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Staff and Contributors

Letter from the Editor

Dear Readers,

The staff of Equilibrium is very proud to present the eighth volume of the University of Wisconsin-Madison's undergraduate journal of economics. Our goal is to showcase some of the varied work done in the Department of Economics this year, including those of both students and faculty. Many of the articles summarize the research done by economics undergraduate students as they pursue insight and solutions to economic problems across the world. To our students, faculty, alumni, and outside readers, I hope this publication can attest to the phenomenal talent seen across the department. Working with the staff throughout the past few months has been a testament to the abilities of the economics students here at UW, and I have enjoyed working with them every step of the way.

As readers delve into this journal, I implore you all to consider the topics at hand. Let this journal be an inspiration for you to explore the economic, international, political, and social issues at hand and to work toward finding solutions to these problems and questions. Only with the contributions of many can we build a better world.

I would like to give a huge thank you to our faculty advisor Susan Hering. This publication would not have been possible without her help, encouragements, and trust. I would also like to thank Sam Alhadeff, our graduate student advisor, who has put time and effort into helping with this issue, as well as all of the past Equilibrium staff who have created its legacy. Most of all, I would like to thank Xi Chen, our Graphic Designer, who has spent enormous time and effort into the creation of this journal, and we could not have done it without her. I look forward to seeing the publication grow even more in the future.

Sincerely,

Caroline Liang
Editor in Chief
The Equilibrium, Volume 8

EQUILIBRIUM

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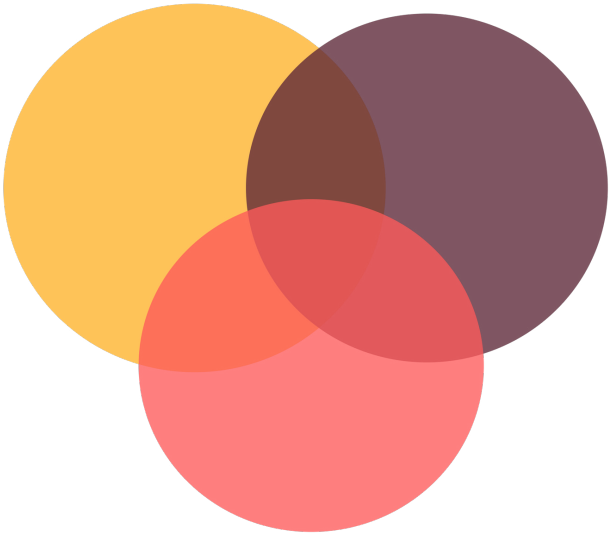


IMMIGRATION

The Economic Attainment of Second Generation Immigrants

Research by Priyanka Panjwani
Written by Luke Geistlinger

THROUGHOUT ITS HISTORY, the United States has often drawn on its immigrant legacy as a source of strength and celebration. When faced with disaster or crisis, America's leaders reflect on the nation's formative years, wielding the desolate origins and courage of its founders as an injection of patriotism straight to the public consciousness. A nation of immigrants, they say. Of explorers!

In modern day America, the toxicity of the political landscape has rendered the word "immigration" a buzzword, a springboard for racial rhetoric. Many of the arguments being had about immigration are constructed precariously, upon television news talking points instead of thorough analysis. One less recognized aspect of the debate is the importance of immigrant families to the United States economy. As the birth rate declines to below the replacement rate in the U.S., the influx of immigrant labor will represent an increasingly large part of the economy. The Pew Research Center estimates that between now and the year 2050, an astonishing 93% of labor-age population growth during the period will come from immigrants and their children, a cohort comprising 37% of the U.S. population. As America hurdles headlong into the murky future, it will rely on immigrant labor.

Given this continuous infusion of foreigners into the U.S. population, contemporary immigration policy could potentially have long range, causational effects on the economy. By measuring the extent to which immigrants and their children are finding suc-

cess within the U.S. economy once they arrive, one can potentially detect ways to smooth the transition process for incoming immigrants. To this end, it is crucial that the multitude of external factors affecting immigrant welfare be reflected in the actions and ideas of policy makers in order to optimize immigrants' abilities to become more productive members of the burgeoning American economy.

The initial economic status of an immigrant is affected externally by geographical and social factors, as well as by relevant job and language skills. Immigrants may have developed skills at home to make them competitive in the U.S. market, or they may have come to the country for educational reasons. However, the lower value of a migrant laborer's human capital in a foreign country may require them to pass linguistic, cultural, and racial barriers before they can speed off on an expressway to the American Dream. This can lead to some immigrants taking arduous jobs, unwanted by Americans, that are rife with exploitation of their vulnerable workforce. Even once an immigrant is able to arrive in a new country, they face massive challenges to be able to competitively compete in the labor market compared to native workers.

To provide an economic analysis of immigrant assimilation, University of Wisconsin student Priyanka Panjwani studied and wrote on the economic attainment of second generation immigrants—those raised in the U.S. to foreign born parents—quantifying the extent to which they experienced upward economic mobility compared to their parents from 1970 to 2000. Panjwani argues that the wage differential between the highly educated and the uneducated spiked dramatically after the passage of the 1965 Immigration Act initiated a large influx of immigrant workers into the country. Because most of the new immigrants had low levels of education, any closure of the education wage gap must therefore be made up by gains in earnings from successive immigrant generations.

To examine these earnings, Panjwani ran a regression model to attempt to explain a worker's hourly wage. The analysis was conducted within three generations of immigrants. The first generation are workers that are foreign born. Second generation immigrants are defined as those with at least one immigrant parent and those in the third-generation as having two native born parents. Variables used were the years of schooling for an individual and age. The gender, generation, and ethnicity of a worker was controlled for, noting whether they were Asians, Hispanics or Europeans.

The model was fed data from the 1970 U.S. Census and the 1998-2002 Current Population Surveys, producing several highly significant results. Panjwani found that second-generation immigrants earned about $3.66 more per hour than their parents, with all values being adjusted for time and inflation. An additional year of education results in an $2.40 increase in hourly wage, as workers add to their stock of human capital. Being a male was a large advantage, associated with a $4.74 increase in hourly wage. She found that third-generation immigrants actually make about $2.63 less per hour than second-generation, but it must be noted that with a p-value of 0.134, this was not a statistically significant finding and must therefore be drawn into question. One issue with the third-generation population is that it is difficult to assert their relationship to the original immigrant. Since the cohort is defined as anyone with two native born parents, it includes an enormous amount of people who have no history of immigration in their immediate families and are therefore irrelevant to the inquiry of this research.

THE FINDINGS OF PANJWANI'S regression are significant in that they provide a statistical argument for upward intergenerational mobility. Intuitively, we can identify several causal factors for why this might be the case. Second generation immigrants grew up

in the United States, having been raised within its culture rather than being forced to adapt to it. Children of immigrants will likely learn English quicker and more easily than their foreign born parents. Another common theory posits that immigrants are more motivated workers than those born in the United States. This heightened motivation, whether born from necessity or as a part of the immigrant's psyche, may be passed onto the next generation, through outlets such as parental pressure on their children to work hard and climb the economic ladder.

One important aspect of the descriptive statistics used in the model is the race of the immigrant. The data shows that every race increased their income in the second generation besides Asians, whose income actually fell by 29 cents from that of their parents.

"IMMIGRANTS ARE SUCCESSFULLY NAVIGATING THE TRANSITION TO A NEW COUNTRY, HELPING THEIR CHILDREN FORGE BETTER FINANCIAL LIVES FOR THEMSELVES. "

However, there are large disparities in real income between races. Asians have the highest mean real hourly wage, followed by Whites, Blacks and Hispanics. This disparity speaks to the different levels of human capital that immigrants arrive in the U.S. with; a worker coming from South Korea and its developed economy is statistically more likely to compete in the U.S. labor market than an impoverished immigrant from Mexico or Somalia, for example. The lower-than-average hourly incomes of Blacks and Hispanics speak to the human capital disadvantages these immigrants face, as well as perhaps societal discrimination and a lack of financial opportunities once they arrive in the U.S.

ONE CRITIQUE OF THE MODEL IS that it is very simple and broad, and it only sketches out a base level understanding of how economic mobility works. Endowing the model with greater specificity would allow us to draw more precise conclusions on the relationship between first and second generation immigrant earnings. An example of this could be to incorporate the quality of an immigrant's past education to account for the disparities in educational systems. Years of education in one country are perhaps more valuable than spending the same amount of years studying in another country. Furthermore, the paper offers little explanation for why second generation Asian immigrants did not see a boost in wage comparable to other races. Although this result could be an anomaly due to small sample size, more inquiry is needed to determine the reason for the incongruity. These critiques point out further areas of study.

OVERALL, PANJWANI'S RESEARCH leads to the conclusion that there are clearly economic gains being made by second generation immigrants in the U.S. This shows that immigrants are successfully navigating the transition to a new country, helping their children forge better financial lives for themselves. This research speaks to the importance of immigrant labor not only in the U.S. but across the world's economies. Many European countries are struggling through aging populations, low birth rates, and mass amounts of refugees and economic migrants flooding in from the Middle East and Africa. The ability of wealthy countries like the U.S. to incorporate new individuals into their economies will be paramount in determining their economic futures, and the attainment of second generation immigrants will have massive implications for the global economy in the years and generations to come.

HEALTH

Health Reform, Consumption Inequality of Health Insurance, and Improved Economic Outcomes: Implications of the Affordable Care Act of 2010

Research by Jack McGovern
Written by Matthew Theobald

IN THE PAST DECADE, ONE OF THE most hotly debated topics in the political sphere has been Medicaid. During this time, income inequality in the United States has been just as popular a topic amongst economists. The Affordable Care and Patent Protection Act of 2010 explicitly addressed the former while implicitly addressing the latter. The Affordable Care Act (ACA) aimed at making health insurance more accessible and attainable to a greater number of Americans. With a large part of economic inequality in the United States contributed to health expenditures, the ACA has reduced this economic inequality for a variety of groups.

To illustrate the amount the United States spends on health expenditures let us ask why are the Marshall Islands and the United States similar when it comes to healthcare? It's that the Marshall Islands are the only country that matches the United States' staggeringly high level of medical expenditures (these include out-of-pocket, insurance companies, governmental health programs, and pharmaceutical expenditures) at over 17% of GDP. One discrepancy, though, is that the Marshall Islands' GDP is $115 million ($2,900 per capita) as opposed to the United States' $18.56 trillion ($57,436 per capita), resulting in a notably large amount difference spent on these medical expenditures with approximately $19.5 million for the Mar-

shall Islands and $3.16 trillion for the United States. The impact of these costly expenditures have been felt in the United States. In 2006, over 60 percent of all bankruptcies were the result of unexpected medical bills.

Since, in general, people that earn in the bottom 50 percent of the income spectrum are less likely to purchase health insurance than those in the top 50 percent, this high medical cost and restriction of access to health insurance has profound effects on an individual's economic and health outcomes.

THE AFFORDABLE CARE ACT'S AIM was to make health care insurance more accessible and attainable for a greater number of Americans. This was done by four notable provisions: increasing the threshold of eligibility for Medicaid to 133 percent of the poverty level, adopting a gradient system of tax rebates for premiums up for incomes up to 400 percent of the poverty level, allowing young Americans to remain on their parents' health insurance until age 26, and providing individual and employer mandates for having health insurance.

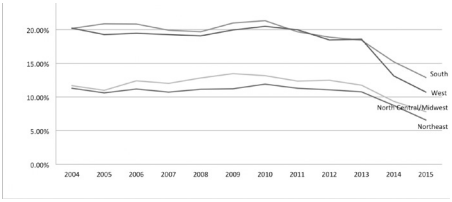
To further understand the economic effects of the Affordable Care Act, here is a brief overview on the prominent features of the ACA and the problems that legislators were hoping to fix. There are five major provisions that aim to expand health insurance coverage and in turn reduce income inequality: (1) an individual mandate legally requiring the population to be covered by health insurance, (2) expanding government assistance towards coverage for low and middle income families, (3) necessitating that employers of more than 50 employees offer coverage to employees, (4) allowing children to stay on parents' health insurance until age 26, and (5) greatly increasing eligibility for Medicaid. Increasing eligibility for Medicaid was addressed by increasing government assistance for coverage to people with incomes between 133 percent and 400 percent of the poverty level with a gradient-style premium tax credit. This means that people in this income range fall on a spectrum and receive a tax rebate relative to their position on this spectrum. This is to say, those with an income closer to the lower 133 percent of poverty level will receive a larger reimbursement close to the full average price of health insurance, while those closer to the upper 400 percent level will receive a smaller reimbursement. The dollar amount of these reimbursements also increases as the number of persons in a household increases. These reimbursements decrease the medical expenditures spent by low income households, allowing healthcare to be more accessible and available to Americans while addressing income inequality in the United States.

WITH THE UNITED STATES HAVING one of the highest levels of income inequality among advanced countries today and also having the highest percentage of health expenditures to GDP in the world, there is a considerable case for analyzing the Affordable Care Act as it impacts income inequality in the United States. Jack McGovern analyzed this with the goal of providing empirical evidence that health policy can lead to more equal economic and health outcomes. He hypothesized that subsidized health care coverage for low income families allows an increase in disposable income for these families, challenging the issue of high income inequality. For his data, McGovern used IPUMS National Health Interview Survey (IPUMS-NHIS), a harmonized data set from the University of Minnesota in the Twin Cities of the National Health Interview Survey (NHIS) facilitated by the National Center for Health Statistics (NCHS). While NCHS has administered the NHIS every year since 1956, McGovern analyzed the years 2004-2015 as providing an adequate window of time before and after the ACA was enacted. McGovern selected a few characteristics to create a variety of subgroups (region, age, educational

attainment, and income), which allowed him to gain insight into where the ACA has most impacted health insurance coverage rates. He then analyzed the variable of main importance: whether or not the respondent has health care coverage.

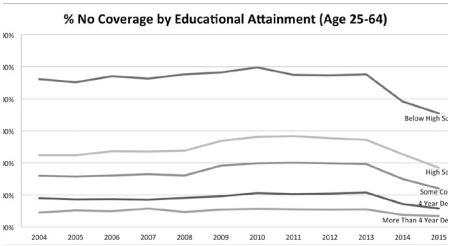
MCGOVERN FOUND AN OVERALL downward trend in the percentage of respondents with no coverage after the ACA was enacted. This is seen through 16.53 percent of respondents having no coverage in 2005, a few years before the ACA was enacted. This percentage peaked in 2010 with 17.96 percent of respondents having no coverage. After that, the percentage slowly decreased until 2013 before dropping down to 10.23 percent in 2015. This downward trend achieves a major goal of the ACA and is apparent throughout all of the subgroups McGovern created. This trend, however, does not allow us to see who exactly is gaining health insurance.

