Should US Tech companies implement a four-day work week?

Evaluating the implications of a four day work week.
Research Proposal

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Don Irwin, Russell Ude, Vineeta Kumar, Team 4

Overview

- The year 2020 brought on a cultural shift and redefined how we work. The challenges associated with closing down offices include(d) decreased connectivity, furloughs, and even layoffs. However, the implementation of work-from-home has brought new workforce strategies to light as some firms and employees have seen increased and/or steady productivity with this change.
- As companies start to slowly come back into offices after the pandemic, some employees are hesitant to return to their previous commutes to work while also questioning the pre-2020 status quo in terms of work schedules.
- To avoid employee churn and attract top talent, companies need to come up with innovative but effective workforce strategies for flexible work schedules such as four-day work-week, 6-hour work days, staggered schedules, hybrid location models etc.
- This research will focus on quantifying the benefits of a four-day work week. The goal is to conduct an unbiased evaluation of this workforce strategy both from a management perspective as well as from a worker empowerment perspective. This research aims to provide the audiences all the information required to make an informed decision about the future of the most important asset any organization has, their work partners.
- Target Audience(s):
    - (1) HR, leadership, hiring and line managers at tech companies who want to use a four day work-week and work location flexibility as an employee retention strategy.
    - (2) Union leaders, workers rights advocates, and community organizers concerned with the wellbeing of employees, especially employees from minority, and financially disadvantaged backgrounds, women, and single parent households.

Research Questions

- Do four-day work weeks have a neutral to positive impact on employee productivity?
    - Our primary metric will be worker productivity, defined by revenue generated per employee hour worked.

- Do four-day work weeks boost employee job satisfaction and employee happiness?
    - We will rely on survey results to see if job satisfaction.
- Do four-day work weeks reduce employee attrition?
    - Our primary metric will be employee attrition, as defined by employees who have departed a place of work with no four hour work week within the past 12 months, compared to the number of employees who have not departed a place of work with no four hour work week.
    - Sub-Questions:
        - In companies with four day work weeks, with less attrition than companies without four day work weeks; can employee retention be accurately attributed to the four day work week?

Data

- Worker Productivity With and Without Four Day Work Weeks:
    - We will gather time series data from companies before and after the implementation of four hour work weeks.
    - We will measure worker productivity before and after the implementation of four day work weeks.
- Worker attrition with and without four day work weeks:
    - We will gather time series data from companies before and after the implementation of four hour work weeks.
    - We will measure whether attrition is reduced after implementation of four hour work weeks.
- Cause of worker retention (if present) in companies with four day work weeks:
    - The survey will be designed to capture the following before and after the implementation of 4 day work week:
        - Reasons for worker retention and role of four day work week in retention.
- Worker sentiment before and after implementation of the 4 day work week through questions designed to understand overall worker sentiment, satisfaction and happiness.

Study Design

This research has multiple facets that can affect the validity of the final results. To create a robust study, we will employ multiple measurement techniques as necessitated by the metrics:

Employee Productivity and Employee Attrition:

- Using time series data collected from companies that employ four-day work week, we will monitor the productivity and attrition rates for 6 months before and after the change occured. We will normalize the data to adjust for seasonality by using smoothing techniques. We will also account for seasonality by benchmarking the data against previous year from the same company. After the data has been treated for noise and seasonality, we will then calculate the incremental difference of **post-change** versus **pre-change** metrics using statistical techniques described in the 'Statistical Methods' section below.

Employee Job Satisfaction and Employee Happiness:
We will use survey responses gathered from employees of companies offering four-day work week to evaluate impact on self reported job satisfaction, happiness and retention before and after the four-day work week change.

- Analysis 1: We will conduct a sentiment analysis on the verbatim feedback to elevate the key reasons affecting employee satisfaction, happiness, and retention before the four-day work week is implemented. This will allow us to understand sentiment before the change. We will also conduct the same analysis after the change. This will allow us to evaluate any change in sentiment due to the four-day work week strategy.
- Analysis 2: We will use the scores before and after the change to calculate employee NPS with respect to their companies and use the ratings to quantify the impact on worker satisfaction, happiness and retention from the four-day work week.

Sample

- **Population:**
  - Our population consists of skilled employees in tech companies.
- **Sampling method:**
  - We will use stratified random probability sampling.
- **Sample Size:**
  - We will use power analysis to determine the sample size.
- **Sample Frame:**
  - Our study group sample will be employees who are working in companies that intend to switch to four day work weeks within the next eight to twelve months.
- **Inclusion Criteria:**
  - Employees not intending to retire, or move companies within the next 12 months.
  - Employees who are green card holders or U.S. citizens.

- **Exclusion Criteria:**
  - Part time employees.
  - Contract employees.
  - Non green-card holders or, non-U.S. citizens.

Variables and/or Intervention

In order to answer our questions we must take four measurements.

- **Measurement 1**:
  Is employee attrition less after the implementation of a four day work week:
  - Independent Variable:
    Four day work week.
  - Dependent Variable:
    Employee attrition.

