Business Economics Program Sessions

Wednesday, March 22, 2023

BUSINESS ECONOMICS

1:30 – 2:45 p.m. ……………………………………………………………………. Logan Room, 3rd Floor

Theme: Economic Development Related to the Firm or Industry

Chair: Daniel H. Boylan, Purdue University, Fort Wayne

The Impact of Craft Breweries on Local Economic Development: A North Carolina Case Study

Suzanne A. Altobello, University of North Carolina at Pembroke
Daniel J. Parisian, University of North Carolina at Pembroke
John O'Dell, University of North Carolina at Pembroke

Abstract

Craft breweries are more than simply places to drink beer. They bring family and friends together; are used for entertainment and events; encourage complementary businesses, such as restaurants and food trucks to open; and engender positive community effects beyond their location. Using the state of North Carolina as a case study, this project explores and quantifies the spreading economic impact of craft breweries on local economies. We are developing a curated database of almost 400 craft breweries in North Carolina and adding economic development variables, such as secretary of state business filings and other growth indicators. Our goal is to map the other types of businesses that open near a craft brewery. Conducting an economic impact analysis on this data will test our hypothesis that craft breweries bring increased economic development to their surrounding areas, beyond the success for the brewery enterprise. Specifically, we plan to explore the types of LLCs and other business entities that open after a craft brewery enters a community by looking at the primary and secondary NAICS codes. We will use ArcGIS to visually map these entities to explore patterns. Results will help local chambers of commerce, small business development centers, and local governments to see the positive, extended effects of craft breweries on local economies.

The Crucial High-Speed Broadband for the U.S. Rural Economic Development

Robert Kao, Park University

Abstract

Accessible, affordable, reliable high-speed broadband internet service is fundamental for American rural economic development today. The enactment of the Infrastructure Investment Bill and American Jobs Act in 2021 provides $65 billion in funding for e-Connectivity through four programs overseen by the National Telecommunications and Information Administration in the U.S. Department of Commerce. High-speed internet is vital for the growth of diverse industries, including agricultural production, manufacturing, mining, forestry, and healthcare. Technology can promote rural prosperity by enabling efficient communications between rural American households, education, workers, healthcare, public security, financial services, and markets. USDA also introduced the ReConnect Program in 2018 to expand high-

speed broadband services in several rural areas and tribal lands. The program policies and procedures became the regulation in 2021. The research findings show evidence that e-Connectivity is a crucial infrastructure for modern-day's economic growth and sustainability of rural American businesses.

Economic Impacts of the Robotics Technology on Remote Greenhouse Farming in Northwest Indiana

Amlan Mitra, Purdue University Northwest

Abstract

The world-wide demand for agricultural products is rapidly growing. However, despite the growing population, labor shortage becomes a limiting factor for agricultural production. Further automation of agriculture is an important solution to tackle these challenges. Recent research suggests that remote harvesting of high-value crops, such as apples, tomatoes, and broccoli, is currently mainly performed by humans, rendering it one of the most labor-intensive and expensive agricultural tasks. This explains the large interest in the development of selective harvesting robots.

This paper reports on an economic impact study conducted at Purdue University Northwest sponsored by the U.S. Economic Development Administration. The study provides an overview of the state of the art in selective harvesting robotics in greenhouse tomato production in Northwest Indiana. The economic impacts and the cost-benefit analysis of manual versus remote harvesting using robotics technologies are discussed, and future research directions are proposed.

Too Small to Survive: Legislative Burden on Small Banks

Daniel H. Boylan, Purdue University Fort Wayne
Brooke A. Wintlend, Purdue University Fort Wayne

Abstract

Topic: Too Small to Survive: Legislative Burden on Small Banks
Research Question: Are small banks too small to survive because of the burden legislation imposes?
Null Hypothesis: Legislation does not impose a burden on small banks making them too small to survive.
Alternate Hypothesis: Legislation does impose a burden on small banks making them too small to survive.

Small banks across the country are receiving pressure from legislation due to the increase in rules and regulations. Without implementing change soon small banks will be overpowered by large ones. It is important to see the powerful impact small banks have on rural communities. Relatively large banks can handle change more than small banks. Change is hard for any company or organization but due to the lack of employees having the ability to adapt to the change, small banks struggle to stay alive. By analyzing over twelve peer-reviewed sources it is astonishing to see how legislation can have such an impact on small banks.

