachelor's degree in Business encompasses a section on business's Legal and Social Environment. The Legal and Social Environment *Subsection D* is Ethics and Social Responsibility. The confluence of morals, of markets, and of the law is undeniable. The meshing of moral philosophy, of economic analysis, and of public policy proves correspondingly unmistakable (Coleman, 2002; Hausman et. al., 2016).

S*ubsection D* encompasses a divisible pair of constituents, Ethics and Social Responsibility. As subsection D's bifurcation implies, in teaching and research the bachelor's degree programs of many business colleges distinguish ethics problems from social responsibility problems. Ethical decision-making in business typically is envisioned as an individual-level exercise. Morality and profits are far from mutually exclusive. Simultaneously, an ethical corporate culture as an enterprise's competitive advantage defines a long-standing notion (Siedel and Haapio, 2010; Siedel and Haapio, 2011). Social responsibility (SR), corporate citizenship, and corporate social responsibility (CSR) have been three labels for an identical phenomenon (Barber, 2013). CSR, after all, inherently is keyed to social impact. In contrast to ethical decision-making as just observed, corporate social responsibility decision-making stems from the organizational level. Inconsistencies between aims and practice concerning corporate social responsibility have encouraged schools of business to offer instruction addressing CSR. Notwithstanding student interest, schools of business have found absorbing ethics (Weber, 2010) and corporate social responsibility into their curricula a somewhat painful challenge (Deer and Zarestky, 2017). Still, 2021 marks a year when "social responsibility" and "more sustainable practices" (both dear to the Philosophy underlying AACSB Accreditation) can cry for business school nurturance more than previously. For, during coronavirus-cursed 2020, sustainability marked the first item jettisoned by frenzied business-crews defending market capitalization and profits (Stoll, 2020). The movement for Corporate Social Responsibility won welcomes from executives through the prosperity abruptly closed by Covid-19, but companies sharply discounted CSR for the hard times into 2021.

Business Law

Upon the assessment of hundreds of course descriptions in undergraduate college bulletins Miller and Crain (2011) produced a composite description for a Business Law model course, knowing that "Fiduciary duties", by definition, must include the study of ethics.

> Business organizations are examined in terms of differentiating the structure, legal requirements, liability risks, and agency rights & duties. Fiduciary duties are discussed, including their relationship with selected security regulations. Rules related to contracts are studied, along with Uniform Commercial Code requirements as they apply to sale of goods, negotiable instruments, secured transactions. Application of these rules and concepts to business situations is emphasized (Miller and Crain, 2011, p. 203).

Legal Environment of Business

Miller and Crain (2011) also presented the following composite description for a Legal Environment model course with the understanding that "Social responsibility" is related to ethics.

> This course explores legal and ethical issues to assist businesspersons in recognizing, preventing, and managing related risks in the domestic and international regulatory environment in which businesses function. Students are introduced to the U.S. court system, and alternative means of resolving legal disputes. Sustainability of business practices, social responsibility, and rights & duties are explored through discussion of environmental law, employment discrimination, deceptive advertising, products liability, torts, and agency principles, along with related constitutional law issues. The course also examines how contract rules and practices impact businesses, customers, and other constituents (Miller and Crain, 2011, p. 203).

The AACSB's 2020 Guiding Principles and Standards for Business Accreditation declare: "Normally, business degree programs at the bachelor's level include learning experiences that address core competencies characteristic of a successful business graduate of an AACSB-accredited school, as well as content from business disciplines, such as accounting, economics, finance, management, management information systems, marketing, and quantitative methods" (AACSB, Standard 4). The absence of Business Law from this offhand roster is conspicuous. Nevertheless, the same instrument salutes the LL.M. and J.D. as widely accepted terminal degrees in business. The degrees are broadly accepted for teachers of "courses or modules related to law or aspects related to the legal environment of business (e.g., ethics, sustainability, etc.)" (AACSB, Standard 4, 2020).

Each course's take on topics like the "social responsibility" of business (Business, Ethics and Social Responsibility), "fiduciary duties" (Business Law), or "legal and ethical issues" (Legal Environment of Business) comports with the new decade's demands. Nowadays participants in, e.g., strategic finance, wrestle with clawback provisions for executive compensation (Guo and Pippin, 2020) and with increasing their whistleblowing IQ (Butcher, 2020). If only some off-the-shelf instruments for business law professors lay at the ready to enrich teaching these courses! After all, America's 2020 business media reported that nonacademic bodies served the growing professional training market with numerous credentials along the lines of online-course certificates and digital badges (Weber, 2020).

## VOLUNTARY INDEPENDENT PROJECT: THE NATIONAL ASSOCIATION OF STATE BOARDS OF ACCOUNTANCY: ETHICAL LEADERSHIP CERTIFICATION PROGRAM

The National Association of State Boards of Accountancy (NASBA) and its Center for the Public Trust (CPT) "provide a platform for corporate America and the accounting profession to explore, promote and advance ethical practices in organizations …Through support and guidance from the NASBA Center for the Public Trust, events and experiences are offered for students….Student CPT Membership is offered

across all disciplines and provides a unique forum for ethics education" (NASBA, July 3, 2020). The need for ethical leadership society-wide seems to be expanding. Even inside the organization called the university, ethical leadership duties so impinge upon professors that the professoriate consults its own ethics handbook to light the way. Fortunately for those professors' students, the NASBA CPT offers The Ethical Leadership Certification Program. It is "an online tool that helps college students…enhance their ethical decision-making abilities. This program also helps students build their resumes and communicate their values to future employers" (https://learning.thecpt.org/). The certification program encompasses six modules. Students are tested on its content, passing upon accurately answering at least 80 percent of the questions. The examination costs $39 per attempt.

To pursue NASBA CPT's Ethical Leadership Certification Program: 1.) one need *not* be a Student Center for the Public Trust member; and 2.) one need *not* have any accountancy background. It seems fair to award coursework extra credit to, e.g., Business, Ethics and Social Responsibility students, upon their voluntary attainment of Ethical Leadership Certification. Note that the CPT affords a platform whereby the accountancy profession and America's corporations promote "ethical practices in organizations." Recall that Social Responsibility (SR) is a name for the studies of decision-making at the organizational level. Therefore, NASBA's "certification" belongs on business school undergraduates' resumes. For, as just mentioned, NASBA's Ethical Leadership Certification Program "helps students build their resumes" (https://learning.thecpt.org/).

It appears that in the spirit of the AACSB International's philosophy, the Ethical Leadership Program certification of undergraduate students helps signify their academic institutions' curricular dedication to engaging with emerging corporate social responsibility topics. This certification evidences a direct connection of student-certificates to NASBA's Center for the Public Trust. The latter *itself* interfaces with erupting frontline developments in business behaviors and controversies. Ethical Leadership Certification attests to a learning experience reinforcing ethical reasoning and spotting of ethical problems for resolution through socially responsible methods. The Center's project empowers students toward applying academic theory in a professional context.

## THE MORTGAGE BANKERS ASSOCIATION: INTRODUCTION TO MORTGAGE BANKING COURSEWORK CERTIFICATE OF COMPLETION

It is appropriate to extend extra credit coursework to Legal Environment of Business students upon voluntary completion of this Mortgage Bankers Association's (MBA) webinar-series course: Introduction to Mortgage Banking because one component is "Regulatory Compliance." Students cover Regulatory compliance, Quality assurance and Technology, as well as other roles in the industry. The subject-matter self-evidently squares with a school of business's Legal Environment of Business course-focus. Recall that Miller and Crain's model Legal Environment course opened: "This course explores legal and ethical issues to assist businesspeople in recognizing, preventing and managing related risks in the domestic and international regulatory environment in which businesses function" (emphasis added) (Miller and Crain, 2011, p. 203).

America's mortgage bankers are wide-awake to business ethics as an imperative. The lead article of the April 2020 issue of The Mortgage Bankers Magazine reflected on a global life-and-death menace: *Coronavirus: The Pandemic's Threat Against Mortgage Banking*.[i] But other articles attended to more homely, less melodramatic matter in the context of the Dodd-Frank Act and the Consumer Financial Protection Board: Unfair, Deceptive, or Abusive Acts and Practices (Idziak and Green, 2020). Please note: *Unfair, Regulatory compliance*.

The MBA's website provides a four-page *Introduction to Mortgage Banking Student* brochure entitled *Jump Start Your Future!* relating: "Mortgage Banking Bound is an exciting new online educational series

developed by the Mortgage Bankers Association (MBA), the national association representing the entire real estate finance industry." And *Jump Start Your Future!* promises Mortgage Banking Bound graduates will earn an "MBA Certificate of Completion and official seal of approval." The sample Introduction to Mortgage Banking Outline indeed affirms: "Students who pass the online final exam obtain a certificate of completion for their records." *Jump Start Your Future!* assures (a trifle enthusiastically, perhaps) that: "MBA's seal of approval is highly recognized within the industry, making you an ideal candidate with future employers. Your certified skills and qualifications will give you a competitive edge within the industry workforce. An industry that currently employs over 280,000 and with an earnings potential ranging from $59,000-$118,000 annually." The site adds that Mortgage Banking Bound enrollment embraces access to MBA's "Extensive industry job board" (www.mba.org).

The MBA declares of the Introduction to Mortgage Banking course: "Full-time college students not currently interning with or employed by an MBA member company are eligible to take this course for free." One Introduction to Mortgage Banking program was scheduled to run from September 8 to September 22, 2020. Students "learn about the various career paths available through each function (Loan Officer, Servicer, Title Agent, etc.)" (www.mba.org).

The Mortgage Banking Association's "Certificate of Completion" belongs on a business school undergraduate-awardee's resume. It marks a "business field" credential. To be sure, it is not a "professional-level" credential such as the CPA nor an academic credential like higher education's own certificates earnable in countless fields. Simultaneously, the MBA's Certificate of Completion and official seal of approval do (at a minimum) comport with even much more ambitious efforts along the lines of, e.g., Uniform Commercial Code study as undergraduates' business career-certification preparation for the Certified Commercial Contracts Manager credential (Swan, 2017). That CCCM credential is awarded by the National Contract Management Association.