    We will collect employee attrition information from the companies contributing to our sample before and after the implementation of a four day work week.

- **Measurement 2:**
  Is employee retention attributable to the four day work week?
  - Independent Variable:
    Four day work week.
  - Dependent Variable:
    Cause of employee retention.

    We will determine cause of worker retention through surveys where participants will indicate the cause (or lack thereof) of their continued employment with companies contributing to our sample.

- **Measurement 3:**
    Cause of worker sentiment in companies with four day work weeks.
  - Independent variable:
    Four day work week.
  - Dependent Variable:
    Cause of positive sentiment.

    We will gather sentiment data through surveys designed to measure worker sentiment before and after the implementation of a four day work week.

- **Measurement 4**:
  Is worker productivity, measured in USD generated per hour of employee work, increased after the implementation of a four day work week?
  - Independent Variable:
    Four day work week.
  - Dependent Variable:
    Worker productivity

    We will collect productivity data, from companies contributing to our sample, before and after the implementation of a four day work week.

Statistical Methods

- We will use power analysis to ensure we have enough sample data to measure change in our observed metrics.
- We will use smoothing techniques like moving average and conventional outlier treatments to remove noise in the data.
- For time series analyses, we will follow the industry standard approach such as difference in mean and conduct a z test to measure significance of change.
- For the quantitative survey analyses, we will use conventional survey research methods.

Potential Risks

- **Confirmation Bias -** Researchers may have opinions or theories about what is or is not the optimal workforce strategy (e.g. preference on working from home vs. in-office). These preconceptions could cause new evidence to be interpreted incorrectly as confirmation of one's existing theories or beliefs.
- **Dunning-Kruger Effect -** In the case that our findings suggest that a four-day work week is beneficial to workforce productivity, some workers with low productivity levels might overestimate their capabilities. This cognitive bias could cause actual productivity levels to be lower than expected.
- **Cognitive Dissonance -** The results of sentiment analysis may contradict what we determine to be the optimal workforce strategy. If this is the case, the findings of our study may be leveraged in a myriad of ways, some of which may have detrimental externalities.
- **Data Bias -** Unexpected events such as mergers, acquisitions, and layoffs can skew our data. For example, it's quite possible that survey respondents who've been laid off will not disseminate the full

story behind their exit. This is a risk because our data behind attrition may not represent the entire context.

- **Privacy -** It is critical to ensure the data privacy of participants in our research. Respondents must be protected to confidently provide honest feedback. Otherwise, our data will be muted in terms of actual employee sentiment around job satisfaction and alternate work strategies.

Deliverables

This project will be divided into 5 phases and we will deliver on each section as detailed below:

Phase 1

- Identify companies to be included in the productivity and attrition study based on selection criteria outlined above
- Conduct power analysis to ensure sufficient sample size
- Collect data for productivity and attrition analyses from finalized companies before the four-day work week change
- Duration: 6 months

Phase 2

- Design survey questions to understand drivers of attrition, job satisfaction and employee happiness
- Identify the target audience for the survey and meet with industry experts to ensure a selection of an unbiased sample
- Send out the survey to the target audience before the four-day work week change
- Duration: 1 month; To be run in parallel with Phase 1

Phase 3

- Collect data for productivity and attrition analyses from finalized companies after the four-day work week change
- Send out the survey to the target audience after the four-day work week change
- Duration: 6 months

Phase 4

- Conduct analyses on data collected to answer research questions

- Duration: 1 month

Phase 5

- Prepare and publish the final report
- Duration: 2 weeks

Statements of Contribution

- Vineeta Kumar:
    - Created the original pitch and collated the information on deliverables and due dates. Created a skeleton for the project proposal and provided the overview and research questions. Researched experimental designs best suited for the research and prepared the final study design, statistical methods and deliverables.
    - My group experience has included understanding the working style of my colleagues and adapting to the group dynamic. Our process has been involved; acting as thought partners and also providing ongoing critical feedback. If I had to do it again (in a real world scenario), I would prefer that our group first finish a high level design and then flush out the details for each section. That will allow everyone to be on the same page when we are thinking through the details. However, given the time constraints, that wasn't possible this time.

- Don Irwin: Assisted in project selection. I attended all meetings from inception onward. Created web page and github repository or team material. Contributed first draft. The group experience thus far has been defined by a healthy exercise in the five steps of the socratic approach: 1) Wonder, 2) Hypothesis, 3) Elenchus (refutation and cross-examination), 4) Acceptance/rejection of the hypothesis, and 5) Action. Collaboration was as good as could be expected given time constraints. Details of contribution inside of the two TPAs. Group experience suggests that future projects are going to be quite challenging, given their probable complexity.

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- Russell Ude: Assisted in the overview on the proposal document, and in ideation of our presentation. Also completed the Potential Risks section of our document which required research into async material and synthesis of that material with our project goals. Constructed the Statistical Methods, Potential Risks, and Deliverables slides.