BUSINESS ECONOMICS

3:00 – 4:15 p.m. ………………………………………………………………………….. Logan Room, 3rd Floor

Theme: Applied Macroeconomics

Chair: Eva Stopajnik, Vienna University of Technology

Testing Causality Between Money, Inflation and Economic Growth during 1990-2022: Evidence from South American countries

Abdus Samad, Utah Valley University

Abstract

Applying econometric method of panel cointegration and the VEC (vector error correction), this paper examines whether there is a long run causal relationship between inflation, money supply, and real GDP in 7 South American countries during 1990-2021. VEC Granger Causality/Block Exogeneity Wald Tests is used in exploring the direction of causality among these variables. Additionally, pool OLS, and Fixed Effect Model vs Random Effect Model are applied for examining the impact of money supply and real GDP on inflation. The significance of the majority of the test statistics of the Padroni test concludes the establishment of cointegrations among the variables of order I(1) and this implies that there is long-term relationship the cointegrated variables. The findings imply that there is a long-run panel cointegration between the tested variables. The significane of the coefficient of ECT suggests long term relation, and inflation is Granger caused by money supply (M2) and GDP. VEC Granger Causality/Block Exogeneity Wald Tests finds bidirectional causality between money supply and GDP, unidirectional causality from M2 and GDP to price level. As the Hausman test supports the appropriateness of FIM, results of Pool panel OLS and FEM finds that money supply and real GDP has significant impact on inflation.

Is Secular Stagnation a Reality? Consequences for Current Policy Making

Valerica Vlad, Penn State Behrend

Abstract.

During the 1930s the USA economy had been struggling with the Great Depression. It was then when Alvin Hansen proposed the concept of secular stagnation to refer to an economy with little or no potential for growth. Back then, the average growth rate of US economy, from 1930 to 1939, was 1.4%. Fast-forward, after the great recession, from 2010 to 2019, the average growth rate had been only 1.5%. This paper claims that secular stagnation has been the status quo of the US economy (for a long time.) It uses two approaches in trying to provide support for its claim. In the first approach, a set of decadal binary variables is used to synthesize a path of the long-run evolution of the US economic growth (from 1930 to 2020.) The main result suggests that the growth trajectory of the US economy can be shaped as a Kondratiev-wave. For more than ten years the economy has been on a low-growth "tail" of that K-wave. The second approach is a simple trend determination (using moving averages). All calculated trends show that the US economy has been showing signs of declining in its growth-potential even before 'great recession,' (2006) and there is no sign of positive change for the foreseeable future. We may conclude that the economy is going through secular stagnation. If this the case, we must feel liberated to apply more monetary contraction. Maybe we must go 'Volcker" style.

The Impact of the Financial Crisis of 2008/09 on Employment in the Outsourced Facility Service Sector in the US

Alexander Redlein, Vienna University of Technology
Eva Stopajnik, Vienna University of Technology

Abstract

Facility Services (FS) are not listed as one whole industry sector in the North American Industry Classification System (NAICS). Many industry reports are based on this system, and as a consequence, there are not enough reports about the FS sector. This leads to a lack of transparency in the sector. This article tries to close that gap by answering the following research questions: How did employment in the

outsourced FS sector develop from 2008 to 2019 and what is the impact of the financial crisis of 2008/09 on the outsourced FS sector?

Results show that in 2019 the total FS sector employed more than 9 million people. This means that more than 9% of all employees in the business economy worked in the FS sector. The largest industry sector in 2019 in the business economy in the US were accommodation and food services. FS take place five in the industry ranking. The outsourced FS sector, as well as the business economy constantly increased since 2010. While the business economy increased by 16%, the outsourced FS sector increased by 24.5%. After the financial crises of 2008/09, the FS sector and business economy decreased in 2009 and 2010. The share of FS in the business economy shows that FS declined slightly less than the business economy after the recession. This phenomenon has already been observed in Europe (Redlein, Stopajnik 2021). Reasons for that are that many FS like maintenance works are essential and must be carried out even during a crisis.

Thursday, March 23, 2023

BUSINESS ECONOMICS

8:00 – 9:00 a.m. ……………………………………………………………………….. Logan Room, 3rd Floor

Theme: Undergraduate Research Session I

Chair: Quentin Sodano, Purdue University Fort Wayne

Economics of Legalization of Marijuana in Indiana

Daniel H. Boylan, Purdue University Fort Wayne
Quentin Sodano, Purdue University Fort Wayne

Abstract

In today's political and social climate, the legalization and removal of marijuana from the Schedule I federal list of controlled substances has been a major topic of discussion across the United States. As more states pass legislation to legalize marijuana, either it be for medicinal or recreational means, a market is being created that has economically beneficial possibilities that include increased funding for schools, state infrastructure, and increased budgets for state and local governments. This research seeks to highlight the economic effects of the legalization of marijuana in Michigan and connect the exponentially growing cannabis tax revenues, and comparing them to Indiana's current prohibitionary laws. Beginning with recent announcements by President Joe Biden, followed by the history of marijuana, into analytics; where states have quantifiable evidence of the benefits of marijuana legalization. An analysis will conclude the economic benefits for Indiana, resulting in taxation being more advantageous than the current laws in the state. As marijuana legalization occurs in more states, the impact legalization potentially has on both a state and national economic and societal gains is worth examining.

