URBS 403.1D RESEARCH PRACTICUM:

INEQUALITY AND POVERTY IN THE UNITED STATES AND NEW YORK CITY

Spring 2021

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**Midterm Examination**

March 19, 2021

**INSTRUCTIONS:** Type your answers underneath each question below. When you are done, upload the document into the assignments tab in Blackboard.

The following questions pertain to the CEO2018 dataset. **You should use R-Studio** to carry out the analyses. [The numbers in the parentheses before each question represent the points associated with this question.] Include the output that informed your answer (but please minimize junk).

**Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. (1 point) How many respondents are represented in the CEO2018 dataset (N=?)

**Ethnicity**

1. (1 point) Generate a 1-way crosstab (also called a frequency table) for the ethnicity of the respondents in the CEO2018 dataset. Copy and paste the table here.
2. (1 point) How many respondents responded that their ethnicity is “other?”
3. (1 point) What percentage of the total respondents reported that their ethnicity was “other?”

**School Enrollment**

1. (1 point) What is the school of enrollment status of New Yorkers? Generate a crosstab frequency distribution of individuals in the CEO2018 dataset across the different school enrollment statuses (“SCH”)?
2. (2 points) What is the modal response? What percentage of the total sample does this modal response represent? [“modal response” = mode].

**Housing**

1. (1 points) What level of measurement is Housing Status (“HousingStatus”) [i.e. nominal, ordinal, continuous]?
2. (1 points) What level of measurement is the Number of People living in a housing unit (“NP”) [i.e. nominal, ordinal, continuous]?
3. (2 points) Generate descriptive statistics for housing status (“Housing Status”)
4. (2 points) Generate descriptive statistics, including quartiles, for the number of individuals living in each housing unit (“NP”).
5. (1 point) What is the minimum number of individuals living in a housing unit? What is the maximum number of individuals living in a housing unit?
6. (1 point) What is the mean number of individuals living in a housing unit? What is the median number of individuals living in a housing unit?
7. (1 point) What is the interquartile range for the number of individuals living in a housing unit?
8. (1 point) What does the interquartile range represent?
9. (1 point) What is the standard deviation and standard error for the number of individuals living in a housing unit?
10. (2 point) What is the difference between a standard deviation and a standard error?
11. (2 points) How does the Standard Error relate to the Confidence Interval?
12. (2 point) What is the 95% confidence interval for the mean number of individuals living in a housing unit? And what does it mean (in plain English).
13. (1 points) What kind of graph (bar graph or histogram) should you generate for Housing Status, and why?
14. (1 points) What kind of graph (bar graph or histogram) should you generate for the number of people living in a housing unit?
15. (2 points) Generate the appropriate graph to visualize Housing Status and paste it below.
16. (2 points) Generate the appropriate graph to visualize the number of people living in each housing unit and paste it below.

**T-Test**

1. (5 points) Run a one-sample t-test, comparing the mean number of individuals living in a housing unit, to a population mean of 3. Reproduce the output below.
2. (5 points) Interpret the output.

**ANOVA**

1. (5 points) Compare the mean Number of Individuals Living in a Housing Unit (“NP”) among New Yorkers by Borough (Boro). Do residents in certain boroughs tend to live with more people than residents in other boroughs?
   1. What is the mean number of individuals living together for each borough?
   2. Are these differences significant? In other words, could these differences have happened randomly, or do they represent an actual difference between the number of individuals living together?
2. (5 points) What are the levels of measurement of the 2 variables you included in your analysis above?
3. (10 points) Generate either a bar graph or a histogram for each variable, making sure that you are generating the appropriate graph type given the level of measurement for that variable.
4. (5 points) Generate either the Tukey Test or the Bonferroni Test.
5. (5 points) Interpret the Bonferroni Test or Tukey Test output from the previous question.

**SHORT ESSAY QUESTION**

1. (30 points) Short Essay Question: Choose one of the two questions below, and write a short essay with your response. How do some of the assigned readings for this course relate? Reference at least 2 of the assigned readings.

**OPTION ONE: Focus on Poverty**

This past month, the United States government passed a historic bill – The American Rescue Plan, that many are heralding as representing one of the most ambitious set of anti-poverty measures in recent history.

