The Compensation of Conscience: Evidence from the U.S. Labor Market

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May 18, 2023

Preliminary draft: please do not cite without permission

Abstract

We investigate compensating differentials in the U.S. labor market related to the degree of moral compromise required in different occupations. Specifically, we explore whether jobs that require workers to compromise their moral values offer higher compensation to compensate for the disamenities that contradict their moral beliefs. To conduct our analysis, we utilize data from the National Longitudinal Survey of Youth 1997 (NLSY97) and supplement it with data from the Occupational Information Network (O*NET) job descriptor, which allows us to develop a continuous measure of moral index across occupations. This data provides a rich and extensive panel spanning from 1997 to 2017 for our analysis. Our findings, obtained through the use of two-ways fixed-effects and first-difference models, indicate that jobs that require workers to compromise their moral principles are associated with higher compensation. This suggests that there is indeed a compensating differential for engaging in disamenities that conflict with a worker's moral values. Additionally, we observed that workers with a college education receive higher pay in jobs that require moral compromise, indicating that individuals with a college degree may have more employment opportunities and greater bargaining power, influencing their compensation preferences. Furthermore, we discovered evidence supporting an asymmetric relationship between changes in the occupational moral index and total hourly compensation. This relationship appears to be responsive to the intensity of moral compromise in the job.

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1 Introduction

> Honour makes a great part of the reward of all honourable professions. In point of pecuniary gain, all things considered, they are generally under-recompensed... Disgrace has the contrary effect. The trade of a butcher is a brutal and an odious business; but it is in most places more profitable than the greater part of common trades. The most detestable of all employments, that of public executioner, is, in proportion to the quantity of work done, better paid than any common trade whatever.
>
> **Adam Smith**

> Finally there came a time when everything that men had considered as inalienable became an object of exchange, of traffic and could be alienated. This is the time when the very things which till then had been communicated, but never exchanged, given but never sold, acquired but never bought: virtue, love conviction, knowledge, conscience– when everything passed into commerce.
>
> **Karl Marx**

Compensating wage differentials are an important concept in labor economics that help to explain why some workers receive higher wages than others for jobs that require similar skills and productivity. These wage differences are often due to differences in job disamenities, such as unpleasant working conditions, long hours, or exposure to hazards. Workers who face these disamenities may require higher wages to compensate them for the discomfort or risk associated with performing such jobs.

The labor theory of compensating differentials, which traces its roots back to Adam Smith's seminal work, *"An Inquiry into the Nature and Causes of the Wealth of Nations"*, is built on the standard neoclassical framework. This theory highlights the influence of job disamenities on wage determination. In a competitive labor market, wages are determined by workers' marginal productivity. If two workers have the same productivity, but one faces more disamenities than the other, that worker may require a higher wage to accept the job. From the standpoint of the employer, a higher wage offer might be necessary to induce a worker to assume an undesirable job. This higher wage acts as a compensating differential to offset the negative aspects of the job and ensure that workers are indifferent between different job opportunities.

Several studies have found that disamenities such as physical hazards, exposure to dangerous materials, irregular shift schedules, job stress, and dirty jobs are associated with relatively high levels of monetary compensation to offset their negative impact on a worker's overall utility (Smith, 1979; Olson, 1981; Arnould and Nichols, 1983; Leeth and Ruser, 2003; Garen, 1988; Lanfranchi et al., 2002; French and Dunlap, 1998; Villanueva, 2007). In addition to physical and material disamenities, moral or ethical disamenities can also affect workers' utility and job satisfaction. For example, a Catholic nurse who holds strong beliefs that contraception is morally wrong, being asked to oblige a prescription for contraception may create psychological or moral discomfort. The nurse may feel that they are violating their conscience and acting against their moral beliefs. This can lead to feelings of guilt, conflict, and emotional distress. Like physical disamenities, moral disamenities may lead to compensating wage differentials, where workers who face moral disamenities receive higher wages to compensate them for the psychological discomfort or emotional distress they experience.

Prior research has focused mainly on physical and material disamenities and has not explored the role of moral or ethical disamenities in the labor market (e.g., Smith, 1979; Olson, 1981; Arnould and Nichols, 1983; Leeth and Ruser, 2003; Garen, 1988; Lanfranchi et al., 2002; French and Dunlap, 1998; Villanueva, 2007). In this study, we aim to address this gap by examining whether jobs that demand workers to compromise their moral values offer higher compensation to offset the disamenities that contradict their moral beliefs. Our study uses data from the National Longitudinal Survey of Youth 1997 (NLSY97) and the Occupational Information Network (O*NET) job descriptor to develop a continuous measure of a moral index across occupations. Our analysis benefits from a long and rich panel from 1997-2017, which allows us to obtain a comprehensive understanding of the relationships between moral disamenities and compensating wage differentials.

By shedding light on this important issue, this paper aims to provide insights on the price of conscience. Compensating wage differentials reflect the economic reality that workers who face disamenities in their jobs, including moral disamenities, may require higher wages to compensate them for the negative aspects of their work. However, from a philosophical perspective, the idea of compensating someone for a moral disamenity raises questions about the nature and value of morality. If morality is seen as an inherent aspect of human dignity or a fundamental principle of justice, then it may seem inappropriate to reduce it to a monetary value. Furthermore, the practice of compensating workers for moral disamenities may contribute to a broader trend of treating ethical values as commodities to be bought and sold. This commodification of morality may be seen as a threat to the intrinsic value of moral principles and the integrity of the individual who holds

them. Our study is not intended to provide a definitive answer to these philosophical questions. Instead, our aim is to contribute to the empirical literature on compensating wage differentials by examining the relationship between moral disamenities and wages. Our hope is that this research will stimulate further discussion and debate about the nature and value of morality in the labor market and society at large.

Based on our findings, it appears that jobs requiring workers to compromise their moral sense of right and wrong come with higher hourly compensation. This implies that there is a compensating differential to make up for the disamenities of going against one's moral values. Additionally, we noticed that individuals with a college education tend to earn more in these types of jobs, indicating that they may have greater bargaining power and more employment opportunities that influence their compensation preferences. Moreover, our research provides evidence for an asymmetric relationship between changes in the occupational moral index and total hourly compensation. This relationship seems to be sensitive to the degree of moral compromise required by the job.

The paper is structured in the following manner: In Section 2, we delve into the conceptual model. In Section 3, we outline our data and empirical strategy. In Section 4, we present and discuss our empirical results and include several sensitivity checks that confirm the robustness and consistency of our findings, along with an analysis of heterogeneous effects. Additionally, in Section 5, we provide a detailed examination of the main results, specifically looking at the asymmetric effects of the relationship between moral disamenities and compensations. Finally, Sections 6 and 7 discuss the limitations of our study and summarize the main findings, respectively. Moreover, Section 7 will offer potential avenues for future research.

2 Conceptual Model

This section discusses the theoretical foundation of our reduced form empirical model, which takes into account the factors that influence a worker's labor supply decision, including the wage offered and the presence of non-pecuniary disamenities in a job. In our case, non-pecuniary disamenities refer to tasks that may require workers to compromise their moral values, leading to psychological discomfort and a sense of moral conflict in our context.

Following Villanueva (2007), we assume the presence of search frictions in the job market, workers cannot observe all available job positions. Therefore, we define each job based on two factors: wage level (w) and the level of non-pecuniary disamenity (M). A job

with $M = 1$ involves the highest level of moral compromise, while a job with $M = 0$ is considered a "no moral compromise" job. In our model, a worker has a probability of receiving a job offer (w, M) with an exogenous probability of arrival. The preferences of a worker, indexed by i, are represented by the following utility function:

$$u_i(w, M) = w - Z_i M$$

where Z denotes the worker-specific marginal willingness to pay to avoid consuming jobs that require compromising their moral sense of right and wrong. Workers with a lower tolerance for moral compromise tasks tend to have a higher value for Z.

We make the assumption that the offers received by each worker are independent of their marginal willingness to avoid disamenities. This assumption is supported by the fact that firms cannot observe Z and therefore cannot target their offers to a specific type of worker.[1] In our context, we follow Villanueva (2007) by introducing an unobserved, individual-specific component (α). Thus, the equilibrium wage can be represented as:

$$w = \beta M + \alpha + \epsilon \tag{1}$$

where β represents the market's monetary return for the existence of a disamenity, while ϵ represents the difference between the productivity of a worker at a specific job and the average wage earned by workers with similar unobserved factors (e.g., ability, job condition). It is defined that $E(\epsilon|M, \alpha) = 0$. Assuming that job offers are unrelated to Z, it follows that $E(\Delta\epsilon|Z_i = 0)$ (the number of job offers received by a worker is not influenced by their level of tolerance).