BUSINESS ECONOMICS

9:15 – 10:30 a.m. ……………………………………………………………………….. Logan Room, 3rd Floor

Theme: Undergraduate Research Session II

Chair: Shane M. Jones, Purdue University Fort Wayne

The Effects of Corruption on the Vietnamese Economy
Viet T. Tran, Purdue University Fort Wayne

Designing a Survey to Explore Attitudes of Union and Non-Union Workers towards Labor Unions
Shane M. Jones, Purdue University Fort Wayne

Abstract
In this presentation, we examine the motivation, background, methodology and construction of a survey exploring the attitudes of union and non-union workers towards labor unions. Motivators for this research include the waning influence of labor unions, increasing generational ambivalence, and the paradox between wage gaps and divergent support for unionization efforts. Our research objective focuses on developing a more precise understanding of the coexistence of these phenomena. Emphasizing the importance of survey formation, we aim to capture an accurate measurement of status quo bias' influence on levels of union favorability between the two sample groups. Carefully designed survey questions address the research question: Does "status quo bias" (i.e., one's lived experience) influence the variance between union and non-union support for unionization, and if so, to what extent? In the methodology section, we discuss survey models utilized and the significance of avoiding researcher bias, participant bias, and non-response bias.

BUSINESS ECONOMICS

10:45 a.m. – 12:00 p.m. ……………………………………………………………………. Logan Room, 3rd Floor

Theme: Special Topics in Applied Economics

Chair: Heather L.R. Tierney, Purdue University Fort Wayne

On the Relationship between Asset Exemptions and Outstanding Tax Repayments in Chapter 7 Bankruptcy
Donald D. Hackney, Gonzaga University
Andrew Brajcich, Gonzaga University
Dan Friesner, North Dakota State University

Abstract
Consumer bankruptcy is a form of social insurance with major redistributive effects. This is especially true for households who, by virtue of their incomes being lower than their home state's median income, are allowed to file under Chapter 7 of the U.S. Bankruptcy Code. Under a Chapter 7 filing, all non-exempt assets held by the debtor(s) are liquidated, and those funds (net of attorney and court costs) are used to repay creditors. All remaining debts that are eligible for discharge, are discharged. This allows the bankrupt household a fresh start, in which to quickly re-establish itself financially. In the vast majority of Chapter 7 filings, liquidated assets repay only a small portion of outstanding debts reported in the bankruptcy filing. Two key issues within the Chapter 7 bankruptcy process are noteworthy. First, a number

of households file for bankruptcy protection with assets, which may be exempt from liquidation. In certain states, the exemptions are set by the state in which a household files for bankruptcy. In other states (known as "debtor choice states"), households may choose to exempt assets under state or federal exemption rules. The more generous the exemptions (especially as they apply to the household's assets) the lesser is the value of assets liquidated and used to repay creditors. Second, many priority unsecured debts, especially outstanding tax debts, student loan payments, and domestic support payments, are not always dischargeable in the bankruptcy process, and may survive a bankruptcy filing. Some of these priority unsecured debts, especially domestic support obligations, will continue to accrue over long periods of time regardless of whether the outstanding debts are repaid. However, tax debts are unique in that there is an outstanding amount that, once repaid, allows the debtor to be free of these obligations. For households filing for bankruptcy protection under Chapter 7, this leads to an interesting (two-part) decision problem, which has been insufficiently explored in the literature. First, among Chapter 7 bankruptcy filers, are there any systematic characteristics (particularly various types of assets of specific groups of filers) distinguishing filers who hold outstanding tax debt and those who do not hold tax debt? Second, among filers with outstanding assets and tax debts, do filers choose to retain their exempt assets and allow the tax obligations to survive the bankruptcy process, or do they choose to use the liquidation process to reduce outstanding tax obligations? This study focuses on the first of these issues. The study operates under the null hypothesis of no relationship between the amount of tax debt and the real dollar value of assets (whether exempt or non-exempt) held by the filer at the time of a Chapter 7 bankruptcy filing. The authors collected data on all Chapter 7 bankruptcy filings with potentially exempt assets from Washington State between 2016 and 2021. There were 363 Chapter asset filing cases in the sample. Regression analysis is used to assess the statistical association between the existence and amounts of outstanding tax debts and the amount of exempt and non-exempt assets (both exempt and non-exempt) reported in the filing, among other filer characteristics. Tax obligations were measured both overall, and those specifically owed to the Internal Revenue Service (IRS). The results fail to reject the study's null hypothesis at the 5% level for total taxes. There is no significant relationship between assets and total outstanding tax claims. However, there is evidence at the 10% level that unsecured debts are positively associated with total tax claims. The null hypothesis is rejected at the 5% level for outstanding IRS tax claims. Higher total real assets are positively associated with higher IRS tax claims. However, there is no significant relationship between exempt assets and IRS claims. The empirical analysis also highlights three corollary findings. First, overall, tax claims have steadily fallen since 2016, which may imply the potential for using the Chapter 7 asset exemption process to repay tax creditors is diminishing over time. Second, we find that two groups of filers were significantly more likely to file for Chapter 7 bankruptcy with outstanding tax claims: those with higher incomes, and those filers who are small business owners, whether sole proprietors or corporation owners. Future research in this area may wish to focus specifically on these filer groups, as they hold the preponderance of outstanding tax obligations.

