Comparing belief in free will and job satisfaction in the US and Taiwan

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Free will and job satisfaction are some terminologies that you do not hear often in the same sentence; however go hand in hand with one another. This paper replicates the data compiled from three studies, the first one being in regards to Taiwanese real estate agents, the second study being American online labor workers, and the third study looking into the subject of free will and job satisfaction on an international level. We will also be applying secondary research to aid our understanding of this topic, and how cultural norms affect the responses we receive. As this is an issue that every individual thinks about before entering an industry or accepting a job, we found it to be a topic to be extremely beneficial to us as we are ending our time in university.

Introduction

Free will is a topic that has different meanings depending on the city or country we are in. For us in North America, the idea of free will is more apparent according to a survey concluding that 60% of Americans believe that they have free will (Scientific American 2015). With recent innovations in fields such as psychology, philosophy, and science, the idea of free will has shifted from what the exact term is, to free will's effects on human beings. This goes to show the neurological connections with free will, specifically that the way we view free will, will later affect a variety of our daily decision-making (Frontiers 2016).

There are a variety of factors that shift the outcomes of free will, and in this paper, we will take three different studies to help our understanding of free will. The first study we are looking at takes 252 Taiwanese real-estate agents over three months while examining their job satisfaction with free will. The second study takes 137 American workers who are in an online labor market and conducts the same study over six months. The estimand here for the

belief in free will would be the The Rakos et al and the full scale for the
second study, as for the Job satisfaction it is the adaptation of the five

items short scale of Brayfield and Rothe (1951) constructed by Judge, Locke, Durham, and
Kluger (1998). Those scales are shown here from 0 to 10 for the sake of simplicity.

This subject has different meanings in every country, when taking a look at
countries outside of North America such as Asia and other Western countries,
they have different beliefs of free will on average, specifically that it is
not as important as North Americans view it (Frontiers 2017). At its core,
free will is to what extent or ability we can our own decisions and have
autonomy, as well as the outcomes and consequences of our actions. Studies
have shown that when free will is present, the population is happier, more
positive, and lives better, contrary to countries that do not have free will
(Alquist, Ainsworth, & Baumeister, 2013). Now this idea directly relates to
careers, as it is something that individuals spend a majority of their time
doing, and would prefer to be happier doing it rather than not being happy.
When you have autonomy and free will in your career, you immediately have a
higher job satisfaction, as your neurological decision-making is seen in a
much clearer manner.

Data

2.1 Source

The paper we have used for replication is from the list of Gilad Feldman
papers offered from the course, specifically titled Agency Beliefs Over Time
and Across Cultures: Free Will Beliefs Predict Higher Job Satisfaction,
written by Gilad Feldman, Jiing-Lih Farh, and Kin Fai Ellick Wong. This paper
dives into the meanings of free will, and takes several studies examining its
correlation with job satisfaction as the primary factor, but also includes
ideas in regards to psychological well-being and international perspectives.
Our reproduction seeks to focus on two different findings made from the
original paper and apply a holistic lens to it.
The two claims we are focusing on are as follows: (1) Assessing the direction
of the relationship between belief in free will and job satisfaction.
(2) Evaluating the impact of cultural contexts on the perception of free will
on indivudals throughout different professions and age groups.

2.2 Methodology

This paper replicates the data that was originally studied for the (2018)
paper Agency Beliefs Over Time and Across Cultures: Free Will Beliefs Predict
Higher Job Satisfaction. The first study takes Taiwanese real estate agent's
job satisfaction into account and conducted the study in 54 branch offices of
a public real estate company based in Taiwan. They then proceeded by
distributing the surveys to agents in each of the branches at two different
times, once every 3 months for a total of 6 months of data. They ended up with
293 surveys to review for study #1. For study number #2, the paper looks into
the Amazon Mechanical Turk (MTurk) American Worker's Job Satisfaction.
The study was conducted in two different sections, in which they were able
to survey a total of 209 American participants. After this initial study was
done, the same group was invited to conduct a follow-up survey six months
later and took in responses over 15 days. Out of the 209 initial participants,
only 137 of them conducted the follow-up survey. And for the final study,
contrary to the first two where they directly went to a group and surveyed
them; the surveyors used previous data from the World Value Survey (WVS) which
was data conducted between 1990 and 2008, looking into the participant's views
on free will, job satisfaction, and job autonomy. Over these 18 years,
the survey received data 257,597 people, and focused on 14,062 participants as
they answered questions directly related to our research. Although the total
survey took into account people from over 40 countries, for our focus
we looked at individuals from 16 specific countries.