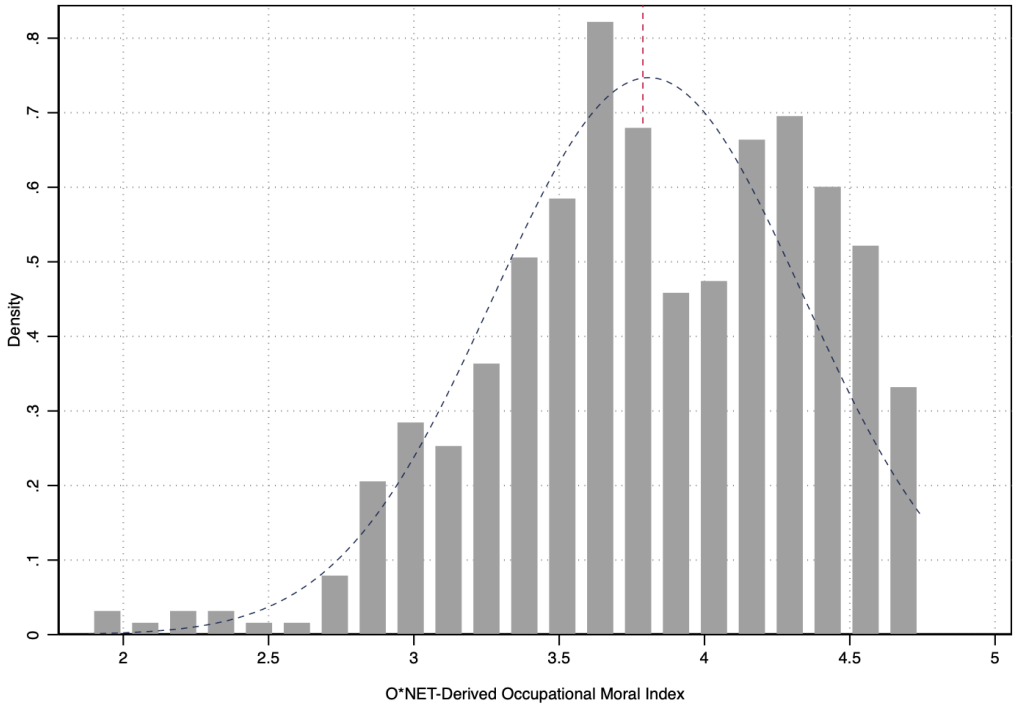
The parameter, denoted by β, measures the market's return for the presence of a disamenity on a job. Specifically, this paper examines the wage premiums that relate to workplace disamenities, which refer to the psychological discomfort experienced by workers when they are asked to compromise their moral sense of right and wrong. It is crucial to evaluate whether wage differentials competitively compensate for the disamenities that workers experience on the job, and β plays a critical role in this analysis. It is important to note that this paper does not attempt to estimate Z_i.

[1] Hwang et al. (1998) demonstrated that in a labor market with search frictions, a constant arrival rate of offers, and heterogeneity in the firm's cost of providing amenities, an equilibrium distribution of offer wages and disamenities exists in the market. This equilibrium distribution includes a distribution of wages for each level of amenities offered by firms.

3 Data and Empirical Strategy

3.1 Data

We utilized data from the National Longitudinal Survey of Youth 1997 (NLSY97), specifically from the 1997-2017 waves. The NLSY97 is a nationally representative sample of 8,984 individuals who were born between 1980 and 1984. This means that respondents were between the ages of 13 and 17 during the initial round of interviews in 1997, and between 33 and 37 years old during the most recently observed round in 2017. We record and track all instances of employment for each individual in the NLSY97 using unique job identifiers, which enables us to capture multiple employment observations within a single year. The average number of job-year observations per individual is approximately 19 while the average number of unique jobs held per individual is 9.



Notes: Raw scores of O*NET-Derived Occupational Moral Index.

Figure 1. Distribution of NLSY97 Occupations Across the O*NET-Derived Moral Index

There are several advantages to using this data. Firstly, the NLSY97 dataset offers an advantage over other longitudinal samples, such as the Current Population Survey Outgoing Rotation Group (CPS-ORG) monthly earning files, as it allows for precise observation of the labor supply and employment history of individuals over their entire lifespan. Another advantage is the ability to track all instances and histories of employment through unique job identifiers.

The variable of interest for the outcome is the natural logarithm of real hourly compensation, which includes overtime, tips, bonuses, and other forms of compensation, in addition to the worker's hourly pay rate. The explanatory variable of interest is the moral index across occupations, which we measure using the O*NET Database 12.0 job descriptor data. We calculate a continuous moral index measure across occupations using the working definition that asks incumbents of occupations: "*Workers on this job are never pressured to do things that go against their sense of right and wrong*." One significant advantage of our NLSY97/O*NET dataset is that it provides a continuous measure of the moral index for all occupations, along with detailed job tasks, skill requirements, and working conditions. This comprehensive data enables us to obtain more accurate estimates of compensation differentials associated with the moral demands of occupations in the U.S. labor market.

Rank	Occupation	Score	Occupation	Score	Rank
1	Network Systems and Data Analysts	1.88	Crushing, Grinding, Polishing, Mixing, and Blending Workers	4.58	461
2	Network and Systems Administrators	1.88	Heat Treating Equipment Setters, Operators, and Tenders	4.58	462
3	Lawyers	2.12	Textile, Apparel, and Furnishings Workers	4.59	463
4	Agents and Business Managers of Performers	2.25	Molders and Molding Machine Setters, Operators, and Tenders	4.62	464
5	Gaming Services Workers	2.25	Paper Goods Machine Setters, Operators, and Tenders	4.62	465
6	Public Relations Managers	2.37	Textile Cutting Machine Setters, Operators, and Tenders	4.62	466
7	Public Relations Specialists	2.37	Food Cooking Machine Operators and Tenders	4.62	467
8	Social Workers	2.50	Extruding and Drawing Machine Setters, Operators	4.62	468
9	Gaming Cage Workers	2.56	Miscellaneous Assemblers and Fabricators	4.62	469
10	News Analysts, Reporters and Correspondents	2.69	Tire Builders	4.62	470
11	Editors	2.75	Lathe and Turning Machine Tool Setters, Operators	4.62	471
12	Urban and Regional Planners	2.75	Pile-Driver Operators	4.62	472
13	Construction and Building Inspectors	2.75	Milling and Planning Machine Setters, Operators, and Tenders	4.62	473
14	Private Detectives and Investigators	2.75	Textile Knitting and Weaving Machine Setters, Operators	4.62	474
15	Credit Counselors and Loan Officers	2.87	Cutting, Punching, and Press Machine Setters, Operators	4.62	475
16	Bill and Account Collectors	2.87	Textile Winding, Twisting, and Drawing Out Machine Setters	4.62	476
17	First-Line Supervisors of Gaming Workers	2.87	Cleaning, Washing, and Metal Pickling Equipment Operators	4.62	477
18	Gaming Managers	2.87	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters	4.62	478
19	Advertising and Promotions Managers	2.87	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	4.66	479
20	Door-to-Door Sales Workers and Vendors	2.87	Plating and Coating Machine Setters, Operators, and Tenders	4.72	480
21	Telemarketers	2.87	Extruding and Forming Machine Setters, Operators	4.75	481
22	Tax Examiners and Collectors	2.87	Shoe Machine Operators and Tenders	4.75	482
23	Financial and Investment Analysts	2.87	Multiple Machine Tool Setters, Operators, and Tenders	4.75	483
24	Clergy	2.87	Data Entry Keyers	4.75	484
25	Chief Executives	2.88	Sewing Machine Operators	4.75	485

Table 1. Top and Bottom 25 NLSY97 Occupations Ranked by O*NET-Derived Moral Index

Currently, the O*NET data align with the 2018 Standard Occupational Classification (SOC) occupations and codes, whereas the occupation data in the NLSY97 is coded based on the 2002 Census classification. To combine the O*NET-derived moral index with the NLSY97 sample, we utilize the crosswalk provided by the Integrated Public Use Microdata Series (IPUMS), as described by (Ruggles et al., 2020). After utilizing the crosswalk to align 2002 Census occupations with 2018 SOC O*NET occupations, the resulting set is consolidated based on 2002 Census occupations through mean assignment. For instance, the category "Physicians and Surgeons" is assigned the mean of O*NET indicators across various specialties such as Neurologists, Obstetricians, Pediatricians, Hospitalists, Urologists, and others.

The density plot, shown in Figure 1, illustrates the distribution of 485 unique occupations in the NLSY97 sample across the domain of the O*NET-derived moral index. The peak of the distribution is located slightly to the right of center, with some clustering towards the higher end of the moral index domain. Table 1 shows the top and bottom 25 NLSY97 occupations ranked by O*NET-derived moral index. Raw scores range from 1 to 5, with 5 meaning a typical worker is never asked to compromise their sense of right and wrong. The observed average moral index is 3.72 and the standard deviation is 0.49.