Disentangling Administration Errors from Scale Development Errors in Survey Research

Carl S. Bozman, Gonzaga University
Matthew McPherson, Gonzaga University
Dan Friesner, North Dakota State University

Abstract

Surveys are among the most popular means available to social scientists to collect information on self-reported human behaviors. A recent strand of the survey research literature attempts to assess the "quantity" of information contained in survey responses and use it to improve the design and administration of surveys. In the context of the literature, the quantity of information compares the actual distribution of survey responses (whether for a single survey item, aggregated across respondents, or multiple (related) survey items aggregated across a single respondent) to the researcher's a priori expectation for this distribution in the absence or (or prior to) a survey's administration (Dahl and Osteras, 2010). The more consistent are the two distributions, the lower the quantity of information contained in the survey, because there is little to be gained from administering the survey in the first place. The more the two distributions diverge, the greater the quantity of information that is available to be gleaned from administering a survey. As a result, it is worthwhile to apply descriptive and inferential statistical methods to the data (which is referred to as assessing the "quality" of information, or the magnitudes of the inter-relationships that exist, in the data). Friesner et al. (2021) demonstrate how the quantity of information can be used to inform the aggregation of related survey items into scales. Friesner et al. (2023) demonstrate how assessments of the quantity of information can be used to identify possible errors in a survey's administration, especially in situations where specific groups of respondents give fundamentally different quantities of information when completing the same survey items. A major limitation of both manuscripts is that they address only one issue, holding constant, or assuming away, the possibility of the other issue. That is, Friesner et al. (2021) assume that the survey was administered appropriately, and that all groups of respondents give the same quantity of information in their responses. Friesner et al. (2022) assess whether different groups of respondents give the same quantities of information in their responses to the same items, assuming that all survey items and scales being assessed contain a reasonable quantity of information. These assumptions have important implications for survey design. For example, if the researcher adds a new item to the survey it can do two things. First, it can impact the quantity of information respondents can provide, which also impacts the quantity of information contained in the overall scales. However, adding this survey item can also impact how one must administer your survey, especially if different groups of respondents perceive that question differently. The current study proposes an econometric methodology that addresses both of these issues simultaneously. It is applied to the same data (drawn from a customer satisfaction survey administered via non-stratified sampling at the 2018 Hoopfest Basketball Tournament) that were studied in both Friesner et al. (2021) and Friesner et al. (2023). Within this survey, respondents were asked to complete Kahle (1983) and Kahle, Beatty and Homer's (1986) List of Values scale. They also completed items from the Basic Empathy Scale for Adults (BES-A) as well as six additional questions that were proposed as additions to the BES-A scale. The results identified one of the additional six items (a behavioral empathy item – "I get agitated when I see someone in distress") that contributed a positive quantity of information to the scale, but for which a number of different groups of respondents provided significantly different quantities of information. Further editing of this survey item is warranted before including it in a future version of the survey, administered without stratified sampling, to avoid the introduction of possible biases in the survey results.

Intangible Assets and Financial Statement Comparability in the Hospital Industry

Dan Friesner, North Dakota State University
Andrew Brajcich, Gonzaga University

Abstract

Over the past 30 years, firms have become (and will likely become increasingly) reliant on specific forms of assets that are purely knowledge-based to create value, facilitate production, and ensure continued financial viability. Most of these assets are reported in a firm's balance statement as intangible assets. Firms may accumulate a variety of different types of intangible assets, and the productive lifespan of each type of intangible asset may vary considerably across firms. As a result, accounting for intangible assets in accounting statements is a challenging endeavor. By extension, external parties who wish to utilize financial statement information for various decisions (equity investments, lending activities), may find it more difficult to compare financial statement information across firms who report substantial intangible assets. Within the context of Financial Accounting Standards Board (FASB) terminology, the presence of substantial intangible assets in a firm's balance sheet my reduce "financial statement comparability" across firms (Do, Finance Research Letters, 40, 2021, Article 1016932021). While the increasing use of intangible assets is not surprising in certain industries (information technology, pharmaceutical industry, etc.), it is also becoming prevalent in other industries as well. One interesting example is the hospital industry. Hospitals acquire intangible assets through a variety of transactions, including (but not limited to) mergers and acquisitions, certificates of need (and other regulatory licenses or permits), joint venture agreements, non-competition agreements, and service contracts with vendors and/or contracted employees (Jelonek and Chluski, Online Journal of Applied Knowledge Management, 2, 2014, pp. 120-131). Unfortunately, little is known empirically about the impact on intangible assets and firm performance in hospitals (Evans, Brown, and Baker, BMC Health Services Research, 15, 2015, Article 556). As a first step in understanding the relationship between intangible assets and firm performance, this study investigates whether the existence of various types of intangible assets in a hospital's balance sheet leads to lesser or greater degree in financial statement comparability relative to hospitals who do not hold intangible assets. Financial statement comparability is assessed using Brajcich and Friesner's (Journal of Theoretical Accounting, 18, 2022, pp. 87-113) methodology, which allows for the direct comparison of both for-profit and not-for-profit hospitals. Data are drawn from the income statements and balance sheets of Washington State hospitals in 2019. Differences between hospitals are assessed using the Kruskal-Wallis test. We find no statistically significant differences in financial statement comparability between hospitals that report, or do not report, goodwill-related intangible assets. However, we do find statistically significant differences in financial statement comparability between hospitals that report other forms of intangible assets, compared to those who do not report these assets. More specifically, hospitals who report other types of intangible assets are, on average, significantly less financially comparable to hospitals that do not report these assets. Thus, the use of intangible assets other than goodwill provides a means for hospitals to capitalize on opportunities to diversify and expand productive activities, but does so at the cost of making their financial statement information less comparable to other hospitals in the market.