In the spirit of the AACSB International's philosophy, professors' utilization of the MBA's Introduction to Mortgage Banking course helps signify a business college's curricular commitment to grappling with emergent corporate social responsibility challenges. For this Introduction to Mortgage Banking course evinces a firsthand teaming of current students with the MBA, *itself* an enterprise necessarily wrestling with an ongoing evolution of business problems and practices. The MBA's Certificate of Completion of its Introduction to Mortgage Banking course facilitates confirmation of students' comprehension of and reasoning about, e.g., ethical dilemmas, to be dealt with by socially responsible (in any case, regulatorily compliant) means. And an Introduction to Mortgage Banking course-completion indicates students' enhanced capacity to connect their academic experiences to a professional (such as mortgage banking) setting.

## THE AMERICAN BANKERS ASSOCIATION: ETHICAL ISSUES FOR BANKERS COURSEWORK CERTIFICATE OF COMPLETION

### Ethical Issues for Bankers

Students in, e.g., a Business Law or Finance course, could earn course credit contingent upon award of the American Bankers Association's (ABA) online Ethical Issues for Bankers coursework Certificate of Completion. There is a fee of $75 for this program. These students can e-mail their ABA coursework-certification to their professor. This ABA Ethical Issues in Banking course is designed "For Onboarding Bank personnel at all levels (sic)" (https://aba.com, 2020). That universe embraces employees hired who command a formal measure of business training matched by many business college undergraduates.

This ABA website advertises its certification as "… an in-depth exploration of the ethical standards expected of financial service professionals" and suggests students can "master best practices for observing

a bank's code of conduct and adhering to federal laws" (https:/aba.com, 2020.) It thereby squares with the "legal compliance" aspect of any law and business course. "Develop a sound ethical framework to handle commonly experienced ethical dilemmas. Learn how to make ethically appropriate decisions" (https://aba.com/training, 2020). Award of extra course credit to Business Law students upon voluntary completion of the ABA's Ethical issues for Bankers course proves fitting. Recall that the Miller and Crain (2011) composite model for a Business Law course included a discussion of fiduciary duties.

The ABA website appropriately distinguishes between 1.) certificates awarded for mastering a course (Ethical Issues for Bankers); and 2.) its facially rigorous occupational certification programs addressing specialized banking-callings. Therefore, note that this narrower Ethical Issues for Bankers coursework proves part of one or another among *ten* broader ABA certification programs. Ethics certainly marks a feature of any sound vocational grounding. That includes training for banking specialization-callings easily perusable by students consulting the ABA website for the Ethical Issues for Bankers course information. This rather homely lesson discernable in the ABA-specific context concretely exemplifies a recurrent, major idea broadly applicable to any of the three student projects assessed herein.

Ethical Issues for Everyone

The entirety of one's existence in a neoliberal environment can be characterized as revolving around capital management (Griffore, 2019). Labor force participants contribute their human capital, for it is that resource rendering them valuable inside the productive machine that harnesses the people. Human capital resembles physical capital such as an assembly line, insofar as it means one's training/education reinforces the extraction, from a particular effort investment, of a larger profit (Posner and Weyl, 2018). One of a business school's fundamental roles is that of builder of human capital (given the indispensability of human capital concepts to estimating industrial or social winners and losers) (Gioffre, 2019). Yet, the noninterchangability of the varieties of human capital means particularized know-how and certifications are profitable in specialized worksites only.

Nonetheless, such energized ethical thinking exemplifies a prospective hire's merit. In 2018, the International Organization for Standardization (ISO) issued its Guidelines for Internal and External Human Capital Reporting. The foremost-listed among the ISO's core Human resource management---Guidelines for internal and external human capital reporting categories was "Compliance and ethics" (ISO, 30414: Section 1). Respecting ethics, its newly minted human capital reporting standard ISO 30414:2018(E) erected a framework for human capital data reporting concerning the proportion of employees completing compliance and ethics training. Further: "This document is applicable to all organizations, regardless of the type, size, nature or complexity of the business, whether in the public, private or voluntary sector, or a not-for- profit organization" (ISO 30414: 2018, Section 1). Thereby, the standard's announced applicability emphatically reached beyond specialized worksites alone. By mid-2020, the buzz in America's strategic finance field had been about the chance the Securities and Exchange Commission would impose new disclosure requirements addressing an enterprise's human capital (Dzinkowski, 2020).

Meanwhile, any business school's go-getter undergraduate student spontaneously can reach an inspiring realization. It would seem that a student's successful ethical issues for banker's coursework can constitute the first step towards a far more substantial professional certification-credential (or towards more than one such credential). Thereby, an entirely voluntary ABA extra credit-option in a Business Law course might, to some extent, encourage a student's subsequent accession into a grander study-undertaking. This would nourish a fruitful, banking workforce-future.

Is it possible that in the spirit of the AACSB International's philosophy, the ABA's Ethical Issues for Bankers Certificate of Completion might be seen as a business college curriculum's adherence to engaging with contemporary, and nascent, corporate social responsibility issues? The Ethical Issues for Bankers'

coursework and Certificate of Completion manifest a student-examinee's one-to-one teamwork with the ABA. The American Bankers Association *in turn* remains immediately exposed to challenges surrounding corporate social responsibility. Certification of a student's completion of the Ethical Issues for Bankers course signals the successful learning experience deepening ethical reasoning abilities, and sharpening sensitivity to ethical difficulties (summoning socially responsible remedies). Via the Ethical Issues for Bankers course, a student might more robustly carry academic theory into professional context decision-making.

## THE AACSB INTERNATIONAL AND ASSURANCE OF LEARNING: ASSESSING THE BENEFITS

During each of the past four semesters, the lead author used one or more of these certificate programs. The advantage of these programs being online was particularly highlighted during the COVID-19, Spring 2020, stay at home semester. That semester, the students were enthusiastic and over 58% of his students earned one of these certificates. In the Legal Environment classes, 42 of 85 students (49.4%) chose to complete the NASBA certification process. In the Business Ethics class, 32 of 42 students (76.2%) chose to earn the ABA's Ethical Issues for Bankers certificate. Some of the students commented on the professional level of the body administrating one or another of these certifications. In other semesters, the professor was also pleased with the results from the MBA's certification program.

The AACSB International's 2020 Guiding Principles and Standards for Business Accreditation's Standard 5: Assurance of Learning, via section 5.1, requires: "The school uses well-documented assurance of learning (AoL) processes that include direct and indirect measures for ensuring the quality of all degree programs that are deemed in scope for accreditation purposes" (AACSB, Standard 5.1). By the Association's definition, this Standard 5.1 "*Indirect measures of learning* refer to evidence attained from third-party input. Examples of indirect assessments include…external outcome measures,..." (AACSB, Standard 5.1).

Moreover, the Association's 2020 Guiding Principles and Standards for Business Accreditation's Standard 7: Teaching Effectiveness and Impact, via section 7.4, requires: "The school demonstrates teaching impact through learner success, learner satisfaction, and other affirmations of teaching expertise" (AACSB, Standard 7.4). These certifications appear to fulfill this requirement. But the standard also asks for "exemplars of learner success either with respect to the school's current learners or alumni" (AACSB, Standard 7.4).

So, what is an exemplar? It long since has been defined as: "1. One who or that which serves as a model or pattern; esp., an ideal model; archetype" (Webster's Collegiate Dictionary, 1948, p. 349). If the projects discussed are utilized by professors as advocated herein, then each professional credential earned warrants (by definition) learners' successful mastery of material relevant to the professors' own course. Also, each such professional body's warranty arrives independently of professors or institutions being biased by accreditation considerations. Regarding Standard 7, we believe each certificate clearly affords an example of learner success on the part of the school's current learners such that the business college can share duplicates of its students' certificates with the AACSB.

Saint John's University's Prof. Herb Chain includes NASBA's Ethical Leadership project at the graduate level.

> "I have required my students to complete the NASBA Center for the Public Trust's Ethical Leadership Certification Program as part of our graduate accounting degree capstone course, Accounting Ethics and Professionalism. I have found it to be a valuable supplement to our class discussions and required preparation materials, and recommend its incorporation into other, similar courses" (Chain, 2019).

The Anderson School of Management at the University of New Mexico includes the Anderson Student Center for the Public Trust. Its students were encouraged to sign-up for the student Ethical Leadership Certification Program and email their certificate to the professor upon completion. "Professors have complimented its ease of use, content and student engagement after taking the course" (mgt.unm.edu, 2020). Ferrell, Fraedrich, and Ferrell have been on the record for years as discussing Ethical Leadership Certification by the NASBA Center for the Public Trust: "As business ethics increases in importance, such certification can give your students an edge in the workplace" (Ferrell et al., p. xv, 2017).

NASBA's program is invoked by Western Kentucky University's Gordon Ford College of Business as a component of their Assurance of Learning. On March 26, 2019, the Assurance of Learning committee Agenda called for addressing "Ethics certificate and AOL." Among their undergraduate Learning Objectives lay "Goal 2: Legal and Ethical Awareness." But: "It is very difficult to identify where students are consistently exposed to ethical considerations in the core." However, they cite the Ethical Leadership certification program offered by the National Association of State Boards of Accounting [sic: Accountancy] Center for the Public Trust.…" (Western Kentucky University, Assurance of Learning Committee Agenda, 2019). Dr. Thrasher, chair of the committee and AACSB Coordinator of Continuous Improvement wrote, "Discussion began with having every department administer this particular test. This could lead to overlap for students, but the committee was in favor [of] having an ethical certification for virtually every GFCB student. Interests [arose] in certifications offered by external, industry recognized sources" (www.wku.edu/).

## A PATH FORWARD

Middlesex University's Sian Stephens perceives a peril "…to those involved in teaching Business Ethics, where the risk of 'preaching' rather than 'teaching' is great" (Stephens, 2019, p. 642). That classroom's business law professor appropriately would hearken to an oft-cited contribution of Dartmouth Professor Aine Donovan (2009) who asks, "Is it the responsibility of schools to teach ethics? I think it is--but only if it is done in the right way….[students] need a simple values toolkit that they can understand and have at the ready, not an impression that all ethics are relative, or just intellectual chewing gum".

