Exploring the Relationship between Economic Conditions, Rural-Urban Differences and the Work Ethics of the Post-80s, 90s and 00s Generations

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Abstract. This research explores the relationship between generational differences, economic conditions, rural-urban differences, and 5 dimensions of work ethics (self-resilience, morality/ethics, leisure, hard work, and centrality of work). Online questionnaire results from 620 Chinese post-80s, the 90s, and 00s show that age differences bring no significant impact on the work ethics dimensions except for leisure and centrality of work. The younger generations more value their non-work activities than their work. In terms of economic conditions, it has a positive relationship with all the 5 dimensions of work ethics, except for leisure which is the reverse aspect of the others. In terms of rural-urban differences, individuals from rural areas show higher self-reliance and centrality to work, but no significant differences are found in other dimensions. In the concluding section, the theoretical and practical contributions are discussed, with limitations and suggestions for future research.

Keywords: Work ethics; work attitudes; economic conditions; rural-urban differences; generational differences; China.

1. Introduction

Selecting talent and making good use of them is always one of the core tasks of cooperation human resource management. It is no doubt that most organizations want to select employees with high work ethics. Work ethics refers to employees' attitudes towards work. It originated in Max Weber's writing in 1958[1]. While grounded in Protestant beliefs, the current concept of work ethics does not have any religious orientations [2]. Miller et al. point out that individuals with high work ethics put work at the centre of their life, avoid wasting time and comply with high moral standards [3]. Other research also shows that work ethics has positive relationships with employees' sense of responsibility [4], job performance, job satisfaction [5, 6], organizational commitment [6], innovation behaviour [7], well-being [5], and reduce social idleness [8], whereas it has a negative relationship with employees' concept of leisure [3].

The shape of work ethics has positive relationships with the individuals' ethnic values, work experience [9], and relationships with parents [10]. This indicates individuals' work ethics could be affected by the contexts they are in. There discovered a research gap that whether work ethics could be affected by other factors, such as their ages, economic conditions, and rural-urban backgrounds. In addition, despite there was more than a thousand research investigated the generational differences in work ethics, the research subjects were the Baby Boomers (born between 1946 and 1964), Generation X (born between 1965 and 1980), and Generation Y (born between 1981 and 1999), but no one took post-00s into account [11].

Considering these two research gaps, this research will investigate how age differences, economic conditions, and rural-urban background would shape individuals' work ethics, and the research subject is the post-80s, the 90s, and 00s in China. This research investigated Miller et al.'s 5 of the 7 dimensions of work ethics, including self-reliance, morality/ethics, leisure, hard work, and centrality of work [3]. The research result shows that for the different generations, their dimensions of work ethics have no noticeable differences, except for leisure and centrality of work dimensions. The younger the generations are, the more they value their nonwork activities. In terms of economic conditions, the better the economic conditions, the higher the work ethics scores (except for leisure because it is reversed to others). In terms of the rural-urban differences, it is shown that employees

from rural areas show higher self-reliliance and centrality of work but no significant differences are discovered in other dimensions.

In the next section, the data collection and analysis methods will be introduced. After that, the research findings will be shown and analyzed. In the last section, it will be a conclusion of the research findings with limitations and suggestions for future research.

2. Method

To achieve the research aim, quantitative online surveys were used to collect data. The obtained data was imported to the data analysis software, Stata, for analysis. Using Stata, the data was first processed through principal component analysis (PCA). Then, regression models were built under the PCA results to analyze the relationship between variables.

