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Rising Sea Levels in the Puget Sound Region

Nadya Ekhteraee Sanaee

Climate change will prove to be a great challenge for the Pacific Northwest in the upcoming years. For Washington State, impacts of climate change are most likely to be realized in the form of rising sea levels, extreme precipitation and heat, and changes in snow and rain patterns causing both droughts and wildfires. As a city highly dependent on its maritime industry and waterfront real estate, Seattle's economy is particularly vulnerable to the impacts of a rising Puget Sound.

According to a report conducted by the Seattle Public Utilities, "water along Seattle's Puget Sound shoreline has already risen six inches in the past century", and is predicted to rise an additional two feet by 2100. Even under conservative estimates, climate scientists strongly believe that Seattle will experience a four-foot flood by the year 2100, which would expose \$1.4 billion dollars of real estate to potential flooding damage, impacting 44,249 residents of the greater Seattle area. In the worst possible scenario, in which society continues on its current emission trajectory, sea levels could rise four to six feet by 2100, putting 31,000 homes across Washington state at risk of being partially or completely underwater.

Reacting to rising sea levels will undoubtedly be an expensive endeavor for the state. In addition to the costs of preventing and mitigating property and infrastructure damage, changes in sea level could result in significant marine habitat loss, causing unexpected disruptions to Seattle's \$8,592 million-dollar fishing industry. With increasing sea level rise comes an increased threat of intercity flooding, which in addition to causing significant transportation delays, may cause contamination of local water supplies and an increase in the spread of water- and vector-borne diseases. In attempts to control flooding, alterations in water management could also decrease state hydroelectric revenues by \$166 million dollars per year, which may result in an increase in the price of utilities for Washington residents.

Not immune to the physical and economic impacts of rising sea levels are businesses and individuals, which have both already made changes to their economic behavior in anticipation of future climate costs. One such example is the Seattle-based real estate company Zillow, which provides consumers with price comparisons and relevant information on properties across the nation. On its website, Zillow explains how rising tides could ...

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The Seen and the Unseen

Andrew Whan

The debate over globalism and free trade has featured prominently in the news cycle as of late. Starting with Brexit, waves of anti-globalization sentiment have swept over the developed world, culminating most recently in Donald Trump's rise to the US presidency. However, in the recent past, globalization was widely viewed as a powerful force for good throughout the world, and was often cited as one of the primary factors in lifting over a billion people out of poverty since the end of the Second World War. Why then is a seemingly positive force constantly lambasted by citizens and politicians around the world?

It all starts with visibility. Many economic models of international trade state that while many people in a country involved in trade gain, there is a small group of people that loses out. Furthermore, the gains for the majority of people are quite small on a per capita basis, while those who lose, lose big. Take for example a coat factory in the United States that is exposed to international competition as a result of a free trade agreement. Let's say that the factory employs 100 workers, and the average salary of a worker in the factory is \$50,000 per year ...



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... destroy 1,663 homes in the city of Seattle alone, making climate predictions a relevant concern in the home purchasing process. Depending on the risk-averse nature of consumers in the housing market, waterfront properties may lose significant value in the coming years as rising sea levels continue to threaten the security of waterfront properties.

In anticipation of future catastrophes, the city of Seattle has already engaged in several projects geared towards climate change adaptation. One such example is the \$372 million-dollar Elliott Bay Seawall Project, which involves the construction of a 6,800-foot retention wall on Seattle's waterfront in anticipation of flooding, coastal erosion, and earthquakes. While the sea wall venture was certainly expensive, the project is often praised for its ability to create job opportunities for city residents. Most importantly, the Seawall project served as a pilot program for the city's new Priority Hire program, which "requires that a certain percentage of labor hours worked on public works construction projects be performed by workers living in economically distressed neighborhoods" (Seattle Medium). As a result, a total of 61% of the 653,399 hours worked on the Seawall have been fulfilled by residents from economically distressed zip codes, women, and people of color. Despite being only halfway completed, the Elliott Bay Seawall project is already the largest and most diverse public works project in the history of the city of Seattle.