A business law professor, using one or another of the online resources discussed herein, still might lack any basic and portable toolkit to offer students. The toolkit should be one students definitely can grasp while still undergraduates, thereby enabling them to employ it throughout their careers. That professor could consult the textbook by Halbert and Ingulli, *Law and Ethics in the Business Environment* (2018). This "simple tool kit" introduces students to: the free market ethics identified with the 1976 Nobel Laureate in Economics, the late Milton Friedman (Pearce, 1996); utilitarianism as conceived by Jeremy Bentham; deontological duties and rights as identified with the categorical imperative of Immanuel Kant; virtue ethics deriving from Aristotle; and the ethic of care identified with psychologist Carol Gilligan.

Halbert and Ingulli, exactly like lawyers, champion their toolkit:

> Ideally, familiarity with these theories will support you in at least two ways as you face business dilemmas in the future. First, the models for analysis can spark creative thinking as you brainstorm ways of handling the ethical questions that will confront you. Second, they offer you a means of explaining your thinking to others, and of advocating for new ideas. Knowing the theoretical basis for ethical decision making can help you understand your own position, and help you articulate it to your superiors, your coworkers, and those who report to you in the company. There is a familiar "language" in the business world for most decision making: cost-benefit analysis. Ethical theory offers you another language, making you "bilingual" in complex situations (Halbert and Ingulli, 2018, p. 31).

Consider whether an undergraduate school of business's capably captained course in Business, Ethics and Social Responsibility ideally will: 1.) harness Halbert and Ingulli's ethical decision-reaching toolkit; plus 2.) incentivize students (with the bait of extra credit) toward an investment of time and energy into a project resembling the National Association of State Boards of Accountancy's Ethical Leadership Certification.

## CONCLUDING COMMENTS

In May 2020, the American Council on Education President, Ted Mitchell, guesstimated an on-campus student population-shrinkage of 15 percent due to the Covid-19 virus (Belkin and Korn, 2020). Almost all colleges and universities have moved more classes online. We offer aid for professors trained to teach face-to-face by suggesting three online opportunities that could enhance their students understanding of business and ethics. Each of these programs is offered by a professional organization.

The preceding discussion has attended to the spirit as well as the letter of various pronouncements found in the Association to Advance Collegiate Schools of Business International's 2020 Guiding Principles and Standards for Business Accreditation. It then related that business schools' faculty are familiar with awarding extra credit in business courses, including those in Ethics. It suggested that business professors might consider assigning these certification programs as extra credit options for students. If regulatory bodies' or business-profession fields institutionally constructed online projects (such as address compliance) open optional avenues whereby students can earn extra credit in business college courses, then those online resources authoritatively can complement the business law professor's classroom efforts. Their very externality to the campus constitutes a virtue. For each exposes the student to its own, implicit outlook, which is distinguishable from that of the classroom-instructor. Thereby, each such enterprise's oblique engagement in a course can help suppress one or another peril.

We have not formally assessed student knowledge acquired through these programs. We understand there are costs in two programs that may present financial barriers for some students. There is also no assurance that each student completed all work independently. We encourage faculty to share their experiences with these certificate programs and any other online programs that can benefit our students.

*Res ipsa loquitur*.

## REFERENCES

American Bankers Association (ABA). *Ethical Issues for Bankers*. Retrieved July 10, 2020, from www.aba.com

Anderson Student Center for the Public Trust, The University of New Mexico. Retrieved July 10, 2020. https://www.mgt.unm.edu/scpt/default.asp?dd=centers

Association to Advance Collegiate Schools of Business International, *2020 Guiding Principles and Standards for Business Accreditation* 37 (2020).

AACSB International, Ethics Education in Business Schools, (2004).

AACSB 2020 Guiding Principles and Standards for Business Accreditation, p. 15.

Barber, N.A. (2013) "Integrating Social Responsibility Into Business School Undergraduate Education: A Student Perspective," *American Journal of Business Education,* vol. 6, p. 385-386.

Belkin, D. (2020) "Harvard's Fall Semester Might Take Place Online," *Wall Street Journal* (April 28) p. A3.

Belkin, D., and M. Korn (2020) "Colleges Ponder Fall Semesters," *Wall Street Journal*, (April 22) p. A3.

Black, H.C. (1968) *Black's Law Dictionary* Rev. 4th ed., citing In re Fisher's Estate, 47 Idaho 668, p. 279 291, 293.

Butcher, D. (2020) "Increase Your Whistleblowing IQ," *Strategic Finance*, (January) p. 15-16.

Chain, H. (2019) "Student News," *Ethics Matters,* vol. 5 (July/August). NASBA Center for the Public Trust.

Coleman, J.L. (2002) *Markets, Morals, and the Law*. Oxford University Press.

Deer, S., and J. Zarestky (2017) "Balancing Profit and People: Corporate Social Responsibility in Business Education," *Journal of Management Education*, vol. 41(5), p. 727-749.

Donovan, A. (2009) Can Ethics Classes Cure Cheating? How to Fix Business Schools. *Harvard Business Review*, pp. 42-46. Retrieved August 27, 2020. https://hbr.org/2009/04/can-ethics-classes-cure-cheati.html

Dzinkowski, R. (2020) "Human Capital Reporting", *Strategic Finance*, p. 41 - 45 (April).

Educational Testing Service, MFT for Business Conference Flyer 2 (2016). Retrieved July 10, 2020. https://www.ets.org/s/mft/pdf/mft_testdesc_business.pdf

Ferrell, O.C., J. Fraedrich, and L. Ferrell (2017) *Business Ethics: Ethical Decision Making and Cases.* 13th ed. New York: Houghton Mifflin Company.

Griffore, R.J. (2019) "Capital and Value in Late Adulthood," *Family and Consumer Sciences Research Journal*, vol. 48(2), p. 138-148.

Guo, Y., and S. Pippin (2020) "Clawback provisions for executive compensation," *Strategic Finance*, p. 46-51 (January).

Halbert, T. and E. Ingulli (2018) *Law and Ethics in the Business Environment*, Cengage Learning.

Hausman, D.M., M.S. McPherson and D. Satz (2016) *Economic Analysis, Moral Philosophy, and Public Policy*, Cambridge University Press.

Idziak, P. and P.B. Green (2020) "The CFPB Brings Some Clarity to the 'Abusiveness' Standard Under UDAAP," *The Mortgage Bankers Magazine*, p. 46-47 (April).

International Organization for Standardization (ISO), Human resource management – Guidelines for internal and external human capital reporting, ISO 30414: (2018).

Korn, M., D. Belkin, and J. Chung (2020) "Colleges Pushed to Breaking Point." *Wall Street Journal*, (May 1) p. A9.

Miller, C. J., and S. J. Crain (2011) "Legal Environment v. Business Law Courses: A Distinction Without a Difference?," Journal of Legal Studies Education, v. 28 (2), p. 149-206.

Mortgage Bankers Association, Retrieved July 4, 2020, from https://www.mba.org/store/events/education/meeting/igol/introduction-to-mortgage-banking-july-2020

NASBA Center for the Public Trust. Retrieved July 3, 2020, from https://learning.thecpt.org/
Pearce, D. W. ed. (1996) *The MIT Dictionary of Modern Economics* 4th ed.

Posner, E.A. and E.G. Weyl (2018) *Radical Markets: Uprooting Capitalism and Democracy for a Just Society,* Princeton University Press.

Siedel, G. and H. Haapio (2010) "Using Proactive Law for Competitive Advantage," *American Business Law Journal*, vol. 47(4), p. 641-686.

Siedel, G. and H. Haapio (2011) *Proactive Law for Managers: A Hidden Source of Competitive Advantage*. Ashgate Publishers.

Stephens, S. (2019) "Book Review: The ethical professor: A Practical Guide to Research, Teaching and Professional Life," *Academy of Management Learning and Education*, vol. 18 (4), p. 642-643.

Stoll, J.D. (2020) "Sustainability Is the First Thing to Go: In times of crisis, many businesses put their corporate-responsibility programs on hold," *Wall Street Journal* (May 2) p. B5.

Swan, G. S. (2017) "Uniform Commercial Code Study as Business Career Certificate Preparation: That Certified Commercial Contracts Manager Credential," *Lincoln Memorial University Law .Review*, vol. 4 p. 18-42 https://digitalcommons.lmunet.edu/lmulrev/vol4/iss2/2/.

Weber, J. (2010) "Assessing the Integration of Ethics Across Two Business Schools Curricula: A Longitudinal Assessment," p. 177 – 200 of Swanson, D. L., and D. G. Fisher (eds.) (2010) *Advancing Business Ethics Education,* Information Age Publishing.

Weber, L. (2020) "List of Training Options Vexes Employers," *Wall Street Journal* (January 9), p. B6.

Webster's Dictionary, retrieved August 28, 2020. https://www. dictionary.com/browse/exemplars=ts

Western Kentucky University, Retrieved Aug. 5, 2020, from https://www.wku.edu/business/assurance-of-learning-committee/documents/minutes/18-19/2019-03-26.pdf

## ACKNOWLEDGEMENTS

The authors would like to thank Editor in Chief, Dr. Terrance Jalbert, and two anonymous reviewers for their kind encouragement and constructive guidance on this paper.

## BIOGRAPHY

Dr. George Swan is an Attorney as well as a Certified Financial Planner. He has been listed in *Who's Who in American Law* , *Who's Who in Finance and Business*, *Who's Who in America,* and *Who's Who in the World*. George has been admitted to the bar in Massachusetts, District of Columbia, Florida, Georgia, Louisiana, Minnesota, Nebraska, Ohio, Georgia; U.S. Courts of Appeals for the Sixth, Seventh, Tenth and Eleventh Circuits; and the U.S. Supreme Court. He has published over 80 scholarly papers. Dr. Swan teaches undergraduate business law.