In order to address who is gaining insurance, McGovern broke the data into four subgroups; region, age, educational attainment, and income. Let us first look at geographical region. His findings can be seen in the graph below.



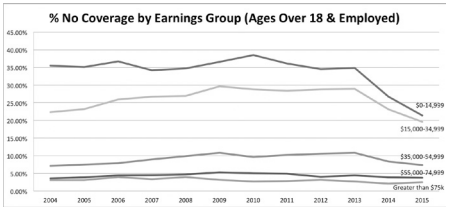
From 2004 to 2008, the lines are relatively stable with a couple of minor fluctuations. We then see a slight increase among all geographical regions in 2008. This can likely be attributed to the Great Recession, assuming health insurance is a normal good. The principle aspect of this graph is after 2010, when the ACA was

enacted. From 2010 to 2013 there is a slight decrease in percentage with no coverage across all geographical regions, but the most dramatic decrease happens after 2013. Here we can see that the South and the West have greatly decreased their percentage of respondents with no coverage between 2004 and 2015. However, it is interesting to see such a dramatic drop in 2013. Later McGovern credited this sizable lag across all regions to major provisions that were not introduced until this time frame and the slow recovery from the Great Recession. The next subgroup that McGovern analyzed is education level of the respondents



IN THE GRAPH ABOVE, WE SEE trends similar to those discussed earlier between 2004 and 2008. After 2008, we see the biggest increase in the groups with final education levels of high school and some college. McGovern believed this is because these people are more likely to get jobs that put them in the income bracket just above the threshold for Medicaid.

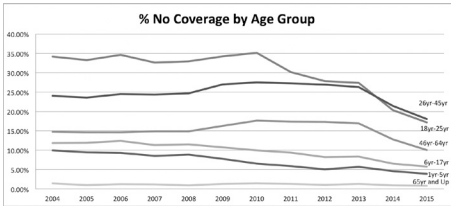
This graph then continues to have the same trends as the previous graph from 2010 to 2015. At first glance, this graph can be deceiving because while the biggest nominal decrease happens to the groups with some college education and below, we can see that those with a 4 year degree and those with more than a 4 year degree had their percentage almost cut in half. This displays the significant positive effects of the ACA across all groups. McGovern then analyzed a subgroup broken up into groups by earnings.



FOR THIS GRAPH, THE MOST interesting aspects come with the two lowest earnings groups having such a higher percentage of no coverage. This is surprising because the groups with the most access to Medicaid also have the highest percentage of no coverage. After sorting the groups by earnings, it is logical that the highest earning groups will be largely unaffected by the ACA and its provisions.

"AFTER SORTING THE GROUPS BY EARNINGS, IT IS LOGICAL THAT THE HIGHEST EARNING GROUPS WILL BE LARGELY UNAFFECTED BY THE ACA AND ITS PROVISIONS."

These groups are above the threshold for Medicaid, so the tax penalty for not having health insurance will have a small effect on their income. Firstly, an interesting aspect for the group earning between $15,000 and $34,999 is that their percentage increases between 2004 and 2008 much more significantly than we have seen in the previous graphs. Another surprising facet of this graph is that immediately after the Great Recession, the highest earning income group actually gains more coverage. This graph become similar the other graphs after 2010 for those most affected by the improved access to health insurance as we see a slight decrease after 2010 and then a more dramatic decrease after 2013. The final subgroup that McGovern analyzed is age.



IT IS IMPORTANT TO NOTE THAT the age group 65 years and up is ultimately unaffected by Medicaid and the ACA since its members are eligible for Medicare, which largely remained unchanged after the ACA. From 2008 to 2010, we see very similar results to the previous graphs. We see a dramatic rise in no coverage from 2008 to 2010 for all groups between 26 years and 64 years. For the age group between 18 and 25 years, this is in part because of the Great Recession, but it is also attributed to two additional reasons. Firstly, people between 18 years and 25 years were not able to stay on their parents health care plans at this time. This changed with the ACA, leading to a higher amount with no coverage. Secondly, according to McGovern, many people in this age group are still in school or at an entry level job, which tends to have worse benefits than high

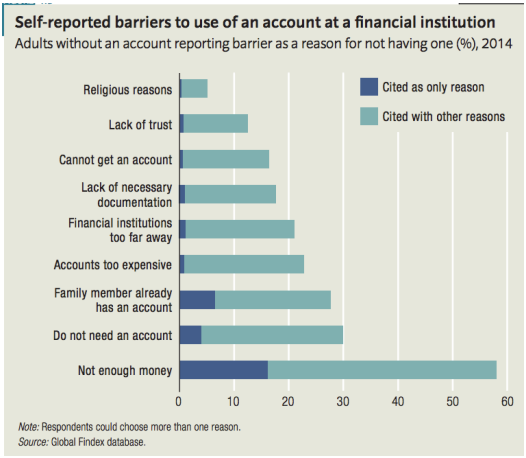
quality jobs often achieved later in life. The first reason is a principle aspect of why the percentage with no coverage dropped so dramatically after the ACA. We then see a significant drop across all age groups after 2013, similar to the previous graphs.

AFTER ANALYZING THE GRAPHS according to subgroups we can highlight the groups most affected by the ACA. Out of the regions, the West experiences the largest increase in coverage, with the South a close second. The least educated group, below high school, has the largest increase in coverage, with a change of around 15 percent. Next, the lowest income bracket also received the largest increase in coverage: over 20 percent. Lastly, the age group 18 to 25 years benefits the most by more than halving their no insurance rate from about 35 percent to around 17 percent. One main takeaway from McGovern's findings is that almost every group within every subgroup experienced a drop in people with no coverage. Another important takeaway is that the ACA achieved one of its goals of expanding coverage to those who need it. We see this in groups with the lowest age, education, and income benefiting most from the ACA, ultimately creating favorable economic and healthy outcomes for more people who would not have otherwise. These findings by McGovern help us shed some light on questions regarding the Affordable Care Act and its effectiveness, while also addressing the topic of income inequality in the United States. Taken together with these ideas in mind, we can assert that the ACA was achieving its mission at the time of McGovern's research in early 2017.

Positive Effects of Mobile Money on Financial Inclusivity

Research by Kevin Bannerman Hutchful
Written by Sam Dudek

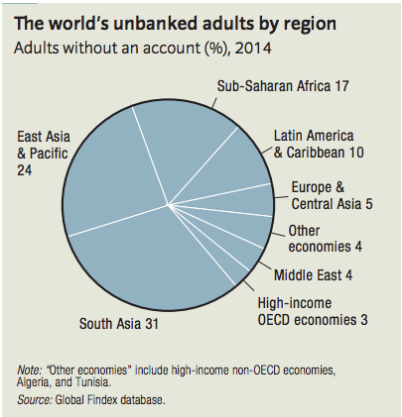
THE VAST majority of people reading this article right now are currently financially included in the economy, meaning that each person and business has access to financial services or products at an affordable, competitive price, performed in a responsible way. But why does it matter? This inclusion is often considered vital in minimizing poverty through the flexibility of remittances between individuals, as well as consumption smoothing, the ability to alleviate negative pressures that occur from exogenous shocks to the economy, which are discussed later. In the simplest terms, being included means having a bank account, but this is not quite sufficient for the full utility available. Having a simple transactional account where one can store, send, and receive money can segue people into using other types of services such as credit lines and insurance, all of which have a profound effect on one's quality of life.



"This inclusion is often considered vital in minimizing poverty through the flexibility of remittances between individuals, as well as consumption smoothing, the ability to alleviate negative pressures that occur from exogenous shocks to the economy, which are discussed later. "

This flexibility from inclusion increases quality of life by giving the individual an initiative to save, invest, and eliminate external costs. It makes sense that people should try and become included financially, considering that nearly 2 billion people were unbanked as of 2014 according to The Global Findex Database. Over half the numbers cited insufficient funds as the reason behind the lack of inclusion, implying that financial services are still far from being affordable for low-income users. What can be done about the other 41% who said there were other barriers to obtaining a simple bank account? Such barriers included a too long of a distance to a potential provider as well as a lack of trust in providers.

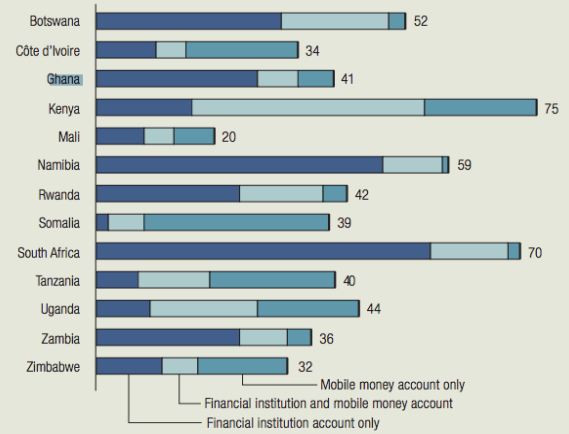
Hutchful, an undergraduate student at UW-Madison, decided to look into the country of Ghana and see how mobile money through electronic banking could mitigate a plethora of problems and increase inclusivity among lower-income people. Through referential work, he conducted research and used Kenya as a case study for Ghana, a country which seemed to have just the right determinants to successfully integrate a mobile



money market as well as being similar enough in terms of economy and market. He then derived three conditions that strongly predict the success of financial technology (Fintech) use and financial inclusion: mobile phone penetration, large unbanked populations, and lastly a large market share for mobile providers.

MOBILE PHONE penetration, the number of active mobile phone users per 100 people within a specific population, is critical to the success of mobile money. There is no doubt that cell phones are becoming a necessity across the world. Almost everyone either owns a cell phone or has someone within their family who owns one. Either way, mobile technology is at the forefront of pushing easier access, communication, and transfers across longer distances. Therefore, better access to mobile phones is vital to the success of financial inclusivity through mobile money services. According to reports from the Communications Authority of Kenya First Quarter Sector Statistics (2016/2017), Kenya had mobile phone penetration of 88.2%, while Ghana came in at around 131.9% according to the Quarterly Statistical Bulletin on Communications in Ghana (2016) [accounting for external errors, a better estimate is roughly 78%]. While the average phone penetration of Africa is around 67%, well over half of the continent shows promising potential for all that mobile money has to offer.

Account penetration in countries with mobile money account penetration of 10 percent or more
Adults with an account (%), 2014



Source: Global Findex database.

ANOTHER CONDITION necessary for the success of Fintech use states that there needs to be a large, unbanked population. Hutchful deduced that the only reason mobile money was successful in Kenya was due to its large number of citizens not using financial services. In 2006, a year prior to M-PESA launching (a popular mobile money transfer software used in Kenya), the populace only experienced about 19% inclusivity. Since then, it has risen to well over the global average of 62%, at 74.4%. Since Ghana is quite similar, with 29% inclusivity as of 2011, rising consistently to 40% as of 2014, success is highly probable, especially with its high mobile device adoption rates. Since 2012, active mobile money users have experienced exponential growth of about 2306%, a strong indicator that mobile money is reaching such populations that require this type of system. Although correlation does not mean causation, here it can be seen that mobile money success can be estimated based upon synopses of these conditions.

In his final condition, Hutchful says that mobile providers need to have an es-

tablished, large market share to emulate the positive effects of mobile money. The success seen in Kenya can be attributed to M-PESA provider's (Safaricom) already large mobile market. Prior to M-PESA's launch in 2007, Safaricom had 70% market share of users.

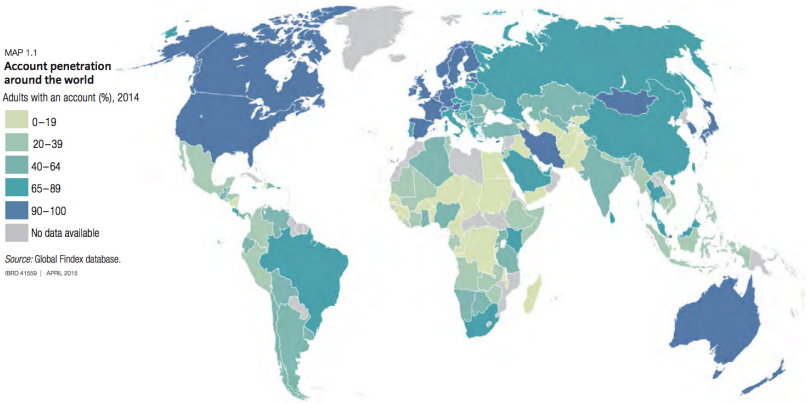
"Since Ghana is quite similar, with 29% inclusivity as of 2011, rising consistently to 40% as of 2014, success is highly probable, especially with its high mobile device adoption rates."

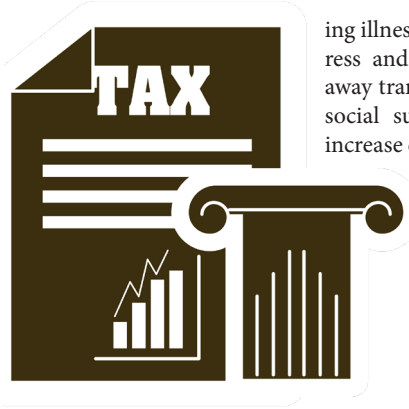
This allowed them to introduce this new mobile money system to a large market, where trust had already been established. As seen in Ghana, the largest provider (MTN) now holds 57% of the mobile market. With the next closest being around 19%, MTN is in the forefront of extending financial services' reach in Ghana and would have the greatest likelihood of success in implementing a similar mobile money system.

These conditions reveal viable markets for Fintech to broaden the financially inclusive scope, but how can something like a cell phone and financial inclusivity increase one's quality of life? With the ability to save, invest, and send money more easily, people are now better able to smooth their consumption. Consumption smoothing is defined as a means by which people optimize their standard of living by ensuring proper balance of spending and saving through different phases, reducing variability in consumption in harder time. Looking at a steady-state, users of the M-PESA software had 33% higher consumption than those who did not.

"Simply being able to send remittances between family/friends at any moment in time can reduce health problems, like mitigating illnesses before they progress and worsen and taking away transactional costs."

IT IS ABUNDANTLY clear that users continually have higher quality of lives and would consume more while maintaining sufficient levels of savings. This is assuming that their increased





level of consumption is sufficiently supported by adequate levels of savings for times of negative shock, i.e., from consumption smoothing. For instance, with a negative shock to the economy, it is likely that one's consumption will have to decrease to maintain sufficient levels of savings.