* Given the empirical evidence of poverty trends over the past few decades, what, in your assessment, might the impact be of these measures?
* Which of the measures are likely to address poverty, and how? Be specific.
* What are some potential adverse (negative) consequences that these measures might bring about? For example, some policy makers warn that unconditional cash transfers will depress labor market participation (meaning individuals will not be motivated to work because they are receiving “free money”).
* What changes would you make to the American Rescue Plan? Why?

Here are two articles that provide some specific information of the American Rescue Plan.

* <https://www.nytimes.com/2021/03/06/business/economy/biden-economy.html?action=click&module=RelatedLinks&pgtype=Article>

***NOTE: The articles are copied and pasted in the following pages, just in case you are not able to access the articles through the provided links.***

**OPTION TWO: Focus on Inequality**

The article below describes growing inequality in the tech industry, but this increasing inequality is endemic of a wider trend that is reflected in many other industries and also nationwide. The dominant trend seems to be an increasingly “winner take all” rewards dynamic where wealth and income are concentrated in fewer hands, and the balance must be shared among a growing majority. In the United States, there is greater acceptance of “inequality of outcome” so long as there is “equality of opportunity.” Thus, so long as there is potential for mobility, extreme inequality is acceptable. In other words, it’s more important to make sure that there are real opportunities for upward mobility, even to the upper echelons of the income and wealth continuum, than to try to reduce the extremes of income and wealth inequality.

* To what extent is there active economic mobility in the United States?
* Do you agree that mobility is more important than inequality? Why or why not?
* Read the article below, and comment on what some of the potential downsides and upsides might be to this sort of extreme inequality and “winner take all” rewards dynamic.
* What is one policy recommendation you would made, given your answer to the question above?

First, read this article: **The Gap Between the Haves and Have-Nots of Tech Widens**

<https://www.nytimes.com/2020/02/03/technology/google-earnings-big-tech.html?smid=nytcore-ios-share>

***NOTE: The articles are copied and pasted in the following pages, just in case you are not able to access the articles through the provided links.***

# To Juice the Economy, Biden Bets on the Poor

Mr. Biden’s bottom-up $1.9 trillion aid package is a sharp reversal from the tax cut bill that was President Donald J. Trump’s first big legislative victory.



Volunteers distributing food on Monday in Warren, Mich. President Biden’s economic relief plan overwhelmingly helps low earners and the middle class and is more focused on people than on businesses.Credit...Elaine Cromie for The New York Times

[](https://www.nytimes.com/by/jim-tankersley)

By [Jim Tankersley](https://www.nytimes.com/by/jim-tankersley)

* March 6, 2021

WASHINGTON — To jump-start the ailing economy, President [Biden](https://www.nytimes.com/2021/03/07/us/politics/biden-executive-order-voting.html) is turning to the lowest-paid workers in America, and to the people who are currently unable to work at all.

Mr. Biden’s $1.9 trillion economic relief package, which [cleared the Senate on Saturday](https://www.nytimes.com/2021/03/06/us/politics/biden-stimulus-plan.html) and could be headed for the president’s signature in a matter of days, would overwhelmingly help low earners and the middle class, with little direct aid for the high earners who have largely kept their jobs and padded their savings over the past year.

For the president, the plan is more than just a stimulus proposal. It is a declaration of his economic policy — one that captures the principle Democrats and liberal economists have espoused over the past decade: that the best way to stoke faster economic growth is from the bottom up.

Mr. Biden’s approach in his first major economic legislation is in stark contrast to President Donald J. Trump’s, whose initial effort in Congress was a tax-cut package in 2017 that largely benefited corporations and wealthier Americans.

The “American Rescue Plan” advanced by Mr. Biden includes more generous direct benefits for low-income Americans than the rounds of stimulus passed last year under Mr. Trump, even though it will arrive at a time when economic and coronavirus vaccine statistics suggest the broad economy is poised to take flight. It is more focused on people than on businesses and is expected to help women and minorities in particular, because they have taken an outsize hit in the pandemic recession.