The questionnaire consists of two parts. The first part collected the respondents' basic information which was also the independent variable, namely their year born, monthly income, and background. The born year was used to investigate the age difference in individuals' work ethics. It was classified into three generations: (1) post-80s, (2) post-90s, and (3) post-00s. When answering this question, they were asked to give a score from 0 to 2 to represent their generation. The detailed age distribution can be seen in Fig 1. Another dependent variable is monthly income (unit: yuan), it was divided into four levels: (1) less than 2,000, (2) from 2,000 to 5,000, (3) from 5,000 to 10,000 and (4) more than 10,000, scored from 0 to 3. The detailed income distribution can be seen in Fig 2. The background is namely asked if the respondents are from a city or village, to seek for rural-urban difference's impact on work ethics. Score 0 represents they are from cities and 1 represents they are from rural areas. The detailed background distribution can be seen in Fig 3.

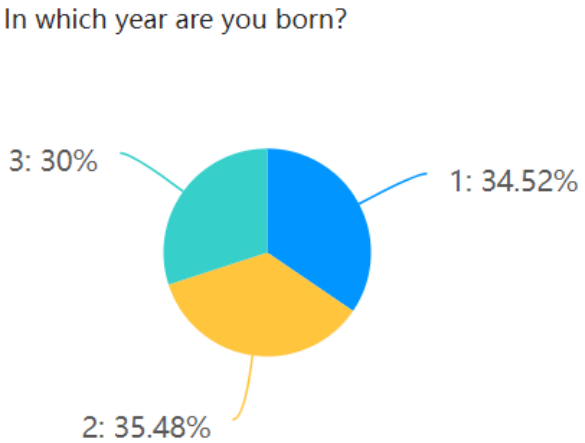

Figure 1. Age distribution

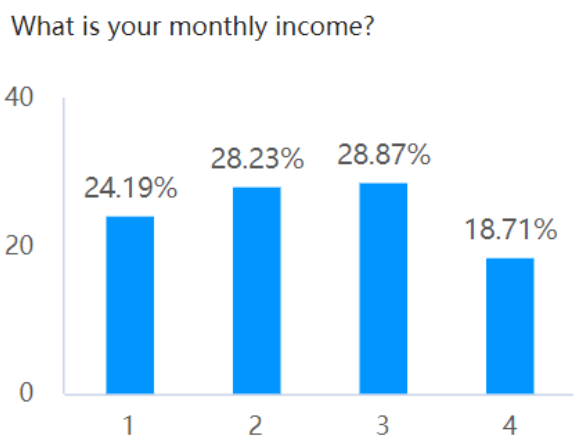

Figure 2. Income distribution

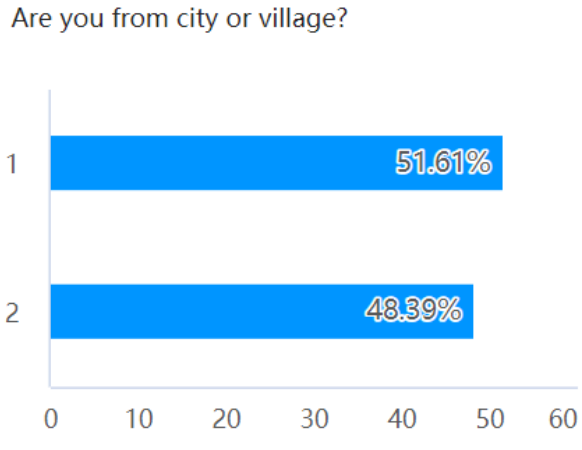

Figure 3. Background distribution

The second part of the questionnaire asks questions about the respondents' five dimensions of work ethics. The questions are from Miller et al.'s Multidimensional Work Ethic Profile (MWEP) (2002). Originally, Miller et al.'s MWEP consist of 65 items that investigate 7 dimensions of work ethics. They are self-reliance, morality/ethics, leisure, hard work and centrality of work, delay of gratification, and wasted time. This research only focuses on the first 5 dimensions, so accordingly, there left 50 items for this research. In total, there were 53 questions in the questionnaire.