The consumption per capita spread between users of M-PESA and non-users during negative shocks to the economy is at about 10%, where M-PESA users only experience a 2% decrease in consumption as compared to non-users' 12%. So not only do M-PESA users generally consume more, they also consume equivalent amounts through negative shocks, maintaining this higher quality of life. Along with consumption smoothing, mobile money can be used as a risk sharing platform. Simply being able to send remittances between family/friends at any moment in time can reduce health problems, like mitigating illnesses before they progress and worsen and taking away transactional costs. This social support network will increase consumption, reduce costs, and increase standards of living.

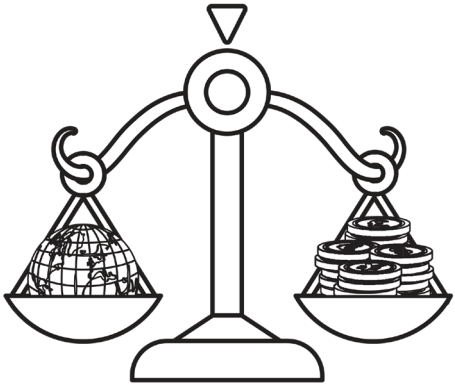
The positive effects can thus be seen for individuals, but how can businesses also benefit? With reduced costs, the Law of Demand states that as a price of a good decreases, the quantity demanded will increase in the basic terms of a common good. Hutchful extrapolates that the additional transactional costs are equivalent to higher prices of the good desired. With mobile money, people are able to alleviate costs such as transportation and time, hence, with a lower total price are able to consume more. With businesses adopting these mobile transactions as payments, they are also able to capture sales that might not have been possible without this medium, specifically where physical distance was too problematic. The reduced costs, as well as effectively improving the country's market efficiency as consumption is increasing, means less deadweight loss or less wasted resources for the economy that otherwise would be utilized in a perfectly efficient economy.

There will be people who refute mobile money as being the biggest driver in financial inclusion. One reason that people may cite is that mobile money would fail in rural areas where provider concentration is low, leading to a lack of agent and service locations. Mobile money must be regulated in order to maintain trust, which means they must partner with other intermediaries such as commercial banks. Both banks and mobile money services thus will congregate towards urban areas with large masses of people, where rural areas become marginal problems again with high-level poverty remaining.

HERE, HUTCHFUL'S analysis of Ghana and Kenya provides evidence that mobile money is still the best option to bring low-income people financial services. Looking at rural areas alone, nearly three-fourths of all points of financial services were made from mobile money agents. These rural areas were among the best served regions, just behind that of the largest urban area. Increased spread of mobile agents that aid in transfers, deposits, and withdrawals is positively correlated with increased spending and reduced poverty, meaning it is essential that mobile money providers increase the reach of their services to maximize the utility mobile money has to offer. While keeping

the assumption that most providers starting off will not be able to push growth in agent spread immediately, the highly sustainable mobile market allows for these providers to compete, expand and grow. With more economic growth allowing for a wider agent spread in the near future and more competition leading to cheaper inputs, the well-established cellular market is the most versatile market in producing financial inclusivity.

THE LASTING POSITIVE EFFECTS OF MOBILE money suggest that it is an ideal route to financially include more people. Mobile phones are continually penetrating deeper into populations and reducing distances between people, lowering costs, and even stabilizing economies that suffer from a fragile financial sector. Mobile money is creating risk-sharing pools and helping smooth consumption through negative income shocks, allowing an increased quality of life for people who otherwise might be stranded in poverty. Hutchful's research provides good referential work to see the necessary landscape for successful integration of mobile money, thus helping to solidify the stance that mobile money is the next step to higher financial inclusion, a reduction in poverty, and increased overall benefits for the global economy.



ECONOMICS

Institution, Financial Openness, and Economic Growth

Research by Bella Yao
Written by Zach Swaziek

CAPITAL ACCOUNT liberalization, the opening of a country's capital markets to international capital, has taken place throughout the world since the 1980s. The free flow of capital from rich countries to poor countries, as many students are taught in elementary economics classes, leads to higher economic growth in both richer and poorer countries. However, past research has found that the growth effects of financial liberalization are much more robust in developed countries. One of the many contributors to these differences in economic growth are dissimilarities in the general quality of government and corporate institutions, known as institution quality. Factors such as corruption and poor rule of law can have a negative effect on the economy and thus diminish the potential positive impact of capital account liberalization. Factors like institution quality must be considered in the estimation of the economic impact of global policy, such as free trade agreements, on both developing and developed nations.

Developed countries like the United States are well suited to participate in inter-country agreements, such as the Trans Pacific Partnership (TPP), that allow the free flow of capital and free trade. The United States has mature financial and real asset markets, as well as relatively sound governance and rule of law. This means that U.S. investors seeking higher returns may be more inclined to invest in riskier emerging markets and that businesses may be more willing to move operations overseas to attempt to reduce costs, both knowing they have the protection of U.S. laws and judicial system. As for inflows of capital, foreign investors can be confident that their investments will be sufficiently safeguarded by the U.S. laws and governmental organizations.

ON THE OTHER hand, in countries that do not a have strong rule of law, have high levels of corruption, or have other characteristics that would create excessive volatility and uncertainty within markets, free flow of capital

may not actually provide the boost that may be expected. In these countries, inflows of capital and investment may be much less than the outflows, potentially having a detrimental effect on GDP growth. So, although some forecasts estimated that all countries in the TPP would benefit from more globalized financial and real markets, the extent of these benefits are dependent on variables such as institution quality.

In her paper ***Institution, Financial Openness, And Economic Growth,*** Bella Yao analyzes the impact of the level of capital account liberalization and the institution quality on a country's economic growth using multivariate regression analysis. By seeking to understand how capital account liberalization and institution quality interact to cultivate or diminish economic growth, Yao is able to place countries into four categories and rank them by their predicted magnitude of economic growth.

"Although some forecasts estimated that all countries in the TPP would benefit from more globalized financial and real markets, the extent of these benefits are dependent on variables such as institution quality."

Many research papers have focused on the effects of capital account liberalization on growth, and they have shown varying results. Yao indicates that a point of concern with models in prior papers is that they use binary variables when representing the level of financial openness of a country. In these models, a country is either closed (0) or open (1). The issue with using binary variables is that in actuality there is a spectrum of a country's level of capital controls; it is not just as simple as just being a closed economy or open economy. Another concern with previous analyses is that many papers that do not use binary variables instead use de facto measures of financial openness, mean-

ing that the financial openness measurements are based on actual flows of capital. De facto measures may not accurately depict the full extent or level of capital controls. Instead, Yao chooses to use a de jure measure of financial openness, which is a numerical representation of the level of capital controls a country has, based on advanced statistical analysis of the country. The other variable Yao's analysis focuses on, institution quality, is a combination of many different factors and is also difficult to quantify. In order to create variables for financial openness and institution quality, Yao uses past research and variables created by other researchers.

TO MEASURE financial openness, Yao uses the Chinn-Ito index, which was created in part by Menzie Chinn, a Professor of Economics at UW-Madison. Unlike the binary measures of financial openness used in past research, this de jure index covers a range of levels of financial openness. This allows Yao to see the effects of increasing or decreasing the levels of financial openness spectrum on the margin, not just the result of changing from open to closed. In order to quantify institution quality, Yao uses the average of six dimensions of institution quality, each of which are indexed to be within a range of 0 to 100. These dimensions are called Worldwide Governance Indicators and are used by the World Bank. They include voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. Although it is prudent to use six different factors to quantify institution quality, using an average essentially says that each dimension is of equal significance. This is a simplifying and an unlikely assumption. Using different weights in the computation of the variable may lead to more accurate analysis results, but would also require further research about institution quality. In order to explain differences in economic growth due to regional factors and changes over time, Yao creates variables for each. Controlling for systemic regional differences and differences over time allows Yao to analyze the effects of changes in financial openness and institution quality on economic growth while holding these variables constant.

"These dimensions are called Worldwide Governance Indicators and are used by the World Bank. They include voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption."

To understand the effect of the relationship between financial openness and institution quality on GDP, Yao uses three separate regression models. Each model differs only in how they specify the interaction between financial openness and institution quality. Yao uses a linear, a quadratic, and a cubic institution quality interaction term in the three models, respectively. Ultimately, the regression with a quadratic interaction term is chosen as the model that best explains the data. By taking the partial derivative of GDP with respect to financial openness in the model, Yao is able to estimate the sensitivity of economic growth to changes in financial openness at a given level of institution quality. The quadratic interaction term in this partial derivative implies that there is a U-shaped relationship between the growth effect of financial openness and institution quality. Without further analysis, this means that changes in financial openness have a larger impact on economic growth when in-

stitution quality is either very low or very high. This also means that there is a level of institution quality such that the growth effect of financial openness is at a minimum. Yao solves for this minimum level, which she calls the "threshold level."

THE COUNTRIES are then separated into two categories – one group above the threshold level of institution quality and one below the threshold level. The same regression is then run for both of these groups, and it is found that only for countries below the threshold value is the growth effect of financial openness statistically significant. The countries above the threshold do not demonstrate a strong relationship between financial openness and economic growth, holding all else constant. This indicates that the return to increasing financial liberalization is minimal when a country has very few capital controls or restrictions. However, the countries below the threshold are found to have a statistically significant relationship. The U-shaped relationship between the growth effect of financial openness and the exogenous level of institution quality therefore suggests that the economic growth of countries with very low institution quality are much more sensitive to changes in financial openness.

This finding can be summarized as follows: low institution quality is likely a symptom of underdevelopment. The more underdeveloped a country is, the more likely it will have a low institution quality and thus will have a greater potential for growth. As financial openness increases in countries with low institution quality, the results of this model suggests that economic growth will be larger than if the same increase were to occur in countries with higher institution quality. As new foreign investors seeking high returns flow more capital into an underdeveloped country, it results in higher economic growth, as the country's growth potential is paired with larger amounts of available capital. This example demonstrates how globalization can benefit developing or underdeveloped countries and lead to high economic growth. For a country with low institution quality, this finding suggests that joining a free trade agreement like the TPP and therefore increasing capital account liberalization may lead to more robust economic growth.

AFTER ANALYZING the growth effect of financial openness, Yao investigates the growth effect of institution quality. That is, using the model, she takes the partial derivative of GDP with respect to institution quality, which describes the effect of an incremental increase of institution quality on economic growth, holding all other variables constant. Compared to the growth effect of financial openness, the size of the growth effect of institution quality is relatively small, yet still statistically significant. The growth effect is linear and dependent on both the country's initial level of institution quality and its level of financial openness. Yao's model suggests that countries with low levels of financial openness and low levels of institution quality, along with countries that have high levels of financial openness and high levels of institution quality, are most sensitive to changes in institution quality. The results also demonstrate that improvement in insti-

tution quality in a country with an initially low level may be detrimental to economic growth, depending on the country's level of financial openness.

The model suggests that a country with low institution quality and higher financial openness will have lower economic growth with any increase in institution quality compared to a country with lower financial openness. Yao notes that this interesting result can be explained by the capital flight effect. In a country with very low institution quality but with very few capital controls, domestic investors will likely move their capital out of their country and into a country with less market volatility and uncertainty. Therefore, incremental increases in institution quality in these countries will cause the economy to shrink, as capital outflows put the economy in a stranglehold.

ALTHOUGH IT MAY seem counterintuitive that at certain levels of financial openness, an increase in the quality of institutions may have a negative effect on economic growth, it is plausible. It may be possible that as the level of institution quality increases and variables like corruption decrease, more capital is available to domestic investors. However, because the institution quality is still relatively low, this newly acquired capital is moved out of the country and into foreign investments. This leads to a reduction in domestic investment and economic growth. If the level of institution quality had not improved, the capital would have remained in the country, contributing to domestic production and investment.

"As new foreign investors seeking high returns flow more capital into an underdeveloped country, it results in higher economic growth, as the country's growth potential is paired with larger amounts of available capital. "

Yao's analysis of the relationship between economic growth, financial openness and institution quality demonstrates that changes in these variables in developing countries can be positive, because of growth potential, or negative, because of capital flight. This analysis allows Yao to rank the growth potential of countries from high to low: 1) Countries with low institution quality and low financial openness. 2) Countries with high institution quality and low financial openness. 3) Countries with high institution quality and high financial openness. 4) Countries with low institution quality and high financial openness. The idea that increased capital account liberalization and improved institution quality will be beneficial for any country is shown to be a misconception; developing or underdeveloped countries may experience a negative effect on economic growth.

Although developed countries may experience improvement in economic growth as they participate in more free trade agreements, less developed countries may not see such positive effects. As globalization efforts persist, analyses like Yao's will become more valuable for understanding economic growth, especially for developing and underdeveloped countries.

THE ECONOMIST:

PROFESSOR RASMUS LENTZ

Interviewed and Written by Sheng Qu

"He tackles the dynamics of labor and firms in the market and supply methods to help provide reasoning for understanding a worker's optimal job search behavior and markets' optimal growth of productivity."

Graduated with a Ph.D. degree from Northwestern University, Professor Rasmus Lentz is active at the University of Wisconsin as a professor in labor economics and as an innovative researcher. For many economics students thinking about pursuing graduate school and academia as a career path, Professor Lentz's words could help give some semblance as to what professors do besides teaching and important and necessary personal qualities could help students achieve success. As an international scholar who grew up in Denmark and completed a Ph.D. degree in the United States, Professor Rasmus Lentz's experience can also inspire a large number of international students who are members of the economics department and advise them in how to accomplish great achievements with a different cultural background.

Professor Lentz conducts research in labor economics, which includes the areas of job search and productivity growth. He tackles the dynamics of labor and firms in the market as well as supply methods to explain workers' optimal job search behaviors and markets' optimal growth of productivity. As an undergraduate, it is beyond my capacity to fully understand many of his heavily math-based research of his numerous publications, but the lucid terms Professor Lentz uses to explain his research and the intuition behind the math highlight his intelligence and passion in this field.

Tell us how you became interested in economics and what motived you to do research in your specific field.