Researchers predict it could become one of the most effective laws to fight poverty in a generation. Columbia University’s Center on Poverty and Social Policy [estimates that the plan’s provisions](https://static1.squarespace.com/static/5743308460b5e922a25a6dc7/t/601acf15866c634924d12963/1612369686861/Poverty-Reduction-Analysis-Biden-Economic-Relief-CPSP-2021.pdf), including a generous expansion of tax credits for low-income Americans with children, would reduce the poverty rate by more than a quarter for adults and cut the child poverty rate in half.

As with Mr. Trump’s stimulus bills, the new legislation contains provisions intended to attack the virus itself, including money for Covid testing and vaccine distribution.

But it also includes elements of longstanding Democratic priorities that will apply widely to lower-income Americans whether they are hurting financially from the pandemic or not. In addition to the tax credits, the bill increases subsidies for child care, broadens eligibility under the Affordable Care Act, and expands food stamps, rental assistance and unemployment benefits, among other provisions. Mr. Biden also tried to include a $15 minimum wage in the bill, but it [did not survive Senate parliamentary rules](https://www.nytimes.com/2021/02/25/us/politics/federal-minimum-wage.html).

Mr. Biden’s economic team is betting that a mix of $1,400 checks to individuals, more generous jobless aid and other safety-net benefits in the plan will help [power a rapid increase in economic growth](https://www.brookings.edu/blog/up-front/2021/01/28/the-macroeconomic-implications-of-bidens-1-9-trillion-fiscal-package/) by aiming money at people who need help right now to pay their bills, buy groceries and stave off eviction or foreclosure — as opposed to higher earners who would be more likely to save the money.

Many economists predict that the increase in consumer spending would spur more hiring and business production, helping to lift the economy to its fastest annual growth rate since the mid-1980s.

Mr. Biden’s plan has angered congressional Republicans, who have pushed the president to focus his efforts on supporting businesses crippled by the pandemic and lifting any remaining barriers to the full reopening of economic activity as soon as possible. It has also drawn warnings from Wall Street traders and high-profile liberal economists, like the former Treasury secretary Lawrence Summers, who fear that pouring so much fuel on the economy will stoke dangerously high inflation.

But much of what conservatives and fiscal hawks call wasteful, untargeted or counterproductive spending in Mr. Biden’s bill are, in the eyes of Mr. Biden and his allies, the key ingredients for a roaring recovery once widespread vaccine distribution restores a sense of normalcy across the nation.

“Focusing on marginalized workers,” said Janelle Jones, the chief economist at the Labor Department, “is really the way to make sure we are lifting all boats.”



A restaurant last month in Los Angeles. Supporters of Mr. Biden’s plan say it will help power a rapid increase in economic growth by aiming money at those struggling to pay their bills and buy groceries.Credit...Philip Cheung for The New York Times



A vaccination site in Los Angeles. As with stimulus bills passed under President Donald J. Trump, the new legislation contains provisions intended to attack the virus itself, including money for vaccine distribution.Credit...Philip Cheung for The New York Times

Like Mr. Biden’s, Mr. Trump’s first major piece of legislation was scored by budget analysts as adding nearly $2 trillion to the federal debt. Like Mr. Trump, Mr. Biden has employed a parliamentary process that allows his bill to pass without a single vote from the opposing party. Both presidents cast their respective plans as crucial aid for economies mired in growth that was unacceptably slow.

But unlike Mr. Biden, Mr. Trump pursued a top-down approach to reinvigorating economic and wage growth. He cut taxes for corporations and other businesses, alongside cuts in individual tax rates up and down the income spectrum. His advisers predicted that the moves would significantly accelerate business investment and generate a sustained economic boom that would in turn drive up incomes for low earners and the middle class, even though the direct benefits of the bill were disproportionately concentrated among the rich.

A sustained investment increase [did not materialize as predicted](https://www.nytimes.com/2019/11/17/business/how-fedex-cut-its-tax-bill-to-0.html), but economists generally agree that the cuts helped to temporarily bolster economic and wage growth in the year after they passed.

High earners and large companies show little sign of needing government help today. On the whole, the pandemic recession and recovery have made them richer. Workers earning higher wages and those able to work remotely are far less likely to have been thrown off the job, and they have stockpiled savings in the recovery. Companies like Amazon have gained market share as consumer habits have shifted.