2.3 Features

The studies conducted each had their specific variables conducted.
For the first study, the survey takes into account age, gender, social
desirability of the job, job satisfaction after the first wave of surveys, job satisfaction a
The age range for this study was between 22 to 49 years old, and only took
into account male and female genders. The second study primarily took free
will and job satisfaction into account.

Results

Data from Study 1 were used to show the relative amount of belief in free will of the average
Taiwanese real estate agents and how much are they satisfied with their job across two times
within three months with the same sample. We extracted the responses from the survey and
extracted the responses to the questions : "From the scale of 0 to 10, How much do you agree
with this statement: I have free will"and "From the scale of 0 to 10, How much do you agree

with this statement: I am satisfied with my job" at Time one and two. In Table 1, there are three values on a scale of 0 to 10 compared : (1) Job Satisfaction T1, (2) Job Satisfaction T2, and (3) Belief in Free Will. The rows would be the mean and standard deviation calculated using R. Looking at Table 1, we immediately notice that the mean score of Job satisfaction barely vary from the first and second time (5.64 and 5.74 respectively) and that the average level of belief of free will would be 3.99. In addition,the standard deviation of the three values seem reasonable. While analyzing Table 1, we can recognize that the slight increase in job satisfaction still largely within the standard deviation which confirms the accuracy of the measurement that barely varies over the time.

Table 1 : Mean and standard deviation of belief in free will and job satisfaction within the Taiwanese real estate agency.

```r
Table_I <- data.frame(
  Job_satisfaction_T1 = c(5.64, 1.18),
  Job_satisfaction_T2 = c(5.74, 0.99),
  Belief_free_will = c(3.99, 0.49)
)

# Name the rows
rownames(Table_I) <- c("Mean", "Standard Deviation")

# Print the dataframe
print(Table_I)
```

	Job_satisfaction_T1	Job_satisfaction_T2	Belief_free_will
Mean	5.64	5.74	3.99
Standard Deviation	1.18	0.99	0.49

Moving to the United States, Study 2 ,conducted in 2017, asked workers available on MTurk, a professional network spanning multiple professions the same questions as in Study 1 : "From the scale of 0 to 10, How much do you agree with this statement: I have free will"and "From the scale of 0 to 10, How much do you agree with this statement: I am satisfied with my job". The respondents' answers were extracted and had their average and standard deviation as given in Table 2. This table compares two values on a scale of 0 to 10 : (1) Job Satisfaction T1 (2) Belief in Free Will. The rows would be the mean and standard deviation calculated using R. Looking at Table 1, we see that the mean score of Job satisfaction is 5.29 and that the average level of belief of free will would be 5.28. The standard deviation of the three values seem reasonable.

Table 2 : Mean and standard deviation of belief in free will and job satisfaction within Amazon Mechanical Turk American Workers.

```r
Table_II <- data.frame(
  Job_satisfaction = c(5.29, 1.22),
  Belief_free_will = c(5.28, 0.84)
)


rownames(Table_II) <- c("Mean", "Standard Deviation")


print(Table_II)
```

```
                   Job_satisfaction Belief_free_will
Mean                           5.29             5.28
Standard Deviation             1.22             0.84
```

Graph 1 below with a y-axis depicting the US and Taiwan at Time 1 and 2 and a x-axis depicting a scale from 0 to 10. Both country has two bars measured on the scale depicting the belief in Free Will and the job satisfaction. We can observe that the average american worker has a higher belief in Free Will (5.28) compared to his Taiwanese counterpart (3.99) but a relatively smaller job satisfaction (5.64 and 5.74 compared to 5.29 in the US). This may suggest a low negative to no correlation between belief in Free Will and Job Satisfaction due to the different circumstances of the samples.