	Mean	SD	Min	Max	N
Compensation					
Hourly Compensation (Real 2020 $)	18.336	10.003	3.507	78.270	72,588
Moral Measure					
Moral Index	3.716	0.488	1.880	4.750	72,544
Human Capital and Labor Supply					
Enrollment Status	0.131	0.338	0.000	1.000	72,588
Highest Grade Completed	13.058	2.699	0.000	20.000	72,588
Degree					
None	0.129	0.335	0.000	1.000	72,588
GED	0.107	0.309	0.000	1.000	72,588
HS Diploma	0.508	0.500	0.000	1.000	72,588
Associate	0.052	0.223	0.000	1.000	72,588
Bachelor	0.165	0.371	0.000	1.000	72,588
Master	0.031	0.174	0.000	1.000	72,588
PhD	0.002	0.045	0.000	1.000	72,588
Professional (DDS/JD/MD)	0.006	0.077	0.000	1.000	72,588
Number of 6+ Week NILF Spells	10.040	5.070	0.000	23.000	72,588
Years of Employment Experience	7.253	4.540	0.000	22.500	72,588
Other Job Characteristics					
Job Tenure (in Years)	2.245	2.699	0.000	27.596	72,588
Union Status	0.097	0.295	0.000	1.000	72,588
Self-Employed	0.033	0.179	0.000	1.000	72,588
Usual Hours per Week	42.736	7.603	40.000	168.000	72,588
Skills Index	0.263	1.443	-2.554	4.036	72,588
Hazard Index	0.388	2.445	-2.515	8.443	72,588
Care Index	-0.135	1.654	-4.607	4.768	72,588
Social Index	-0.197	1.331	-3.617	3.219	72,588
Autonomy Index	2.888	0.788	1.370	4.750	67,823
Demography					
Men	0.576	0.494	0.000	1.000	72,588
Black	0.245	0.430	0.000	1.000	72,588

Notes: Raw scores of moral, skills, hazard, care, social, and autonomy indices are presented. For the regression analysis, we will scale theses indices from zero to one using the minimum value.

Table 2. Sample Characteristics

We incorporate five additional control variables, obtained from the O*NET data, along with the moral index, to account for various occupation-specific factors that may impact hourly compensation. The first control variable is the care index, derived through Principal Component Analysis (PCA), which encompasses multiple indicators that assess the level of care required in an occupation. Specifically, we collect ratings for the importance of the activities labeled "assisting and caring for others" and "concern for others". The second control variable is the hazard index, also derived through PCA, which encompasses several indicators that measure the risk of bodily harm, such as exposure to contaminants, hazardous conditions, hazardous equipment, high places, minor burns, cuts, bites, or stings, and whole body vibration. The third control variable is the skills index, derived through PCA, which captures the basic skill competencies required across different occupations, including reading comprehension, active listening, writing, speaking, mathematics, and science. The fourth control variable is the social index, derived through PCA, which includes indicators that capture occupations where workers perform tasks for other people or have personal connections with others on the job, such as social service and social orientation. Lastly, the autonomy index measures worker supervision. To aid in the interpretation of our empirical estimates, we scale the generated indices from zero to one using min-max standardization.[2]

In Table 2, the means, standard deviations, minimums, and maximums for the major variables of the NLSY97 sample are presented. The average raw real compensation is approximately $18.3 per hour, with the lowest recorded at around $3.5 per hour and the highest at approximately $78.2 per hour. Additionally, around 13.1% of the respondents in our sample reported being enrolled in K-12, college, or a graduate program. The average years of employment experience is roughly 7.25 years, and the average cumulative number of 6+ week not-in-the-labor-force (NILF) spells is about 10. About 9.7% of the respondents reported being in a union, and 3.3% reported being self-employed. Lastly, our sample comprises approximately 57.6% men and 24.5% blacks.

3.2 Empirical Strategy

3.3 Level Compensation

Our goal is to estimate the parameter β outlined in Equation 1. However, in Equation 1, we have defined M as an indicator variable, while in our dataset, our measure of M is a continuous variable. As a result, lower values of M indicate higher levels of moral disamenity. Therefore, our research question can be restated as follows: What are the

[2]Formula: $x' = \frac{x - \min(x)}{\max(x) - \min(x)}$, where x is an original value and x' is the normalized value.

compensating wage differentials for various levels of occupational moral index, from the occupation with the highest level of moral disamenity to the occupation with the lowest level of disamenity? In essence, we are interested in determining how compensating wage differentials differ across occupations with varying levels of moral disamenity. To achieve this goal, we exploit the panel structure of the NLSY97 dataset by reformulating Equation 1 and estimating a semi-log model, which is a common practice in the compensating wage differentials literature.

Consider the simplest approach to examining the relationship between hourly compensation and the occupational moral index:

$$lnW_{ijt} = \beta M_{ijt} + \epsilon_{ijt} \tag{2}$$

Here, lnW_{ijt} represents the natural log of real hourly compensation for workers aged 18 years and older, denoted by i in job j at time t. M_{ijt} describes the occupational moral index. However, this regression may not yield a consistent estimate of the effect of the occupational moral index if a worker's characteristics are determinants of both hourly compensation and the propensity to select a job with a low or high moral index. Notably, observable worker's characteristics, such as work experience and education, are likely to influence both the type of occupation and a worker's hourly compensation. Failure to control for these omitted worker's characteristics may result in detecting a relationship between the occupational moral index and hourly compensation, even when no actual effect is present. To partially resolve this issue, a regression that includes observed worker's characteristics (X_{ijt}) can be used:

$$lnW_{ijt} = \beta M_{ijt} + X'_{ijt}\gamma + \epsilon_{ijt} \tag{3}$$

In this model, X_{ijt} is a vector of time- and job-varying controls that attempt to capture other potential changes in observables that may co-determine hourly compensation. These controls include measures of human capital, labor supply, and other job characteristics such as job tenure, union status, self-employment, usual hours per week, percentile rank on the ASVAB standardized test, and occupation-specific care, hazard, skills, and social indices as specified in Table 2. However, even with Equation 3, a consistent estimate of the effect of the occupational moral index on hourly compensation may not be generated if unobserved worker's characteristics are determinants of both hourly compensation and the occupational moral index. Specifically, there may be concerns that a worker's unobserved propensity to select a job with a low or high moral index may underlie the observed change in hourly compensation. To address this issue, we include

unobserved worker's characteristics (α_i) and estimate the following equation:

$$lnW_{ijt} = \beta M_{ijt} + X'_{ijt}\gamma + \alpha_i + \epsilon_{ijt} \tag{4}$$

We further include a set of survey year dummies (δ_t) to control for time-varying shocks that are common across all workers, such as potential changes in the federal minimum wage or wage shocks resulting from large-scale economic downturns (Clemens and Wither, 2019). Lastly, λ_{ijt}, σ_{ijt}, and ω_{ijt} denote industry, region, and urban dummies, respectively. The inclusion of industry, region, and urban dummies in the model serves several purposes. First, it helps to control for unobserved heterogeneity across different industries. By including a set of industry dummies (λ_{ijt}), the model accounts for any industry-specific factors that may affect hourly compensation, such as differences in labor market conditions, demand for certain skills, or industry-specific regulations. This allows for a more accurate estimation of the relationship between hourly compensation and the occupational moral index, as it helps to isolate the effects of occupation-specific moral considerations from industry-level factors. Second, a set of region dummies (σ_{ijt}) controls for regional heterogeneity that may affect compensation. Factors such as cost of living, regional labor market conditions, and local economic conditions can vary across different regions, and including these dummies helps to account for these regional differences, allowing for a more precise estimation of the relationship between hourly compensation and the occupational moral index. Finally, a set of urban dummies (ω_{ijt}) controls for differences in compensation between urban and rural areas. Urban areas may have higher wages due to factors such as higher cost of living, higher demand for labor, or differences in labor market institutions. By including these dummies, the model accounts for these differences and helps to isolate the effects of the occupational moral index on hourly compensation, while controlling for urban-rural wage differences. We assume the error term (ϵ_{ijt}) is independent and identically distributed across workers and independent across survey waves. Therefore, our preferred specification can be formally represented as follows:

$$lnW_{ijt} = \beta M_{ijt} + X'_{ijt}\gamma + \delta_t + \alpha_i + \lambda_{ijt} + \sigma_{ijt} + \omega_{ijt} + \epsilon_{ijt} \tag{5}$$

3.4 Change in Compensation

In our sample, we observed that workers switch occupations and industries, and as a result, the impact of X_{ijt} on wage changes could vary for job switchers and non-switchers. As a robustness check for our main specification in Equation 5, we first-difference Equation 5 with respect to time. By doing so, we eliminated the effect of unobserved worker

characteristics (α_i), resulting in the following estimation equation:

$$\Delta lnW_{ijt} = \Delta M_{ijt}\beta + \Delta X'_{ijt}\gamma + \Delta\epsilon_{ijt} \tag{6}$$

Here, Δ is the time difference operator. Note that the first-difference operator removes both the unobserved and all other invariant characteristics. Therefore, if we are to use this estimation strategy to identify the effect of occupational moral index on hourly compensation, then the data must exhibit time series variation in a worker's moral index across occupations. Since occupational moral index do not change[3], such time series variation in the level of occupational moral index can only arise if workers switch jobs. Provided enough workers switch and that initial and final occupational moral index levels are sufficiently different, then "switchers" will generate sufficient time series variation to identify the effect of occupational moral index on hourly compensation.

Equation 6 provides a useful robustness check on the results obtained in Equation 5 by limiting our sample exclusively to job switchers (workers changing both occupation and industry). However, it is important to note that with Equations 5 and 6, we cannot rule out bias due to possible correlation between time-varying unobservable heterogeneity and occupational moral index.