Dr. Cindi J. Khanlarian, CPA, CMA, has an undergraduate degree in Piano Performance, a graduate degree in Accounting, and a PhD in Information Systems. She has taught accounting classes for over 20 years and published in accounting education journals that focus on the use of technology in modern accounting education, including the current trend of using online homework grading software. She is an avid tennis player and in 2004 was ranked #14 with her son in Mother/Son Tennis in the U.S.

Dr. Charles Malone is an Associate Professor of Accounting at North Carolina A&T State University. Prior to joining NCA&T, Chuck worked in public accounting for Coopers & Lybrand. Chuck earned his MBA at Columbia University, JD at Boston University, and PhD from the University of Missouri. He is a licensed CPA in North Carolina and Maine and an inactive member of the Massachusetts and New Hampshire bars. Chuck has published in a variety of academic and professional journals. Chuck has served on AICPA, AAA, and IIA committees.

**Business Education & Accreditation**
Vol. 12, No. 1, 2020, pp. 85-94
ISSN: 1944-5903 (print)
ISSN: 2157-0809 (online)

IBFR
www.theIBFR.COM

# THE IMPACTS OF COSTA RICAN SHORT TERM STUDY ABROAD ON THE INTERCULTURAL COMPETENCIES OF BUSINESS STUDENTS IN A SMALL, RURAL, PUBLIC UNIVERSITY

Laura Gow-Hogge, Eastern Oregon University

**ABSTRACT**

*Pre- and post- intercultural competency results are compared from multiple groups of undergraduate students participating in short-term (<14 days) study abroad to students completing junior-level course work in global business and to students participating in an introductory global business course with cultural mentors. Cultural competencies were measured by the Association of American Colleges and Universities (AACU) value rubric Intercultural Knowledge and Competence along with global literacy from the Miville-Guzman Universality Diversity Scale (MGUDS-S). General demographic information, previous international experience, and general global literacy exposure were collected for each student. Results from this study found short-term study abroad programs are more effective than traditional business curriculum to improve the intercultural competencies of undergraduate students. A key finding indicates that for students to develop intercultural competencies, it is essential to have personal contact and experiences with those from different cultures.*

**JEL**: M1, I21

**KEYWORDS**: Intercultural Competencies, Short Term Study Abroad, Global Business Education

## INTRODUCTION

Short-term study abroad programs are often 1-3 weeks in duration and are completed during school break periods, reducing potential barriers to participation. Short-term study abroad programs allow students to engage in a diverse set of experiences without the financial and time commitments of a long-term residential study-abroad program. These types of programs are often more palatable to students from small, regional schools with a large population of rural and first-generation college students. Small regional schools can also have a large ratio of student-athlete to the total student population which further complicates participation in long-term study abroad programs.

Historically, the concept of complete cultural and language immersion was considered the hallmark of study abroad programs for students from the United States. Surrounding themselves for long periods in household and classroom settings was considered the only way to truly develop an understanding and appreciation for a new culture. However, over time the idea of exposing students to new and different cultures could have a profound impact on their cultural awareness and sensitivity began to take hold. Simply having a meal with a family in another county could potentially have a positive impact on students with limited to no experiences with others that may be different from themselves. Students may not need to commit months to full cultural immersion on their own to receive the benefits of cultural development. For students from small regional schools in rural areas, their experiences with exposure to unique places and unique cultures are very limited. Travel outside of their domestic region is limited and often constrained to within their home state. Developing a short-term study abroad program to a country that has significant cultural

differences, while not being too far away, would allow these students to begin to explore unique places and unique experiences in a metered approach.

Short-term study abroad programs to Costa Rica allow for just such an experience. Many rural students may have had some experiences traveling to Canada or Mexico, but no real meaningful and significant experience in interacting and understanding cultural differences and a low probability of improving their cultural competencies. Costa Rica allows students to experience real cultural differences with just a short 3-hour plane ride from the United States. This allows for affordability and accessibility to students who may not otherwise have this opportunity. For business students, Costa Rica also offers interesting and relevant economies, such as coffee, chocolate, and ecotourism to study. Costa Rica is a successful economy in the region, is committed to sustainability, and is considered to be stable and safe for visitors. The climate in Costa Rica also allows for study abroad programs to occur at any time of the year which adds flexibility in scheduling the short-term study abroad.

Cultural competency assesses an individual's ability to apply a set of personal attributes that are related to the knowledge, skills, and abilities to work effectively with people from different cultural backgrounds (Johnson, Lenartowicz, & Apud, 2006). To examine this further, intercultural competency versus global competencies should be considered. Intercultural competence is the ability to self-reflect and look inward toward one's self to identify cultural norms and biases that may exist within themselves. This enables one to better identify and value differences in traditions, customs, and practices across cultures. Global competence prepares one to look outward to the world for inspiration and guidance and to bring those understandings back to their future careers and workplace. Both elements are critical in the development of cultural competencies of graduates in higher education. in hopes of improving future graduates' global competence and performance.

According to Jones (2013), increasing globalization and the interconnectedness of the global workplace has intensified the need for graduates who can function in diverse environments. Therefore, it is critical to know what aspects of the business curriculum and the student's educational experiences lead to effectively producing the desired outcomes of their education and to provide the skills, knowledge, and attitudes to be successful in today's global workforce.

While the number of U.S. students studying abroad has been growing, studies on the impacts of short-term study abroad experiences are lacking. This research serves to fill the gap in current research relative to the impacts of short-term study abroad. It will address whether short-term study abroad programs are effective in improving undergraduate business student's intercultural competencies.

The remainder of this paper will explore the role and impacts of study abroad in higher education in the United States. Specifically, the paper will review the current literature associated with study abroad; the methodology used in this research to determine the impacts of short-term study abroad programs, the results and findings of this research, and concluding remarks.

## LITERATURE REVIEW

The past two decades have brought increased attention, awareness, and action relative to internationalizing education in the United States. Particularly higher education has been a focus of efforts to increase global literacy and awareness of college graduates (Tarrant, Rubin, and Stoner, 2014). The American Academy of Arts and Sciences (AAA&S, 2013) states graduates must be prepared to participate in the global economy and understand diverse cultures. The National Leadership Council for Liberal Education and American's Promise (LEAP) report identifies global knowledge and engagement and intercultural knowledge and competence as essential learning outcomes for university graduates.

Accreditation for business programs has also placed increased importance on global competencies and the internationalization of curriculums in higher education (Kahlid, 2013). Globalization refers to the changes occurring in the global economy and are exogenous changes to the higher education institutions and associated curricula. The internationalization of curricula is the endogenous response of higher education in updating their curriculum based on globalization. According to Hawawini (2016), the act of internationalizing higher education is the "simultaneous process of bringing the world to the institution as well as bringing the institution to the world" and includes curriculum development, new pedagogies and knowledge networks.

Surveys conducted by the International Association of Universities (IAU) in 2005 and 2009 found a major rationale for internationalizing in higher education was to prepare students to be interculturally competent (Knight, 2012). Recent updates to the Association to Advance Collegiate Schools of Business (AASCB) and the International Accreditation Council for Business Education (IACBE) accreditation standards have included new standards to address these global competencies. Consequently, universities should provide these skills by creating and expanding robust internationalized curricula and other initiatives to foster these competencies (Stoner, et al., 2014). However, challenges exist in developing such a curriculum.

An internationalized business curriculum is defined as "integrating an international, intercultural, or global dimension in the purpose, functions, or delivery" of the curriculum (Knight, 2006). According to Knight (2004), the internationalization of the business curriculum is complex and confusing as it is influenced by authorities, stakeholders, and policy at multiple levels. Recent developments in the internationalizing of higher education have occurred with the "internationalization at home" and "cross-border education". Internationalization at home includes campus-based strategies and initiatives that include international and intercultural dimensions to teaching/learning, curriculum, research, extracurricular activities, and relationships with ethnic and cultural groups. Additionally, the "at home" concept includes the integration of foreign students and scholars into campus activities (Knight, 2012). (Knight, 2012). Cross-border education is the mobility and movement of people, programs, providers, policies, knowledge, ideas, services, and projects across national boundaries (Knight, 2012).

Rumbley, Altbach, and Reisburg ( 2012) provide a summary of key elements for the internationalization of higher education and illustrates the multifaceted nature of internationalization and its effect on individuals, institutions, and the national and regional higher education systems. The elements included are: increasing the number of internationally mobile students and scholars, moving to and from ever more diverse locations; rapid growth in cross-border educational provision; the push to achieve world-class status; interest in producing globally competent graduates capable of understanding and functioning in a complex and interconnected world; increasing prevalence of the English language for teaching and research; significant emphasis on cooperative networking among higher education institutions and national higher education systems; strong efforts by individual institutions and national higher education systems to compete internationally; and the dramatic increase in the commercialization of international education, particularly in terms of the growing opportunities available to for-profit enterprises.

However, study abroad is not a new development in higher education. In the early twentieth century, educational exchanges began to formalize, and students and scholars began studying abroad in foreign countries. At this same time international associations, organizations, and foundations began to formalize and fund study abroad travels (de Wit and Merkx, 2012). Study abroad programs can significantly contribute to the university, program, and accreditation outcomes in multiple areas and improve student's "worldliness" (Douglas and Jones-Rikers, 2001). A substantial body of research in higher education environments support the need for cultural competencies in today's college graduate and the role of long-term study abroad in developing these competencies. Research shows study abroad programs in higher education can be more effective than intercultural/multicultural centers on campus and bring international students to US campuses in increasing the intercultural competences of graduates (Salisbury, 2011).

Existing research concludes students' cultural competence is significantly increased when students in higher education participate in study abroad programs (Salisbury, 2011). Salisbury, An, and Pascarella (2013) examined pre-college characteristics (traits) that impact intercultural competence, including race, gender, socioeconomic status, parent's educational attainment, and positive attitude towards literacy. These findings suggest students who enter with certain traits/characteristics score higher in intercultural competencies and are more likely to participate in study abroad. Further research shows students strengthen their creative thinking skills, problem-solving skills, and exhibit higher levels of emotional resilience, openness, flexibility, and personal autonomy due to their study abroad experience (Lee, Therriault, and Linderholm, 2012).