Exploring Seasonality in Consumer Bankruptcies

Donald D. Hackney, Gonzaga University
Dan Friesner, North Dakota State University
Heather L.R. Tierney, Purdue University Fort Wayne
Jayme V. Gerring, The Federal Reserve Bank of Cleveland

Disclaimer "The views expressed herein are solely those of the authors and do not necessarily reflect the views of The Federal Reserve Bank of Cleveland."

Abstract

A random sample of data drawn from the U.S. Bankruptcy Court's Eastern District of Washington's Public Access to Court Electronic Records (PACER) database over 2003, 2005, 2007, 2009, 2011, 2014, 2016, and 2020 is used to examine whether consumer bankruptcy filings exhibit statistically significant seasonal variations. Households, who have filed under either Chapter 7 or Chapter 13 of the U.S. Bankruptcy Code, are randomly sampled, which amounts to 400 household bankruptcy filings or 10% of the population of filings in a given year, whichever is the lesser of the two. For each filing the month in which the petition is filed is recorded, along with the Chapter under which it is filed, the filer's reported income and outstanding debts, as well as selected demographic characteristics. Debtor average monthly income, average household monthly income, average unsecured debt, and the number of bankruptcy filings are examined for seasonality. The data exhibits an additive trend with respect to seasonality meaning that the seasonality and remainder are constant and not increasing as it would be with a multiplicative trend. Seasonality in bankruptcy filings is able to be seen when the data is organized by month across the years. The largest spikes seem to be in March and October. The Seasonal-Trend Decomposition using LOESS (STL) Model is able to pick up the spikes in March and hence, bankruptcy data does exhibit seasonality.

BUSINESS ECONOMICS

1:30 – 2:45 p.m. ……………………………………………………………………….. Logan Room, 3rd Floor

Theme: Topics in Applied Microeconomics

Chair: Nikhil Shah, Purdue West Lafayette

Property Ownership and Firm Performance: Firm-Level Analysis of Post-Communist Economies

Zafar Nazarov, Purdue University Fort Wayne
Aziz Goziev, University of Chicago

Abstract

This study investigates the relationship between property ownership and firm performance. We contribute to the empirical literature by exploring this relationship solely for the firms in transition economies using the BEEPS survey with information on 14,000 firms. The introduction of market-oriented institutions across transition economies after the collapse of the Berlin Wall wasn't identical, splitting the economies into two groups: with strong market-based institutions (Eastern European economies) and weak institutions (Commonwealth of Independent States). The comparative analysis across two types of states provides an important perspective on the relationship of interest. In a more market-oriented environment, our study demonstrates that property ownership is positively associated with firm's

profitability and productivity. In the states with weaker institutions because of the presence of a higher risk of capital expropriation, there is a negative selection into property ownership.

Can We Forecast Electric Car and Automotive Convergence Production: "Get a Horse?"

Anthony Paul Andrews, Governors State University

Abstract

EV production doubleted production in a declining auto market with Tesla an estimated 60% market share and Kia more than tripling the number of their 2021 production.1 With several production components to unfold, it is easy to recognize that the point in time in which EVs overtake regular production is a prediction point critical to the industry. In addition, the possible reconfiguration of the entire industry is vying for dominance in such a reconfiguration. This paper provides a model to estimate the convergent point when period point of convergence between market and EV convergence to occur. The methodology proposes Vector Auto Regression (VAR) and Vector Error Correction Process to investigate possible shocks to the system and follows the process developed in Hansen (2022), Kirchgässner, Wolters, and Hassler (2007); and Lükepohl (1993).