The respondents were from different industries, occupations, and provinces in China. The samples' geographical distributions can be seen in Fig 4. More than 1,000 responses were collected. After excluding invalid responses, there were left 620 for analysis. Data analysis was done in Stata. The five dimensions of work ethics were analyzed separately. For each dimension, the main work ethics variables were first identified based on PCA. Then, the impact of economic conditions, rural-urban differences, and age differences on the work ethics dimensions were identified from the regression models.

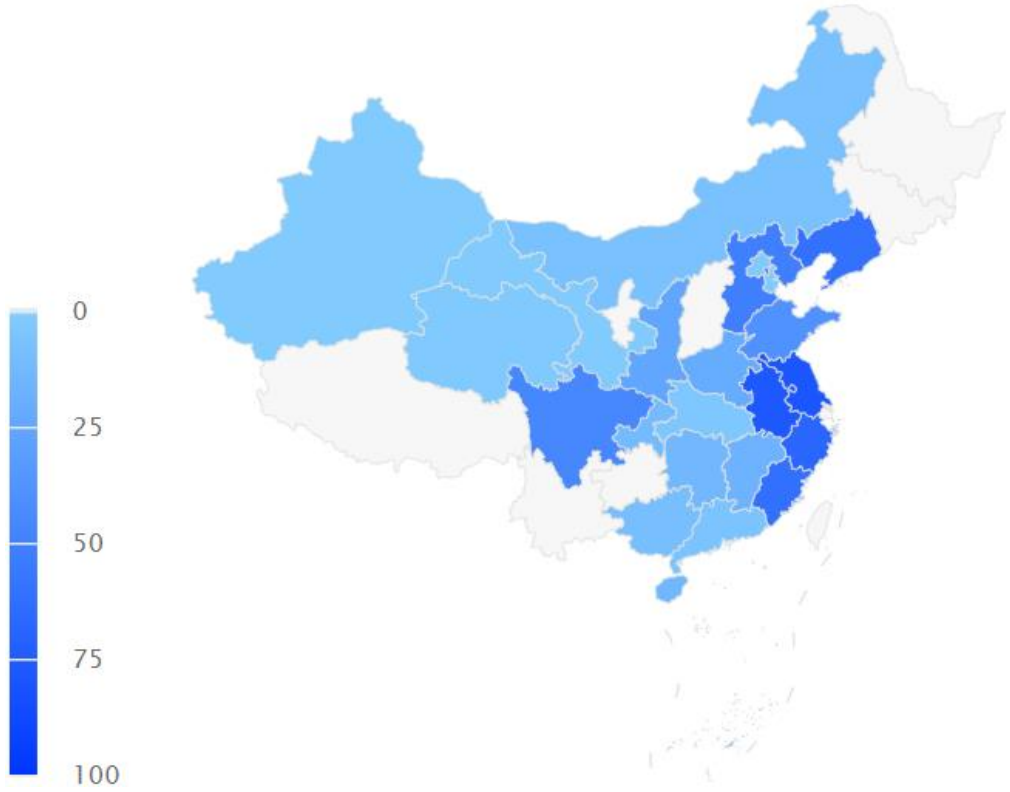

Figure 4. Geographical distribution

2.1 PCA

This research adopted principal component analysis (PCA) to identify the main indicators of work ethics dimensions. PCA is a widely-used approach in quantitative data analysis that aims to decrease the dimension of data but at the same time keep its properties. For comprehensive evaluations with multiple indicators, the important influences between each assessment indication can be removed by PCA. The mathematical transformation created information quality and the system impact number during the PCA process. The PCA is shown as follows.