I am from Denmark, and at the universities in Denmark, you choose your major right away. My emphasis in high school was on courses in social studies and languages. I enjoyed those topics and wanted to continue with social studies, but I wanted to focus more on subjects that had a bit more structure to how you study it. I think I had a vague sense of what economics was, but it was not particularly well articulated in my mind when I chose it initially. I had a sense that there was more structure to how economics approached social science compared to other studies within the social sciences. Economics became much clearer to me later on. The way that economics studies questions within social sciences really appeals to me. It does so with math, and we are trying to artfully reduce a question to its core and first-order components. That appeals to me, and I think when this is done well, it is very informative. For example, Economics 301 (Intermediate Microeconomics) is filled with great examples of reducing a tough problem into its core components of preferences, technologies, and choices. The results may not be treated with the level of rigor and in their original form as they were presented in frontier research, but the core results are the same core results that research economists refer to every day; they're just simplified a little bit to explain them. It's true that if I wanted to understand a particular data set or particular sort of fact, I might be tempted to add additional variables into the model, but it comes at the cost of complication. Some of the truly appealing aspects of economics and economic modeling are when you manage to capture its foundation with very simple structures, and when it's done, then your questions are explained. That's what interests me.

Why did you come to the University of Wisconsin- Madison?

UW has a very strong labor macroeconomics group that is relevant to what I do. It's one of the best in the world, a world-class university, so I have great colleagues. It is not like UW is the only world-class university, but they are rare, and I'm very fortunate to be at one of them.

Do you have any advice for students who are majoring in economics and do you think these students should explore some other fields during their college life?

My own experience is not very helpful for American undergraduates because Danish universities do not let you pick and choose majors the way the American college experience does. When you study economics in the Danish system, you're anchored right away to a fixed set of courses that you're supposed to take, and you have relatively little choice until years later; the choices that you do have are only offered within the economics department. It's not like I ever really had a choice of signing up for philosophy classes. I have mixed feelings about the value of exploring multiple fields. I think it's definitely valuable to broaden your mind, but there is also great value in specializing and understanding a particular field in great depth. Honestly, I suspect that it probably depends on the particular student. Some students thrive to have a broad view and a broad set of knowledge from lots of different fields and can use those points of view creatively. Other students are very skilled at understanding ideas in depth and in great detail and would probably benefit more from diving deeply into a particular field with the classes and tools associated with that. If you want to dive very deeply into economics, such as combining it with math like real analysis or statistics that economists use often, then that would be an example of deep specialization. On the other hand, you can take economics with fields that can broaden your education but don't necessarily allow you to dive deeply into a particular field. I think this is partially a temperamental thing for any particular student, and I don't think that there is a single right choice to make. If you want to go to graduate school and do economics and receive a Ph.D. in economics, I can tell you now that you need to specialize. You will need to become very skilled in the topic because that's the path you're going towards.

Could you describe your first experience in economics research?

In my Ph.D. program, I replicated some others' research in a practice of learning how to conduct research, but I would say that my first real experience was my independent Ph.D. thesis. My Ph.D. thesis was about the optimal unemployment insurance based on Danish micro-data. Studying the topic gave me a better understanding of the relationship between saving and insurance. I found that the optimal replacement rate in Denmark (the percentage of a worker's pre-retirement income that is paid out by a pension program upon retirement) was around 40%. The actual unemployment insurance policy in Denmark was within the optimal range that I found, which indicates extremely good insurance for the population. However, I also found that there could be a moral hazard issue because high unemployment benefits in the country may reduce unemployed workers' incentives to search for new jobs. My first research experience answered some questions I had but also brought out many more questions that I would like to study.

The minimum wage in San Francisco and Los Angeles will hit $15 in the 2020s. In

this case, the increase in minimum wage could largely affect workers' incentives to search for new jobs. How do you think this increase in minimum wage will affect firms and the market?

A $15 minimum wage is not an insignificant change. I think this increase in minimum wage is designed with the hopes to improve the quality of living among low-income workers, but it may have some negative effects on the job market in many aspects. It may also increase the medium-income workers' wages, but the high wages may bring unemployment to the job market. This high minimum wage would likely have a negative impact on job creations, and workers who are currently employed could lose their jobs. Though this policy could bring some negative impacts, it gives a great opportunity for researchers to look into the topics of public policies and minimum wages.

Major internet companies' spending on research and development is growing exponentially. For one, Google spent $3.569 billion on research in the third quarter 2015 and estimated $14 billion in expenditures that year. Do you think this huge expenditure in innovation will make Google and other companies like it gain monopoly power to crowd out other competitors?

There is an absence of a direct way to reward firms for spending a lot on research and development. If the government forced firms to produce at their marginal cost and eliminate their monopoly benefits, then there would be no incentives for firms to spend on research. Yet at the same time, research and development investments are quite important. In Denmark, R&D contributed to 50% of the growth of productivity. In this case, one way to encourage investment in R&D is to create more efficient firms to crowd out less efficient firms and then obtain a monopoly that can give them sufficient funds to support expenditures on research. In short, there is a tradeoff between the inefficiency brought by the monopoly and the inefficiency brought by allocating resources to less efficient firms. In my research, I found that it is better to allocate resources to efficient and good firms than to less efficient firms. The crowding out of the less efficient firm would be beneficial, though it may result in a monopoly.

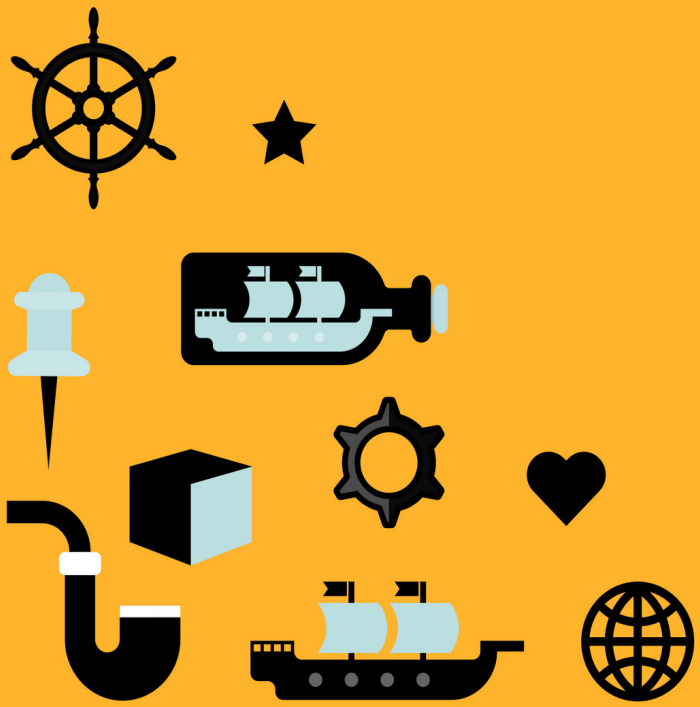
In terms of intelligence and hard work, which one do you think is more important for achieving success in research, especially in economics?

I would say both are important. However, it is hard to identify what intelligence truly is. If being intelligent means a person has an easier time with math, then it might be possible that this certain person may spend more focused time on math which will make him more familiar with it. There are also all kinds of intelligence, so it is really hard to determine what is intelligence in this case. Nevertheless, there are no successful "lazy geniuses" in the academic field. Passion for and attaining joy from research is much more important for the success of a researcher. I have seen a lot of researchers who are really passionate and curious about their fields which drives them to spend more time focused on their fields, making them successful, so I think passion and the curiosity for research, rather than just intelligence, is the most important for success in researching.

ECONOMICS

The Short-Term Success of New Deal Work Relief Programs: An Evaluation of Private Sector Employment, 1929-1940

Research by Isaac Mehlhaff
Written by Isaac Mehlhaff



While the relative degree of its implementation has oscillated in accordance with party control, modern American economic policy has been defined by a model that assumes a certain level of government spending and intervention, extending to the present day from President Roosevelt's economic revitalization strategy. The New Deal took a two-pronged approach to mitigating the effects of the Great Depression; programs enacted within Roosevelt's "first hundred days" were aimed at quickly providing short-term relief for the chronically unemployed while long-term regulatory statutes were enacted to prevent a similar crisis from occurring in the future. This paper examines the extent to which New Deal work relief programs stimulated private sector employment in the short-run.

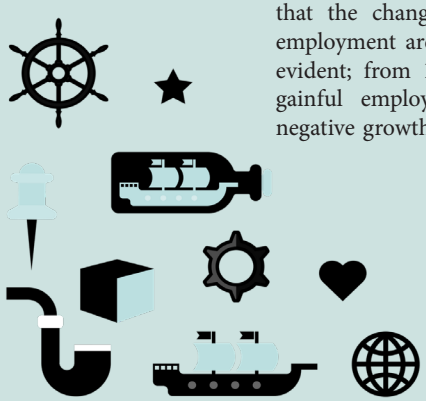
The model utilized in this paper is an adaptation of both the Harris-Todaro model of intersectorality (1970) as well as the local retailing model presented by Fishback, Horrace, and Kantor (2001). The model assumes a local economy that is tri-sectoral. There exists a formal sector containing industries such as retail, wholesale, manufacturing, service, and any other industry contributing to official government employment and revenue statistics. There also exists an informal sector which includes the agricultural sector, where labor typically consisted of informal contributions by family members and seasonal laborers. Also included in this sector are day laborers and any employment not accounted for in the other sectors. The final sector is that of government, which interacts with the formal and informal sectors via relief and subsidization expenditures. Within this purview are the Civil Works Administration, Works Progress Administration, and the Agricultural Adjustment Act. Also included in the government sector are public employment figures such as the military, postal service, and other, more nominal, government employment.

Significant issues complicate the development of a model of economic history, primarily the ability of the model to accurately exhibit monetary and employment flows within the local economy depends upon the accessibility of pertinent and quality data. Given these data constraints, a strictly formulaic approach cannot be sufficient. Instead, this model aims to summarize and represent intra-economy monetary flows and the way they translate into employment. The model is necessarily more theoretical in its approach, specifically in the sense that it aims to examine only finances flowing within the county and does not account for inflows from surrounding counties. The model also assumes a frictionless labor market in which all employable actors have equal access to the same employment opportunities, are equally willing to accept all offers of employment regardless of sector, and only reject employment randomly. This analysis utilizes county-level data for the period 1929-1940, collected from several government sources. The temporal constraints were chosen to include Great Depression data from before Roosevelt's election while excluding data gathered after the United States' entry into World War II.

"Significant issues complicate the development of a model of economic history, primarily the ability of the model to accurately exhibit monetary and employment flows within the local economy depends upon the accessibility of pertinent and quality data."

A final qualification relates to the model's application to the underlying population – the United States' urban labor

market from 1933-1940. As with so many other aspects of this paper, the sampling method is constrained by data availability. Because data collection was much more accurate and robust in urban areas, the resulting data set is comprised of counties or county agglomerates with a mean 1930 population of 467,866.443. Thus, this data set is not a representative sample of the entire United States labor force. It is, at best, a representative sample of American metropolitan commercial networks. This is not a crippling factor, however, as New Deal work relief spending was primarily oriented toward the revival of urban areas. Nevertheless, this paper should not be construed to make a statement or posit a claim related to the United States broadly. It is not only possible but, indeed, likely that New Deal work relief spending exacted entirely different effects on mid-size towns and rural areas than it did on metropolitan urban areas.



THE EMPIRICAL assessment presented in this paper aims to estimate the percentage change in the percent of the population working within a given industry by training a multiple linear regression of all variables contributing to the model of the New Deal economy. As a matter of data constraints, regressions for gainfully employed, retail, wholesale, and manufacturing must be taken separately. The null hypotheses hold that work relief spending had no significant impact on private sector employment while the alternative hypotheses hold that work relief spending, when modeled in conjunction with all other explanatory variables, is linearly correlated with private sector employment.

Examining the macroeconomy more broadly, to the extent the data allows, shows that the changes in gainful employment are immediately evident; from 1930 to 1940, gainful employment had a negative growth rate in every county or county agglomerate used in the analysis. The mean change was a 13.75 percent decrease in gainful employment across all counties. The standard deviation of 0.00033 indicates that this gainful employment trended downward consistently across most counties with outliers having minimal effect on the model. Retail sector data is far more varied; it is also a different statistic entirely. While the model evaluates gainful employment using the percentage change in gainful employment from 1930 to 1940, individual sector statistics represent the percentage change in the percent of the population working in each individual sector from 1930 to 1940. While many counties saw growth in their retail industries far outpacing the growth in total gainfully employed, many also saw drastic contraction of the industry. The mean across all counties was a growth rate of 9.61 percent with a standard deviation of 0.131. The relatively high variance reflects the volatility and apparent unpredictability of industry expansion from county to county; some experienced enormous gains while some saw drastic depletion of retail opportunity. There is no variable clearly correlated with such a disparity. The percent change in retail per capita spending is the most closely correlated variable at 0.687, but this relationship fails to be causal, merely asso-

ciative. There may exist some relationship between retail opportunities and the extent to which each urban area is geographically concentrated or fragmented; greater distances between residential and commercial areas would presumably decrease consumers' access to retail markets, especially in an age of less efficient transportation. The correlation could be related to urban planning, not strictly monetary flows, but the model does not account for such relationships.

THE WHOLESALE industry is even more varied. Again, this statistic represents the percentage change in the percent of the population working in this industry. Wholesaling saw a mean decrease in share of total employment of 4.43 percent – a decline partially due to offsetting positive and negative growth rates. Nonetheless, it represents a decline in the aggregate. Again, the volatility and unpredictability of this industry is visible by the large standard deviation of .263, more than twice as large as that of the retail industry. It is expected, however, that these two industries would both be highly volatile, as they are closely intertwined and vulnerable to recessions. In economic downturn, retail is often the first industry to feel the consequences of decreased consumer demand, followed by the retail-dependent wholesale industry. Given the protracted supply chains of the early- to mid-twentieth century, wholesale numbers are also expected to slightly lag. To that point, this negative growth rate may be disproportionately affected by the recession of 1938 because the industry had not yet fully caught up to the demand shown in post-recession retail figures.

The sector by far the most drastically affected by the Great Depression was manufacturing. At a mean decrease of 21.38 percent, the manufacturing industry lost more labor as a percentage of total economy employment than any other industry. This is also true for nearly every individual county or county agglomerate. A small fraction of counties did see a modest increase in manufacturing employment, but there are no discernible congruencies among these counties that would determine a common trend. These data are also somewhat varied, with a standard deviation of 0.162. In a certain sense, manufacturing may, at least in part, be lagged behind wholesale just as wholesale is lagged behind retail. Theoretically, an increase in consumer demand would be felt first by retailers, who would then drive demand in the wholesale market followed by increased demand for manufacturing resources.