Mergers and Acquisitions: A Quantitative Approach to Human Resource Modelling

Nikhil Shah, Purdue West Lafayette
Darlene Russ-Eft, Purdue University
Daniel Boylan, Purdue Fort Wayne

BUSINESS ECONOMICS

3:00 – 4:15 p.m. ………………………………………………………………………….. Logan Room, 3rd Floor

Theme: Topics in Market Analysis

Chair: Thomas R. Sadler, Western Illinois University

Incorporating the Market's Demand and Supply by Spatial Modeling and Using Internet of Things: A Machine Learning Approach

Homa Tajiani, Purdue University Fort Wayne
Hadi Alasti, Purdue University Fort Wayne

Abstract

Spatial distribution of the demand over a given large area is considered for estimation of a proper supply function. The demand data is polled to the information fusion center (IFC) using on-site Internet of Things (IoT) devices. It is assumed that the demand steady state function is correlated, which means two near outlets have similar demand states. The spatial distribution of the demand is modeled using its contour lines. In the course of time and during iterations, the spatial distribution of the demand is cleared and a proper supply is estimated, accordingly. To reduce the volume of the polled data, only a limited number of the IoT devices in outlets and wholesale points report to the IFC. A machine learning algorithm determines which IoT devices need to report to the IFC. Modeling the spatial signal using its contour lines

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Levim, M. (2023: Jan 6) MARKETPLACE. https://www.marketplace.org/2023/01/06/sales-of-fully-electric-vehicles-nearly-doubled-in-2022-which-carmakers-came-out-on-to results in reduction of the number of polling from IoT devices. The number of the contour lines and their levels are identified after an iterative process.

The IoT devices send the available and the sold items upon polling from IFC, wirelessly. Each IoT device updates its data for one or several items, periodically. The approach allows each outlet to keep track of its available items in warehouse and request for supply before selling out each item.

The proposed approach notifies the supply provisioning system for changes and adapts the supply function accordingly, in order to meet the market's demands. A major application of this approach is in cases such as "goods shortage after pandemic situation".

This research also investigates the efficient tracking of the temporal variation of the demand spatial distribution based on local IoT reported data.

The Impact of Imagery on Historic Travel Intentions: What Makes the Images Retro and Useful?

Aaron J. Schibik, University of Evansville
Peggy O. Shields, University of Southern Indiana
Timothy J. Schibik, University of Southern Indiana

Abstract
In marketing, longevity claims (e.g., established in 1944; Pecot et al., 2022), retro marketing (Brown et al., 2003), and other nostalgia-inducing tactics are often used as promotional tools. For marketers, these tactics establish the brand's heritage/prestige and reinforce the enduring value of the product to consumers (Pecot & Merchant, 2022). As such, these tactics are especially pervasive for marketers trying to promote travel destinations, particularly those with an established cultural heritage or history. While research has shown the value of using retro imagery to promote travel destinations (Schibik et al., 2023), this research focused on how retro imagery-induced nostalgia increases travel intentions. Additionally, this research focused on only one travel location, the islands of Hawaii, which has an established history of using retro imagery in its promotional campaigns.

This paper builds on the foundation of past work and examines retro imagery from a different perspective. First, this research uses a different travel destination, St. Augustine, FL. St. Augustine, FL, like Hawaii, has made extensive use of history in their marketing efforts and thus is a natural extension of past research. Second, this paper examines what elements make a promotion "retro." How do consumers identify an image as "retro," and why? Finally, this research looks at several downstream consequences. Specifically, destination heritage and revisit intentions are examined to see if retro imagery induces more positive associations.

Market Failure in Futures Markets

Greg Arburn, University of Findlay

Abstract
To the extent that derivatives markets were created for risk management purposes of firms in extraction, refining, distribution, marketing, utilization, etc., large traders that enter the market based on certain events such as forecast supply and demand imbalances may create a degree of market failure. The market

failure may result in risk managers having to incur greater capital requirements and or increased borrowing costs to maintain their hedge positions. This is turn may result in risk managers reducing hedged positions, incurring higher risks, and in extreme cases incentivizing firms to abandon hedging strategies altogether. We hypothesize that large traders play a significant role in price movement while certain market imbalances are present. To test this hypothesis, we use a non-linear regression technique to estimate parameters for a panel data set. Our data is compiled in part from the Commitment of Traders (COT) reports from the Commodities Futures Trading Commission, WTI crude oil prices from Investing.com, Organization of Petroleum Exporting Countries production changes, various dummy variables to represent time periods of interest, and various macroeconomic data.

Results reveal that large traders are a significant determinant of price. Price movements during these periods of time and market events are greater than average and lead to increased margin requirements and elevated options premiums.

To the extent that the periodic entrance of large traders to the WTI derivatives markets increases capital requirements for hedgers, there may be a degree of market failure.