4 Results

To begin, we use Equation 5 to estimate the relationship between hourly compensation and the occupational moral index for all workers, as shown in Table 3. We present three different specifications: (1) without controlling for observed and unobserved characteristics of workers; (2) controlling only for observed characteristics of workers; and (3) controlling for both observed and unobserved characteristics of workers. Additionally, for specifications (2) and (3), we include a set of year, region, and urban dummies, as explained previously.

Next, we use a sample that identifies changes in compensation exclusively among job switchers (workers changing both occupation and industry) by estimating Equation 6 as presented in Table 4. We provide three different specifications: (1) without any controls; (2) with all controls except age and race/ethnicity variables; and (3) including all controls. The next two subsections check the robustness of our results and examine the heterogeneous impacts among workers with and without college education.

[3]O*NET updates ratings for occupations on a rolling basis; it takes several years for all occupations to have revised ratings.

4.1 Level Compensation

The presence of a compensation penalty is evident in Table 3. The estimated coefficient of the occupational moral index, which varies from 0 to 1, indicates the impact on hourly compensation when workers shift from jobs that frequently require them to compromise their moral compass to jobs that are less likely to require such compromise. We interpret these estimates as a movement across the interdecile range of the occupational moral index, specifically from 0.41 to 0.85.[4] For example, in column (3), when accounting for observed and unobserved worker characteristics, non-moral-related job characteristics, and fixed-effects such as year, region, urban, and industry, the coefficient estimate of -0.053 indicates that a movement across the interdecile range of the occupational moral index is associated with a 2.3 percent reduction in hourly compensation, holding all other factors constant.[5]

Variables	(1)	(2)	(3)
Occupational Moral Index	-0.519***	-0.115***	-0.053***
	(0.010)	(0.011)	(0.012)
Constant	3.126***	2.106***	2.145***
	(0.007)	(0.032)	(0.030)
Observations	72,544	72,544	72,544
R-squared	0.037	0.452	0.679
Year FE	No	Yes	Yes
Region FE	No	Yes	Yes
Urban FE	No	Yes	Yes
Industry FE	No	Yes	Yes
Demography Controls	No	Yes	No
Human Capital and Labor Supply Controls	No	Yes	Yes
Job Characteristics Controls	No	Yes	Yes
Person FE	No	No	Yes

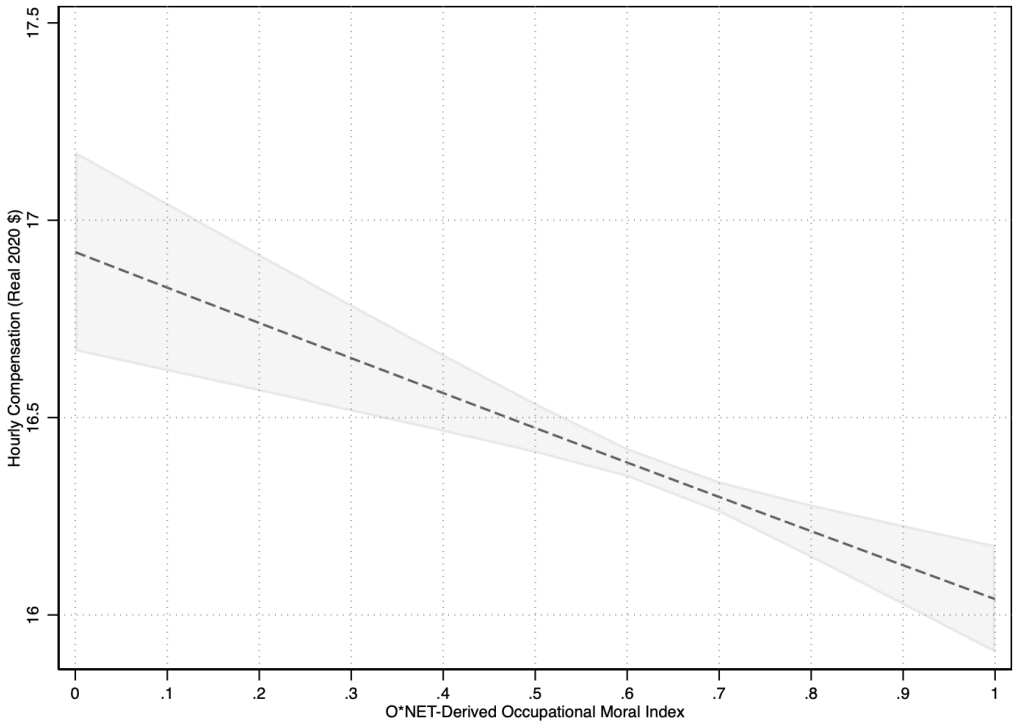
Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable is ln(real hourly compensation). Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 3. Parameter Estimates of Occupational Moral Index vis-a-vis Natural Log of Total Hourly Compensation

We utilized Equation 5 to make predictions regarding hourly compensation, using the estimates from column (3) of Table 3. Our analysis, as depicted in Figure 2, demonstrates that predicted hourly compensations decrease for occupations with lower moral compromise, assuming that other factors remain constant. This suggests that jobs involving

[4]The interdecile range is the difference between the first and the ninetieth deciles (10% and 90%).

[5]Percent Difference = (Coefficient Estimate $\times$ Interdecile Range of Occupational Moral Index) $\times$ 100.



Notes: The shaded area on the graph represents the 95% confidence interval for the predicted hourly compensation. The estimates from column (3) in Table 3 are used for this prediction. Occupational Moral Index is scaled from zero to one using min-max standardization.

Figure 2. Predicted Association between Occupational Moral Index and Total Hourly Compensation

moral compromise offer higher compensation compared to those with less moral compromise.

4.2 Change in Compensation

The results of the analysis on the change in compensation, as presented in Table 4, closely align with our findings from the analysis on compensation level, as shown in Table 3. By comparing the change in the coefficient of the occupational moral index in column (3) of Table 3 with those in all columns of Table 4, we observe a similar magnitude. Specifically, across the interdecile range of change in the occupational moral index (-0.16 to 0.13), the coefficient estimate of -0.042 in column (3) of Table 4 indicates that moving from an occupation where workers are often asked to compromise their sense of right and wrong to an occupation where workers are less likely to do so is associated with a 1.22% reduction in hourly compensation change, holding all other factors constant.

Figure 3 shows that the predicted change in hourly compensation decreases as occupations become progressively less morally compromised, assuming all other factors remain constant. This suggests that workers who transition from highly morally compromised

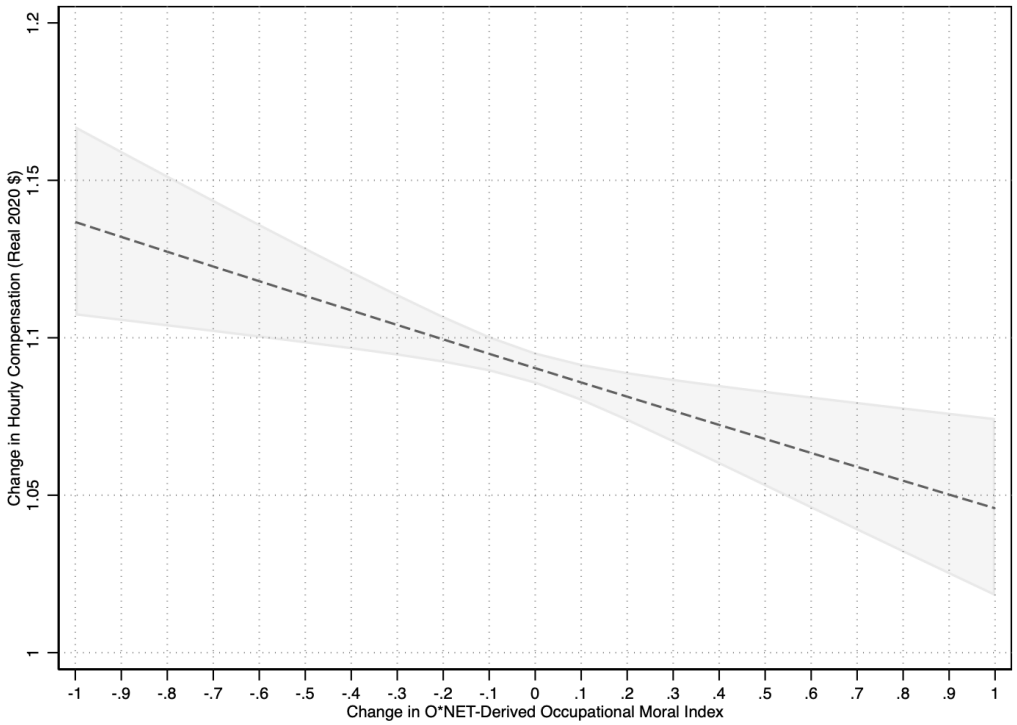
occupations to less compromised occupations experience a compensation penalty. Thus, workers who are asked to compromise their sense of right and wrong in their job are often offered higher compensation as an incentive. Conversely, workers who choose to work in morally upright occupations may face lower compensation as a result.

