

Free Will in Gig Work: The Key to Enhancing Job Satisfaction*

A Replication of Study Published in 2018 as Gig Economy Serves as an Essential Part of Society

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In the area of work and personal beliefs, the concept of free will has a key impact on job satisfaction with people from different demographic backgrounds having various views based on their unique circumstances. This study examined the relationship between free will beliefs and job satisfaction across a series of studies involving Taiwanese real estate agents, U.S. online workers, and a diverse international sample, according to the academic paper from Feldman et al. (2018). We conducted a replication study of the paper by Feldman et al. (2018) regarding the gig economy within Amazon Mechanical Turk and found a strong positive correlation between individuals' beliefs about free will and their job satisfaction, significantly mediated by perceived autonomy. Since the gig economy is such an essential part of society today, replicating this study will advance the conversation about how beliefs about free will impact job satisfaction in non-traditional work settings.

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*Code and data are available at: https://github.com/ShadyEvan4830/Freewill_Analysis/tree/main; Replication on Social Science Reproduction

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1 Introduction

The intersection of agency beliefs and workplace outcomes has become a focal point of contemporary psychological research, revealing nuanced insights into how deeply held convictions shape our professional experiences. Feldman, Farh, and Wong (2018) seminal investigation into the dynamics of free will beliefs and job satisfaction unveils a pivotal link, positing that individuals' conviction in their autonomy significantly forecasts their contentment at work. The original paper focused on three study aspects, traversing cultural landscapes from Taiwanese real-estate sectors to American online labour markets and extending its reach to a global evaluation through the World Values Survey, encompassing over 14,000 participants across 16 nations.

The initial study among Taiwanese real-estate agents underscored a direct correlation between free will beliefs and job satisfaction, sustained over three months, challenging the transient nature of workplace sentiments. In contrast, the second study leveraged the Amazon Mechanical Turk platform to affirm these findings within the American workforce, introducing a comparative analysis of free will beliefs against other agency constructs, thereby reinforcing the unique predictive power of free will beliefs on job satisfaction. Moreover, the expansive third study illuminated the cultural contours of this relationship, identifying job autonomy as a crucial mediator while unravelling the moderating role of national-level endorsements of free will beliefs on job satisfaction.

Feldman and other scholars' (Feldman, Farh, and Wong 2018) inquiry amplifies our understanding of the psychological underpinnings of job satisfaction and propels a discourse on the broader societal and cultural factors that sculpt our professional well-being. This paper seeks to build upon Feldman and other scholars' (Feldman, Farh, and Wong 2018) foundational research, extending its theoretical and empirical contributions to examine the implications of free will beliefs in a distinct yet paralleled context. Our focus shifts towards the burgeoning realm of digital workplaces, explicitly examining the phenomenon within Amazon's Mechanical Turk (MTurk) community. Our study is poised to explore whether the nuanced dynamics

of agency beliefs within the digital gig economy can shed light on the positive ramifications of free will beliefs on job satisfaction among a global workforce engaged in micro-tasks. The gig economy's rise reshapes work, offering greater autonomy but uncertain income and benefits. This shift necessitates a new understanding of free will's role in modern job satisfaction, as workers navigate the trade-offs between flexibility and stability. Through this lens, we aim to contribute a fresh perspective to the discourse on free will and job satisfaction, underpinned by robust empirical evidence and a comprehensive analysis of its implications in contemporary work environments.

This paper focuses specifically on the gig economy and Amazon Mechanical Turk. It is structured first by summarizing the purpose, methods, and results of the study, emphasizing the positive correlation between free will beliefs and job satisfaction. The introduction introduces the background and outlines the structure of the paper. The data and results from Feldman et al.'s study and our analysis highlight the role of perceived autonomy. The discussion explains these findings and points out their theoretical and practical implications. Ethical considerations and biases in accounting address research integrity issues. The conclusion reiterates the study's contribution to understanding job satisfaction in nontraditional work settings. Appendices and references provide supplementary information and scholarly resources.

2 Data

The original paper was based on three studies conducted by the authors, with data that can be found on the Open Science Foundation website. The provided data (Feldman, Farh, and Wong 2018) was replicated in R (R Core Team 2024), with the goal of determining if there are any errors in the models, and what more can be learned and applied in a Canadian context. Libraries such as `tidyverse` (Wickham et al. 2019), `janitor` (Firke 2023), `ggplot2` (Wickham 2016), `dplyr` (Wickham et al. 2022), `readr` (Wickham, Hester, and Bryan 2022), `tibble` (Muller and Wickham 2022), `kableExtra` (Zhu 2021), `psych` (William Revelle 2024), `haven` (Wickham, Miller, and Smith 2023), and `knitr` (Xie 2014) are used for supplementary analysis. The goal of the study was to understand if a relationship exists between a belief of free will and job satisfaction for different cultural contexts.