Previous research has also suggested further research is needed to identify what experiences have a positive impact on intercultural competence (Salisbury, An and Pascarella, 2013, and Tarrant, Rubin, and Stoner (2014). Mayhew et al. (2016) found a moderate increase in elements of cultural awareness occurs from simply attending college due to universality-diversity orientation, pluralistic orientation, and support for gender equity and lesbian, gay bisexual, and transgender rights. This would further support the idea that specific college experiences have the potential to positively impact the intercultural competence of college students.

However, very little literature exists on the impacts of short-term study abroad programs. One study from Chieffo and Griffiths (2004) examined data from 2300 students and determined short-term study abroad programs have significant impacts on the self-perceived impacts on students' intellectual and personal lives. Carley and Tudor (2010) found students significantly changed their perceptions after a short-term study abroad trip to Mexico. A recent study specifically examining the impacts of short-term study aboard on intercultural competencies found it was an effective tool in improving undergraduate student's intercultural competencies (Senzki, et al., 2018). This research serves to fill the gap in current literature relative to the impacts of short-term study abroad. It will address whether short-term study abroad programs are effective in improving undergraduate business student's intercultural competencies.

## METHODOLOGY

Eastern Oregon University (EOU) is a liberal art university designated as a LEAP (Liberal Education and America's Promise) institution which endorses high-impact learning and commitment to general and liberal arts learning outcomes. EOU is in rural Eastern Oregon and is officially Oregon's rural university. EOU is in a county with approximately 25,000 people across 2,000 square miles. EOU is four hours from the metropolitan area of Portland, Oregon, and 2 and ½ hours from the regional city of Boise, Idaho. The College of Business at EOU is accredited by the International Accreditation Council of Business Education (IACBE). The short-term study abroad program is on element of the curriculum utilized in meeting the global business competency requirements of the University's LEAP commitment and the business program accreditation requirements. Other curriculum elements include relevant course work in global business.

As a rural university, it is of particular importance for EOU to effectively meet the global and intercultural competencies associated with the LEAP designation and the College of Business' accreditation. The student population of EOU typically has little experience outside of rural America prior to university enrollment. Sixty-five percent of EOU's student population is a first-generation college student. Only 22% of EOU's student population identifies as a student of color and there is a very small population of international students on-campus (less than 25 students per year out of a total population of 3500 students). Fifty-three percent of undergraduates receive loans and 43% receive federal grants. Sixty-four percent of EOU's total population identifies as female and 36% as male. Business is the largest degree program at EOU with an average of 729 undergraduate students.

This research analyzed the impacts of short-term study abroad (STSA) on intercultural competencies of

business students at a small, regional, public university participating in study tours to Costa Rica. The total number of students participating in five Costa Rica study abroad programs from Eastern Oregon University between 2015-2019 was sixty-one. Assignments and discussions were designed to explore intercultural elements and personal interactions and included self-reflection and journaling. STSA in this analysis had an average duration of 9 days and were conducted during the "Spring Break" period. The size of the study abroad programs ranged from 4 to 22 students with an average of 13 students per trip. The same business professor organized the curriculum and the corresponding STSA and accompanied the students on the STSA. Students were housed in small, local motels and were transported via small, motor coach throughout Costa Rica. All STSA had similar cultural, business, and recreational experiences during their STSA. Emphasis was placed on authentic cultural and local business interactions.

Pre- and post-intercultural competency results from this group were compared to a group of 105 undergraduate students enrolled in two online and two on-campus sections of a junior-level course in global business (BA 380). BA 380 focuses on the cultural, financial, marketing, management, and operational aspects of business in a globalized economy. It aims to prepare students to be competent business professionals in the continually evolving global environment and to meet the challenges and complexities associated with globalization. Special emphasis is given to cultural factors, fostering a global mindset, and understanding the role of global enterprises. Assignments and discussions focus on using primary and secondary sources.

Results were also compared to twenty-two students enrolled in an introductory global business class (BA 101) with international MBA students assigned as culture mentors. BA 101 provides an overview of business in a global society, exploring the historical, social, economic, ethical, and legal environments. The course also explores the major functional areas of business: marketing, management, human resources, financial markets in a global setting. This section of BA 101 was unique in that it integrated six cultural mentors into the classroom setting and students were required to interact with these mentors in small group settings, class discussions, and class projects. Assignments and discussions were designed to explore intercultural elements and personal interactions.

Table 1 presents the summary statistics of the demographics of the student sample population and provides the results of the relevant demographics of the student sample population evaluated in this research. Three groups of students were analyzed in this research: students participating in short-term study abroad (n=61); students participating in BA 380 (n=105); and students participating in BA 101 (n=22). Students analyzed in BA 380 were enrolled in two different online sections (n=63) and two different on-campus sections (n=42). The professor of BA 380 was the same across all sections in this analysis and was different from the professor delivering the STSA and BA 101 course. Student demographics were not significantly different across groups analyzed within the research except for self-reported age and self-identification as a person of color (POC). Age and percent self-reporting as a POC was significantly higher in the on-line sections of BA 380 than the STSA, BA 101, and BA 380 on-campus groups.

Relative sample demographics indicated: 66% of the sample population was from "small" or rural towns; 45% percent identified as first-generation and only 24% of the population identified as a person of color. Twenty-nine percent of the sample had previously traveled out of the United States and 21% had not been out of their home state. Twenty-one percent of the sample population spoke more than one language and 94% were United States citizens.

Table 1: Descriptive Statistics for Sample Population (n=188)

| Demographic | Percent of Sample |
|---|---|
| From a "small" or "rural" town | 66% |
| First-Generation College Student | 45% |
| Previously travelled outside of U.S. | 29% |
| Not Travelled outside home state | 21% |
| Spoke more than 1 Language | 22% |
| Self-identified as female/male | 59%/41% |
| Self-identified as a person of color (POC) | 24% |
| Between 18 and 25 years of age | 46% |
| United States citizen | 94% |

*This table provides the results of the demographics of the student sample population evaluated in this research. Three groups of students were analyzed in this research: Students participating in short-term study abroad; student participating in BA 380; and students participating in BA 101.*

Pre- and Post- intercultural competencies were measured for all 188 students examined in this research along with general demographic information, previous international experience, and general global literacy exposure. There was no overlap of students among the three sample populations (STSA, BA 380, BA 101). Prior authorization and approval for data collection were obtained by the university (human subject research) and through individual student consent. Participation in the pre- and post- evaluations was a required component of the courses. The total sample population represented 5% of EOU's student population and 25% of the College of Business' population.

Miville-Guzman Universality-Diversity Scale - Short Form (MGUDS-S) (Miville et. al., 1999) was used to evaluate pre- and post- levels of intercultural competencies based on self-reporting. This scale has been extensively tested and validated in the evaluation of intercultural competencies. The short form contains 15-items in three major factor areas which include: Diversity of Contact which corresponds to the interest in participating in diverse and internationally focused activities of social and cultural nature; Relativistic Appreciation which reflects an appreciation of similarities and differences in people; and Comfort with Differences which reflects the comfort level with individuals from diverse backgrounds.

Students were also self-assessed pre- and post by the American Association of Colleges and Universities' (AAC&U) Intellectual Knowledge and Competence VALUE Rubric. The rubric identifies six key components of intercultural knowledge and competence: Cultural Awareness; Knowledge of Cultural Worldview Frameworks; Empathy; Verbal and Nonverbal Communication; Curiosity; and Openness. To determine the impacts of the short-term study abroad, student scores on the pre- and post-survey instruments were compared using one-tailed, paired *t*-tests within the three sample groups. Changes in pre- and post-levels of intercultural competency were measured within each group with a significance level of 0.05.

## RESULTS AND DISCUSSION

This analysis examined whether short-term study abroad (STSA) was more effective at increasing undergraduate student's intercultural competency skills than traditional business curriculum. Tables 2 and 3 show the findings of the intercultural competency assessments performed pre- and post- for STSA and each business course examined. The results presented are the average scores for each of the elements evaluated in the MGUD-S Form and the AAC&U Value Rubric as self-reported by the student.

Scores for the MGUD-S ranged from 1 as strongly disagree to 6 for strongly agree. Table21 presents the mean results for each group of students analyzed: STSA, BA 380, and BA 101. Overall, the initial scores across all groups are relatively low and would be consistent with the population demographics of the

sample.

Table 2: Results of Mean Differences in the Miville-Guzman Universality-Diversity Scale - Short Form (MGUDS-S) by Sample Group

| **MGUD-S Element** | **Pre-/Post-Mean Score Group: SDSA** **n-61** | **Pre-/Post-Mean Score Group: BA 380** **n-105** | **Pre-/Post-Mean Score Group: BA 101** **n=22** |
|---|---|---|---|
| Diversity of Contact (Behavioral Elements) | 2.79/3.75** | 2.43/2.84** | 2.32/2.78** |
| Relativistic Appreciation (Cognitive Elements) | 2.66/3.82** | 2.46/2.60 | 1.94/2.21** |
| Comfort with Differences (Affective Elements) | 2.41/3.71** | 2.10/2.15 | 1.89/2.25** |

*This table provides the results of the pre- and post- means for* the Miville-Guzman Universality-Diversity Scale - Short Form (MGUDS-S). *The columns listed represent the group evaluated for their intercultural competency elements.*

Significant differences in the pre- and post- means (at the 0.05 level) were observed in all of the intercultural competency elements of the MGUD-S instrument for the SDSA group. Significant differences were also observed in the BA 101 group in all elements of the MGUDS-S. However, the magnitude of these differences was not as great as those observed in the SDSA group. Only one significant difference was observed in the BA 380 group and was in the Diversity of Contact group which evaluates students' interest in participating in diverse social and cultural activities. Interest in participating is somewhat of a lower level of intercultural competency as compared to the other two elements of the MGUD-S which measure value and comfort. Increased interest would be expected before increasing levels of value and comfort.