X = (X1, X2, X3,…, Xn) is N-dimensional random vector. Its linear changes are as follows.

$$PC_1 = a_1'X = a_{11}X_1+a_{21}X_2+a_{31}X_3+\ldots+a_{n1}X_n \quad (1)$$

$$PC_2 = a_2'X = a_{12}X_1+a_{22}X_2+a_{32}X_3+\ldots+a_{n2}X_n \quad (2)$$

$$PC_3 = a_3'X = a_{13}X_1+a_{23}X_2+a_{33}X_3+\ldots+a_{n3}X_n \quad (3)$$

$$PC_n = a_n'X = a_{1n}X_1+a_{2n}X_2+a_{3n}X_3+\ldots+a_{nn}X_n \quad (4)$$

In this research, Stata software was used to do the PCA calculation. For each dimension of work ethics, a new variable was created as a representative. This new variable can reflect the information of the original variables to a certain extent. If the first main component cannot represent the whole meaning of the original variables, then the second main component will be added. If the first two cannot represent the whole meaning, then the third will be added, and so on. The number of the main components is depending on their accumulated contribution rate. The formula for the accumulated contribution rate is shown as follows.

$$AC = \sum_{k=1}^{m} \lambda k / \sum_{i=1}^{n} \lambda_i \quad (5)$$

In the formula, λ represents the characteristic value of each main component; k represents the selected number in the component; i represents all the main components.

The poetry analysis focus on the characteristic similarities of a group of subjects. The cluster analysis aims to classify the subjects which share similar properties into one group. After doing poetry and cluster analysis, the main factors of the five work ethics dimensions are identified.

2.2 Regression Model

In this research, the five dimensions of work ethics are considered dependent variables. Year born, income, and background are considered independent variables. Hence, the regression models were established to investigate the impact of age, economic status, and rural-urban differences on individuals' five dimensions of work ethics scores. The five dimensions of work ethics are namely self-reliance, morality/ethics, leisure, hard work, and centrality of work. A regression model was set up for each work ethic dimension. The regression model's formula can be seen as follows.

$$\text{Self-Reliance} = \beta0 + \beta1 \times \text{Year} + \beta2 \times \text{Income} + \beta3 \times \text{Background} \quad (6)$$

$$\text{Morality/Ethics} = \beta0 + \beta1 \times \text{Year} + \beta2 \times \text{Income} + \beta3 \times \text{Background} \quad (7)$$

$$\text{Leisure} = \beta0 + \beta1 \times \text{Year} + \beta2 \times \text{Income} + \beta3 \times \text{Background} \quad (8)$$

$$\text{Hard Work} = \beta0 + \beta1 \times \text{Year} + \beta2 \times \text{Income} + \beta3 \times \text{Background} \quad (9)$$

$$\text{Centrality of Work} = \beta0 + \beta1 \times \text{Year} + \beta2 \times \text{Income} + \beta3 \times \text{Background} \quad (10)$$

3. Results Analysis

This research utilizes PCA to calculate the five work ethics dimensions respectively and then utilizes the regression models to calculate the effects of the three dependent variables (age, income, and background) on the independent variables (the five work ethics dimensions). For each work ethics dimension, the result will be discussed separately as follows.

3.1 Results of Self Reliance

For the self-reliance dimension, based on the table of the characteristic value, contribution rate, and accumulation contribution rate, it was discovered that the first two factors are the major component because their eigenvalues are more than 1 but others are less than 1 (see Table 1 and Table 2). Hence, the self-reliance dimension was composed of these two components. Fig 5 is the grave yield that shows the same result. The results were calculated based on the software, Stata. The weight

of each factor is 0.2243 and 0.1002, respectively. Then the formula of self-reliance dimension is obtained as follows.

$$\text{Self-Reliance} = (0.2243 \times factor_1 + 0.1002 \times factor_2) / 0.3245 \quad (11)$$

Table 1. the characteristic value, contribution rate, and accumulation contribution rate of the main component of self-reliance

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	2.24252	1.24037	0.2243	0.2243
Factor2	1.00216	0.04581	0.1002	0.3245
Factor3	0.95635	0.04497	0.0956	0.4201
Factor4	0.91138	0.02517	0.0911	0.5112
Factor5	0.88621	0.01675	0.0886	0.5999
Factor6	0.86946	0.05122	0.0869	0.6868
Factor7	0.81824	0.03511	0.0818	0.7686
Factor8	0.78312	0.00521	0.0783	0.8469
Factor9	0.77791	0.02526	0.0778	0.9247
Factor10	0.75265	.	0.0753	1.0000