Graph 1 : Bar Chart comparing the average belief in free will and job satisfaction between MTurk American Workers and employees in Taiwan.

```r
library(ggplot2)
library(dplyr)

# Sample data
data <- data.frame(
  Country = rep(c("US", "Taiwan T1", "Taiwan T2"), each = 2),
  Value = c(5.28, 5.29, 3.99, 5.64, 3.99, 5.74), # Sample values ranging from 0 to 10
  Type = rep(c("Belief in Free Will", "Job Satisfaction"), 3)
)


# Plotting
ggplot(data, aes(x = Country, y = Value, fill = Type)) +
  geom_bar(stat = "identity", position = "dodge") +
  scale_y_continuous(limits = c(0, 10)) +
  labs(x = "Country", y = "Scale") +
```

```
theme_minimal() +
scale_fill_manual(values = c("Belief in Free Will" = "blue", "Job Satisfaction" = "red"))
```
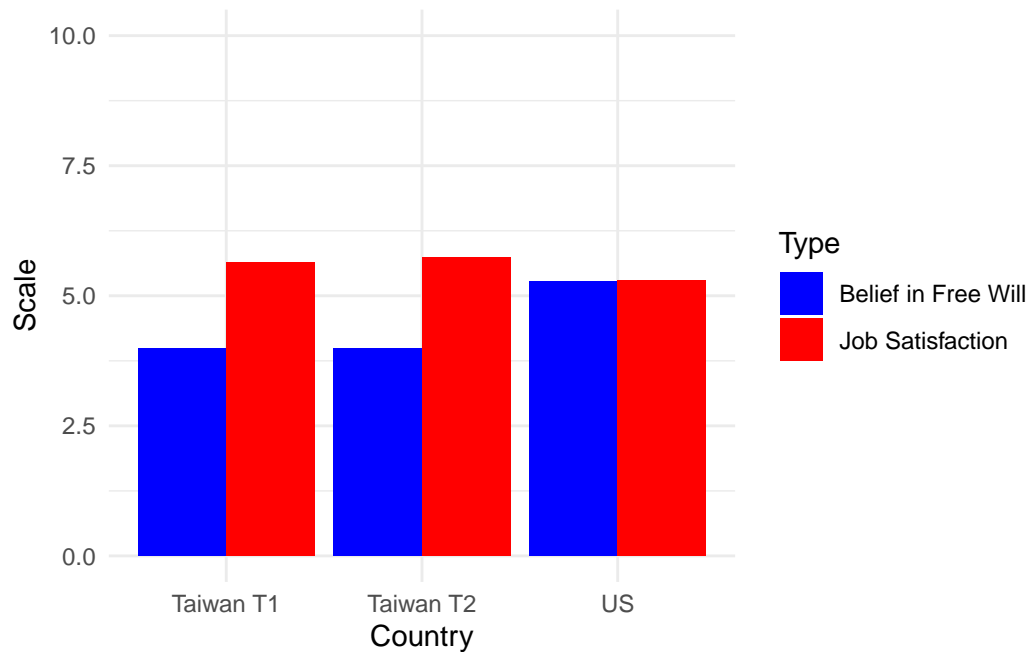

Replication:

Link of the reproduction of the paper on the social science reproduction platform :https://doi.org/10.48152/ssrp-1yg9-0z41

Discussion

4.1 Findings

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In this paper, we have replicated the studies and results found by Feldman,
Farh, and Wong. These authors sought to find the relationships between free
will and job satisfaction across different countries, cultures, and ages. Of
these findings, our paper focused on three specific aspects.
(1) Free will is fairly constant throughout the first study, and there is an
increase in job satisfaction over time.
(2) Individuals with a stronger belief in free will, will also report a higher
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job satisfaction in a single region.
(3) Depending on the region you are in, individuals will report different beliefs in free will correlated to job satisfaction.