Variables	(1)	(2)	(3)
Δ Occupational Moral Index	-0.031**	-0.042***	-0.042***
	(0.012)	(0.013)	(0.013)
Constant	0.087***	-0.014	-0.003
	(0.002)	(0.061)	(0.061)
Observations	29,762	29,762	29,762
R-squared	0.000	0.085	0.086
Year FE	No	Yes	Yes
Region FE	No	Yes	Yes
Urban FE	No	Yes	Yes
Industry FE	No	Yes	Yes
Demography Controls	No	No	Yes
Δ Human Capital and Labor Supply Controls	No	Yes	Yes
Δ Job Characteristics Controls	No	Yes	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. Δ Human Capital and Labor Supply Controls consist of changes in college educated, union membership, self-employment status, years of employment experience. Δ Job Characteristics Controls include changes in O*NET-derived indices. Dependent variable is Δln(real hourly compensation). Δ Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 4. Parameter Estimates of Change in Occupational Moral Index vis-a-vis Change in Natural Log of Total Hourly Compensation—Industry/Occupation Switchers Only

This trend implies that there is a wage premium associated with making moral compromises in the workplace, which is consistent with previous studies on other disamenities such as physical hazards, exposure to dangerous materials, irregular shift schedules, job stress, and dirty jobs (Smith, 1979; Olson, 1981; Arnould and Nichols, 1983; Leeth and Ruser, 2003; Garen, 1988; Lanfranchi et al., 2002; French and Dunlap, 1998; Villanueva, 2007). Workers who overlook moral concerns or engage in unethical practices may be financially rewarded for their actions, compensating for the psychological discomfort they may experience. Conversely, workers who choose to work in morally upright occupations may face lower compensation as a result.



Notes: The shaded area on the graph represents the 95% confidence interval for the predicted change in hourly compensation. The estimates from column (3) in Table 4 are used for this prediction. Δ Occupational Moral Index is scaled from zero to one using min-max standardization.

Figure 3. Predicted Association between Change in Occupational Moral Index and Change in Total Hourly Compensation

4.3 Robustness

In this subsection, we conduct sensitivity tests on the previously discussed results, focusing on fours aspects: (1) incorporating an occupational autonomy index derived from O*NET; (2) limiting the sample to workers who have completed educational training; (3) restricting the sample to workers who are 24 years of age or older; and (4) clustering standard errors by occupation. All of these tests are performed using Equation 5.[6] In all tests, we also consider real hourly compensation as an outcome variable.

First, the autonomy index captures the extent of autonomy or decision-making authority that workers have in their jobs, which can be an important factor affecting hourly compensation. Workers in occupations with higher autonomy may have more control over their work environment and may be able to negotiate higher wages without compromising their sense of right and wrong in their jobs. Moreover, empirical evidence suggests that autonomy in the workplace can significantly impact various outcomes, including job satisfaction, job performance, and compensation (Arai, 1994; Carr and Mellizo, 2013).

[6]The findings of these sensitivity tests using Equation 6 can be found in the Appendix.

Column (1) in Table 5 indicates a compensation penalty even with the inclusion of the O*NET-derived occupational autonomy index, and the magnitude of the coefficient is similar to that of column (3) in Table 3.

Variables	(1)	(2)	(3)	(4)
Occupational Moral Index	-0.049***	-0.033**	-0.054***	-0.053**
	(0.013)	(0.013)	(0.016)	(0.024)
Constant	2.140***	2.278***	2.317***	2.145***
	(0.031)	(0.037)	(0.044)	(0.040)
Observations	67,823	60,040	46,662	72,544
R-squared	0.680	0.709	0.731	0.679
All Controls	Yes	Yes	Yes	Yes
Person FE	Yes	Yes	Yes	Yes
O*NET-Derived Autonomy Index	Yes	No	No	No
Education Restriction	No	Yes	No	No
Age Restriction	No	No	Yes	No
Occupation Cluster	No	No	No	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is ln(real hourly compensation). All controls consist of a set of year, region, urban, and industry dummies, as well as human capital and labor supply variables, and other job characteristics as specified in Table 2. Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 5. Sensitivity of Parameter Estimates of Occupational Moral Index vis-a-vis Natural Log of Total Hourly Compensation

Second, as mentioned earlier, the NLSY97 dataset comprises relatively young individuals, with ages ranging from 33 to 37 years in the most recent observed year (2017). Consequently, many of the person-year-job observations used in the analysis thus far pertain to workers who are still enrolled in education. To address this, we subset the NLSY97 data to include only observations where workers have completed their educational training, in an effort to capture more permanent employment endeavors. This restriction allows us to test the sensitivity of the results to the potential presence of uncharacteristically low or high compensation observations. Despite this restriction, we still observe a compensation penalty across the range of the occupational moral index, as shown in column (2) of Table 5.

Third, in order to mitigate potential bias that may arise from including younger workers who are still in the early stages of their careers and may have different compensation patterns compared to more experienced workers, we restrict the sample to workers who are 24 years old and older. This is because our analysis so far has looked at all workers who are 18 years and older. This test allows us to examine whether the relationship between the occupational moral index and hourly compensation holds true across different age

groups. Again, we observed a compensation penalty and observe a similar coefficient of magnitude (column (3) of Table 5) to the estimate in column (3) of Table 3.

There are two limitations of using O*NET job skill/task measures that deserve mentioning. Firstly, the O*NET values assigned to each occupation remain fixed over time. Secondly, the value of each O*NET attribute does not vary among workers within the same occupation. While we are not concerned about the first issue due to the gradual changes in relative occupational differences in attributes, the measurement of job attributes at the occupation level rather than the individual worker level is a more serious concern. This is because there is heterogeneity in job characteristics within detailed occupations, and these characteristics may vary to some extent across workers. It is unclear whether and to what extent measurement error in O*NET job attributes is addressed through a set of person fixed-effects and/or differencing in panel analysis. Because job attributes are measured at the occupation level rather than the individual level, our final sensitivity test is to cluster standard errors by occupation. As expected, the coefficient of magnitude in column (4) of Table 5 is exactly the same as that of column (3) in Table 3, with the significant level reduced to under 5%. However, we still observe a compensation penalty even with this inclusion.

Variables	(1)	(2)	(3)	(4)
Occupational Moral Index	-1.974***	-1.216***	-1.763***	-1.904***
	(0.296)	(0.314)	(0.411)	(0.542)
Constant	8.497***	10.746***	7.549***	8.383***
	(0.650)	(0.785)	(1.021)	(0.821)
Observations	67,823	60,040	46,662	72,544
R-squared	0.641	0.679	0.703	0.639
All Controls	Yes	Yes	Yes	Yes
Person FE	Yes	Yes	Yes	Yes
Autonomy Index	Yes	No	No	No
Education Restriction	No	Yes	No	No
Age Restriction	No	No	Yes	No
Occupation Cluster	No	No	No	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is real hourly compensation. All controls consist of a set of year, region, urban, and industry dummies, as well as human capital and labor supply variables, and other job characteristics as specified in Table 2. Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 6. Sensitivity of Parameter Estimates of Occupational Moral Index vis-a-vis Total Hourly Compensation

Finally, Table 6 performs identical tests to those presented in Table 5, but with the outcome variable of interest being real hourly compensation instead of the natural logarithm. Once

again, we observe a consistent compensation penalty across the occupational moral index, with similar magnitudes of coefficients.

4.4 Heterogeneous Effects

In this subsection, we investigate if the previously estimated compensation penalties are consistently applicable to workers with and without a college education. Thus, we estimate the following equation:

$$lnW_{ijt} = \beta M_{ijt} + \pi COLLEGE_{it} + \psi(M_{ijt} \times COLLEGE_{it}) + X'_{ijt}\gamma + \delta_t + \alpha_i + \lambda_{ijt} + \sigma_{ijt} + \omega_{ijt} + \epsilon_{ijt} \quad (7)$$

The terms are the same as in Equation 5. However, the coefficients of interest are β and ψ. The estimated main effect (β) captures the association between the occupational moral index and compensations among workers without a college education, while the estimated interaction effect, combined with the estimated main effect ($\beta + \psi$), captures the association between the occupational moral index and compensations among college-educated workers.

We present the results in Table 7. Specifically, we focus on column (3), which considers both observed and unobserved worker characteristics, as well as a set of year, region, and urban dummies. The results in column (3) indicate that jobs with lower levels of moral compromise intensity are associated with lower compensations among workers without a college education, holding all other factors constant. The coefficient estimate of -0.022 shows that moving across the interdecile range of the occupational moral index, from 0.41 to 0.85, is associated with a 0.97 percent reduction in total hourly compensations.

On the other hand, among workers with a college education, jobs with lower moral compromise are associated with even lower compensations, all else being equal. Combining the main and interaction effects in column (3) suggests that a similar movement across the interdecile range of the occupational moral index is associated with a 7.3 percent reduction in total hourly compensations for workers with a college education. We depict these findings graphically in Figure 4.