In conclusion, although rising sea levels pose a significant threat to Seattle industries, climate change mitigation and prevention provide a unique opportunity for economic gain. Although the impacts of climate change will be felt by all residents of the Pacific Northwest, the ability to adapt economically to climate crises is highly dependent on collective recognition of the validity of climate change. Regardless of personal beliefs regarding the causes of climate change, by viewing rising sea levels as an opportunity for growth and infrastructure development, it is possible that Seattle may emerge from this looming crisis as a more economically diverse and structurally secure city.

Sources for information in this article can be provided upon request



Continued: The Seen and the Unseen

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... Let us also assume that as a result of the free trade agreement, coats are now on average \$0.50 cheaper across the whole country. If 70 million people in the US buy a coat every year, national welfare has increased by \$35 million. Let's now say that the American coat factory can no longer operate due to such competition. One hundred people have lost their jobs, each losing \$50,000 dollars per year. Our loss in national welfare from the closure is \$5 million. Therefore, the gains from this free trade agreement outweigh the losses by a factor of seven. However, while 70 million people have gained a paltry \$0.50, the workers from the factory have lost their livelihoods. Such disparity in the effects of free trade across groups of people is the crux of the argument against it. While it is difficult to watch certain groups of people be harmed by globalization, it has undoubtedly benefited the entire world to a great extent. Therefore, it behooves us to find ways to help those who are hurt by globalization without dismantling the entire system that has been so successful for the past seven decades.

Sources for information in this article can be provided upon request

There are numerous ways to assuage the growing pains that come along with global integration. One of the primary ways is through educating the populace about the powerful positive effects of free trade. As previously stated, the proportionately smaller losses are highly visible due to their concentration in specific industries. Thus, if people are aware that there are indeed much larger positive effects, they will likely be more supportive of free trade efforts. Furthermore, governmental programs can aid the transition of those in industries affected by trade agreements to other jobs in the economy. One such program already exists in the United States as a part of the North American Free Trade Agreement (NAFTA). Offered by the Department of Labor, the NAFTA-Transitional Adjustment Assistance Program allows workers disaffected by the trade agreement to apply for support. If it can be empirically proven that their job loss was at least in part due to NAFTA, they receive job transition help, as well as some income support. These are just a few of the numerous effective approaches to minimizing the harm done by globalization while still allowing for the gain that it creates.

A Quick Look at Trump's Cabinet

Kjersti Anderson

Secretary of State: Rex Tillerson from Texas

Tillerson has long been working for ExxonMobil, rising to become chairman and Chief Executive. A potential source of interest is Tillerson's relationships with Vladimir Putin and Igor Sechin, who oversees Rosneft (a Russian oil and gas conglomerate), and there is consideration that this could work to improve US-Russia relations. Tillerson's nomination was warmly received by James A. Baker III, Secretary of State under President George H.W. Bush, and Robert M. Gates, the former Defense Secretary.

Department of Treasury: Steven Mnuchin from New York

Mnuchin is an alumnae from Yale University, and a former Goldman Sachs banker. He also had several stints as a hedge fund manager. Mnuchin was highly involved in contributing to political campaigns over the years, but is just recently entering politics. Mnuchin's transition into his role will be hasty, as the Trump administration is looking to overhaul the tax code. A fun fact: Mnuchin has helped finance several films, such as X-Men and Avatar.

Department of Justice: Jeff Sessions from Alabama

Sessions has a long tenure as a Senator from Alabama, and then continued to serve as U.S. Attorney for the Southern District of Alabama, then onto Attorney General of Alabama, then to the Senate. Some of the issues and legislation Sessions has worked on has included awarding Rosa Parks the Congressional Gold Medal, a continuation of a Victims of Child Abuse Act to help those afflicted, as well as campaigning on the behalf of small businesses.