Table 3 presents the results of the pre- and post- means for the American Association of Colleges and Universities' (AAC&U) Intellectual Knowledge and Competence VALUE Rubric. Once again significant differences existed in all the pre-and post- mean values of the intercultural competency elements assessed for the SDSA group. Two elements were significantly different in the BA 101. It appears the face to face interactions in the BA 101 has created new levels of openness and curiosity than a traditional curriculum.

Table 3: Results of Means Differences in the American Association of Colleges and Universities' (AAC&U) Intellectual Knowledge and Competence VALUE Rubric by Sample Group

| **AAC&U Value Rubric Element** | **Pre-/Post-Mean Score Group: SDSA** **n=61** | **Pre-/Post-Mean Score Group: BA 380** **n=105** | **Pre-/Post-Mean Score Group: BA 101** **n=22** |
|---|---|---|---|
| Cultural Self Awareness | 2.65/3.45** | 2.29/2.30 | 1.79/2.00 |
| Knowledge of Cultural Worldviews | 2.87/3.55** | 2.37/2.54 | 1.94/2.05 |
| Verbal and Non-Verbal Communications | 2.573.13** | 2.40/2.51 | 1.84/2.10 |
| Curiosity | 2.79/3.67** | 2.35/2.21 | 2.11/2.44** |
| Openness | 2.81/3.49** | 2.44/2.56 | 2.24/2.87** |

*This table provides the results of the pre- and post- means for the American Association of Colleges and Universities' (AAC&U) Intellectual Knowledge and Competence VALUE Rubric. The columns listed represent the group evaluated for their intercultural competency elements.*

## CONCLUSIONS

This research served to fill the gap in existing literature on the impacts of short-term study abroad programs on undergraduate student's intercultural competencies. As it is critical to know what aspects of a student's educational path lead to effectively producing the desired educational outcomes, this research addressed

the question of whether short-term study abroad programs are more effective than traditional business curriculum designed to provide the same intercultural competency outcomes.

Pre- and Post- intercultural competencies were measured for all 188 students examined in this research along with general demographic information, previous international experience, and general global literacy exposure. Results indicate that short-term study abroad programs are effective at improving intercultural competencies. This finding supports the idea that short-term study abroad programs can be considered high-impact learning and supports EOU's LEAP outcomes of Global Knowledge and Engagement and Intercultural Knowledge and Competence.

Findings from this research indicated significant differences were observed in all elements of the pre- and post- evaluations of intercultural competencies in the means of the study abroad groups. Significant differences were observed in some of the elements of the pre- and post- evaluations of intercultural competencies in the means of the BA 101 group. No significant differences were observed in any of the elements of the pre- and post- evaluations of intercultural competencies in the means of the BA 380 group. This study concludes that in order to develop intercultural competencies, it is essential to have personal contact and experiences with those from different cultures. The findings from this study support AACU's (2012) position that institutions of higher education should create settings and experiences that foster students understanding and connectedness to global issues.

The results of this study are based on a student demographic of a public, rural, regional university and are limited to students enrolled in the on-campus and on-line business undergraduate courses under review in the College of Business and the short-term study aboard programs offered through the College of Business. Responses were limited to self-evaluation responses of participants. Only one location (Costa Rica) was visited for the short-term student abroad programs in this research. No long-term study abroad program impacts were reviewed in this research. Very few students at EOU participate in long-term study abroad programs, minimal data exists for comparison to the results from this study. To the extent that the institutional characteristics, the student demographics, and student majors may have an effect on student perceptions and expectations of learning this may limit the ability of the results to be generalized across institutions and across majors. Future research will look at the impacts of these factors on the results along with the impacts of pre-college characteristics and experiences on the cultural competencies of students that participate in short-term study abroad programs. Further research will also examine factors that affect a student's decision to participate in short-term study programs and the long-term impacts (five years post-graduation) of the study abroad program.

## REFERENCES

Johnson, J. , T. Lenartowicz and S. Apud (2006) "Cross-cultural Competence in International Business: Toward a Definition and a Model," *Journal of International Business Studies*, vol 37 p. 525-543.

Jones, E. (2013) "Internationalization and employability: The role of Intercultural Experiences in the Development of Transferable Skills"*, Public Money & Management*, vol. 33(2) p. 95-104, DOI: 10.1080/09540962.2013.763416.

Tarrant M., D. Rubin and L. Stoner (2014) "The Added Value of Study Abroad: Fostering a Global Citizenry," *Journal of Studies in International Education*, vol .18(2), p 141–161.

Khalid, F. (2017) "Accreditations and Internationalization of the Business Curricula*. International Journal of Higher Education Management*, vol. 4 (1) p. 60-71.

Hawawini, G. (2016) "The Internationalization of Higher Education and Business Schools: A Critical

Review", Springer Publishing.

Knight, J (2012) "Student Mobility and Internationalization: Trends and Tribulations," *Research in Comparative and International Education,* vol. 7 (1) p. 20.

Stoner, L., L. Perry, D. Wadsworth, K. Stoner and M. Tarrant (2014) "Global Citizenship is Key to Securing Global Health: The Role of Higher Education," *Preventive Medicine*, vol. 64 p. 126–128.

Knight, J. (2006) "Internationalization of Higher Education: New Directions, New Challenges, 2005 IAU Global Survey Report. Paris: International Association of Universities.

Knight, J. (2004) "Internationalization Remodeled: Rationales, Strategies and Approaches, and Development of Transferable Skills," *Public Money & Management,* vol. 33 p. 95-104.

Rubley, L. P. Altbach and L. Reisberg (2012) "Internationalization Within the Higher Education Context" in *The SAGE handbook on International Higher Education*, p. 3-26 Sage Publishing.

De Wit, H., and G. Merkx (2012). "The History of Internationalization of Higher Education" in *The SAGE Handbook on International Higher Education*, p. 43–60 Sage Publishing..

Douglas, C. and C. Jones-Rikkers (2001). "Study Abroad Programs and American Student Worldmindedness: An Empirical Snalysis," *Journal of Teaching in International Business,* vol, 13(1) p. 55-66.

Salisbury, M. (2011) "The Effect of Study Abroad on Intercultural Competence Among Undergraduate College Students", *Iowa Research Online.*

Salisbury, M., B. An, and E. Pascarella (2013) "The Effect of Study Abroad on Intercultural Competence Among Undergraduate Students,".*Journal of Student Affairs Research and Practice* , vol *50*(1) p. 1-20.

Tarrant M., D.Rubin and L. Stoner (2014) "The Added Value of Study Abroad: Fostering a Global Citizenry.," *Journal of Studies in International Education*, vol. 18(2) p. 141–161

Lee, C., D. Therriault and T. Linderholm (2012) "On the Cognitive Benefits of Cultural Experience: Exploring the Relationship between Studying Abroad and Creative Thinking," *Applied Cognitive Psychology*, vol. 26(5) p. 768-778.

Meyhew, M., A. Rockenbach, N. Bowmen, T. Seifert, G. Wolniak, E. Pascarella and P. Terezin (2016) "*How College Affects Students: 21st Century Evidence that Higher Education Works.* John Wiley & Sons.

Chieffo, L. and L. Griffiths (2004). "Large-Scale Assessment of Student Attitudes after a Short-Term Study Abroad Program," *Frontiers: The Interdisciplinary Journal of Study Abroad*, vol. 10(1) p. 165-177.

Carley, S. and R. Tudor (2010) "Assessing the Impact of Short-Term Study Abroad," *Journal of Global Initiatives: Policy, Pedagogy, Perspective*, vol. 1(2) article 5.

Senzaki, S., M. McChesney, A. Schwery and T. Steele (2018). "Teaching Cultural Competences: A Comparison of Outcomes between In-class and Study Abroad Programs" in *Venture into Cross-cultural psychology: Proceedings from the 23rd Congress of the International Association for Cross-Cultural Psychology*

Miville, M., C. Gelso, R. Pannu, W. Liu, P. Touradji, and P. Holloway (1999). "Appreciating similarities and valuing differences: The Miville-Guzman Universality-Diversity Scale," *Journal of Counseling Psychology,* vol 46 p. 291–307.

## BIOGRAPHY

Dr. Gow-Hogge has been actively involved and responsible for the development, delivery, and review of the curriculum for the past eighteen years at EOU. Her areas of expertise include Agribusiness/Business, Economics, Global Business, Leadership, Ethics, and Fire Science and was awarded the Mackenzie Endowed Professorship. She has been fortunate to teach fourteen different courses for EOUs College of Business and has received national teaching awards. She has been recognized as an Honored Faculty Member at EOU for demonstrated excellence in research, teaching, community service, and leadership in the performance of duties serving the institutional mission of Eastern Oregon University. She currently serves on EOU's Leadership Team, as the College of Business Chair and Assessment Coordinator, regional President for the College's accrediting body, and represents the College on several university committees. She has also served as an academic advisor for the past 18 years and is passionate about student success. In her free time, she loves scuba diving, attending Seattle Mariners and Seahawk's games, and traveling the world with her family.

## REVIEWERS

The IBFR would like to thank the following members of the academic community and industry for their much appreciated contribution as reviewers.