As depicted in Figure 4, the predicted real hourly compensation for workers without a college education remains relatively constant across the range of the occupational moral index, with a compensating difference of about \$0.31 $(15.82 - 15.51)$ per hour between the most and least morally compromising occupations. However, for college-educated workers, the compensating difference is about \$3.28 $(21.34 - 18.06)$ per hour. Neverthe-

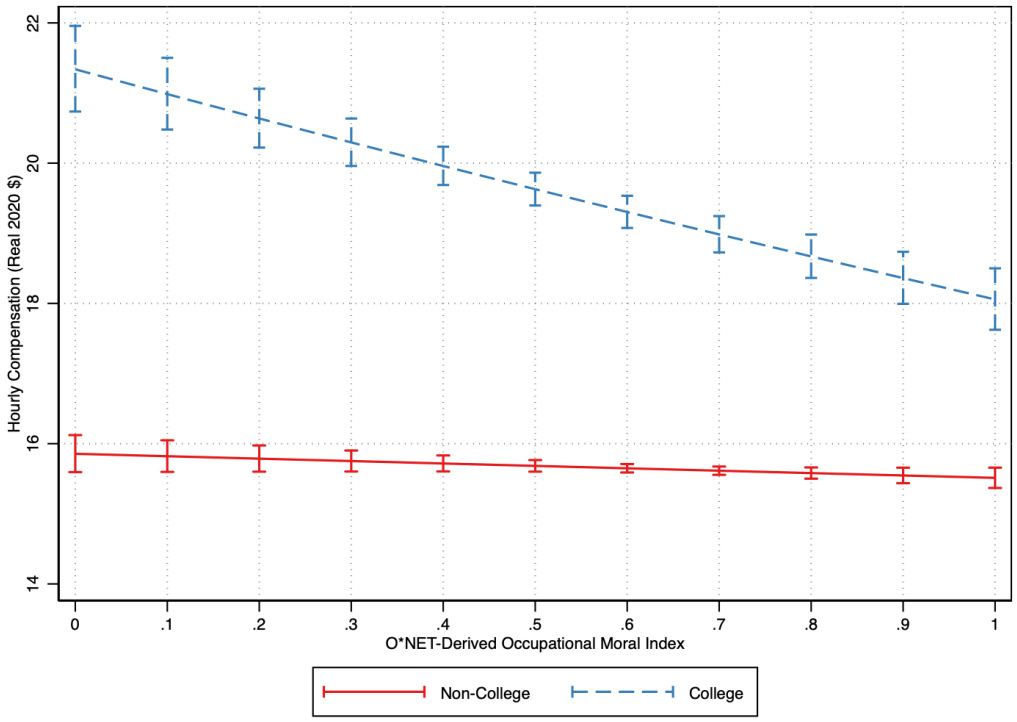
Variables	(1)	(2)	(3)
Occupational Moral Index	-0.170***	-0.066***	-0.022*
	(0.011)	(0.012)	(0.013)
College	0.543***	0.308***	0.297***
	(0.016)	(0.014)	(0.016)
Occupational Moral Index × College	-0.269***	-0.199***	-0.145***
	(0.027)	(0.023)	(0.026)
Constant	2.822***	2.074***	2.124***
	(0.008)	(0.032)	(0.030)
Observations	72,544	72,544	72,544
R-squared	0.144	0.453	0.679
Year FE	No	Yes	Yes
Region FE	No	Yes	Yes
Urban FE	No	Yes	Yes
Industry FE	No	Yes	Yes
Demography Controls	No	Yes	No
Human Capital and Labor Supply Controls	No	Yes	Yes
Job Characteristics Controls	No	Yes	Yes
Person FE	No	No	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable is ln(real hourly compensation). Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 7. Parameter Estimates of Occupational Moral Index by College Education vis-a-vis Natural Log of Total Hourly Compensation

less, due to the relatively large estimated compensation penalty among college-educated workers, the predicted hourly compensations for workers with and without a college education appear to converge in occupations with least moral compromise, suggesting that the compensation gap between college-educated and non-college-educated workers may be smaller in occupations with lower levels of moral compromise, when all other factors are equal.

The disparity in compensation between workers with a college education and those without, as evidenced by Table 7 and Figure 4, may be explained by two well-known labor theories. Human Capital Theory, proposed by Becker (1993) suggests that skills acquired through higher education can impact labor market outcomes, including compensation. This implies that college-educated individuals may have more choices when it comes to job selection without having to compromise their moral principles, and therefore may require higher compensation. Additionally, Job Market Signaling Theory, as proposed by Spence (1978), posits that education serves as a signal of an individual's ability and productivity to potential employers. As a result, employers may be aware of the alterna-



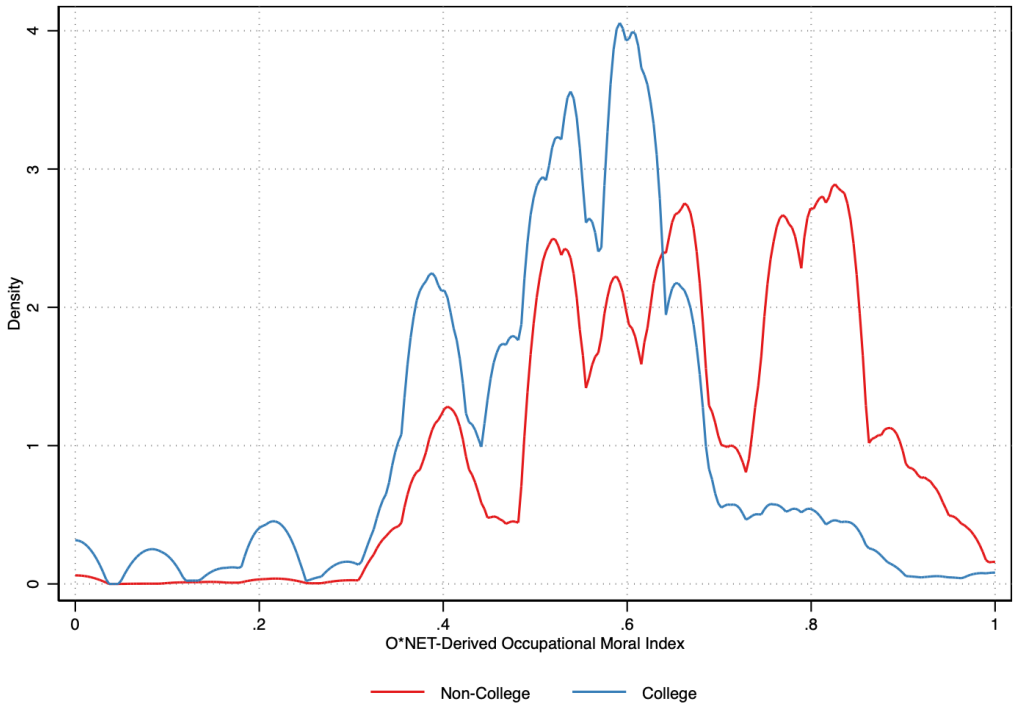
Notes: Spikes represent the 95% confidence interval for the predicted total hourly compensation. The estimates from column (3) in Table 7 are used for this prediction. O*NET-Derived Occupational Moral Index is scaled from zero to one using min-max standardization.

Figure 4. Predicted Association between Occupational Moral Index and Total Hourly Compensation by College Education

tive job options available to college-educated workers, and higher compensation may be necessary to incentivize these workers to compromise their moral values.

Although our NLSY97 sample does not allow for direct testing of these theories, they provide insights into why there may be a compensating difference between workers with and without a college education in jobs that require compromising one's moral compass. College-educated individuals may have different outside options and higher bargaining power that influence their compensation preferences in the presence of psychological discomfort caused by conflicting moral values.

Figure 5 displays the representation of NLSY97 sample distribution in relation to non-college and college-educated workers across the O*NET-derived occupational moral index. It is important to note that there is an uneven distribution of non-college educated workers and college-educated workers across occupations that often require workers to compromise their moral sense of right and wrong. While the error bars in Figure 4 for the predicted hourly compensation for non-college educated workers are relatively small, we should still exercise caution in drawing conclusive findings from these results, due to the uneven distribution between non-college educated workers and college-educated work-



Notes: O*NET-Derived Occupational Moral Index is scaled from zero to one using min-max standardization.

Figure 5. Kernel Density Distribution of NLSY97 Occupations Across the O*NET-Derived Moral Index by Non-College and College Educated Workers

ers in occupations that often require compromising of their moral compass.