LR test: independent vs. saturated: chi2(45) = 350.24 Prob>chi2 = 0.0000

Table 2. Main ingredient load matrix of self-reliance

Variable	Factor1	Factor2	Uniqueness
Q6	0.4529	0.4006	0.6343
Q21	0.4665	-0.1577	0.7575
Q26	0.5051	0.0307	0.744
Q28	0.5208	-0.1592	0.7035
Q32	0.5375	0.1522	0.6879
Q34	0.4628	0.4067	0.6204
Q44	0.3994	-0.5865	0.4964
Q50	0.4508	-0.1113	0.7844
Q55	0.553	-0.2973	0.6057
Q59	0.3489	0.3964	0.7211

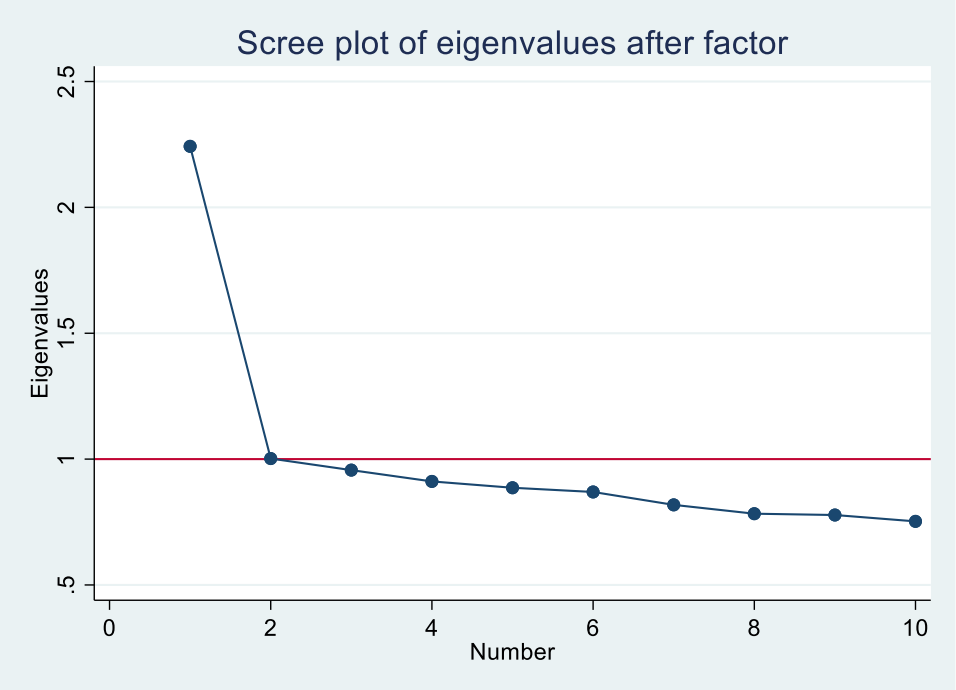

Figure 5. Gravel of different main components of self-reliance

The efficacy of the main components was assessed with the Bartlett and KMO test. When the KMO score is more than 0.6 and the p-value is less than 0.05, the result will be considered as reliable result. For the self-reliance dimension, the KMO value is 0.972, and the p-value is 0. This shows that the PCA result is reliable.