Hisham Abdelbaki, University of Mansoura- Egypt
Isaac Oluwajoba Abereijo, Obafemi Awolowo University
Naser Abughazaleh, Gulf University for Science and Technology
Nsiah Acheampong, University of Phoenix
Iyabo Adeoye, National Horticultural Research Instittute, Ibadan, Nigeria.
Michael Adusei, Kwame Nkrumah University of Science and Technology
Paolo Agnese, LUISS Guido Carli University
Haydeé Aguilar, Universidad Autónoma de Aguascalientes
Mohd Ajlouni, Yarmouk University
Sylvester Akinbuli, University of Lagos
Anthony Akinlo, Obafemi Awolowo University
Efiong Akwaowo, Ashford University
Yousuf Al-Busaidi, Sultan Qaboos University
Khaled Aljaaidi, Universiti Utara Malaysia
Alawiya Allui, Prince Sultan University
Hussein Al-Tamimi, University of Sharjah
Paulo Alves, CMVM, ISCAL and Lusofona University
Ghazi Al-weshah, Albalqa Applied University
María Antonieta Andrade Vallejo, Instituto Politécnico Nacional
Jeff Anstine, North Central College
Olga Lucía Anzola Morales, Universidad Externado de Colombia
Antonio Arbelo Alvarez, Universidad de la Laguna
Hector Luis Avila Baray, Instituto Tecnologico De Cd. Cuauhtemoc
Graciela Ayala Jiménez, Universidad Autónoma de Querétaro
Fabiola Baltar, Universidad Nacional de Mar del Plata
Samar Baqer, Kuwait University College of Business Administration
Nagib Bayoud, Tripoli University
Ahmet Bayraktar, Rutgers University
Daniel Boylan, Widener University
James E. Briley, Northeastern State University
Kyle Brink, Western Michigan University
Giovanni Bronzetti, University of Calabria
Ana Cecilia Bustamante Valenzuela, Universidad Autónoma de Baja California
Raymond Cairo, University of Surrey
Albanelis Campos Coa, Universidad de Oriente
Carlos Alberto Cano Plata, Universidad de Bogotá Jorge Tadeo Lozano
Alberto Cardenas, Instituto Tecnológico de Cd. Juarez
Edyamira Cardozo, UNIVERSIDAD NACIONAL EXPERIMENTAL DE GUAYANA
Sheila Nora Katia Carrillo Incháustegui, Universidad Peruana Cayetano Heredia
Emma Casas Medina, Centro de Estudios Superiores del Estado de Sonora
Benjamin Castillo Osorio, Universidad del Sinú-Sede Monteria
María Antonia Cervilla de Olivieri, Universidad Simón Bolívar
Priyashni Chand, University of the South Pacific
Surya Chelikani, Quinnipiac University
Yahn-shir Chen, National Yunlin University of Science and Techology, Taiwan
Bea Chiang, The College of New Jersey
Shih Yung Chou, University of the Incarnate Word
Te-kuang Chou, Southern Taiwan University
Monica Clavel San Emeterio, University of La Rioja
Caryn Coatney, University of Southern Queensland
Iyanna College of Business Administration,
Michael Conyette, Okanagan College
Cipriano Domigo Coronado García, Universidad Autónoma de Baja California
Semei Leopoldo Coronado Ramírez, Universidad de Guadalajara
Esther Eduviges Corral Quintero, Universidad Autónoma de Baja California
M. T. Coto, Intl. Academic Sevices
Dorie Cruz Ramirez, Universidad Autonoma del Estado de Hidalgo
Tomás J. Cuevas-Contreras, Universidad Autónoma de Ciudad Juárez
Edna Isabel De La Garza Martinez, Universidad Autónoma De Coahuila
Hilario De Latorre Perez, Universidad Autonoma De Baja California
Javier de León Ledesma, Universidad de Las Palmas de Gran Canaria - Campus Universitario de Tafira
Huang Department of Accounting, Economics & Finance,
Rajni Devi, The University of the South Pacific
Hilario Díaz Guzmán, Universidad Popular Autónoma del Estado de Puebla
Cesar Amador Díaz Pelayo, Universidad de Guadalajara, Centro Universitario Costa Sur
E. M. Ekanayake, Bethune-Cookman University
Mahmoud Elgamal, College of Business Administration - Kuwait University
Avilés Elizabeth, CICESE
Prince Ellis, Argosy University
Esther Enriquez, Instituto Tecnologico de Ciudad Juarez
Ernesto Escobedo, Business Offices of Dr. Escobedo
Zaifeng Fan, University of Wisconsin whitewater
Perrine Ferauge, University of Mons
Olga Ferraro, University of Calabria
Ernesto Geovani Figueroa González, Universidad Juárez del Estado de Durango
Carlos Fong Reynoso, Universidad de Guadalajara
Ana Karen Fraire, Universidad De Guadalajara
Carmen Galve-górriz, Universidad de Zaragoza
Teresa García López, Instituto De Investigaciones Y Estudios Superiores De Las Ciencias Administrativas
Blanca Rosa Garcia Rivera, Universidad Autónoma De Baja California
Helbert Eli Gazca Santos, Instituto Tecnológico De Mérida
Peter Geczy, AIST
Lucia Gibilaro, University of Bergamo
Denisse Gómez Bañuelos, CESUES
Carlos Alberto González Camargo, Universidad Jorge Tadeo Lozano
Hector Alfonso Gonzalez Guerra, Universidad Autonoma de Coahuila
María Brenda González Herrera, Universidad Juárez del Estado de Durango
Ana Ma. Guillén Jiménez, Universidad Autónoma de Baja California
Hongtao Guo, Salem State University
Zi-yi Guo, Wells Fargo Bank, N.A.

## REVIEWERS

The IBFR would like to thank the following members of the academic community and industry for their much appreciated contribution as reviewers.

Araceli Gutierrez, Universidad Autonoma De Aguascalientes
Danyelle Guyatt, University of Bath
Glen Hansen, Utica College
Peter Harris, New York Institute of Technology
Shahriar Hasan, Thompson Rivers University
Zulkifli Hasan, Islamic University College of Malaysia
Fariza Hashim, Prince Sultan University
Peng He, Investment Technology Group
Niall Hegarty, St. Johns University
Andreina Hernandez, Universidad Central de Venezuela
Arturo Hernández, Universidad Tecnológica Centroamericana
Jorge Hernandez Palomino, Universidad Autónoma de Mexico
Alejandro Hernández Trasobares, Universidad de Zaragoza
Azucena Leticia Herrera Aguado, Universidad Tecnológica de Puebla
Claudia Soledad Herrera Oliva, Universidad Autónoma de Baja California
Paulin Houanye, University of International Business and Education, School of Law
Daniel Hsiao, University of Minnesota Duluth
Xiaochu Hu, School of Public Policy, George Mason University
Qianyun Huang, City University of New York - Queens College
Jui-Ying Hung, Chatoyang University of Technology
Fazeena Hussain, University of the South Pacific
Luis Enrique Ibarra Morales, Universidad Estatal de Sonora
Alma Delia Inda, Universidad Autonoma Del Estado De Baja California
Stoyu Ivanov, San Jose State University
Shilpa Iyanna, Abu Dhabi University
Mercedes Jalbert, The Institute for Business and Finance Research
Terrance Jalbert, University of Hawaii
Gaspar Alonso Jiménez Rentería, Instituto Tecnológico de Chihuahua
Lourdes Jordán Sales, Universidad de Las Palmas de Gran Canaria
Gricelda Juarez-Luis, Instituto Politécnico Nacional
Tejendra N. Kalia, Worcester State College
Gary Keller, Eastern Oregon University
Ann Kelley, Providence college
Ann Galligan Kelley, Providence College
Ifraz Khan, University of the South Pacific
Katherine Kinkela, Iona College
Halil Kiymaz, Rollins College
Susan Kowalewski, DYouville College
Bohumil Král, University of Economics-Prague
Jan Kruger, Unisa School for Business Leadership
Christopher B. Kummer, Webster University-Vienna
András Kun, University of Debrecen
Mei-Mei Kuo, JinWen University of Science & Technology
Miguel Ángel Latorre Guillem, Universidad Católica de Valencia "San Vicente Mártir"
John Ledgerwood, Embry-Riddle Aeronautical University
Yen-Hsien Lee, Chung Yuan Christian University
Santiago León Ch., Universidad Marítima del Caribe
Victor Lewis, National University
Luis Alberto Limón Valencia, Instituto Tecnológico Superior de Cajeme
Shulin Lin, Hsiuping University of Science and Technology
Yingchou Lin, Missouri University of Science and Technology
Lynda Livingston, University of Puget Sound
Graciela López Méndez, Universidad de Guadalajara-Jalisco
Virginia Guadalupe López Torres, Universidad Autónoma de Baja California
Melissa Lotter, Tshwane University of Technology
Ma. Cruz Lozano Ramírez, Universidad Autónoma De Baja California
Xin (Robert) Luo, Virginia State University
Andy Lynch, Southern New Hampshire University
Angel Machorro Rodríguez, Instituto Tecnológico de Orizaba
Cruz Elda Macias Teran, Universidad Autonoma de Baja California
Eduardo Macias-negrete, Instituto Tecnologico de Ciudad Juarez
Firuza Madrakhimova, University of North America
Aracely Madrid, ITESM, Campus Chihuahua
Deneb Magaña Medina, Universidad Juárez Autónoma de Tabasco
Abeer Mahrous, Cairo university
Tshepiso Makara, University of Botswana
Ioannis Makedos, University of Macedonia
Carlos Manosalvas, Universidad Estatal Amazónica
Gladys Yaneth Mariño Becerra, Universidad Pedagogica y Tecnológica de Colombia
Gladys Marquez-Navarro, Saint Louis University
Omaira Cecilia Martínez Moreno, Universidad Autónoma de Baja California-México
Jesús Apolinar Martínez Puebla, Universidad Autónoma De Tamaulipas
Jesus Carlos Martinez Ruiz, Universidad Autonoma De Chihuahua
Mario Jordi Maura, University of Puerto Rico
Francisco Jose May Hernandez, Universidad del Caribe
Aurora Irma Maynez Guaderrama, Universidad Autonoma de Ciudad Juarez
Romilda Mazzotta, University of Calabria
Mary Beth Mccabe, National University
Linda Margarita Medina Herrera, Tecnológico de Monterrey. Campus Ciudad de México
Marco Mele, Unint University
Alaitz Mendizabal Zubeldia, Universidad del País Vasco
Fidel Antonio Mendoza Shaw, Universidad Estatal De Sonora
Gulser Meric, Rowan University
Miwa Merz, San Jose State University
Avi Messica, Holon Institute of Technology
Cameron Montgomery, Delta State University
Oscar Montiel, Universidad Autonoma de Ciudad Juarez
Oscar Javier Montiel Mendez, Universidad Autonoma de Ciudad Juarez
Juan Nicolás Montoya Monsalve, Universidad Nacional de Colombia-Manizales
Cleamon Moorer, Madonna University
Sandip Mukherji, Howard University
Jennifer Mul Encalada, Universidad Autónoma De Yucatán
Gloria Muñoz Del Real, Universidad Autonoma de Baja California
Alberto Elías Muñoz Santiago, Fundación Universidad del Norte
Tony Mutsue, Iowa Wesleyan College
Ertambang Nahartyo, UGM
Linda Naimi, Purdue University
Arezoo Nakhaei, Massey University

## REVIEWERS

The IBFR would like to thank the following members of the academic community and industry for their much appreciated contribution as reviewers.