But at the bottom end of the income spectrum — and in particular, among Black and Latino families — millions of Americans are still feeling the deep pain of the recession. The economy remains nearly 10 million jobs short of its prepandemic peak, with women of all races and men of color struggling the most to regain employment. The unemployment rate for Black men remains above 10 percent.

Data from the Census Household Pulse survey, [analyzed by Lena Simet, a senior researcher on poverty and inequality at Human Rights Watch](https://www.hrw.org/news/2021/03/02/united-states-pandemic-impact-people-poverty), shows that the lingering economic distress of the crisis is concentrated among low earners and those who remain out of work. Nearly half of households earning below $35,000 a year reported falling behind on housing payments. One quarter reported not having enough food.

#### Frequently Asked Questions About the New Stimulus Package

The[stimulus](https://www.nytimes.com/2021/03/05/us/politics/senate-stimulus-bill.html?action=click&pgtype=Article&state=default&module=styln-stimulus-biden&region=MAIN_CONTENT_3&context=storylines_faq) payments would be $1,400 for most recipients. Those who are eligible would also receive an identical payment for each of their children. To qualify for the full $1,400, a single person would need an adjusted gross income of $75,000 or below. For heads of household, adjusted gross income would need to be $112,500 or below, and for married couples filing jointly that number would need to be $150,000 or below. To be eligible for a payment, a person must have a Social Security number. [Read more.](https://www.nytimes.com/live/2021/03/06/business/stimulus-check-plan-details?action=click&pgtype=Article&state=default&module=styln-stimulus-biden&region=MAIN_CONTENT_3&context=storylines_faq#how-big-are-the-stimulus-payments-in-the-bill-and-who-is-eligible)

Mr. Biden’s plan would shower those households with government assistance. Elizabeth Pancotti, the policy director at Employ America, a group in Washington that backs the Biden plan, has calculated the benefits for several different hypothetical hard-hit Americans under the bill.

For a working single mother of a 3-year-old who earns the federal minimum wage — just under $16,000 a year — the bill would provide as much as $4,775 in direct benefits, Ms. Pancotti estimates. For a family of four with one working parent and one who remains unemployed because of child care constraints, the benefits could total $12,460.

The [Tax Policy Center in Washington estimates](https://www.taxpolicycenter.org/model-estimates/ways-and-means-committee-budget-reconciliation-legislative-recommendations-0) that the direct payments and expanded tax credits in the bill would, by themselves, increase after-tax income this year by more than 20 percent for an average household in the lowest quintile of income earners in the United States. It previously had forecast that Mr. Trump’s tax cuts would raise that same group’s income by [less than 1 percent in the first year](https://www.taxpolicycenter.org/publications/distributional-analysis-conference-agreement-tax-cuts-and-jobs-act/full).



A food distribution site in Warren. For Mr. Biden, the plan is a declaration of his economic policy: that the best way to stoke faster economic growth is from the bottom up.Credit...Elaine Cromie for The New York Times



An empty shopping mall on Wednesday in Phoenix. The economy remains nearly 10 million jobs short of its prepandemic peak.Credit...Juan Arredondo for The New York Times

“It is as far away as you can get from regressive, supply-side economics,” said Senator Michael Bennet, Democrat of Colorado, a longtime champion of an expanded child tax credit to fight poverty. “This is progressive economics that puts money in the hands of working people who will spend that money.”

Previous economic aid packages, including those signed by Mr. Trump last March, helped unemployed workers and low earners weather the crisis thus far and even, in many cases, save some money. [Research from the JPMorgan Chase Institute](https://www.jpmorganchase.com/institute/research/household-income-spending/household-cash-balances-during-covid-19-a-distributional-perspective) shows that low earners spent those savings down faster in the summer than higher earners, which suggests that they could use more help in the recovery and would most likely put that money to work in the economy.

“I don’t know that we really need to stimulate demand among high-earning families, or families that haven’t suffered financially,” said Fiona Greig, a president of the institute.

The Biden plan, particularly the direct payments, will provide some help to Americans who have not struggled financially over the past year, a fact the White House says is inevitable. Republicans, business groups and many economists have criticized the direct payments on those grounds, even after Democrats moved this week to restrict checks to individuals earning [less than $80,000 a year and households earning less than $160,000](https://www.nytimes.com/2021/03/03/us/biden-stimulus-checks.html).