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[1] "Linear regression model with coefficient of 0.2236."
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Linear regression model with coefficient of 0.2236.

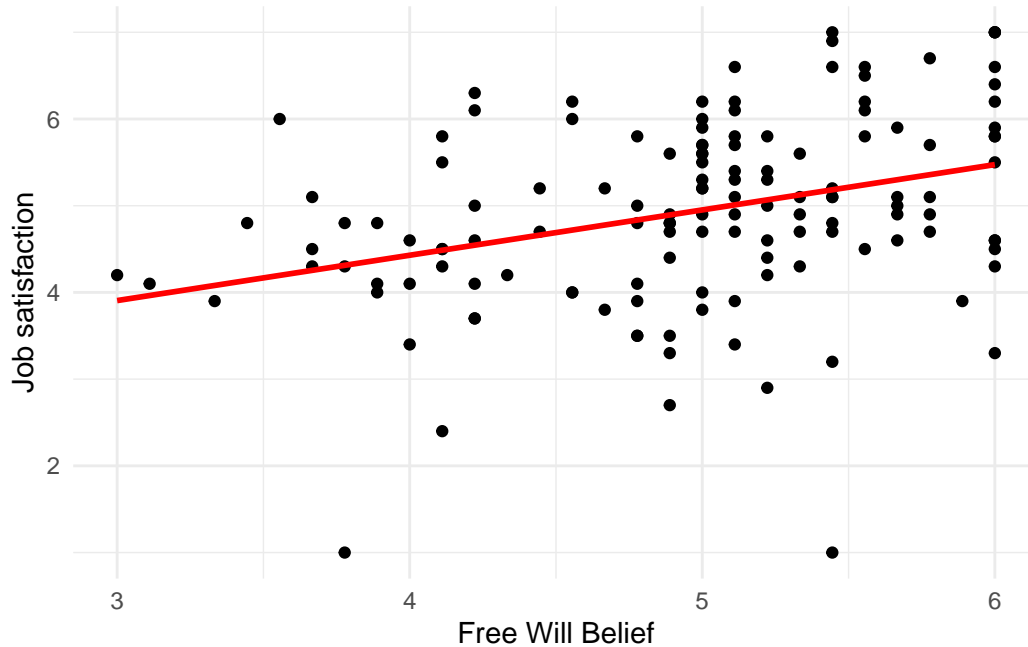


Figure 1: Beliefs in Free will vs. Job Satisfaction

2.1 Methodology

The original paper was based on three studies conducted by the authors. The first study looked at responses to survey questions from 252 real estate agents in Taiwan. The questions were translated from English to Chinese and back to English by senior researchers fluent in both languages, due to language differences between the respondents in Study 1 and Study 2. These translations were cross-verified by another senior researcher also fluent in both languages, to ensure the responses accurately captured the sentiments of the respondents. A total of eight questions were asked about free will and three questions about job satisfaction, with responses taken through a Likert-type scale. Here is a sample of the questions asked:

- I am in charge of the decisions I make.
- I actively choose what to do among the choices I have.
- I am in charge of my actions even when my life's circumstances are difficult. (Five additional questions relating to free will were asked.)
- Generally speaking, I am very satisfied with my job.
- I am generally satisfied with the feeling of worthwhile accomplishment I get from doing this job.
- I am satisfied with the kind of work I do in this job.

while the second study focused on 137 American freelance workers, and the third study collected responses from over 14,000 employees in 16 countries about [types of questions].

2.2 Features

3 Results

Table 1: Study 2 Means, Standard Deviations, and Correlations

	M	SD	Job satisfaction(T1)	Job satisfaction(T2)	Belief in free will(T1)	Job autonomy(T1)	Job autonomy(T2)
Job satisfaction(T1)	4.97	1.05	(0.79)				
Job satisfaction(T2)	4.93	1.22	0.73***	(0.84)			
Belief in free will(T1)	4.98	0.72	0.31***	0.30***	(0.88)		
Job autonomy(T1)	5.61	1.11	0.43***	0.43***	0.46***	(0.83)	
Job autonomy(T2)	5.65	1.18	0.51***	0.59***	0.49***	0.58***	(0.85)
Trait locus of control(T1)	6.89	2.47	0.09	0.06	0.20**	0.03	0.01
Implicit beliefs(T1)	3.03	1.04	-0.10	-0.18*	-0.19**	-0.07	-0.15+
Trait self-esteem(T1)	5.29	1.25	0.35***	0.30***	0.35***	0.33***	0.34***
Job self-efficacy(T1)	6.07	0.96	0.34***	0.31***	0.44***	0.43***	0.52***
Trait self-control(T1)	3.48	0.77	0.30***	0.24**	0.19**	0.17*	0.17*

Note. T1 = collected in Time I (n=209), T2 = collected in Time 2 (n = 137); diagonal values are reliability alpha coefficients. Scales in free will 1-6; Scales in job satisfaction, job autonomy, trait self-esteem, implicit beliefs 1-7; locus of control, 1-7; locus of control, 0-13; trait self-control, 1-5. +p<.10. *p <.05. **p<.01. ***p<.001.