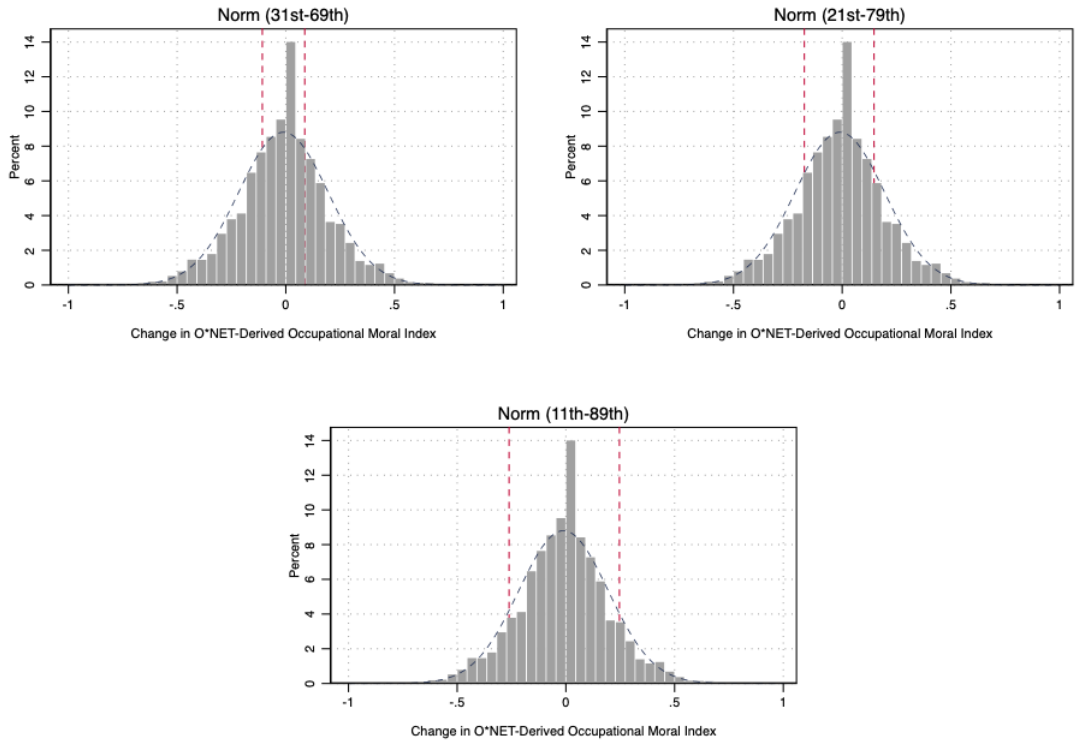
5 Extended Analysis

5.1 Asymmetric Effects

Until now, our empirical models have assumed a symmetrical relationship between the occupational moral index and hourly compensation. In this section, we will present empirical test results that relax this assumption. Specifically, we will focus on a sample of switchers who have changed occupations/industries and examine different movements across the change in the occupational moral index. To conduct our tests, we will refer to Figure 6 and utilize Equation 6. By doing so, we aim to gain a deeper understanding of the true relationship between the occupational moral index and hourly compensation.

We generated three categorical variables: low, medium, and high occupational moral index. These variables are displayed in Figure 6. For example, the third panel of Figure 6 compares workers in occupations that belong to the lowest 10 percentile of the occupational moral index (which indicates the highest level of moral compromise) to those in the

normal range of the 11th-89th occupational moral index. In addition, the third panel of Figure 6 also compares workers in occupations that are in the top 10 percentile of the occupational moral index (which indicates the lowest level of moral compromise) to those in the normal range of the 11th-89th occupational moral index.



Notes: Change in O*NET-Derived Occupational Moral Index is scaled from zero to one using min-max standardization.

Figure 6. Distribution of Change in O*NET-Derived Occupational Moral Index from Job Switching

Table 8 presents evidence supporting an asymmetric relationship between changes in the occupational moral index and total hourly compensation. This relationship is influenced by the degree of moral compromise present in the job. Specifically, when workers switch to jobs with higher levels of moral compromise, they tend to experience an increase in hourly compensation. Conversely, when they transition to jobs with lower levels of moral compromise, the decrease in compensation is more modest.

However, the magnitude and statistical significance of this relationship vary depending on the percentile of the change in the occupational moral index. For instance, in column (1) of Table 8, an increase in hourly compensation is observed for workers who move from jobs with lower moral compromise to those with higher moral compromise. However, there is no statistically significant decrease in hourly compensation for workers who move from jobs with higher moral compromise to those with lower moral compromise.

Additionally, in columns (2) and (3), the increase in hourly compensation is larger and statistically significant for workers who move to jobs with higher levels of moral compromise within the lower percentiles of the change in the occupational moral index. Conversely, the decrease in hourly compensation for workers moving to jobs with lower levels of moral compromise within the higher percentiles of the change in the occupational moral index is smaller and not statistically significant.

Variables	(1)	(2)	(3)
Down $\leq$ 30th	0.016***		
	(0.006)		
Up $\geq$ 70th	-0.003		
	(0.006)		
Down $\leq$ 20th		0.019***	
		(0.007)	
Up $\geq$ 80th		-0.012*	
		(0.006)	
Down $\leq$ 10th			0.020**
			(0.008)
Up $\geq$ 90th			-0.005
			(0.009)
Constant	0.002	0.006	0.004
	(0.062)	(0.062)	(0.062)
Observations	29,769	29,769	29,769
R-squared	0.085	0.086	0.085
Year FE	Yes	Yes	Yes
Region FE	Yes	Yes	Yes
Urban FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Demography Controls	Yes	Yes	Yes
Δ Human Capital and Labor Supply Controls	Yes	Yes	Yes
Δ Characteristics Controls	Yes	Yes	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable is ln(real hourly compensation). The base category for column (1) is: Δ Norm (31st-69th); the base category for column (2) is: Δ (21st-79th); and the base category for column (3) is: Δ Norm (11th-89th). The term *"Down"* refers to workers transitioning from jobs that require less compromise of moral sense of right and wrong to jobs that require more compromise of moral sense of right and wrong. Conversely, the term *"Up"* refers to workers transitioning from jobs that require more compromise of worker moral sense of right and wrong to jobs that require less compromise of worker moral sense of right and wrong. Change in O*NET-Derived Occupational Moral Index is scaled from zero to one using min-max standardization.

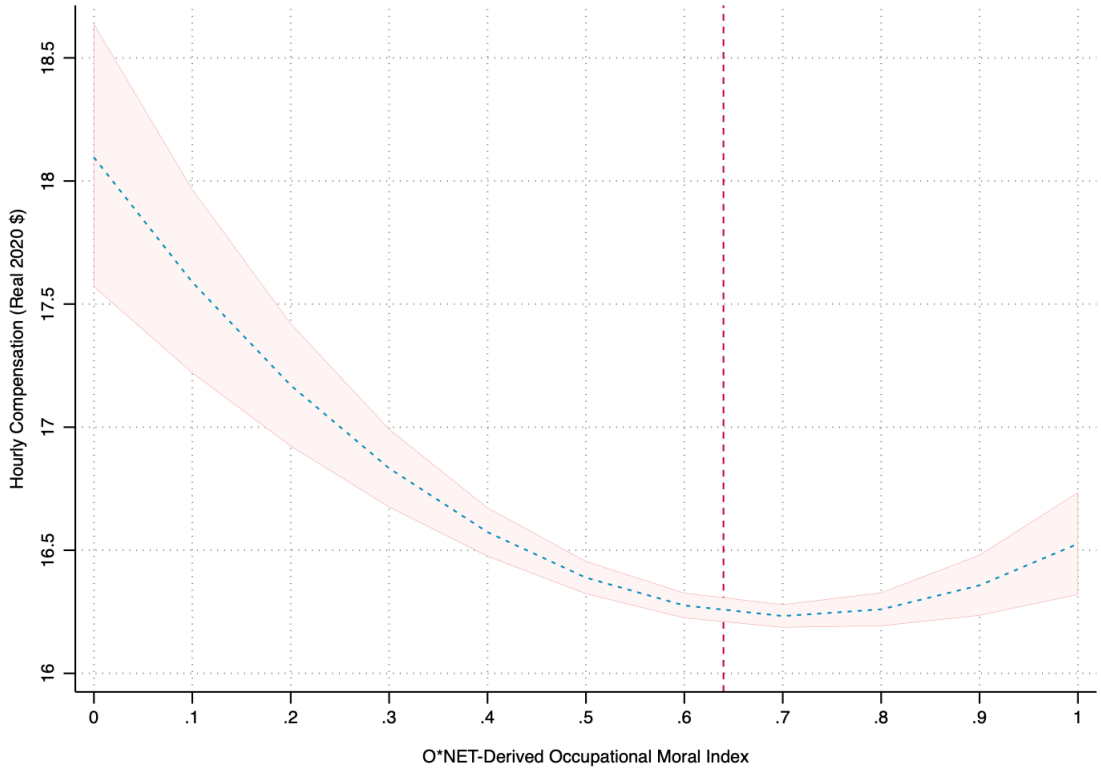
Table 8. Parameter Estimates of Association between Change in Occupational Moral Index Categories and Change in Natural Log of Total Hourly Compensation

5.2 Quadratic Transformation of Occupational Moral Index

In this section, and informed by results in the previous section pertaining to asymmetric effects, we make an assumption about the quadratic nature of the occupational moral index. We estimate the equation below:

$$lnW_{ijt} = \beta_0 M_{ijt} + \beta_1 M_{ijt}^2 + X'_{ijt}\gamma + \delta_t + \alpha_i + \lambda_{ijt} + \sigma_{ijt} + \omega_{ijt} + \epsilon_{ijt} \tag{8}$$

We use the same terms defined in Equation 5, but add the term M_{ijt}^2. In this case, we assume that the O*NET-derived occupational model index is quadratic. Our decision to assume a quadratic relationship between moral compromise across occupations and hourly compensation is based on our asymmetric analysis. The findings suggest that the relationship between these two variables may not be linear. By assuming a quadratic relationship between moral compromise and compensation, we can explore whether a threshold effect exists and, if so, at what point it occurs. This can provide valuable insights into how occupational moral compromise affects compensation.



Notes: The shaded area in the table represents the 95% confidence interval for the predicted total hourly compensation. The vertical dotted line indicates the mean O*NET-Derived Occupational Moral Index. O*NET-Derived Moral Index is scaled from zero to one using min-max standardization.

