Project Deliverable

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Gender Disparity in Workforce

I.   Introduction

We would like to explore global gender wage disparity holistically, understand the economic indicators such as gender equality index, GDP, inheritance rights, financial independence and gauge if there exists a relationship between them and wage inequality. This will then include an analysis on the aid set aside for bridging this gap. Finally, we will introduce the concept of controlled and uncontrolled wage gap.

Women's involvement in the labor market has changed in several notable ways over the past several decades and we aim to provide a detailed overview of how the employment numbers have changed over the last 72 years. We also aim to compare the wages and participation of women across different job levels such as management, business, science and arts, education, legal occupations, healthcare practitioners, production occupations, sports officials etc.

Today, women have just three-quarters of the legal rights of men; in 1970, it was less than half. The Women, Business and the Law 2020 report presented results on how laws have changed since 1970. We aim to evaluate and find correlation between a country's performance based on the Women, Business and the Law (WBL) index and women in the labor force, wage gap between men and women, and investments in health and education. By this analysis, we aim to provide more evidence that will inspire policymakers to change their laws so that more women can contribute to economic growth and development.

II.   Data Science Questions

Below are the list of questions that we aim to answer:-

Gender wage disparity

The datasets below have been selected for their completeness and reliability. We have also made a special note to select data that covers all the data types listed.

1. Do a deeper analysis of expected number of years in retirement, Gender wage gap, Labor force participation rate by sex and confirm if is indicative of gender based wage disparity?
   a. Dataset:
      i. https://stats.oecd.org/index.aspx?queryid=54751 (contains geospatial data about the economic indicators of countries and record data on gender wage gap, number of years in retirement)

2. Do countries with gender equal inheritance, more womans economic rights and less violence against women have lesser wage gap?
   a. Datasets:
      i. https://databank.worldbank.org/source/gender-statistics (contains time series from 1960 - 2012 on different economic/financial rights at the country level)
      ii. https://stats.oecd.org/index.aspx?queryid=95704 (contains data on violence against women across the globe in 2019)

3. Has the economic aid targeting gender equality across the globe over the years increased over the years?
   a. Dataset:
      i. https://stats.oecd.org/Index.aspx?DataSetCode=DV_DCD_GENDER (contains time series data from 2002 to 2019 on economic aid for different countries)

4. What are the current views on Gender wage gap on twitter and the news?
   a. Datasets:
      i. News_data(contains text data from news articles on Gender wage gap scraped using NewsAPI)
      ii. Twitter_Data(contains text data from tweets on Gender wage gap scraped using TwitterAPI)

5. Does the wage gap depend on profession and if so which professions have the maximum wage gap? Which are the sectors where women participation is not present at all? Women in which job positions face the most wage disparity?

      a. Datasets:
- i. https://www.kaggle.com/drgilermo/exploring-the-wage-gap/data (contains number of workers and median pay for both males and females in different industries)
- ii. https://www.census.gov/data/tables/time-series/demo/industry-occupation/median-earnings.html (contains categorical and numeric data for each gender)

Change in women's participation in the workforce

We plan to use these datasets to analyze the changes in gender structure of the labor force across United States and answer the following questions :

1. Understand how gender dynamics changed in the US labor force and potential reasons for the change.
   a. Dataset:
      - i. https://www.bls.gov/webapps/legacy/cpsatab13.htm (contains time series data that has the detailed employment numbers that have changed over the last 75 years (from 1948 -2021) by gender)

2. Were these changes uniform across different variables such as age groups, ethnicity , marital status, educational attainment and presence of children?
   a. Dataset:
      - i. https://www.bls.gov/lau/ex14tables.htm (contains both quantitative and qualitative variables on the following : gender, age, ethnicity, marital status, presence of children etc.)

3. Did Working Women's Contributions to Family Income change over years?
   a. Dataset:
      - i. https://www.bls.gov/opub/reports/womens-databook/2020/home.htm#:~:text=Women's%20labor%20force%20participation%20was%2057.4%20percent%20in%202019%2C%20up,previous%20year%20(69.1%20percent) (contains time series data on median percentage of contribution of women to family incomes over last 70 years (from 1948-2021))

Evolution of women's rights and its effect on countries

1. What policies or laws have been passed in different countries over the years?
   a. Dataset:
      i. https://wbl.worldbank.org/en/reforms
      (will be converted to proper format for network analysis of the text data)
2. Which country has the maximum number of reforms or laws passed?
3. Which are the top 10 countries with the most improved economies based on the WBL index score?
   a. Dataset (for above 2 questions):
      i. https://wbl.worldbank.org/content/dam/sites/wbl/documents/2021/02/WBL50YearPanelDetailsWeb21Feb2021.xlsx

Analyze political speeches focussed on gender wage disparity made by US politicians

1. Is there a pattern in the speeches that highlights the specific concepts of gender disparity?
   a. Datasets (network graph dataset- to be added more):
      i. https://obamawhitehouse.archives.gov/the-press-office/2014/04/08/remarks-president-equal-pay-equal-work
      ii. https://obamawhitehouse.archives.gov/the-press-office/2016/01/29/remarks-president-advancing-equal-pay
      iii. https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/03/24/remarks-by-president-biden-at-an-event-to-mark-equal-pay-day/
      iv. https://time.com/5562209/equal-pay-day-2020-candidates/
      v. https://www.theatlantic.com/politics/archive/2011/12/obamas-income-inequality-speech/334664/
      vi. https://www.politifact.com/factchecks/2012/jun/21/barack-obama/barack-obama-ad-says-women-are-paid-77-cents-dolla/
      vii. https://www.rev.com/blog/transcripts/joe-biden-jill-biden-megan-rapinoe-speeches-on-equal-pay-day-transcript-march-24
      viii. https://www.cnbc.com/2021/04/16/what-the-paycheck-fairness-act-could-mean-for-women-and-the-pay-gap.html
      ix. https://www.vox.com/2019/5/21/18632793/kamala-harris-gender-pay-gap-fines-iceland
      x. https://www.usatoday.com/in-depth/opinion/2021/03/26/covid-kamala-harris-sayspandemic-has-magnified-gender-inequalities/4719830001/
      xi. https://www.jennymcallister.com.au/speech_on_the_gender_pay_gap

xii.   https://www.reuters.com/article/us-usa-obama-salary/getting-personal-obama-says-equal-pay-important-for-women-and-men-idUSKBN0ES31Y20140617