Republicans have also warned that the plan could discourage Americans from working, both by offering tax credits not tied to employment and by providing a $300-per-week supplement to unemployment benefits that runs through the start of September, which critics say could effectively pay people more to stay at home than they would get on the job.

Research from economists at the University of Chicago and the JPMorgan Chase Institute [found little evidence](https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/b/1275/files/2021/02/spending_job_search_expanded_ui.pdf) that a temporary round of $600 supplemental benefits that Mr. Trump signed into law last year discouraged the unemployed from taking jobs.

There is a risk that the disincentive could be larger this year, if the economy opens rapidly and jobs become widely available, said Peter Ganong, a University of Chicago economist who was one of the paper’s authors. But there is also a risk, he said, that the economy will not reopen as quickly as hoped — if, for example, new strains of the virus prove resistant to vaccines. In that case, the supplemental benefits could help people stay in their homes, put food on the table and keep the consumer spending engine of the economy running.

Jim Tankersley is a White House correspondent with a focus on economic policy. He has written for more than a decade in Washington about the decline of opportunity for American workers, and is the author of "The Riches of This Land: The Untold, True Story of America's Middle Class." [@jimtankersley](https://twitter.com/jimtankersley)

# The Gap Between the Haves and Have-Nots of Tech Widens

Despite regulatory scrutiny and pressure from lawmakers, the industry’s wealthiest are continuing to grow at remarkable speeds for big companies.



The parent company of Google said Monday that fourth-quarter profits were up 19 percent from a year earlier.Credit...Jason Henry for The New York Times

By [Daisuke Wakabayashi](https://www.nytimes.com/by/daisuke-wakabayashi) and [Matt Phillips](https://www.nytimes.com/by/matt-phillips)

* Feb. 3, 2020

SAN FRANCISCO — When Google’s parent company, Alphabet, said on Monday that revenue at the company soared past $161 billion last year, it was a stark reminder of the widening gap between tech’s wealthiest outfits and the rest of the industry.

And there is little reason to believe that will change.

In the last two weeks, Microsoft, Apple and Amazon — like Alphabet, all flirting with a $1 trillion stock value on Wall Street — [posted record results](https://www.nytimes.com/2020/01/28/technology/apple-iphone-sales-earnings.html). The final member of tech’s Big Five, Facebook, which is a little more than halfway to a $1 trillion valuation, also reported strong earnings.

With each passing quarter, tech’s wealthiest companies are building on their power, making it harder for smaller outfits to compete and for entrepreneurs to build the next Google or Facebook.

Amazon and Microsoft are profiting from the shift to cloud computing. Apple continues to own the premium market for apps, smartphones and wearable devices, while Google and Facebook are maintaining their grip on digital advertising.

This gravitational pull toward a handful of companies could have far-reaching implications for the global economy. Few tech outfits can afford to make the investments necessary to keep pace with the giants. The rest? They often have to pay up for access to the giants’ many, many customers and technology.

“The strong are getting stronger, and the weak are getting weaker. It’s a market of haves and have-nots,” said Daniel Ives, managing director of equity research at Wedbush Securities. “In 20 years covering tech, it’s unlike anything I’ve ever seen.”

Despite saber-rattling in Washington and elsewhere, it is clear that regulatory and legal scrutiny of the tech industry’s most valuable companies so far has done little to hurt the bottom line. Last year’s financial results could lend more weight to arguments that a handful of companies, with dominant market shares and outgunned competition, are unfairly cashing in on their control.

Amazon, Apple, Alphabet, Microsoft and Facebook made a combined $55.2 billion in net profit in the most recent quarter. The next five most valuable tech companies made roughly $45.5 billion in their four most recent quarters. While Facebook is lagging behind the rest of the Big Five, it is still worth twice as much as the next most valuable company, Intel.

The picture is darker the further down tech’s food chain you go. A growing number of start-ups are [cutting jobs](https://www.nytimes.com/2019/11/17/business/wework-layoffs.html) to get their expenses under control. And older tech companies, still profitable but slowly losing influence, are [struggling to adapt](https://www.nytimes.com/2020/01/30/technology/ginni-rometty-ibm-ceo.html) to the changing landscape.