US Ambassador to the UN: Nikki Haley from South Carolina

Nikki is the daughter of two Indian immigrants, and has served as Governor of South Carolina since 2011. She was a state legislator prior to that position. Most recently, Haley has swiftly and boldly condemned Russia in the most recent violence in eastern Ukraine in her first press conference as Representative.

Department of Education: Betsy DeVos from Michigan

DeVos has served as chairman for the American Federation for Children, a school choice advocacy group. Mrs. DeVos also founded the West Michigan Aviation Academy, a public charter high school in West Michigan. DeVos's political involvement includes holding the position of chairman of the Michigan Republican Party, as well as serving on the Republican National Committee. The new administration has proposed \$20 billion going into vouchers for private education, something that DeVos would presumably oversee in her tenure.

CIA: Michael Pompeo from Kansas

Michael Pompeo served 6 years in both the US House of Representatives, and on the Intelligence Committee. Before the House, Pompeo was an Army Captain. Pompeo served on the House Benghazi Committee and was an aggressive examiner of Hillary Clinton during her hearing in 2015. Pompeo is a proponent for increased data collection, writing in an Op-ed for the WSJ, "Congress should pass a law re-establishing collection of all metadata, and combining it with publicly available financial and lifestyle information into a comprehensive, searchable database".

Secretary of Defense: James Mattis from (Richland!) Washington

Nicknamed "Mad Dog" due to his tenure as a commander of British and American troops fighting in Iraq in 2004, he also emphasized this characterization by his oftentimes vivid (which even may be a euphemism) language. Mattis enlisted in Marine Corps Reserve at age 18, and attended Central Washington University. He has extensive military experience commanding marines, as well as non-combat assignments such as Executive Secretary to the Secretary of Defense. Mattis served as a Visiting Fellow at the Hoover Institution at Stanford University in studying "leadership, national security, strategy, innovation, and the effective use of military force".

Secretary of Transportation: Elaine Chao from Kentucky

Elaine Chao is daughters of two Taiwanese immigrants, and came to America knowing no English when she was just a child. Elaine Chao served as US Secretary of Labor from 2001-2009, during both Bush terms. She has also served as the department's Deputy Secretary. Chao has worked in many different sectors, filling roles such as Director of Peace Corps and at BankAmerica Capital Markets Group as a VP. She will be responsible for the creation of the large proposed infrastructure/stimulus plan.

Department of Homeland Security: Gen. John Kelly from Boston

John F Kelly has tons of military experience, starting in the Marine Corps in 1970 and then followed by numerous different appointments in the military. Most recently, he retired last February as chief of the U.S. Southern Command, a position that oversaw American operations south of our border.

Department of Health and Human Services: Tom Price from Georgia

Price is originally an orthopedic surgeon hailing from Michigan, but moved to Georgia for his residency. Price's entrance into politics begun in 1993, when Hillary Clinton proposed a universal health care coverage plan. Price vehemently opposed this, and united the Medical Association of Georgia (7,500 members) to fight against the plan. Price eventually entered politics after this, and even became chairman of the Budget Committee in 2015. Price will be responsible for replacing the ACA.

Summary: All in all, I believe the cabinet members have the necessary tools to run a government, and it will be up to them and the American people to create bipartisan compromises and further the goal of every administration: Bettering the lives of Americans and working with other nations to better the lives of humans abroad. The economic implications of this cabinet are not entirely certain, but I believe that the main consequence of these members is a large movement towards self-choice when it comes to decision making. A liberating tax code including drastic tax cuts, a repealed ACA, and vouchers for school choice mean that Americans will have large power and freedom over their purse strings to decide where to invest, and how to spend. In addition, if many of the proposed plans (such as proposed infrastructure spending) do happen, that is a classic example of stimulus spending and may heat the economy up. Stock markets have already responded with optimism since the inauguration, so it shall remain to be seen what further implications of the cabinet will be on the economic growth of the country, and incomes of our citizens.