Table 2: Correlations between free will subscales and job satisfaction

	Job satisfaction T1	Job satisfaction T2
FW T1 Agency and free will subscales	0.31***	0.30***
FW T1 All subscales combined	0.25***	0.14
FW T1 Free will subscale	0.26***	0.28**
FW T1 Personal agency subscale	0.32***	0.29***
FW T1 Moral responsibility subscale	0.30***	0.30***
FW T1 Higher power control subscale (R)	-0.01	-0.22*
FW T1 Personal responsibility subscale	0.28***	0.27**
FW T1 Personal limitations subscale (R)	0.02	-0.21*
FW T1 - Personal	0.26***	0.12
FW T1 - General	0.26***	0.20*

Note. *p <.05. **p<.01. ***p<.001.

Table 3: Controlling for demographics

	Belief in free will (T1)	Job satisfaction (T1)	Job satisfaction (T2)
Belief in free will (T1)	(0.88)	0.31***	0.30***
Job satisfaction (T1)	0.31***	(0.79)	0.73***
Job satisfaction (T2)	0.30***	0.73***	(0.84)
Age	0.15*	0.13+	0.10
Gender	0.16*	0.21**	0.25**

Note. T1 = collected in Time I (n=209), T2 = collected in Time 2 (n = 137); diagonal values are reliability alpha coefficients. Values under diagonal are two-tailed correlations whereas above are partial correlations controlling for age and gender (T1). Gender is coded as 0 = Male, 1 = Female. +p<.10. *p<.05. **p<.01. ***p<.001.

4 Discussion

4.1 Detailed findings

The original paper by Feldman, Farh, and Wong (2018) demonstrates that a strong belief in free will results in significant increases in job satisfaction; this correlation is relevant across cultural differences and in different work fields (e.g., from Taiwanese real estate agents to American digital Labor) similar results were maintained.

Through this paper, we conducted a replication study on institutional beliefs in the digital gig economy (specifically the MTurk community) and sought to determine whether there is a positive relationship between U.S. workers' beliefs about free will and their job satisfaction with Amazon Mechanical. Based on an analysis of information from a six-month focused study of Amazon MTurk workers presented in the original paper, our results confirm a positive relationship, indicating that workers with a stronger belief in free will tend to report higher levels of job satisfaction. Our analysis shows that the correlation between free will beliefs and job satisfaction is more vital in this digital microtask environment than in a traditional work environment. The above reinforces the idea that institutional beliefs in the increasingly prevalent gig economy are not just philosophical abstractions but have real consequences for workforce well-being.

4.2 Theoretical Implications

The findings from our study offer theoretical implications for understanding job satisfaction in the context of the gig economy. Specifically, they suggest that beliefs in free will play a

crucial role in shaping workers' perceptions of their autonomy and, consequently, their job satisfaction. This challenges and extends traditional theories of job satisfaction by incorporating the psychological dimension of free will beliefs, especially in flexible work environments like MTurk. It invites a reevaluation of how autonomy is conceptualized and valued in non-traditional work settings, advocating for a broader understanding of factors contributing to job satisfaction. The result is it highlights the importance of creating an environment that enhances employee autonomy, potentially increasing employee engagement and satisfaction.

4.3 Journal Study: Work and Freedom in the Context of Agency Beliefs and Job Satisfaction

To further confirm the validity of the original paper and our analysis, we selected another peer-reviewed professional academic journal for reference. By analyzing the comprehensive study conducted by Baldissarri et al. (2017), we explored the complex relationship between work activities that trigger self-objectification and subsequent beliefs in personal free will. Through a series of methodologically rigorous studies, this research illustrates that diminished free will beliefs are a result of engaging in repetitive, fragmented, and externally directed tasks. This reduction in belief in free will, mediated by self-objectification, sets up a subtle interplay between the nature of work and the psychological makeup of the worker. Consistent with Feldman, Farh, and Wong (2018). Baldissarri et al. (2017) established a link between free will beliefs and job satisfaction. Further emphasis is placed on the complexity of agency within the professional realm.