As the rich get richer, they are also branching out. They are muscling aside or buying out rivals. And they are locking in the industry’s best engineers with paydays smaller companies could never match.

Amazon said last week that it had invested in the infrastructure needed [to speed up shipping times for its Prime members](https://www.nytimes.com/2019/04/25/technology/amazon-earnings-one-day-prime-shipping.html) to one day from two, raising the bar even higher for retail competitors. But Monday’s trading on Wall Street showed just how hard it is to stay in the trillion-dollar club. Despite its e-commerce and cloud-computing dominance, Amazon’s value dipped just a bit below $1 trillion.

Apple recently earmarked [billions of dollars to create shows and movies](https://www.theverge.com/2019/8/19/20813005/apple-tv-plus-original-video-spending-6-billion-the-morning-show-amazon-netflix-streaming-wars) for its video subscription service in a challenge to Netflix, while Alphabet agreed to [buy the activity tracker Fitbit for $2.1 billion](https://www.nytimes.com/2019/11/01/technology/google-fitbit.html) in November and the analytics software firm Looker for $2.6 billion in June.

“Today’s dominant companies have so much power across such a broad array of markets and continue to leverage that power to expand into new markets,” said Patrick Spence, chief executive of the speaker maker Sonos, at [a congressional antitrust hearing](https://www.nytimes.com/2020/01/17/technology/antitrust-hearing-boulder-colorado.html) last month in Boulder, Colo.

[Sonos has sued Google](https://www.nytimes.com/2020/01/07/technology/sonos-sues-google.html), accusing Google of infringing on five of its patents, including technology that lets wireless speakers connect and synchronize with one another.

Tech’s richest companies seem to be defying a Wall Street assumption that as a company gets bigger, it becomes difficult to find new ways to make money and maintain rapid growth. Alphabet said profits in the last quarter of 2019 were 19 percent more than a year earlier. Revenue rose 17 percent to $46.1 billion, slightly below Wall Street expectations. The company’s stock fell 4 percent in after-hours trading

To assuage some concern about sluggishness in its main search ad business, Alphabet disclosed [for the first time](https://www.nytimes.com/2019/07/24/technology/youtube-financial-disclosure-google.html) detailed revenue figures for its YouTube and cloud computing units, which are growing faster than the rest of the company. YouTube sold $15.1 billion worth of ads in 2019, up 36 percent, while its cloud unit grew more than 50 percent to $8.9 billion. Ad revenue from search increased 15 percent to $98.1 billion.

Gene Munster, a managing partner at Loup Ventures, a venture capital firm in Minneapolis, said it was harder than ever for new challengers because the top incumbents were so effective at “incremental evolution,” like Apple’s building subscription offerings to go with its hardware or Google’s branching out into cloud computing. The big tech companies skillfully move into new markets with lower prices and more money for marketing than their new competitors. In time, they take over.

The outsize nature of the profits at some of these companies has driven an explosion of wealth on the stock market.

The total value of Microsoft shares has risen nearly 70 percent over the last year, adding more than half a trillion dollars to the company’s market cap. Apple tacked on more than $550 billion in an 85 percent surge.

Alphabet’s rise of more than 30 percent has added more than $200 billion to its market cap. Amazon, which had a 20 percent jump, has been something of a laggard but still added roughly $200 billion to its market cap.

The large technology firms that dominate the public stock markets are at the extreme edge of a broader trend in American corporate life. Over the last half-century, the biggest American companies have captured a fatter share of profits produced by public companies, according to research from Kathleen M. Kahle, a University of Arizona finance professor, and René M. Stulz, an economist at Ohio State University.

In 1975, the top 100 public companies snared about 49 percent of the earnings of all public companies. By 2015, that share had jumped to 84 percent, their research showed. They have not updated their numbers since then, but Ms. Kahle, in an email exchange, said she doubted the numbers had decreased.

“There are a lot of small, unprofitable firms and a handful of large, very profitable ones,” Ms. Kahle wrote in an email.

Mr. Ives foresees the five companies competing for $2 trillion in new technology spending over the coming years. It will be hard for the rest of the industry to match that.

“Over the last few years, you’ve seen a fork in the road between the winners and the losers,” he said.

Daisuke Wakabayashi reported from San Francisco, and Matt Phillips from New York.