Turning now to work relief spending, total per capita work relief program spending from 1933-1940 is not correlated with the percent change in gainful employment nor the percentage change in the percent of the population employed in retail or wholesale. Total per capita work relief spending has a positive, statistically significant correlation to the percentage change in the percent of the population employed in manufacturing, but this correlation is extremely weak – 0.192 – and the p-value, while significant, is barely so at 0.046.

These calculations generally hold steady in multiple linear regression evaluation of the model presented in this paper. Total work relief spending per capita is not significant at the p=0.05 level for any of the four estimations and is significant

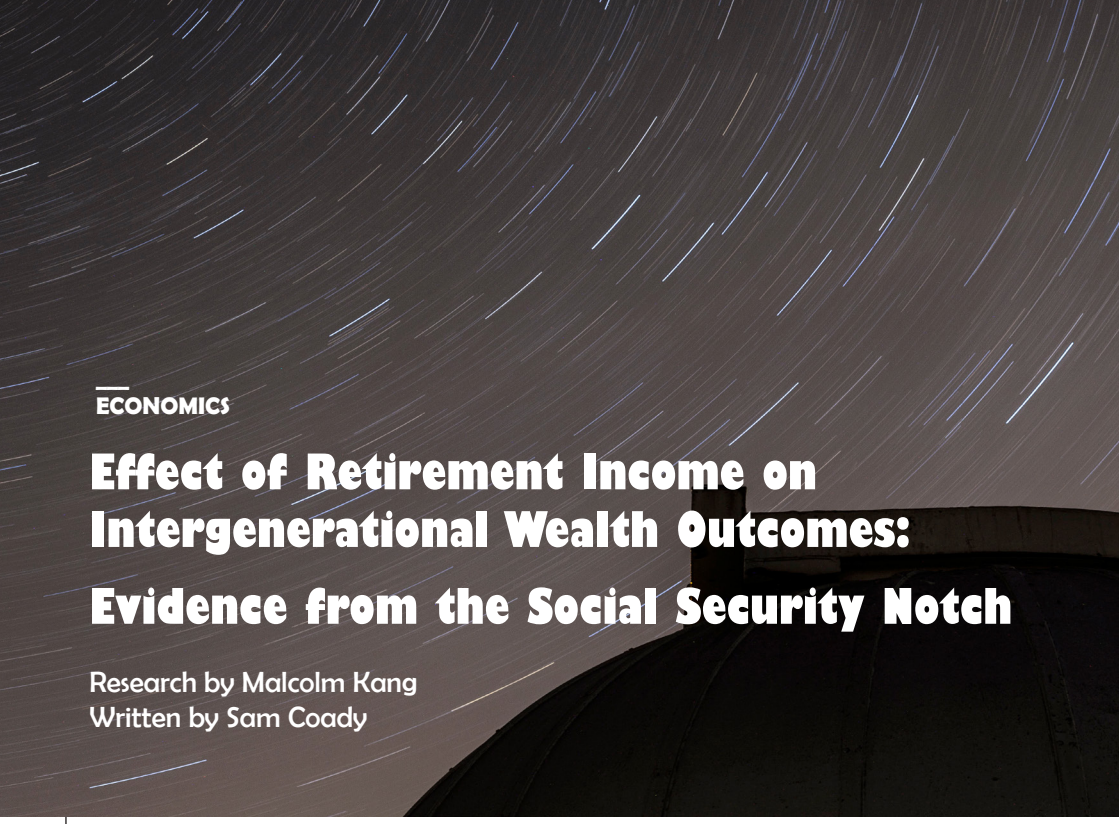
"A small fraction of counties did see a modest increase in manufacturing employment, but there are no discernible congruencies among these counties that would determine a common trend. "

at the p=0.1 level only for the retail estimation. The analysis is unable to reject the null hypothesis that New Deal work relief spending had no causal relationship with private sector employment expansion. Sufficient evidence does not exist to conclude that the Civil Works Administration triggered a macroeconomic employment stimulus. A sizable portion of this evidentiary deficiency may be due to the various constraints and areas of possible bias previously outlined. Therefore, it is also impossible to definitively conclude that the program had no overall effect.

NEW DEAL WORK relief spending was enacted with the intention of being a measure of stimulus but did not extend beyond the level of welfare transfers. The quick expansion of the money supply within the socioeconomic groups to which the transfer was directed was drastic given their financial standing prior to the program's implementation. This short-term influx of funds successfully propped up the retail industry throughout the later years of the Great Depression. While the program did not trigger expansion of the industry, it may have prevented further decline. This alone may be enough for some commentators to declare the program a success.

However, the revenue flow from program beneficiaries to the retail markets in large part ended there; whatever level of stimulus may have taken place did not extend to wholesale or manufacturing industries. It is possible that these industries were aided by other fiscal or monetary policies, but findings in this paper do not indicate that they felt a reprieve from the Great Depression due to work relief.

Taking the analysis in totality, New Deal work relief programs were valuable for what they delivered at face value – an extra couple dollars in the pockets of destitute Americans caught in the grip of endemic unemployment. Affording over four million Americans the ability to buy food and household goods for their families most likely had a positive effect on the retail industry in which these beneficiaries spent their work relief payouts and may have even stimulated modest retail employment growth compared to the industry trend in the absence of the program. However, the same cannot be said for wholesale, manufacturing, or the American economy generally. While the program modestly increased the quality of life for those directly receiving benefits, the extensive effect claimed by the Roosevelt administration did not materialize.



ECONOMICS

Effect of Retirement Income on Intergenerational Wealth Outcomes: Evidence from the Social Security Notch

Research by Malcolm Kang
Written by Sam Coady

IN AN ERA WHEN THE WEALTH GAP between those struggling to get by and those who are particularly affluent is expanding at a rapid rate in the United States, there has been significant attention given to the methods of transferring money within families across generations, also known as intergenerational wealth transmissions. Especially in the wake of the 2008 housing crisis, much of this attention has been focused on housing as a mechanism for accumulating and bequeathing wealth to successive generations. While housing is undeniably important in this respect, much less attention is given to the effects of post-retirement income on intergenerational wealth transfers (assets given by parents to their offspring, either before or after passing away) and the resulting effects on an inheritor's net wealth.

Shao Fong Malcolm Kang, a recent graduate from UW-Madison, explored this phenomenon by examining a large and universal change to Social Security income (SSI) that took place in 1977. The Old-Age, Survivors, and Disability Insurance program, more commonly referred to as Social Security, is a program designed primarily to provide supplemental income to retired workers so they can maintain a reasonable standard of living. Benefits are intended to be pegged to inflation so the purchasing power of the benefit is consistent over time.

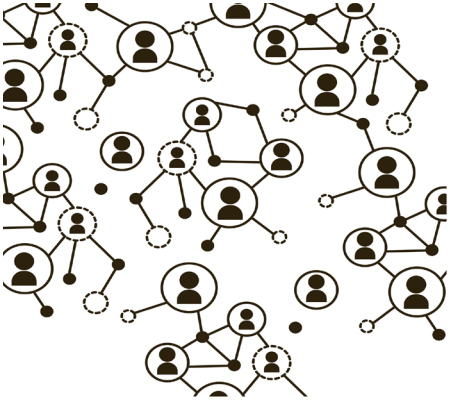
In 1977, Congress discovered that due to an over-indexation of inflation, individuals born between 1910 and 1917 received significantly larger benefits than what true inflation suggested they should have received. Upon realizing the mistake, Congress updated the formula used to calculate benefits, resulting in a sustained reduction of payouts to retirees. This reduction in benefits is called the Notch because when benefits are graphed, with birth year along the X axis and nominal SSI benefits re-

ceived on the Y axis, there is a three year period of sharp decline in payments that stands out in contrast with the general trend of increasing payments each year. The Notch – or sustained reduction in SSI payments – has been used as an exogenous shock to study a variety of socio-economic outcomes including mortality, elderly labor supply, and poverty.

TO UNDERSTAND HOW parental income affects economic outcomes for their children, Kang used 1992, 2004, and 2011 data from the Wisconsin Longitudinal Study (WLS), a long term study that periodically interviewed 10,317 randomly chosen individuals who graduated from high school in 1957. Among the data obtained were income, education, job histories, intergenerational transfers of wealth from their parents, and information about their parents. One piece of data missing that is necessary to understand the effects of the Notch on transfers to children and their subsequent economic well-being was the specific amount of Social Security Income that their parents received. Due to its absence, Kang calculated the amount of Social Security benefits received using inflation data from the Bureau of Labor Statistics and benefits formulae from the Social Security Administration. What he found was that on average, the annual SSI was just over $22,000 for those born before 1917 and $16,000 for those born after 1917 who were affected by the Notch (prices adjusted for 2001 USD).

Kang looked at several different measures to determine the effects of increases or decreases in post-retirement income. There were two measures of wealth transfers included in the WLS interviews: inter vivos gifts (gifts or transfers made while alive) and bequests (gifts or transfers made after a death). Respondents were asked to report the two largest inter vivos gifts in excess of $1,000 and the three largest bequests in excess of $10,000. These amounts were summed to create a third measure. To understand the relationship between the Notch and the transfers, Kang used a regression technique called 2 Stage Least Squares Instrumental Variables (2SLS-IV) as it is capable of adequately accounting for unobserved variables such as ability. Kang theorized that "high ability parents would presumably earn more during their lifetime and hence receive more SSI. At the same time, that same ability could allow them to realize the economic and tax benefits of inter vivos transfers and inheritance planning, which will confound estimates from Ordinary Least Squares regression." Because the Notch is an exogenous variable and is a relevant instrument for retirement income, 2SLS-IV regression is an effective statistical method for understanding the relationship between income and transfers. A Probit model was also used to determine to what degree an increase in parental income increased the probability of receiving a transfer.

According to the Probit model, Kang found



that an increase of $1,000 in parental income did not have a statistically significant impact on the likelihood of an individual receiving either a bequest, inter vivos gift, or a combination of the two. In contrast, the 2SLS-IV regression indicated that every $1,000 increase in parental income led to $110 more in bequests, $20 more in inter vivos gifts, and $121 more in combined bequests and gifts (the first and last are statistically significant at the 10% threshold). Interestingly, when the 2SLS-IV regression was run conditioned upon a non-zero transfer (ignoring all instances in which there were no transfers), a $1,000 increase in parental income led to $338 more in bequests, $44 more in gifts, and $255 more in combined bequests and gifts. This time, the first and last are statistically significant at the 1% threshold. These results suggest that increases in transfers are driven primarily by intensive margin (the amount per transfer) rather than extensive margin (the likelihood of receiving a transfer).

OTHER INTERESTING RESULTS can be found in the sensitivity analysis of the controls used in the regressions. Children who attended a four year college program received $10,320 more than respondents who had not. This could be attributed to the notion that many parents whose children go to college pay for some or all of their children's college tuition. The sensitivity analysis also determined that having an additional sibling in the family reduces lifetime transfers by $6,000 and that being an older sibling does not seem to lead to increased transfers. Additionally, the analysis suggests that if one's mother outlives their father, they will receive $9,230 more in transfers, which is consistent with existing literature on "maternal generosity." As one can see, the size and likelihood of intergenerational transfers are contingent upon a variety of factors beyond simply the amount of income parents receive after retirement.

Another method Kang used to analyze the WLS data was a quantile regression to understand how the changes in retirement income of parents affect the net wealth of children. A quantile regression was used because it makes it possible to understand how the Notch affected those with different incomes differently.

"As one can see, the size and likelihood of intergenerational transfers are contingent upon a variety of factors beyond simply the amount of income parents receive after retirement. "

The net worth of respondents in the 90th percentile whose parents were affected by the Notch was $163,000 less than those whose parents were unaffected by the Notch. In comparison, the net worth of the median respondent whose parents were affected by the Notch was $53,000 less than those whose parents were not affected. This analysis shows that while increased SSI payments increased the net wealth of those at each quintile, it had a disproportionately beneficial effect on those with the highest net wealth.

Kang also visualized the distributions of net wealth of both the respondents whose parents had been affected by the Notch and those whose parents had not been affected. The income distributions of both groups graphed in the same density graph shows that the already right skewed distribution becomes fur-

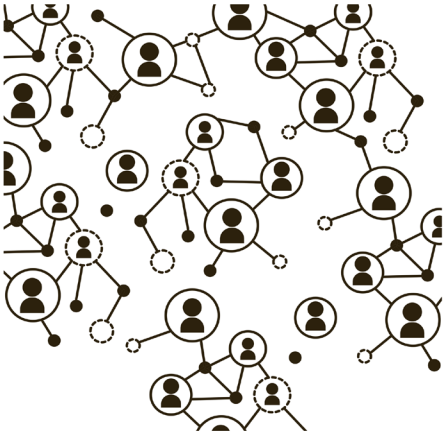
ther skewed for those with higher retirement income. A larger proportion of individuals whose parents received lower post-retirement income due to the Notch had a net-wealth of less than $400,000 compared to individuals whose parents had higher post-retirement income. The latter group was much more likely to have a net wealth of between $400,000 and $1.3 million than the former.

"Kang's analysis of the relationships between intergenerational transfers, net worth and parental income have allowed for insights into the important phenomena of intergenerational wealth transfer and the ways in which policy-makers can affect multiple generations with single policy changes. "

The author provides an interesting way of thinking about how the issue of wealth inequality could be addressed in the United States. For example, one implication of Kang's research is that increasing retirement payments to poor retirees would not only improve the wellbeing of the elderly who are direct beneficiaries of SSI, but it would also likely reduce wealth disparities in subsequent generations. This type of policy, enacted over several generations, could significantly reduce the gap between the least and most well off people in the United States and play a part in addressing the lasting wealth disparities that have resulted from generations of economic and social discrimination against minorities in the United States.

Toward the end of his paper, Kang acknowledges the limitations of his research and findings. The first and probably most significant limitation is that of the external validity of his results. Because the sample is drawn from high school graduates of one graduating class, from one predominantly white state, it is not clear that the effects on transfers and net wealth of children would be the same or of the same magnitude for other populations. Using a nationally representative sample would increase the external validity. Kang also acknowledges the fact that the Notch is only one type of exogenous shock to parental income and that other shocks such as changes in tax policy may have different effects. Changes to the tax codes have occurred more often throughout history, can affect people at any time in their career, and can be enacted in several different ways. These three aspects allow researchers to further study the shocks to income that result from changes to the tax code with the goal of better understanding the conclusions from Kang's research.