Figure 7. Predicted Association between Quadratic Occupational Moral Index and Total Hourly Compensation.

In Figure 7[7], we can see that there is a wage premium for occupations that require workers to compromise their moral values, while there is no such premium for occupations that are at the mean. The reason for the wage premium in high-compromise occupations could be that these jobs are emotionally and psychologically more demanding, resulting in stress and discomfort for the workers. As a result, workers may experience high turnover, absenteeism, and reduced job satisfaction, negatively impacting their productivity and work quality. Employers may offer higher wages to attract and retain workers in these positions. This is because, in a competitive labor market, higher wages can offset some of the negative effects associated with working in these jobs.

Conversely, the absence of a wage premium for average jobs implies that workers in these positions do not face the same level of moral compromise as those in high-compromise jobs. Such jobs may be more routine and require less emotional labor, making it unnecessary for employers to offer higher wages to retain employees. However, it is important to note that these explanations are general observations, and other factors may also contribute to the observed wage premiums or lack thereof.

6 Study Limitations

There are a number of important limitations to our study that need to be emphasized. First, as previously mentioned, solely using person fixed-effects is insufficient to adjust for any time-varying residual confounding linked to job change selection (i.e., endogenous job change), which can lead to biased longitudinal estimates. To ensure the reliability of our findings derived from person fixed-effects, we focused exclusively on occupation switchers and used the first-differencing method as a robustness check. Nevertheless, even though the magnitudes of the two approaches are similar, there may still be other time-varying confounders that should be considered. Specifically, job changes are likely to be endogenous rather than random, and may be associated with changes in compensation. Endogenous selection is likely to influence our coefficients in different directions based on whether workers move to occupations with lower or higher levels of moral compromise. Consequently, we acknowledge that our estimates may, at best, be conservative.

Second, although longitudinal data enables us to observe and control for labor supply and employment history, a downside of these data is that they often represent relatively small samples that may not be occupationally representative of the broader economy. In other words, we cannot state with certainty whether we can observe the same results

[7]Estimates from Equation 8 is available in the Appendix.

when considering workers who are 38 years and older and not included in our study. However, despite these caveats, our findings provide novel evidence on another form of job disamenity, specifically conscience, which has received limited attention in studies of compensating wage differentials.

7 Conclusion

In our analysis, we investigate the existence of compensating differentials in the U.S. labor market concerning the degree of moral compromise required in various occupations. Specifically, we examined whether jobs that demand workers to compromise their moral values offer higher compensation to offset the disamenities that contradict their moral beliefs. We controlled for time-invariant heterogeneity and found that jobs that require moral compromise indeed offer higher compensation. However, our heterogeneity analysis uncovered two key findings: (1) we observed that workers with a college education tend to receive higher pay in jobs that require moral compromise compared to those without a college education; (2) we found that workers without a college education do not receive a compensation premium for moral compromise. The stronger association between compensation and moral compromise among college-educated workers may be attributed to their greater bargaining power and more abundant employment opportunities, which influence their compensation preferences (Spence, 1978; Becker, 1993).

Moreover, we discovered an asymmetric relationship between changes in the occupational moral index and total hourly compensation, indicating that the relationship is responsive to the intensity of moral compromise in the job. It is important to note the issue of endogeneity concerning the level of moral compromise required in various occupations. To control for selection bias, we captured unobserved heterogeneity with fixed effects. Future studies should explore the role of time-varying heterogeneity as data allows.

References

Arai, M. (1994). Compensating Wage Differentials Versus Efficiency Wages: An Empirical Study of Job Autonomy and Wages. *Industrial Relations: A Journal of Economy and Society 33*(2), 249–262.

Arnould, R. J. and L. M. Nichols (1983). Wage-Risk Premiums and Workers' Compensation: A Refinement of Estimates of Compensating Wage Differential. *Journal of Political Economy 91*(2), 332–340.

Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago press.

Carr, M. D. and P. Mellizo (2013). The relative effect of voice, autonomy, and the wage on satisfaction with work. *The International Journal of Human Resource Management 24*(6), 1186–1201.

Clemens, J. and M. Wither (2019). The Minimum Wage and the Great Recession: Evidence of Effects on the Employment and Income Trajectories of Low-Skilled Workers. *Journal of Public Economics 170*, 53–67.

French, M. T. and L. J. Dunlap (1998). Compensating Wage Differentials for Job Stress. *Applied Economics 30*(8), 1067–1075.

Garen, J. (1988). Compensating Wage Differentials and the Endogeneity of Job Riskiness. *the Review of Economics and Statistics*, 9–16.

Hwang, H.-s., D. T. Mortensen, and W. R. Reed (1998). Hedonic wages and labor market search. *Journal of Labor Economics 16*(4), 815–847.

Lanfranchi, J., H. Ohlsson, and A. Skalli (2002). Compensating Wage Differentials and Shift Work Preferences. *Economics Letters 74*(3), 393–398.

Leeth, J. D. and J. Ruser (2003). Compensating Wage Differentials for Fatal and Nonfatal Injury Risk by Gender and Race. *Journal of Risk and Uncertainty 27*(3), 257–277.

Olson, C. A. (1981). An analysis of wage differentials received by workers on dangerous jobs. *Journal of Human Resources*, 167–185.

Ruggles, S., S. Flood, R. Goeken, J. Grover, E. Meyer, J. Pacas, and M. Sobek (2020). IPUMS USA: Version 10.0 [dataset]. *Minneapolis, MN: IPUMS 10*, D010.

Smith, R. S. (1979). Compensating Wage Differentials and Public Policy: A Review. *ILR Review 32*(3), 339–352.

Spence, M. (1978). Job market signaling. In *Uncertainty in Economics*, pp. 281–306. Elsevier.

Villanueva, E. (2007). Estimating Compensating Wage Differentials Using Voluntary Job Changes: Evidence from Germany. *ILR Review 60*(4), 544–561.

Appendix

This section provides supplementary results and robustness checks. Specifically, we investigate real hourly compensation as an outcome variable and present the corresponding findings in Tables 9. Furthermore, we conduct additional robustness checks by exclusively restricting the analysis to occupational and industry switchers and report the results in Table 10. In addition, we present our estimates of the quadratic transformation of the O*NET-derived occupational moral index in 11.

Variables	(1)	(2)	(3)	(4)
Occupational Moral Index	-11.202***	-3.059***	-3.059***	-3.059***
	(0.210)	(0.228)	(0.228)	(0.228)
Constant	22.196***	4.509***	4.509***	4.509***
	(0.147)	(0.543)	(0.543)	(0.543)
Observations	72,544	72,544	72,544	72,544
R-squared	0.044	0.467	0.467	0.467
Year FE	No	Yes	Yes	Yes
Region FE	No	Yes	Yes	Yes
Urban FE	No	Yes	Yes	Yes
Industry FE	No	Yes	Yes	Yes
Demography Controls	No	Yes	Yes	No
Human Capital and Labor Supply Controls	No	Yes	Yes	Yes
Job Characteristics Controls	No	Yes	Yes	Yes
Person FE	No	No	No	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable is Real Hourly Compensation. Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 9. Parameter Estimates of Occupational Moral Index vis-a-vis Total Hourly Compensation

Variables	(1)	(2)	(3)	(4)
Δ Occupational Moral Index	-0.037**	-0.038**	-0.049***	-0.042**
	(0.015)	(0.015)	(0.018)	(0.018)
Constant	-0.009	0.019	0.033	-0.002
	(0.064)	(0.075)	(0.089)	(0.089)
Observations	25,698	24,796	18,694	29,772
R-squared	0.089	0.086	0.092	0.085
All Controls	Yes	Yes	Yes	Yes
Δ O*NET-Derived Autonomy Index	Yes	No	No	No
Education Restriction	No	Yes	No	No
Age Restriction	No	No	Yes	No
Occupation Cluster	No	No	No	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is Δ ln(real hourly compensation). All controls consist of a set of year, region, urban, and industry dummies, as well as human capital and labor supply variables, and other job characteristics as specified in Table 2. Δ Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 10. Sensitivity of Parameter Estimates of Change in Occupational Moral Index vis-a-vis Change in Natural Log of Total Hourly Compensation

Variables	(1) Log of Hourly Compensation	(2) Hourly Compensation
Occupational Moral Index	-0.306***	-7.480***
	(0.048)	(1.127)
Occupational Moral Index^2	0.215***	4.887***
	(0.038)	(0.874)
Constant	2.206***	6.582***
	(0.032)	(0.602)
Observations	72,544	72,544
R-squared	0.679	0.681
Year FE	Yes	Yes
Region FE	Yes	Yes
Urban FE	Yes	Yes
Industry FE	Yes	Yes
Demography Controls	No	No
Human Capital and Labor Supply Controls	Yes	Yes
Job Characteristics Controls	Yes	Yes
Person FE	Yes	Yes

Notes: Robust standard errors denoted in parentheses. Significance is represented as follows: *** p<0.01, ** p<0.05, * p<0.1. Occupational Moral Index is scaled from zero to one using min-max standardization.

Table 11. Parameter Estimates of Quadratic Occupational Moral Index vis-a-vis Total Hourly Compensation