4.2 Canada's belief in free will and job satisfaction

The Canadian population is currently at just over 38 million people and has increased by nearly 4 million people in the past decade. Among all of the provinces in Canada, Quebec is the province with the highest overall satisfaction among men and women in Canada (Statistics Canada 2023). Among this group, Quebec men surveyed that they were 80.7% very satisfied or satisfied with their job, and Quebec women only surveyed 78.4% being either very satisfied with their job or satisfied with it. Among the women, the province of New Brunswick holds the highest job satisfaction topping in at 80.5%, with Prince Edward Island being the runner-up at 80%.
Concerning the original paper from Feldman, Farh, and Wong, it is important to note the international presence and multicultural aspect of this study, as well as the vast number of immigrants that move to Canada every year. In the year 2023, Canada was able to welcome over 437,000 new permanent residences, and 604,000 temporary workers, with a variety of these individuals coming from Asia and Europe (Government of Canada 2023). Due to this vast number of immigrants coming to Canada, we can assume that there were a variety of individuals that experienced an increase in belief in free will with their correlation to job satisfaction especially those that came from countries where belief in free will was weaker than that of Canada. Contrarily, those that came from countries with a stronger belief in free will and came to a specific province in Canada with a lower job satisfaction such as Manitoba with a 65.2% job satisfaction (Statistics Canada 2023), might experience a reverse effect and decrease in their belief in free will which would directly correlate to their job satisfaction.

4.3 Practical Implications for Organizations

The research and work done by Feldman and his peers will allow companies and organizations w
into account their employee's views on their current job statuses. By taking employee considerations into account, employee retention will be higher because job satisfaction will increase, companies will increase their overall reputation and image, and the overall well-being of companies will rise with an increase in company loyalty. Once these institutions realize that stronger job satisfaction stems from a stronger belief in free will, employees will be able to foster a state of autonomy, ultimately empowering employees and

enhancing the overall productivity of respective companies.

4.4 Limitations

As the work we conducted was based on the reproduction from the work of
Feldman, we were limited to the parameters he looked into. Despite the data
being long and expansive, we could only look at the data from the United
States and Taiwan specifically. There were also some concerns in regards to
the accuracy of data, specifically that some of the individuals who partook
in the surveys were either influenced to say positive things about the company
or were led to believe that they have free will, whereas, in reality, they do
not. This is a topic that is much more apparent in an international setting, lower-developed
Additionally, there was the issue of the variety in occupations, where we
would compare a white-collar executive working in a major American city such
as New York or San Francisco, to an employee at a much smaller company living
in Taiwan. There was no main base here to compare the two career paths as they
are drastically different in every way.
Finally, we found that the reproducible article focused on many positive
outcomes of free will in the context of job satisfaction, and failed to
mention enough information in regard to the downside of the the lack of
autonomy and free will, and how that correlates with job satisfaction. The
role of employees in these instances does indeed vary as for many they account
for their work ethic with happiness, disregarding autonomy and free will. This
ultimately leads to ethical and moral issues that were not mentioned in the
paper.

4.5 Future Research

In regards to future understandings of the topic of free will and job
satisfaction, it would be interesting to explore how ethics and morality
play a role in decision-making when it comes to individual autonomy.
Especially how specific work environments alter answers to research studies
and surveys. Additionally looking into different cultures and countries
outside of the United States and Taiwan, looking into major global cities
such as London, and remote areas such as Nunavut. Finally to take the study
to the next step would be to track an individual's opinions on this topic from
the beginning of their career to the end, ideally staying within the same
company for that time, looking at decades of research and studies. This would
be able to tap into the psychological implications of individuals and how
personality growth and maturity play a role in their decision-making process.

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