Kang's analysis of the relationships between intergenerational transfers, net worth and parental income have allowed for insights into the important phenomena of intergenerational wealth transfer and the ways in which policy-makers can affect multiple generations with single policy changes. This research provides a robust basis for further inquiry into this topic and is a valuable contribution to our understanding of wealth inequality and possible methods of addressing the problems it poses to our society.



THE ECONOMIST:

PROFESSOR DANIEL QUINT

Interviewed and Written by Caroline Lamke

"Associate Professor Daniel Quint has built a steadfast reputation in his eleven years at the University of Wisconsin. His Law and Economics undergraduate course holds consistently strong reviews."

With an undergraduate degree in mathematics from Harvard, and a graduate degree in economics from Stanford, there are many wise words undergraduates, graduates, and other intrigued readers can take from Quint's experiences in academia.

Associate Professor Quint is in his 11th year with the University of Wisconsin - Madison, and has authored and co-authored nine published papers in the field of industrial economics, with a focus on auction and bidding theories. His 10th and forthcoming publication is an econometrics paper on indicative bidding, studying the benefits to sellers for subsidizing buyers, and is co-authored with Professor Ken Hendricks.

With currently over 1200 economics undergraduates at the University of Wisconsin and growing, there are students amongst us who will likely end up with similar career paths as our professors; and those who ask, how does one become a professor? What does a professor even do? My interview with Dan Quint dives into his academic path, to serve as guidance for our undergraduate and graduate readers, as well as for anyone else who is curious about one of the many outstanding professors our Economics department holds.

I've personally seen rapid growth in the economics department since I was a freshman here over three years ago. Our academic and career advising offices are vital resources. New and growing programs like WE (Women in Economics), LEAD (Leading, Engaging, and Developing), and Equilibrium have supplemented our students' courseloads. And, we have seen rapid growth in the number of undergraduates choosing to major in economics… From a professor's perspective, how has the economics department evolved in your decade here?

When I first came here, the department was at a local low point in terms of good faculty we'd lost, and we hadn't yet succeeded in replacing them. In the time since, we have managed to grow significantly from where we were then. We've seen excellent growth in both faculty and in non-faculty staff as well. The career office, for example, we didn't used to have. In terms of growth as a major, we started to do a terminal master's degree program four or five years ago, which has been really successful, and helps us continue to grow. In the time that I've been here, it's obviously been interesting times at the state level and at the university level, but the economics department has done really fine through all of that and has been able to continue to be an excellent place.

What did your undergraduate career look like? When did your interest in economics begin?

When I was an undergraduate, I always assumed that there was a chance I'd end up going to graduate school at some point, but didn't take it for granted. I started college as a physics major and met some physics grad students who all seemed miserable, so that felt kind of depressing. Then I realized I liked math more than physics and then switched over to a math major, met some math graduate students who weren't all miserable, but soon realized that I didn't quite have the love for the subject. And going to grad school for math, it really felt like

you had to have the love for it. It had to be the only thing you want to do; and I liked it, but I wasn't quite there. After coming out of college, I had no idea what I wanted to do. I ended up interviewing for two different jobs, and I stumbled into management consulting.

How did you decide to pursue graduate school?

I did consulting for a while, and it was during then that I realized I had a good preparation for doing economics and that it would even be a plausible option. This came from smart people who I respected, saying, "Hey, this is something you should really think about. You could do it." It was at least enough to make me think hard about it. I applied to schools, and it felt like the right thing to try next. I ended up with maybe first round interviews at 20 schools, and then on campus visits at four or five, and I got a match in the end. Like I said, it ended up being a really good fit.

I got there (Stanford) in 2001, went into it with an open mind, thinking, "Maybe this is for me, maybe this isn't; we'll see how it goes." I found an advisor I liked, found some topics I could work on that seemed interesting, and found out that I really enjoyed it. I ended up taking six years to get my Ph.D. which was slightly on the long side but not out of the ordinary.

It's funny. When you're in grad school, the default is that everyone assumes that everybody else wants to be a professor when they get out, and if not, then the response is, "Oh, that's a bummer that didn't work out, but at least there are these other jobs for you," All of this thinking is because the people who are giving you advice are the people who are professors. It's a little bit of a skewed perspective.

What drew you to research and professorship rather than another route post-graduation, such as going back to consulting?

That's a good question, and it's hard to answer. The truth is, part of why is simply that I really like teaching. For a lot of faculty at good research universities, teaching is very much secondary. It's what you have to do because it's part of the job, and what really drives people is the research. I'm much more in the middle, and I really like the teaching part. Part of what I was excited about when I quit consulting to go back to grad school was getting back to being able to do some teaching.

Going into grad school, I wasn't assuming I would definitely stay in academia. I was open to it, but I also thought, "We'll see what happens." The research clicked, and off I was, excited about the teaching, and now excited about the job here. I don't have a big picture research agenda; my research is like one massive question that I want to spend my life trying to answer. It's more that I enjoy solving problems. I get excited when I figure something out, even if it's something small, and so a good paper or a good project is like a string of nine or ten different, independent little "Oh my God that's cool, I figured that out" moments.

How has the building of our masters program come to be so successful?

If you go back 10 years, there were basically no master's degree programs in economics in the U.S. There were a few in Europe and a couple in Canada, but not here. For whatever historical reason, that was how it was. Over the last decade or so, schools started figuring out that this might be both something valuable and also something lucrative, and a lot of them have started up in the last several years. We (UW) got in at a good time, where there were a few that were already well established, but there was still certainly space for more.

Part of what we did was we threw really good

teachers at our masters economics program. I think some schools try to keep the programs cheaper and easier by hiring adjuncts to do the teaching. With that method, it feels more like you're selling the name of the university – selling the degree – without really providing something super rich. We did it the other way. We didn't want to start a program that we weren't going to do well. Since then, it's been serious tenured research faculty teaching these classes and teaching them well.

There are also some master's programs that position themselves more as a guide – come here for two years and then go get a job in government or get a job in industry. Ours, I think, appeals more to people who want to go onto Ph.D.s and aren't yet at the point where they can get into a Ph.D. program. This program was our niche, and we've done reasonably well, with some of the best students from our master's program getting into good Ph.D. programs, all because the program works. If you come here and do well, you do have a chance of going to Yale or wherever for a Ph.D. We still get a lot of applications based on that, and we maintain a great program.

What courses have you taught, or have most enjoyed teaching at UW?

Economics of Law (Economics 522) has been a blast. It's a neat class to develop and to watch evolve and to turn into something that I think is really neat. I've heard a lot of people say that what they like about it is that it's a class that takes the theory seriously but then also takes the application seriously. In most of their other courses, you either get one or the other. It just became an interesting class that way, and I feel really good about it.

Why should someone at our university or otherwise choose to major in economics? How would you answer the question "What is Economics" and "What can you do with that?"

There is a certain amount of basic knowledge in economics about how the world works that is useful for anyone to have. To be able to think somewhat strategically about how a situation is going to unfold, to be able to think somewhat logically about what a market response to something is going to be, and to be able to decipher the front couple of pages of The Wall Street Journal are good, useful skills for most people to have, whether or not they're ever going to go to grad school, whatever job they're going to end up in. There's a lot in economics that is good knowledge to have.

What are your thoughts on our math emphasis undergraduate program? What would you say to a student considering graduate school in economics?

There's a funny thing in economics that's not true in most fields, which is that there is a big disconnect between undergraduate and graduate level work. Most people who are studying economics as an undergraduate aren't going to go on to study at higher level. The level of mathematical sophistication and formality that is taught at the undergraduate level is very different from what is used in graduate level research. I think it's really good to formally have a different skill set that people know is the expectation if you're serious about studying economics beyond an undergraduate major, or you're thinking about applying to grad school. It's not enough to just do a typical economics major, get good grades in your classes, and then think that you can float into a Ph.D. program and do well because it's almost a different field at the graduate level than at the undergrad level. I think that math emphasis is one way to codify that a bit, to set yourself out there and make it clear what you're getting into if you're thinking about graduate school.

Op-Ed

Bitcoin, Blockchain, Big Deal?

Written by Roz Stengle and Tanvi Tilloo

In August of 2008, when an anonymous figure posted a plan for a decentralized, trustless money system called Bitcoin, not even the geekiest individuals thought it could revolutionize the fundamentals of international finance. Yet today, with Bitcoin trading at around $11,000 (Investopedia, Mar 1) and thousands of other digital currencies like it on the market, it is hard not to consider what permanent changes might ensue.

The current centralized monetary system acts as an intermediary trusted by both the user and the bank in any transaction. Thus, the bank is a central entity trusted with securely transferring data and value. However, if this central entity fails, the whole set-up is compromised. Rather than being issued by a consolidated authority like a central bank, Bitcoin and its peer cryptocurrencies are run by a network of computers that use mathematics to verify transactions. This removes trust in third-party financial ser-

vices as a necessary condition for transactions. Every ten minutes, a group of transactions is validated by the network. The validator or "miner" receives bitcoins as a reward. Thus, new coins in the form of unique computer code are created, or "mined."

The structure upon which Bitcoin and its fellow cryptocurrencies sit is a new technology called a blockchain. It uses a ledger distributed across a network of computers and verified by cryptographic computer code to form an immutable history of a new asset class. In traditional storage of data, a bad actor can hack into the database and change entries. With a blockchain, the time-stamped blocks and network of verifiers make an equivalent attack nearly impossible. It would require the simultaneous seizing of the majority of the computers on the network to manipulate data. This is a fundamental change from modern databases and other forms of data sharing as it ensures that information stored in the blockchain has not been tampered with and provides a history of each asset on the chain. Bitcoin marks an important shift in the way we digitally transact value, but will it really change our existing financial system?

Over the past decade since Bitcoin began, there have been observable spikes in demand and therefore price, in areas with economic crises. Take Zimbabwe, for example. In the early 2000s, there was severe inflation which led the Zimbabwean National Reserve Bank to run out of funds. In response, the government switched their currency to the US dollar in 2009, which briefly stabilized prices but caused a severe cash shortage since Zimbabwe is unable to print US dollars. The currency switch eventually brought back the inflation former President Mugabe was trying to avoid. Ingeniously, Zimbabweans turned to Bitcoin, drawn by its global network and lack of central authority to keep monetary exchange stable and internationally valid. In October of 2017, the increased demand allowed local money exchangers in Zimbabwe to charge a higher premium on the global price of Bitcoin. At $10,000, this price was almost twice the global market price at the time. We have yet to see how the use of Bitcoin will work out for Zimbabwe, but so far, Bitcoin is serving the people in ways the existing financial infrastructure cannot.

After Venezuela experienced a swift fall in crude oil production, from nearly 100,000 barrels a day to 40,000, oil prices also plummeted drastically, and it soon became the country with highest inflation rate (CNBC.com, Nov 2017). Stocks of bare necessities ran at an all-time low, leading to devastating inflation. In turn, Venezuelans found an innovative solution in Bitcoin. Thanks to President Maduro's heavily subsidized electricity plans, the low marginal cost of mining a Bitcoin in Venezuela became more profitable than many other parts of the world. According to Bitcoin brokerage SurBitcoin, the number of Venezuelan users skyrocketed, from 450 in August 2014 to more than 85,000 in November 2016. The descent of the native currency, the bolivar, forced Venezuelans to use Bitcoin to buy basic goods rather than rely on a centralized currency. All they need for transactions is an internet connection, which most citizens have on their phones. The ease of access lowers obstacles for citizens to combat the crisis and takes the failing government out of the picture. Since cryptocurrency needs to be mined not minted, no government has control over the production of this type of currency, and consequently, over the "money

supply" in the market which can benefit inflation-stricken countries like Venezuela.

But not all is looking up for the digital currency in this South American country. Though it seems that Bitcoin may have its place in this struggling economy, it is still a patch solution. According to CNN Money, Venezuela owes about $141 billion to its investors which include a slew of oil companies and countries like China and Russia. It is unclear and highly unlikely that these lenders will be willing to accept repayment in a volatile digital currency. This is where fiat currency, or money issued by governments, trumps the power of Bitcoin or other cryptocurrency since no system of debt and default has been established.

In a different context, the power of Bitcoin can be turned on its head when a recession looms. Conventionally, such economic crises have been mitigated largely through dynamic monetary policy and reactive legislation. Either by greasing the rails of interest rates in loan markets or by changing the reserve rates of commercial banks, central banks act as first-responders to a demand crisis. Traditionally, government bonds and large infrastructure projects are effectively employed to restart the economy, a feature made possible by the flexibility of traditional currency. Though there are advantages to the lack of central authority of cryptocurrencies, these distributed, trustless systems are not flexible enough to respond in the same way as traditional financial systems. Without a collusion of users to collectively alter the supply of Bitcoins in circulation, the market will not adjust to a new equilibrium. Although it is not outside the realm of possibilities for the network, the likelihood of such an alliance is low. Besides, a collusion would defeat the most salient feature of cryptocurrency - decentralization. This lack of centralized control is one of the greatest drawbacks of the rigid cryptocurrency system.

Notwithstanding, the blockchain technology on which this system of currency runs has massive implications for the way people transfer and track money. Here, the disruption of the existent lethargic and error-prone system is thinkable.

One such tremor has already been set in motion. In 2013, when Dole, the fruit company, went from public to private, 49.2 million shareholders made claims, but the company had only issued 36.8 million shares. Had these shares been tracked from issuance to end, 12 million shares would not have been able to suddenly appear from nowhere. The immutable ledger of a blockchain provides a level of validity to information that our financial systems have historically lacked by updating and verifying the ledger with each set of transactions. This case of fraudulent assets proves that the use of this technology goes beyond currency and has the power to revolutionize the way we interact, not just in our financial systems, but everywhere we transact or exchange information.

In the world of dynamic global economic instruments, Bitcoin and its peers are not likely to see the light of day as a dominant global currency. They certainly have significant uses in inflation-stricken countries and can play a huge role in forcing lawmakers to tap into innovative solutions for age-old problems. Nevertheless, blockchain — the technology that supports this kind of peer-to-peer transaction and immutable ledger accounts — is bound to modernize the financial industry. As seen with Dole, this technology has the capacity to bolster efficiency and create more reliable and accurate systems of transaction and record-keeping. In light of the 2008 economic crisis, rising distrust of banks and big financial players has made the industry ripe for such a hands-off system where consumers no longer need rely on a single entity prone to error and corruption but on a group of computers whirring code to verify each exchange anonymously and accurately. Ultimately, this technology will become commonplace anywhere it can optimize interactions, much like the internet is today. Consumers need not know how it works; they will

only need to know how to use it.