Friday, March 24, 2023

BUSINESS ECONOMICS

8:00 – 9:15 a.m. ……………………………………………………………………. Logan Room, 3rd Floor

Theme: Society, Philosophy, and Economics

Chair: John R. Stinespring, University of Tampa

Applying Loss Aversion to the (Parenthetical) Wide Average Principle Resolves the Repugnant Conclusion

John R. Stinespring, University of Tampa
Keith John Wojciechowski, University of Wisconsin-Stout

Abstract
This paper explores how Adam Smith's Theory of Moral Sentiments (TMS) explains moral behavior in what economists today will recognize as a supply and demand model for sympathy. Suppliers of sympathy use the virtue of beneficence to provide a quantity of sympathy in the form of attention, consolation, or generosity to sympathy demanders who have received their approbation. Sympathy demanders receive approbation when they use the virtue of prudence to moderate their behavior so that suppliers may "enter into" their feelings. The required level of moderation for sympathetic "commerce" to occur is the "point of propriety" or equilibrium price where demanders and suppliers share a concord of sentiments or "fellow feeling" that characterizes the equilibrium quantity. The supply and demand functions are constructed from standard models of preferences and constraints. The preferences Smith considers are divided between the selfish and selfless. The constraints are based on the virtues one has developed and the self-command one is able to exercise. The framework suggested herein corresponds to multiple examples provided in TMS and helps illuminate the profound insights from TMS.

Adam Smith's Market for Moral Sentiments

John R. Stinespring, University of Tampa

Abstract

In his book *Reasons and Persons* (1984), Derek Parfit attempted to create a new theory of beneficence called Theory X. This theory would answer important questions in population ethics. Parfit's most promising attempt at the theory relied upon an innovation he called the Wide Average Principle. He claimed, however, that all versions of the wide principle failed. One version–a version that was merely parenthetical in his exposition–was given a mathematical form and calibrated to numerical values. We show that this Parenthetical Wide Average Principle, PWAP, revealed an implicit assumption in Parfit's analysis that is both theoretically and empirically unsound. Once removed, the PWAP is shown to satisfy all other conditions thereby making it a valid candidate for Parfit's Theory X.

Racial Diversity and Team Performance in the National Basketball Association

Carley Frauenhoff, St. Norbert College
John-Gabriel Licht, St. Norbert College

Abstract

Racial diversity is a foundational and growing aspect of our world. While the intrinsic value of diversity is clear, empirical research has shown mixed effects for its influence on performance. This study analyzes data from 11 seasons of the National Basketball Association (NBA) to investigate this relationship. Performance data was collected for all 30 NBA teams, as well as race information for each player. We operationalized racial diversity using Blau's Index, and operationalized performance as a team's average margin of victory, at the season-level. The regression model included control variables for average player age, average player experience in the NBA, team's strength of schedule for the season, and season-level fixed effects. This study adds to the existing empirical evidence on diversity in the NBA by a) using a more nuanced operationalization of performance (margin of victory, instead of winning percentage); and b) analyzing a more recent sample (from 2008-2018), relative to the extant literature. Contrary to prior evidence, our analyses show a positive relationship between team diversity and team performance in the NBA.

BUSINESS ECONOMICS

9:30 – 10:45 a.m. ………………………………………………………………………….. Logan Room, 3rd Floor

Theme: Topics in Pedagogy

Chair: Timothy Schibik, University of Southern Indiana

ChatGPT and the Vulnerability of Business Courses

Nodir Adilov, Purdue University Fort Wayne
Jeffrey Cline, Purdue University Fort Wayne
Hui Hanke, Purdue University Fort Wayne
Kent Kauffman, Purdue University Fort Wayne
Lisa Meneau, Purdue University Fort Wayne

Elva Resendez, Purdue University Fort Wayne
Shubham Singh, Purdue University Fort Wayne
Mike Slaubaugh, Purdue University Fort Wayne
Nichaya Suntornpithug, Purdue University Fort Wayne

Abstract
This paper investigates the level of susceptibility of assignments in business courses to using ChatGPT, an advanced text-based language model. The study analyzes course materials from a sample of business courses in a mid-sized university to develop an index that measures business courses' vulnerability to being completed utilizing ChatGPT. The study finds that the vulnerability index varies across disciplines. As advanced language models become more common in academic settings and create new educational challenges, the paper's results have important implications for business schools and business educators. The paper also provides a mechanism for instructors and academic units to measure the vulnerability of their courses to ChatGPT.

Evolution in Teaching Economics: A Suggested and Proven-Successful Methodology to Teach an Accelerated Synchronous Online Economics Course
Ramin Cooper Maysami, California State University Los Angeles

Abstract
Teaching practices in introductory economics courses have changed, as they should have, consistent with the changing learning styles of students enrolling in economics classes.

The days of hours-long textbook readings and memorization have transformed into short bursts of study sessions by multi-tasking students who may be, all at once, listening to music, checking Instagram and Facebook posts, while searching for relevant information readily available on the Internet and reading about the topic on Wikipedia to supplement their class notes and chapter material (Wow…that was a long sentence! But it may well represent the learning styles of today's students, indeed, as explained in this study). Wait! Instead of researching in the online libraries of their universities, students may as well just ask Alexa and Siri for assistance in locating information, and they probably do.

Publishers who once provided PowerPoint presentations of the textbook chapters as supplementary material to appreciative audiences, now must inevitably offer complement websites where, in addition to access to highly interactive electronic version of a textbook, students may find and use reference articles, well-guided practice problems, video lectures, and reference cards (aka cheat sheets), among many other learning tools.