Sources for information in this article can be provided upon request

Early Childhood Education and Related Investments

Neal Brown

It is common knowledge that education is a positive externality. Even with returns on schooling being almost always worth the investment for the individual, the spillover benefits also increase incomes of her or his fellow citizens. One category of education that has not been researched nearly as much as the others (public, private, higher) is early childhood education. Early childhood education refers to schooling for those who are not yet in kindergarten, generally between the ages of 3 and 5. Researchers of human development often cite a child's early years as the most important, and Nobel laureate James Heckman takes idea and furthers it, estimating economic returns on investment of early childhood education for society.

In his newest working paper, Heckman and other professors found that the treatment group (who got high quality care/education from ages 0 to 5, and then in-home child academic support from 5 to 8) were much better off than the control group (children similarly disadvantaged). The treatment group consisted of disadvantaged children who met a criteria, while the control group were children in similar situations who did not get this specific treatment. While expensive (\$18,514 per year) the benefits far outweighed the costs, with a rate of return of 13.7%, and a benefit/cost ratio of 7.3. That means that an investment of \$1.7 billion would yield a return of \$12.4 billion, discounted at 3% a year, over the course of those newborn's lifetimes. The results of this study are also exceptionally robust, and changes in many of the assumptions (Deadweight Loss from taxes, discount rate, costs of crime, etc.) still yield larger returns than the 7.8% mean return of the benchmark index, the S&P 500.

It is important not to extrapolate the results of this study for all demographics. A nationwide program would not yield identical results, and could very well be a negative Net Present Value investment. By targeting specific populations, and constructing an incentives scheme negating a critical amount of moral hazard, programs like the one Heckman studied would be exceptionally beneficial to both recipients of the program, and the general population via positive externalities.

One of the great things about Heckman's research is that it is extensive, with papers covering labor economics and human development spanning the past forty-two years. Heckman's other works have discussed benefits from other programs, and the theory of early investment in human capital at length. In his 2008 paper, Heckman studies the effect the Perry Preschool Program, and, yet again, finds huge returns on investment. Lower crime rates, higher lifetime earnings, and better physical / mental health are all positively correlated with the Perry Preschool Program, and extrapolation to preschool programs for disadvantaged children in general is hardly an irrational concept, given safeguards against potential problems as mentioned before are addressed.

A continuation of these types of investments include preventive medical care. Ranging from vaccines to proper nutrition, preventing illness and disease is exceptionally more cost-effective than fixing the problem after it occurs. The Bill and Melinda Gates Foundation focuses on these practices and targets the most vulnerable and under-resourced populations in the world. The benefits of investment into these populations are surely much larger than an identical investment here in the States, basic microeconomic theory of diminishing marginal value supports this claim.

Economics is a very versatile discipline, and couples exceptionally well with other disciplines. Here, the relationship between Economics and Public Health / Sociology / Psychology is apparent, and further exploration of these marriages is the topic of topics in Economics. When tackling worldwide, and even specific micro-focused problems, it is more important than ever to touch base with other sectors of research and learning.

For more information about Heckman's research, I would encourage those interested to read some of his papers and be blown away by the possible benefits of early childhood and preschool programs here in the United States, just like I am every time I delve back into Heckman's research. While there is no such thing as a free lunch in economics, early investments in human capital is as close as we will ever get to one.

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Paul Heyne Seminar and Econ Major Social

This quarter, the Economics Undergraduate Board will be having the great Professor Wong discuss China's economic growth in an on **February 28th** in **HUB 145** from **6:00 p.m. - 7:00 p.m.**

After the lecture will be the quarterly UW Econ Social.

Math/Stats Review: In early Spring quarter the EUB will be hosting a Math and Statistics Review Seminar to help students brush up on the math used in ECON 200/201, as well as ECON 300/301.

Economics Tutoring: The EUB offers free tutoring every weekday at various times every quarter! Check the schedule on the EUB website to see tutoring times. If you need help with an upper level class, however, make sure you check the website to see which tutor can help.

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