Postscript: The authors recognize that since this article was written in the fall, the price and popularity of Bitcoin have grown immensely. We have updated relevant figures, but we stand by our conclusion that blockchain technology is powerful and not affected by the recent price spike.

Op-Ed

Shadow Banking in China and Its Impact on the Stability of Traditional Banking System

Written by Guodong Sun

"What is shadow banking?" This is probably the very first question that comes to mind when you read this article. From a literal standpoint, shadow banks sound like "banks" working from the shadows. This is true to some extent. The term "shadow banking system" is attributed to McCulley (2007), referring to financial institutions outside the regulatory system, rivaling traditional banking system regulated by central banks. There are also many other definitions of shadow banks. According to Krugman (2009), shadow banks are financial intermediaries holding large amounts of securities and complex financial tools through leverage. The Financial Stability Board (FSB) broadly describes shadow banking as engaging in credit intermediation involving entities and activities outside the regular banking system.

Although there is not a single definition everybody agrees with, some salient characteristics of shadow banks are shared by almost all the definitions, including the following:

1)They are financial intermediaries that perform similar functions and assume similar risks to banks.

2)They are outside the traditional banking sec-

tor and usually operate with a lower level of regulatory oversight compared to traditional banks.

3)They generally lack the strong safety nets that traditional banks have, such as governmental insurance on deposits and help from central banks.

To be more specific, a variety of financial institutions such as small loan companies, guarantee companies, trust companies, investment banks, and financial leasing companies can offer various banking products and services within a shadow banking framework, including loans and leases by trust companies, entrusted loans, wealth management products, and inter-bank market activities.

Shadow banking in China

While shadow banking is probably no longer a novelty in some developed areas like the US and Europe where considerable studies on this topic have already taken place, it is still a rather new phenomenon for many emerging economies like China. The rapid development of China's shadow banking sector since 2010 has attracted a great amount of discussion at home and abroad. According to Moody's, the total assets held in China's shadow banking sector has expanded from 40% of GDP in dollar amount at the end of 2014 to 78% of GDP at the outset of 2016. Haunted by the US financial crisis in 2008, which had a lot to do with shadow banking and other non-bank financial activities, many analysts are wondering if China might be headed for a similar meltdown. The concern is especially acute given China's rapid credit creation process since 2010 and the lack of transparency in off balance-sheet or non-bank activities.

The hasty growth of shadow banking in China is by and large due to a disequilibrium between demand and supply for loans. The most important reason is probably the interest rate cap; by locking the interest rate below the equilibrium level, there is excess demand for loanable funds on the money market. The interest rate cap is meant to encourage investment and business activities, but it also leads to a mismatch of supply and demand for loanable funds and the development of shadow banks eager to meet that excess demand.

Another reason for the growth in shadow banking in China is that most of the bank loans in China flow into large state-owned enterprises (SOEs), and the needs of small and medium-sized enterprises (SMEs) in the private sector are not met. Because of this, SMEs have to seek other funding sources, and shadow banks are important players in this area. Additionally, regulators discourage lending to certain industries such as real estate development, coal mining, shipbuilding, etc., so borrowers in these industries have to turn to non-bank financing sources. Last but not least, the lending volumes of banks permitted by the centre bank are constrained due to high loan-to-deposit ratio requirements. This means that more and more borrowers may be turned down by traditional banks and have to go to other lenders like shadow banks for funds.

Unlike the shadow banking system in the US, which is mainly led by non-bank financial institutions that focus on asset securitization, China's shadow banking is to a large extent still related to traditional banks. One main reason for this is due to China's disproportional credit system, where up to 70% of outstanding credit is represented by bank loans, as reported by China Banking Regulatory Commission in 2016. Usage of this huge amount of credit, which is 105.19 trillion CNY (around 16 trillion USD), is subject to increasingly strict regulation in the form of capital adequacy, liquidity, deposit-to-loan ratio, and most importantly, interest rate cap. In order to circumvent regulation (regulatory arbitrage), banks have a strong incentive to engage in off balance-sheet businesses, so shadow banking activities take on an in-

creasingly important role.

"How can banks engage in non-bank activities?" you may ask. The major method for banks participating in shadow banking is to sell wealth management products (WMPs) to their former depositors, and then invest pooled money from these WMPs into the investment targets. These investment targets are usually riskier than those allowed for traditional loans and other traditional bank activities, so they often have higher returns. The WMPs market has taken off in recent years and has reached around 29.1 trillion yuan ($4.2 trillion) by the end of December 2016, according to the China Banking Regulatory Commission(CBRC).

Shadow banking's impact on the stability of traditional banking system

Since commercial banks are in fact the biggest players in shadow banking activities, and the latter is much riskier without prudent regulation, we have ample reason to be interested in the impacts these shadow banking businesses have on the stability of commercial banks.

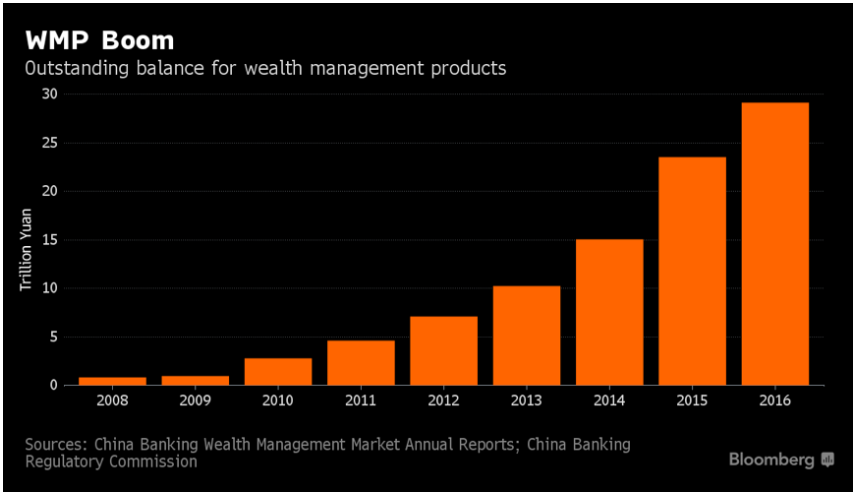
For simplicity, we narrow our discussion on shadow banking business to WMPs, which are among the biggest components of the shadow banking industry. Other components include bankers' acceptances, entrusted loans, and trust beneficiary rights (TBRs). For this, we try to build an empirical model to study the impact of WMPs have on the stability of commercial banks.

Following Michalak & Uhde's (2009) and Salah & Fedhila's (2012) studies on securitization, this article uses Z-ratio as the indicator of commercial banks' stability. Z-ratio was first introduced by Hannan and Hanweck (1988) and is defined as:

$$Z=(k+\mu)/\sigma$$

where k is equity capital as percent of assets (i.e. capital/asset ratio), μ is return on assets (ROA), and σ is standard deviation of return on assets as a proxy for return volatility. This measures the number of standard deviations by which ROA would have to decline before the book equity capital of the bank would be exhausted.

Since we have the indicator



$$Z_{i,t} = c + \beta * wmp_{i,t} + \alpha * controls_{i,t} + \varepsilon_{i,t}$$

Z-ratio	wmp	banksize	liquidratio	loanratio	depositratio	gdpgrowth	loan/gdp
coefficient	-0.47	29.33	0.54	0.28	1.58	-3.51	-0.31
t-statistic	-8.13	3.61	1.77	0.76	4.82	-3.38	-2.01
significance	***	***	*		***	***	**

***, **, * means passing the significance level test of 1%, 5%, and 10%.

of the stability of banks, we can build a multiple regression model as shown above.

We regress the Z-ratio of a set of banks on WMP (the activeness of wealth management products) and controls (other control variables that reflect banks structure and macro economy, including total asset size, liquidity ratio, loan ratio, deposit ratio, real growth rate of GDP and total loans as percent of GDP). ε is the error term, i stands for specific bank, and t stands for a specific time period. From publications of Chinese Academy of Social Sciences and Wind database, we collect quarterly data of 14 listed commercial banks in China from 2009 to 2015, and run the regression on the above model. The regression results are shown as follows:

$$k_{i,t} = c + \beta * wmp_{i,t} + \alpha * controls_{i,t} + \varepsilon_{i,t}$$
$$\mu_{i,t} = c + \beta * wmp_{i,t} + \alpha * controls_{i,t} + \varepsilon_{i,t}$$

k	wmp	banksize	liquidratio	loanratio	depositratio	gdpgrowth	loan/gdp
coefficient	-0.02	1.05	0.03	0.03	0.07	-0.16	-0.01
t-statistic	-7.64	3.25	2.46	1.83	5.17	-3.82	-2.08
significance	***	***	**	*	***	**	**

μ	wmp	banksize	liquidratio	loanratio	depositratio	gdpgrowth	loan/gdp
coefficient	-0.0004	0.07	0.001	0.001	0.004	-0.01	-0.0004
t-statistic	-2.40	2.64	0.78	1.06	4.15	-2.10	-0.87
significance	***	***	**	*	***	**	**

As shown, the coefficient for WMP is statistically significant and negative, which indicates there does exist a negative relationship between the activeness of wealth management products and the stability of commercial banks that issue them. If we take one step further and decompose WMPs' impact on Z-ratio into the impact on k (capital/asset ratio) and the impact on μ (return on assets), we come up with two possible effects through which WMP business may affect banks' stability: "leverage effect" and "return effect". To test this, we run the following two regressions as shown below.

The regression results indicate that both "leverage effect" and "profit effect" are negative, which means the activeness of WMPs is negatively related to both the capital/asset ratio and the return on assets of the banks.

Discussion and policy suggestions

From the above empirical study, we come to the conclusion that shadow banking (we use WMPs as a representative) does have a negative impact on Chinese banks' stabilities, and such impact can be decomposed into two specific effects: leverage effect and profit effect. One possible explanation for this is that by doing WMP and other shadow banking businesses, banks are actually taking in a lot of off balance sheet assets, which in fact expands the banks' real assets' size, and thus in turn decreases the capital/asset ratio as well as return on assets, holding all other variables constant. However, it's for sure that the real mechanism behind this is much more complicated and deserves fur-

ther detailed study and analysis. Nevertheless, based on the simple study above, we have some insights and policy suggestions that should help reduce the impact shadow banking activity has on the banking sector's risk and instability.

Firstly, allowing interest rates to be market-based should reduce shadow banking activities in China. Just as fundamental economic principles suggest, any price distortion may cause inefficiency in the market. Interest rates are the prices for credit in money markets, and thus, it should be no exception. As a matter of fact, the Chinese government has already realized this problem and is trying to liberalize interest rates step by step in recent years, which is by no means an easy task but an extremely essential one.

Secondly, strengthening regulations and restrictions on banks' off balance-sheet activities should reduce shadow banking. It is commonly acknowledged that banking needs to be regulated to maximize its benefits to society and minimize impact on financial market instability. In order to keep an eye on the systematic risk that shadow banking may cause to the whole banking industry and perhaps even on a wider scale, regulators have to create clear and effective regulations and laws on these business activities.

Thirdly, enhancing the market's understanding of shadow banking and its risks may be helpful. Many individual investors enter the shadow banking business without even knowing the risks. For example, many customers buying banks' WMPs hardly know the difference between WMPs and deposits, not to mention full awareness of their risks. This may cause problems and even market panic when the economy stalls and risks start to emerge. Thus, regulators and banks should improve investors' knowledge about this industry to help ensure that these activities do not enhance financial market instability.

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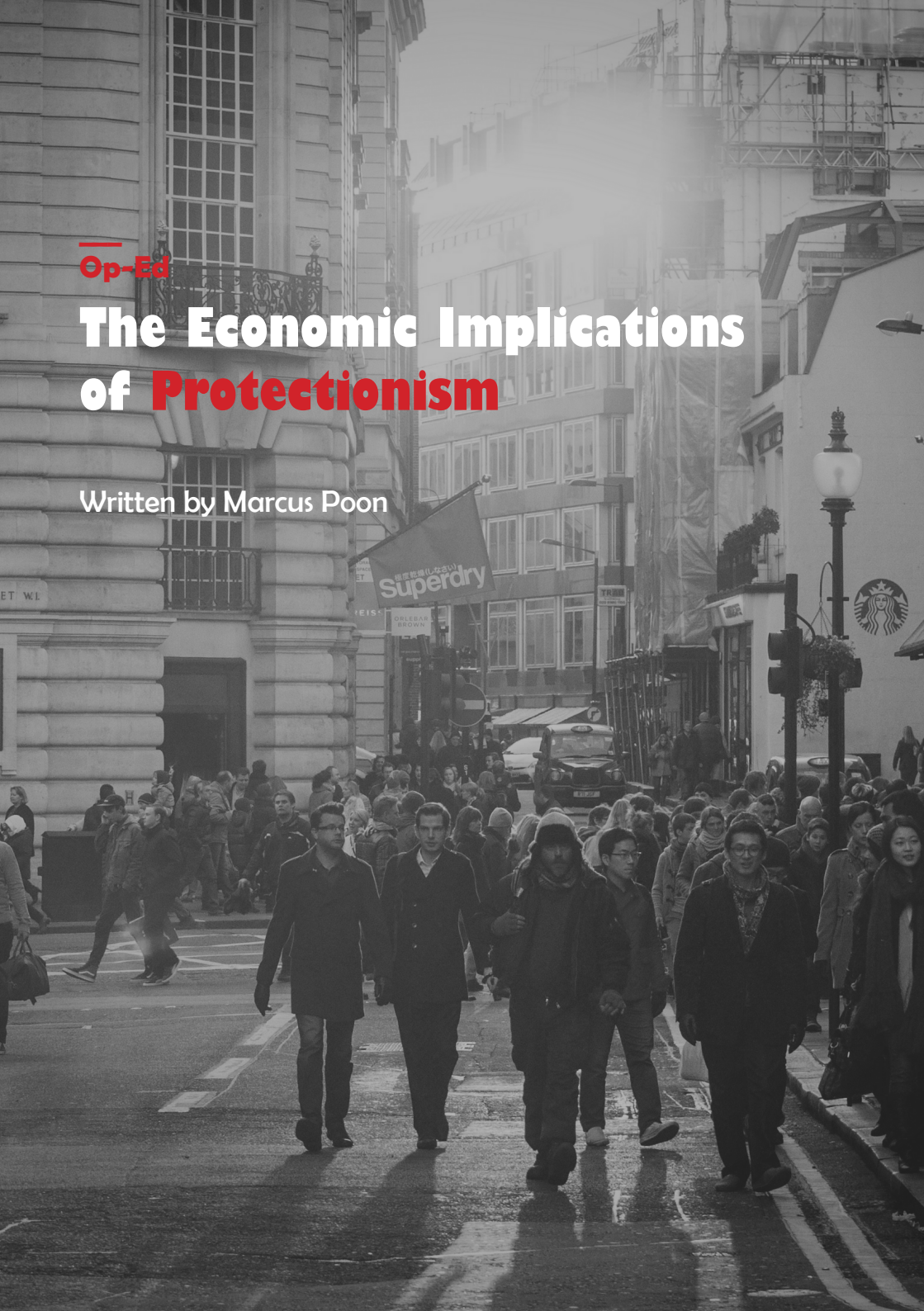

Op-Ed

The Economic Implications of Protectionism

Written by Marcus Poon

"America First." This all too familiar phrase has resonated with countless individuals since it has returned to contemporary political discourse. Strong proponents of the motto, such as President Trump, use it to rally support for his administration's nationalistic agenda. Citizens around the United States have begun to form a small, yet boisterous group expressing their common sentiment on American job loss and perceived detachment from their vision of national culture. However, this sentiment is not only limited to the United States. Even though the world has never been more globalized and interconnected, there has been a sharp rise in nationalism. Countries are concerned with rising swells of extremist terror groups, strains in communities from refugee surges, and the fear of job loss to immigration and outsourcing. Brexit and the rise of populist politicians in Europe are prominent examples of this changing mindset. With the election of President Trump, his nationalistic ideals and protectionist agenda symbolize that America is no exception. While nationalism is a political system characterized by promoting the interests of a country, protectionism is more extreme with a focus on limiting international trade through restrictions and protecting the domestic economy. As protectionist policies rise in the United States, we should wonder if protectionism should, in fact, be enforced. While nationalists believe a protectionist foreign agenda is the best way to reinvigorate the American economy, the reality of these policies is that they are ultimately harmful to the long-term health and productivity of the country. These economic implications of a protectionist administration will be analyzed to demonstrate the negative effects it has on the domestic economy.