Our findings suggest that MTurk employees who perceive greater autonomy and personal agency report greater job satisfaction, which resonates with the implications of the work of Baldissarri et al. Routine and piecemeal tasks on MTurk can lead to some form of self-objectification, potentially undermining belief in individual free will and, in turn, job satisfaction. Therefore, the inherent structure of gig work may require strategies that enhance perceptions of free will and personal agency to increase job satisfaction.

4.4 Ethical Considerations in Long-Term Behavioural Studies

Ethical considerations are crucial in long-term behavioural research, especially when studying beliefs and job satisfaction. In doing so, we focused on the research methods and ethical concerns of the original academic journal (Feldman, Farh, and Wong 2018). Feldman, Farh, and Wong (2018) took a series of steps to ensure the ethics of the study, including ensuring informed consent, protecting privacy and data security, and providing long-term participant support and opportunities for explanation.

We agree with the above ethically appropriate measures of the original academic journal and believe that the research paid particular attention to avoiding any possible adverse psychological effects and ensured that all research standards were met through ethical oversight by the

institutional review board. This approach ensures maximum protection of participant well-being during the research process and reinforces our commitment to ethical standards while also improving research quality and participant trust in the research.

4.5 Accounting for Bias

In addressing bias within the discussion section of our paper, it's essential to acknowledge that while our study expands on the foundational research by Feldman, Farh, and Wong (2018) in exploring the impact of free will beliefs on job satisfaction, particularly within the digital gig economy of Amazon Mechanical Turk, inherent biases in data collection and analysis could influence the outcomes. Ethical implications and biases naturally emerge in both quantitative and qualitative research. For instance, sampling bias can occur when the study participants are not representative of the broader population intended to be analyzed. This type of bias might be mitigated through strategies such as simple random sampling, ensuring that every individual within the target population has an equal chance of selection. However, challenges such as self-selection bias, where individuals with a strong interest in the topic may be more likely to participate, can skew results. Despite efforts to create a representative sample through demographic balancing, such biases may persist, potentially limiting the generalizability of the findings. Thus, acknowledging these limitations and adopting rigorous methodological safeguards are crucial for enhancing the credibility and applicability of research conclusions.

4.6 Analytical Limitations and Future Research Pathways

While our study sheds light on the relationship between free will beliefs and job satisfaction in the context of MTurk, it also highlights several limitations. The unique demographics of MTurk workers and the platform's specific work conditions may not fully extrapolate to the broader gig economy. For instance, platforms like MTurk offer a degree of autonomy by allowing workers to choose tasks; however, this freedom is within the confines of predetermined task parameters and compensation set by the platform. Future research should explore this relationship across diverse gig platforms and investigate the longitudinal effects of free will beliefs on job satisfaction to establish causality. Additionally, examining the interplay between personal autonomy and platform policies could offer insights into optimizing job satisfaction in gig work.

Upon revisiting the original paper by Feldman, Farh, and Wong (2018), we have identified certain unclear in the correlation coefficients about the variable 'Beliefs in Free Will (T1)'. Unlike other variables used for the tables, the 'Beliefs in Free Will (T1)' components are not explicitly defined in the original paper and other supplementary documents. For the sack of replicating, we chose 'Free Will General (T1)' for the correlation analysis since the description is one of the closest possible variables representing 'Beliefs in Free Will (T1)'; however, the original authors split them into different columns and classified them with very vague names. Such discrepancies could lead people who try to replicate this paper to unclear definitions

and calculation errors, thus necessitating a closer examination of the computational processes employed in the original study. Another variable, 'FW T1 All subscales combined', has a similar problem.

To address these concerns in our discussion, we recommend thoroughly re-evaluating the data computation methods used, including a detailed review of the data transformation steps described by Feldman, Farh, and Wong (2018). Enhanced validation procedures and sensitivity analyses will be instrumental in clarifying these differences. This approach will bolster the credibility of our replication study and contribute to the scientific community's ongoing efforts to refine research methodologies in the study of free will beliefs and their impact on job satisfaction.

4.7 Concluding Observations

Overall, our study sought to determine whether a positive correlation exists between American workers' beliefs in free will and their job satisfaction on Amazon Mechanical Turk (MTurk). Our results confirmed a positive relationship, indicating that workers with stronger beliefs in free will tend to report higher levels of job satisfaction. This finding is supported by data analysis showing that perceived autonomy, a critical aspect of free will, significantly contributes to this increased satisfaction. These insights validate our hypothesis and highlight the importance of fostering an environment that supports autonomy and personal agency in gig economy platforms like MTurk.

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