Then, the regression model was adopted to calculate the relevance of the independent variables (age, income, and background) and the dependent variable (self-reliance), as can be seen in Table 3. When the value of P>|t| is less than 0.1, it will be considered as the independent variable has an impact on the dependent variable. In the self-reliance dimension, the P>|t| values of the year, income and background are 0.102, 0.006 and 0.012, respectively. Both of the P>|t| values of income and background are less than 0.1, but the P>|t| value of year is greater than 0.1. Therefore, it can be concluded that both income and background have a relationship with the self-reliance dimension of work ethics but not year. In addition, if the coefficient is positive, then it shows the independent variable and dependent variable have a positive relationship. Alternately, if the coefficient is negative, then they have a negative relationship. The coefficient of income and background are both positive, so this means that they both have a positive relationship with self-reliance. In other words, in terms of income, the higher the income, the higher the individuals' self-reliance will be. In terms of background, the result shows that individuals from rural areas have higher self-reliance than those from cities.

Table 3. Regression model of self-reliance

	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Year	-.0614244	.0375173	-1.64	0.102	-.1351018	.0122529
Income	.0785273	.028667	2.74	0.006	.0222304	.1348241
Background	.1515991	.0601694	2.52	0.012	.0334371	.2697611
_cons	-.1262887	.0689258	-1.83	0.067	-.2616468	.0090694

Resumable the self-reliance dimension, the other four dimensions all followed the same procedures of analysis. In the following sections, the analysis process will not be introduced repeatedly but only focus on the results gotten from the regression model.

3.2 Results of Morality/Ethics

For the morality/ethics dimension, the regression model can be seen in Table 4. In this dimension, the P>|t| value of the year, income, and background are 0.533, 0.004, and 0.522, respectively. Only the P>|t| value of income is less than 0.1, so this shows that morality/ethics seems to be only affected by income but not the other two factors. In addition, as the coefficient of income is positive, it can conclude that income has a positive impact on individuals' work morality/ethics, namely the better their economic conditions, the higher their morality existence at work.

Table 4. Regression model of morality/ethics

	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Year	-0.0189276	0.0303283	-0.62	0.533	-0.078487	0.0406318
Income	0.0664389	0.0231739	2.87	0.004	0.0209296	0.1119483
Background	0.03116	0.0486498	0.64	0.522	-0.06436	0.1266799
_cons	-0.0914122	0.0557184	-1.64	0.101	-0.2008331	0.0180088

3.3 Results of Leisure

For the leisure dimension, the regression model can be seen in Table 5. In this dimension, the P>|t| value of the year, income, and background are 0.029, 0.015, and 0.102, respectively. Both of the P>|t| values of year and income are less than 0.1, so this means that these two variables have a relationship with the leisure dimension of work ethics. The coefficient of year is positive, so this shows that year

bornt has a positive relationship with individuals' work ethics of leisure dimension. Namely, the younger generations value their leisure time more than the older generations. For the variable of income, the coefficient is negative, this means that income has a negative relationship with individuals' value on nonwork activities. In other words, the higher the individuals' income, the more they put work ahead of leisure because the centrality of work and attention to leisure are reverse beliefs. This will be also justified in the analysis of the result of the centrality of the work section.

Table 5. Regression model of leisure

	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Year	0.0894208	0.0409332	2.18	0.029	0.0090353	0.1698064
Income	-0.0764974	0.0312771	-2.45	0.015	-0.13792	-0.0150748
Background	-0.1076473	0.0656477	-1.64	0.102	-0.2365678	0.0212731
_cons	0.0754053	0.0752014	1.00	0.316	-0.0722769	0.2230876

3.4 Results of Hard Work

For the hard work dimension, the regression model can be seen in Table 6. In this dimension, the P>|t| value of the year, income, and background are 0.227, 0.011, and 0.171, respectively. Only the P>|t| value of income is less than 0.1, so this shows that only income has a relationship with the hard work dimension of work ethics but not the other two factors. As the coefficient of income is positive, it means that income has a positive impact on hard work. The more their monthly earn, the more they believe in the virtues of hard work.