To understand the flaws of protectionism, one must first understand the reasons for trade. Trade exposes consumers to new products and cheaper goods to which they would not otherwise have access. Countries mainly trade because it is costly and unsustainable for an individual nation to produce all the goods its citizens will demand. Different economies have unique comparative advantages that allow one country to produce a given good at a lower cost than others. These advantages arise due to many factors, including differences in size, natural resources, technological capabilities, labor force, and climate. For example, it is unreasonable to expect modern day Japan to maintain complete food self-sufficiency for its population. Its disproportionately high number of citizens against a small surface area makes it difficult to find sufficient land to grow crops and raise livestock. To meet its needs in 2013, Japan's agricultural imports totaled nearly $60 billion, making it the world's fourth-largest agricultural importer behind the United States, China, and the European Union. In terms of calories consumed, Japan imported 60% of its food, allowing it to focus its resources on industries where it specializes, like motor vehicles and technology (Trade, 2017). International trade thus allows countries to specialize in industries where they are most efficient. It made up 60% of global GDP in 2016, making it a vital and necessary component of global welfare (U.S. Trade Overview 2016, 2017). There are many benefits to be gained when countries openly participate in international trade.

The United States is a prime example of benefiting from international trade and is a leading contributor to the global economy. In 2016, total trade accounted for 26.7% of the United States' GDP, approximately $4.9 trillion, while its export sector supported 11.5 million domestic jobs in 2015 (U.S. Trade Overview 2016, 2017). If international trade is such a central part of the American economy, though, why have protectionist tendencies taken such a strong hold recently? Globalization has displaced many workers, and the recent rise of President Trump has allowed this par-

ticular group to express their frustrations at their economic disparity. Low-skilled job loss has been a prevalent problem in the United States as businesses outsource these positions to regions that can produce goods more cheaply. The world is very interconnected, meaning it is easy to produce goods where the factors of production — capital, labor, and land — are cheapest and to sell them wherever they are most demanded. However, constantly allocating resources to where they are most efficient has left large structural inconsistencies in the United States' former manufacturing communities. Communities built economies around this industry, so when these jobs were outsourced from the United States, prevalent economic gaps were left in these areas. Working in manufacturing their whole lives, most of these unskilled, uneducated workers were unable to attain a job elsewhere.

President Trump has capitalized on this and made it a hallmark of his presidential campaign. Through his campaign and interviews, we have heard how he will bring jobs back from China and other countries. Without a doubt, the United States has lost jobs to China and from outsourcing to other countries. China's explosive economic growth and its cheaper labor force have allowed it to become one of the main exporters of manufactured goods. The growing trade deficit between the United States and China has caused the loss of 3.4 million American jobs from 2001 to 2015. This has crippled the American manufacturing industry as 2.5 million jobs, or about 74% of the jobs lost to China, come from this sector (Scott, 2017).

The magnitude of this job loss is the driving force behind the protectionist agenda that President Trump is pushing.

"It is easy to make globalization and outsourcing the culprits, but this is a much more complex issue. While international trade is a major reason for job loss, there are other significant factors to consider."

Looking at the data, the observed level of output has dramatically increased the past decade. From 2000 to 2010, total manufacturing employment decreased by 33.2% while productivity actually grew by 65.6% (Atkinson et al., 2012). Factories historically employed labor-intensive machinery, but as technological advances and operations improved, physical laborers were replaced by machines with higher productivity rates. This means that rapid productivity growth was actually a driving factor in manufacturing job loss. A key metric of success for the industry should be the level of output rather than the level of employment. Another point of consideration is that the majority of these workers were typically uneducated, working class citizens who didn't have a historic need to attend college. They grew up in an economy where a high school degree was a sufficient education for finding a good job. With rising standards, though, more qualifications are needed for entry-level jobs, and college degrees are becoming all too common in the labor supply. Without anyone in particular to blame, globalization became the scapegoat for their frustration.

"In reality, this job loss stems from World War II, where the United States' investment in manufacturing capital has been steadily decreasing."

This is because the United States is going through a period of deindustrialization — the shrinkage of industrial jobs. This is typically perceived as a symptom of economic decline, however, it is actually a state of economic development signaling a healthy economy. As a country gets richer, a smaller proportion of the population will be needed in manufacturing because other sectors will be in demand. This is

the exact case in the United States; while manufacturing employment has declined these past decades, healthcare, technology, data, and services have seen exponential growth. Thus, to say that globalization is the driving factor behind job loss is incorrect.

President Trump, believes otherwise. He is a strong proponent of the belief that protectionism is the key to boosting the domestic economy, and he perfectly popularized the idea that globalization, mainly due to China, is the reason for manufacturing job loss. He gathered a lot of support during his presidential campaign through his proposed restrictions on trade. For example, after he was elected, President Trump suggested a 45% tariff against China to protect American jobs and businesses. Compared to the 3% average that was in place, this would have significant ramifications to say the least (Mody, 2016). It was not enacted, but under President Trump's protectionist administration, a similar less severe restriction could certainly become reality. The intended effects of this would have been to protect American business and bring back jobs within the domestic border. However, these jobs are outsourced to other countries precisely because they are able to produce goods at a cheaper price. Transnational corporations like Apple and Walmart, depend on Asia's cheap production costs to manufacture the majority of their goods. This allows American consumers to purchase goods at relatively lower prices compared to when goods are manufactured domestically. Under a high tariff, Walmart would be unable to provide goods at inexpensive rates, causing the prices of everyday consumer goods to rise. While producers and worker would benefit, consumers would bear the brunt of this burden through higher prices. In other words, the costs of protectionist trade policies exceed the benefits. A 1986 case study of United States Trade Protection found that the average annual gains for domestic producers was $47 billion while consumer losses were estimated to be $65 billion (Perry, 2017).

"Restrictive trade policies lead to economic inefficiencies associated with superfluous domestic production and limited consumption of imported goods. "

Furthermore, the study found that protectionism particularly harms lower income consumers more than the rich because the marginal increases in price restrains their already limited budget. The researchers calculated the effect of increasing prices from protectionist restrictions and examined how this increase affects consumers' budgets. They translated it to represent the equivalent of an income tax surcharge, or an additional tax on top of income tax. Adjusting for current prices, trade restrictions on clothing, sugar, and automobiles were calculated to have an additional income tax surcharge of 3% and 23% for income groups making higher than $131,000 and lower than $22,000 respectively (Coughlin, Chrystal, and Wood).

This is just one hypothetical example. A more contemporary issue is the real possibility that the United States will exit from the North American Free Trade Agreement (NAFTA). Free trade agreements (FTA) are pacts where member countries agree to lift tariff restrictions on trade to lubricate markets. Although certain industries thrive in FTA's while others suffer, the overall GDP growth is positive for all countries involved. NAFTA has been met with both praise and criticism by American politicians with President Trump's disdain being prominent. In the same fashion as his comments on China, President Trump has denounced Mexico for stealing jobs and harming the American economy. He criticized the free trade deal and Mexico for taking American jobs across the border and for injecting an abundant amount of foreign goods tariff-free into the United States. Unless the member countries

are willing to negotiate a better deal for the United States, Trump says he will permanently exit NAFTA. This may help the American economy by protecting local jobs and supporting domestic industries, but these effects are likely to diminish in the long-run.

As members of NAFTA, the United States, Mexico, and Canada all enjoy tariff-free trade with each other. Since the pact was signed, real trade has increased among the countries from $290 billion in 1993 to over $1.1 trillion in 2016 (NAFTA's Impact, 2016). In the absence of NAFTA, American businesses would encounter higher tariffs when exporting their goods to either Canada or Mexico. Considering that American exports to these countries totaled $497 billion, tariffs would severely hurt American exporters (U.S. Trade Overview 2016). This can potentially cripple smaller businesses and curb the profits of larger companies who have spent decades building efficient supply chains in Canada and Mexico. Through his threats of leaving NAFTA, President Trump seeks to leverage his position to negotiate a better trade deal for the United States. While there is potential for the United States to negotiate a better trade deal for itself, this attempt may have significant ramifications. With the United States out of NAFTA, Canada and Mexico can still trade between themselves, adhering to the terms of the pact, while imposing tariffs against the United States. In addition, the European Union already has FTA's with both Canada and Mexico giving European competitors an edge over American businesses (Swanson, Ana and Kevin Granville). Furthermore, Canada and Mexico both have the potential to sign a deal for for the Trans-Pacific Partnership, a FTA with multiple countries in the Pacific region. With the United States already withdrawn from discussions, this is another source of cheap goods for these two countries. There is a possibility for the United States to negotiate a better trade deal, but with all of these considerations, NAFTA is arguably the best deal available. Should this occur, immediate changes would be seen. American consumers would pay higher prices for goods that were normally attained through tariff-free trade, and businesses would experience higher tariffs against their exports. If the United States chooses to continue its pursuit of a protectionist policy, there is a chance that it will lose global relevance. While the rest of the world is embracing globalization, the United States would be turning the other way.

This article highlights some of the key ramifications that a protectionist agenda would entail. The protectionist tendencies in the United States stem from a deeper issue than just globalization. Increasing national debt coupled with stagnating GDP growth are only a few of such symptoms resulting from a larger problem. Instead of diverting time and energy into a protectionist agenda, more focus should be put into reforming current policies to boost the American economy. Retraining unskilled workers, focusing on education, lowering the national debt, or even reforming taxes in struggling areas are but a few ways of boosting the economy. However, the popularity for protectionist trade policies originate from their blatant purpose: to protect and save American jobs. There is nothing wrong with this idea, but, this should not be accomplished through protectionism. It is an appealing concept because of its immediate and identifiable results, but ultimately, benefits from protectionism are mainly short-term and have detrimental effects in the long-run. Protectionism should not be implemented due to the harmful effects that it causes, especially to the most crucial group of the domestic economy: the American Consumer.

Priyanka Panjwani

The Economic Attainment of Second Generation Immigrants

Priyanka just graduated from her last semester at UW-Madison with degrees in Mathematics and Economics. Outside of school she spends her time biking, trying new restaurants, and working as the Director of Slow Food UW — a student run non-profit organization that focuses on providing affordable local and sustainable food on campus. As for her post-graduation plans, she began working as a Research Assistant for the Northwestern Department of Economics in January. She plans to apply to grad school in the future, but for right now she just wants to explore the world of economics, gain new skills, and find time to travel.

Jack McGovern

Health Reform, Consumption Inequality of Health Insurance, and Improved Economic Outcomes: Implications of the Affordable Care Act of 2010

Jack is a graduate from the University of Wisconsin-Madison who majored in Economics and Russian. His paper looks at the increased consumption equality of health insurance resulting from the Affordable Care Act. This work led him to an internship at the Schaeffer Center for Health Policy and Economics where he assisted Professor Erin Trish with research on decision quality in health insurance markets. He hopes to continue his studies at a research institute in Chicago.

Kevin Bannerman Hutchful

The Positive Effects and Sustainability of Mobile Money Growth in Ghana

Kevin is originally from Accra, Ghana. He studied Economics and Computer Science at UW Madison, and has a huge interest in the tech field. He chose to research on mobile money in Ghana because he was interested in Ghana's rapid movement into the tech market, especially with regards to financial technology. In particular, he wanted to study Ghanaians' use of mobile money, and how it could improve the standards of living and improve the economy as a whole. Currently, Kevin works for Intuit in Silicon Valley as a product manager. He plans to continue working in the tech industry so that he can hone his skills, and eventually, he would like to use his experience to make a positive influence back in Ghana. Kevin also has a passion for soccer and likes to get involved with anything that catches his interest.

Bella Yao

Institution, Financial Openness, and Economic Growth

Bella is a senior studying Economics and International Studies at UW. Her interests are in international economics and national inequalities under globalization. Her future research topic of interest is how banks, as one of the most powerful financial institutions, make an impact on national differences of global integration.

Malcolm Kang

Effect of Retirement Income on Intergenerational Wealth Outcomes: Evidence from the Social Security Notch

Malcolm majored in Mathematics and Economics during his time at UW. He was also involved in research in the Economics Department, focusing on intergenerational wealth inequality. He currently works in finance in New York and in his free time, he enjoys cooking exotic dishes and trying out new restaurants in the city.

Isaac Mehlhaff

The Short Term Success of New Deal Work Relief Programs

Isaac is a senior studying History, Political Science, and Economics. He has conducted policy research for Martin Schreiber & Associates — a Madison-based public affairs firm — and the Office of Governor Scott Walker. His senior thesis examines plurinational rhetoric as a politico-economic strategy in southern Mexico. He plans to complete a PhD in political science before teaching and doing research at a university.

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