Cheedradevi Narayanasamy, National University of Malaysia
Erwin Eduardo Navarrete Andrade, Universidad Central de Chile
Gloria Alicia Nieves Bernal, Universidad Autónoma del Estado de Baja California
Bertha Guadalupe Ojeda García, Universidad Estatal de Sonora
Erica Okere, Education Management Corp
Erika Olivas, Universidad Estatal de Sonora
Dennis Olson, Thompson Rivers University
Idowu Emmanuel Olubodun, Obafemi Awolowo University
Godwin Onyeaso, Shorter University
Ramona Orastean, Lucian Blaga University of Sibiu-Romania
Erick Orozco, Universidad Simon Bolivar
Rosa Martha Ortega Martínez, Universidad Juárez del Estado de Durango
Diaeldin Osman, Alabama State University
José Manuel Osorio Atondo, Centro de Estudios Superiores del Estado de Sonora
Carmen Padilla-Lozano, Universidad Catolica de Santiago de Guayaquil
Vera Palea, University of Turin
Julian Pando, University of the Basque Country
Daniel Paredes Zempual, Universidad Estatal de Sonora
Dawn H. Pearcy, Eastern Michigan University
Luz Stella Pemberthy Gallo, Universidad del Cauca
Andres Pereyra Chan, Instituto Tecnologico De Merida
Eloisa Perez, MacEwan University
Iñaki Periáñez, Universidad del Pais Vasco (spain)
Hector Priego Huertas, Universidad De Colima
Pina Puntillo, University of Calabria (Italy)
Rahim Quazi, Prairie View A&M University
Anitha Ramachander, New Horizon College of Engineering
Charles Rambo, University of Nairobi
Eric Amin Ramirez Castillo, Universidad Autónoma Benito Juarez de Oaxaca
Prena Rani, University of the South Pacific
Alma Ruth Rebolledo Mendoza, Universidad De Colima
Kathleen Reddick, College of St. Elizabeth
Oscar Bernardo Reyes Real, Universidad de Colima
Maurizio Rija, University of Calabria.
Carmen Rios, Universidad del Este
Juan Carlos Robledo Fernández, Universidad EAFIT-Medellin/Universidad Tecnologica de Bolivar-Cartagena
Natalia G. Romero Vivar, Universidad Estatal de Sonora
Fabrizio Rossi, University of Cassino and Southern Lazio
Humberto Rosso, Universidad Mayor de San Andres
Matthew T. Royle, Valdosta State University
José Gabriel Ruiz Andrade, Universidad Autónoma de Baja California-México
Antonio Salas, Universidad Autonoma De Chihuahua
Rafiu Oyesola Salawu, Obafemi Awolowo University
Claudia Nora Salcido, Facultad de Economía Contaduría y Administración Universidad Juarez del Estado de Durango
Paul Allen Salisbury, York College, City University of New York
Leire San Jose, University of Basque Country
Juan Manuel San Martín Reyna, Universidad Autónoma de Tamaulipas-México
Francisco Sanches Tomé, Instituto Politécnico da Guarda
Edelmira Sánchez, Universidad Autónoma de Ciudad Juárez
Celsa G. Sánchez, CETYS Universidad
Deycy Janeth Sánchez Preciado, Universidad del Cauca
María Cristina Sánchez Romero, Instituto Tecnológico de Orizaba
María Dolores Sánchez-Fernández, Universidade da Coruña
Luis Eduardo Sandoval Garrido, Universidad Militar de Nueva Granada
I Putu Sugiartha Sanjaya, Atma Jaya Yogyakarta University, Indonesia
Pol Santandreu i Gràcia, Universitat de Barcelona, Santandreu Consultors
Victor Gustavo Sarasqueta, Universidad Argentina de la Empresa UADE
Jaime Andrés Sarmiento Espinel, Universidad Militar de Nueva Granada
Sunando Sengupta, Bowie State University
Jesus Otoniel Sosa Rodriguez, Universidad De Colima
Adriana Patricia Soto Aguilar, Benemerita Universidad Autonoma De Puebla
Smita Mayuresh Sovani, Pune University
Alexandru Stancu, University of Geneva and IATA (International Air Transport Association)
Jonathan Stewart, Abilene Christian University
Jiří Strouhal, University of Economics-Prague
Vichet Sum, University of Maryland -- Eastern Shore
Qian Sun, Kutztown University
Edith Georgina Surdez Pérez, Universidad Juárez Autónoma de Tabasco
Diah Suryaningrum, Universitas Pembangunan Nasional Veteran Jatim
Andree Swanson, Ashford University
James Tanoos, Saint Mary-of-the-Woods College
Jesus María Martín Terán Terán Gastélum, Centro de Estudios Superiores del Estado de Sonora
Ranjini Thaver, Stetson University
Jeannemarie Thorpe, Southern NH University
Maria De La Paz Toldos Romero, Tecnologico De Monterrey, Campus Guadalajara
Alejandro Torres Mussatto, Senado de la Republica; Universidad de Valparaíso
Jorge Torres-Zorrilla, Pontificia Universidad Católica del Perú
William Trainor, East Tennessee State University
Md Hamid Uddin, University of Sharjah
Intiyas Utami, Satya Wacana Christian University
Ozge Uygur, Rowan University
Abraham Vásquez Cruz, Universidad Veracruzana
Rosalva Diamantina Vásquez Mireles, Universidad Autónoma de Coahuila
Angel Wilhelm Vazquez, Universidad Autonoma Del Estado De Morelos
Lorena Vélez García, Universidad Autónoma de Baja California
Alejandro Villafañez Zamudio, Instituto Tecnologico de Matamoros
Hector Rosendo Villanueva Zamora, Universidad Mesoamericana
Oskar Villarreal Larrinaga, Universidad del País Vasco/Euskal Herriko Universitatea
Delimiro Alberto Visbal Cadavid, Universidad del Magdalena
Vijay Vishwakarma, St. Francis Xavier University
Julian Vulliez, University of Phoenix
Janet L. Walsh, Birchtree Global, LLC

## REVIEWERS

The IBFR would like to thank the following members of the academic community and industry for their much appreciated contribution as reviewers.

Ya-fang Wang, Providence University
Richard Zhe Wang, Eastern Illinois University
Richard Weaver, National University
Jon Webber, University of Phoenix
Jason West, Griffith University
Wannapa Wichitchanya, Burapha University
Veronda Willis, The University of Texas at San Antonio
Erico Wulf, Universidad de la Serena
Amy Yeo, Tunku Abdul Rahman College
Bingqing Yin, University of Kansas
Paula Zobisch, Forbes School of Business & Technology

# HOW TO PUBLISH

## Submission Instructions

The Journal welcomes submissions for publication consideration. Complete directions for manuscript submission are available at the Journal website www.theibfr.com/journal-submission/. Papers may be submitted for initial review in any format. However, authors should take special care to address spelling and grammar issues prior to submission. Authors of accepted papers are required to precisely format their document according to the journal guidelines, available at www.theibfr.com/guidelines/.

Authors submitting a manuscript for publication consideration must guarantee that the document contains the original work of the authors, has not been published elsewhere, and is not under publication consideration elsewhere. In addition, submission of a manuscript implies that the author is prepared to pay the publication fee should the manuscript be accepted.

## Subscriptions

Individual and library subscriptions to the Journal are available. Please contact us by mail or by email to: admin@theibfr.com for updated information.

## Contact Information

Mercedes Jalbert, Managing Editor
The IBFR
P.O. Box 4908
Hilo, HI 96720
editor@theIBFR.com

## Website

www.theIBFR.com

# PUBLICATION OPPORTUNITIES

## REVIEW of BUSINESS & FINANCE STUDIES

### Review of Business & Finance Studies

Review of Business & Finance Studies (ISSN: 2150-3338 print and 2156-8081 online) publishes high-quality studies in all areas of business, finance and related fields. Empirical, and theoretical papers as well as case studies are welcome. Cases can be based on real-world or hypothetical situations.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

## EBA Business Education & Accreditation

### Business Education and Acreditation (BEA)

Business Education & Accreditation publishes high-quality articles in all areas of business education, curriculum, educational methods, educational administration, advances in educational technology and accreditation. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

## AT Accounting & Taxation

### Accounting and Taxation (AT)

Accounting and Taxation (AT) publishes high-quality articles in all areas of accounting, auditing, taxation and related areas. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

## REVISTA GLOBAL de NEGOCIOS

### Revista Global de Negocios

Revista Global de Negocios (RGN), a Spanish language Journal, publishes high-quality articles in all areas of business. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

AAll papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

# PUBLICATION OPPORTUNITIES

## The International Journal of Business and Finance Research ISSN 1931-0269

The International Journal of Business and Finance Research (IJBFR) publishes high-quality articles in all areas of finance, accounting and economics. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

## International Journal of Management and Marketing Research ISSN 1933-3153

The International Journal of Management and Marketing Research (IJMMR) publishes high-quality articles in all areas of management and marketing. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

## Global Journal of Business Research ISSN 1931-0277

The Global Journal of Business Research (GJBR) publishes high-quality articles in all areas of business. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.

## Revista Internacional Administración y Finanzas ISSN 1933-608X

Revista Internacional Administracion y Finanzas (RIAF), a Spanish language Journal, publishes high-quality articles in all areas of business. Theoretical, empirical and applied manuscripts are welcome for publication consideration.

All papers submitted to the Journal are blind reviewed. Visit our website www.theibfr.com/our-journals/ for distribution, listings and ranking information.