Instructors, meanwhile, may design and implement their courses not only with the aid of publisher provided lecture notes, solution manuals, and PowerPoint slides as in the days of the past, but they can also supplement them with highly customizable technology-enhanced teaching tools, available on publishers' complementary websites. The days of test banks questions downloadable as Word files have given way to current online exam preparation sites allowing professors to prepare exams with algorithmically-generated solutions. And they could be automatically graded—even the essay questions. 2 The use of computers in an economic course was a novel idea at one time. Now, using mobile phones and iPads to access teaching and learning material, to read and highlight the textbook pages, and to design or to take exams, is the norm. Mindtap, Connect, MyLab, and Aplia are only a few of the supplementary

comprehensive resources available to professors and students alike. And they are familiar paths, by now, to both groups.

The emerging desire of students to access learning material anytime anywhere, meanwhile, has now been matched by educational institutions' desire to reach as many students as possible without the constraints of campus boundaries or really any geographical borders at all. Advances in educational technology have facilitated the development of high quality interactive online degree programs not only by for-profit fully online institutions but also by many well-established universities, traditionally well-known for offering campus-based classes only. Many traditional universities, indeed, now have "online campuses" in addition to their physical campuses of the past.

At the same time, the (arguably) shorter attention spans of current students triggered by 140- character tweets and summaries of news articles circulating as text messages have been (or starting to be) addressed by institutions' design and delivery of courses and programs with shorter durations than the traditional 16-week semesters of four-year duration.

Finally, the Covid pandemic-necessitated work-from-home requirement led to the rapid growth of remote conferencing platforms such as Zoom, WebEx, and Teams. The same technologies were quickly adopted by educational institutions to address teach-from-home/learn-at-home needs of professors and students. The demand to continue using remote conferencing tools for work and education has remained strong even after the Covid lockdowns ended.

Many universities have changed (or are in the process of changing) their traditional programs to include short term courses (5-8 weeks) taught in hybrid format (fewer on-campus meetings supplemented with online teaching and learning tools), or fully online. Meanwhile, online classes may now include, and often do, asynchronous pre-recorded lectures as supplementary learning supplements. In addition, many such courses offer optional live virtual teaching sessions allowing for student-faculty interaction for those students who prefer the flexibility of online classes but also benefit from professor-guided learning. Some programs/courses may even have the requirement to attend synchronous live sessions (albeit the latter is not truly an online course in the strictest sense, and may best be descripted as a remote hybrid class).

So, this is where we are now and these are facts which effective education practices need to address. Importantly, we need to predict where we may rapidly be going in providing high-quality economics education to a variety of student populations in the coming years. 3 This presentation reviews one successful strategy to construct and deliver a well-designed Quality Matters-approved fast-paced accelerated economics class (8 weeks converted from 16 weeks) in an online format (converted from face-to-face) with required synchronous teaching sessions (as opposed to its fully online counterpart). Opportunities and challenges in delivering such a course are addressed and benefits and disadvantages to both students and professors are discussed. The goal of the study is to build on successes and learn from challenges of this experience and recommend a framework for success in future offerings of this, and similar economics classes.

Curricular Innovation in Higher Education: A Capabilities Framework
Scott Wallace, University of Wisconsin-Stevens Point

Abstract
Institutions of higher education are facing compound challenges that threaten their continued health and viability. This presentation will describe how universities can structure the curricular innovation process

to better utilize existing resources and capabilities to address these challenges. It draws on the classic literature from organizational economics and strategic management in creating a conceptual framework that can help universities introduce new, high demand programs.

Using the College Student Inventory (CSI) to Inform Strategic Interactions with At-Risk First-Year Students

Kristina Walker, University of Southern Indiana
Timothy Schibik, University of Southern Indiana
Sudesh Mujumdar, University of Southern Indiana
Mohammed Khayum, University of Southern Indiana

Abstract

Recently, the focus of universities on retaining students has garnered even more attention as the declining numbers of high school graduates have put pressure on higher education institutions to maintain enrollments and, thus, financial integrity. One question facing institutions is how to best strategically allocate resources to have the greatest impact on student retention. How can an institution first identify those students who are most at-risk for leaving the institution and given this information how can the institution best intervene?

Ruffalo Noel Levitz© has developed the College Student Inventory (CSI) that contains two measures, the overall risk index and the predicted academic difficulty measures, they have identified as summary observations concerning students' level of academic risk. We applied those two indicators to students who were not retained in the prior year (Fall 2021 cohort), and we were able to determine thresholds for interventions designed to improve student success.

A controlled experiment was designed and applied to a sample of the incoming cohort (Fall 2022) of identified at-risk students in the business school of a comprehensive mid-western university. A series of passive interventions were applied to both a control and an experimental group, while a series of active interventions were only applied to the experimental group. We will discuss both the passive and active interventions implemented this fall, as well as some retention results during our presentation.