Table 6. Regression model of hard work

	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Year	-0.0465148	0.0384821	-1.21	0.227	-0.1220868	0.0290573
Income	0.0747572	0.0294042	2.54	0.011	0.0170126	0.1325018
Background	0.0845033	0.0617167	1.37	0.171	-0.0366973	0.2057039
_cons	-0.1027022	0.0706983	-1.45	0.147	-0.2415412	0.0361368

3.5 Results of Centrality of Work

For the hard work dimension, the regression model can be seen in Table 7. In this dimension, the P>|t| value of the year, income, and background are 0.080, 0.003, and 0.078, respectively. All of the P>|t| values are less than 0.1. This means that all three independent valuables have a relationship with the centrality of the work dimension. The coefficient of year is negative, this means that year has a negative relationship with the centrality of work. Namely, the younger generations consider work less important than the older generations. The coefficient of income and background is less positive. This means that they both have a negative relationship with the hard work dimension of work ethics. In terms of income, as it as pointed out above in the analysis on the leisure section, the higher the individuals' income, the more they are likely to deem work as the center of their life. In terms of background, the result shows that individuals from urban areas more appreciate the importance of work than those from cities.

Table 7. Regression model of the centrality of work

	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Year	-0.0869432	0.0496179	-1.75	0.080	-0.184384	0.0104976
Income	0.1124125	0.0379131	2.97	0.003	0.037958	0.1868671
Background	0.1402986	0.079576	1.76	0.078	-0.0159746	0.2965718
_cons	-0.1446043	0.0911568	-1.59	0.113	-0.32362	0.0344114

4. Conclusion

After identifying current research gaps on work ethics, this research aims to explore the impact of the age difference, financial status, and rural-urban background on post-80s, the 90s, and 00s generations. The research findings have both theatrical and practical contributions.

The theoretical contribution is that this research evidenced that generation, income, and usual-urban differences will all affect the five dimensions of work ethics to some extent. In terms of the implications of generation difference, it does not discover noticeable differences in the self-reliance, morality/ethics, and hard work dimensions, but the research result shows that the younger generations are more unlikely to put work at the center of their life but pay more attention to their non-work activities. In terms of the implications of income difference, this research shows that individuals with higher incomes, in other words, in better economic conditions, are more likely to perform higher self-reliance, morality/ethics, hard work, and centrality of work, and their leisure is lower. This also means that overall, their work ethics are higher. In terms of the background differences, the research result shows that individuals with rural backgrounds are more likely to perform higher self-reliance and centrality of work than those from cities.

In terms of practical contributions, there are several. First, this research evidenced that the younger generations, unlike the older generations, do not put work at the centre of their lives. However, it does not discover that they are less hard work, more independent, or with lower moral status. This recalls that the younger generations prefer to work smarter. In this way, this paper suggests organisations pay more attention to upgrading their management and equipment to smartly increase efficiency. This will be a win-win solution as it will, on one hand, increase the organizations' efficiency and on the other hand bring more work-life balance to the people. Secondly, this research also shows that individuals with high incomes seem to have higher composite work ethics. If organizations can utilize this finding smartly, they can motivate employees to perform higher work ethics in return for higher income. Thirdly, by knowing the work ethics of different populations, organizations can be more advantageous in recruitment. Through the background investigation process, organizations can better target the most suitable candidates. For example, for a vacation that requires higher self reliciene, organizations can first target candidates from urban areas. Similarly, for certain positions that require higher integrity, like chief financial officers (CFOs), organizations may think individuals with financial freedom are better choices.

Despite the theoretical and practical contributions, this research also has some limitations. Firstly, this research only took samples from China. Whether the result could apply to other national contexts needs to be tested in future studies. Secondly, this research only filled the gap of investigating the effects of financial status, usual-urban backgrounds and age differences on work ethics. However, there are still other variables that may have an impact on work ethics, such as parents' work ethics, religious beliefs, educational level and marital status. These are all possible research directions in the future. Finally, this research and most research on the topic of work ethics focus on quantitative study. More quality studies are encouraged to explore the rationales behind the dependent variables on independent variables because it can help us to better solve problems and promote human resource management practices.

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