Ethnic Diversity and Trust in the Workplace

Tiraphap Fakthong[*]
Faculty of Economics, Thammasat University, Bangkok, Thailand

Abstract

𝕿his paper investigates the effects of ethnic diversity on overall trust in the workplace and the trust that workers place in trade unions. Several key results emerge. First, there is a U-shaped relationship between ethnic diversity and overall workplace trust. Conversely, the relationship between ethnic diversity and the trust in trade unions is an inverted U-shaped one. The overall workplace trust is lowest when the ethnic share within the workplaces reaches 14.1%. Meanwhile, trust in trade unions is likely to decline when ethnic share within the workplaces reaches the range of 37–49%. Finally, when ethnic diversity is controlled for, the overall workplace trust index is negatively correlated with the trust shown towards trade unions. A unit increase in the overall workplace trust index reduces the probability of trusting trade unions by 5–12.7%. The results are robust and are tested against the problem of endogeneity bias.

Keywords: Ethnic diversity; trust, trade union; workplaces
JEL Classifications: J15; J28; J53; M54

_____

[*]**Corresponding author:** 2 Prachan Road, Phra Borom Maha Rachawang, Phra Nakhon, Bangkok 10200, Thailand. Email: tiraphap@econ.tu.ac.th

1. Introduction

The UK workplace has become increasingly diverse due to a significant influx of migrants from Europe since the 1970s. There have been extensive debates on whether the UK economy can gain from this increasing diversity. A large body of empirical research captures positive externalities inherent in the culture/ethnic diversity of migrants on productivity and innovation at both city and workplace levels in many developed economies, including the US, the UK, the Netherlands, and Germany (Ottaviano and Peri, 2005, 2006; Alesina and La Ferrara, 2005; Bellini et al., 2013; Sparber, 2008, 2009, 2010; Lee, 2011; Longhi, 2013 Trax, et al., 2015; Cooke and Kemeny, 2017).

However, the bulk of empirical research shows that higher workforce ethnic diversity leads to distrust, social polarisation, and conflicts (i.e., Lazear, 1999a; 1999b; Alesina and La Ferrara, 2002; Dincer, 2011; Sturgis et al., 2011; Uslaner, 2012). Only Van der Meer and Tlosma (2014) showed that ethnic diversity does not necessarily lead to lower social cohesion. In turn, this low trust among employees reduces collective decision-making efficiency (Dinesen and Sønderskov, 2015) and workplace performance (Brown et al., 2015).

Workplace trust and conflict are significant issues that have to be dealt with in more ethnically diverse workplaces. Since the 1970s, trade unions in the UK have been increasingly required to adjust their policies regarding race and ethnic relations to alleviate the problems of discrimination and hostility towards minorities within the workplaces. In 2010, despite the trade unions' outstanding efforts, the UK government reported that the density of trade union membership of migrants in the UK was 27.5% lower than that of native UK citizens (Achur, 2011). Existing studies show that individuals in a more diverse society tend to contribute less towards public goods and social groups (Alesina and La Ferrara, 2000; 2005; Otken and Osili, 2004).[1] A plausible explanation for the low participation in social groups could also be due to the low trust and high conflict either between individuals from different ethnic groups (Alesina and La Ferrara, 2002) or between ethnic minority employees and their managers (Ferguson, 2016).

The drivers of the relationship between ethnic diversity and trust could be explained through the conflict hypothesis and the contact hypothesis (Dincer, 2011). Regarding the conflict hypothesis, ethnic diversity tends to decrease trust. Individuals tend to trust those who are either similar to themselves or are in the same ethnic group relative to those who are from different groups (Williams and O'Reilly, 1998; Alesina and La Ferrara 2002; Putnam, 2007). Previous studies have shown that trust tends to decline when people live in communities with high racial and ethnic segregation (Alesina and La Ferrara, 2002; Delhey and Newton, 2005). However, the relationship between ethnic diversity and trust could be nonlinear, and wherein, at some points, ethnic diversity does not necessarily reduce trust. Using cross-country and US state-level data, Montalvo and Reynal-Querol (2005a; 2005b) and Dincer (2011) found that conflict is less likely to occur in societies with either only one ethnic group or many different ethnic groups.

For the contact hypothesis, greater contact with others from different ethnic groups is associated with high trust in a highly diverse society. Putnam (2007) hypothesised that trust in societies with high ethnical diversity could be improved if individuals have more contact with others from different ethnic groups. The literature in this field remains scant and primarily focuses on the regional and neighbourhood levels.

---

[1] Here, a trade union is considered as a social group that provides non-excludable benefits (i.e., pay increase, legal advisory, training, loan, etc.) to its members.

However, the economic literature contains a little empirical study on ethnic diversity and trust at the workplace level. For example, empirical research using country-level data shows that lack of contact with others is associated with low trust in society (Uslaner, 2006; Stolle et al., 2008; Koopmans, and Veit, 2014; Schmid et al., 2014; Gundelach, 2014). This is in contrast with Dinesen and Sønderskov (2015), who found, using Danish data, that contact does not moderate the adverse effects of ethnic diversity on social trust in a neighbourhood. Also, they suggested that, in the context of the neighbourhood, the negative relationship between ethnic diversity and trust may be influenced by the sorting behaviour of individuals, where trusting individuals may choose not to reside in a more ethnically diverse area.

This paper fills a gap in the existing studies by examining how ethnic diversity affects trust at the workplace level, which is still rarely investigated. The primary rationale for focusing on the context of the workplace is that contact in the workplace could be more evident and less self-selected. This paper examines the effects of ethnic diversity both on workplace trust and the trust shown towards trade unions. My empirical investigation aims to answer two main questions: (a) how ethnic diversity affects workplace trust and employees' trust in a trade union, and (b) whether workplace trust affects the trust in trade unions.

The data used in this study are repeated cross-sectional samples derived from the UK Workplace Employment Relations Study (WERS) in 2004 and 2011. For a measure of workplace trust, I construct a composite trust index using an employee-manager trust-related set of five questions in WERS as used by Breda and Manning (2016). Next, I apply a two-step regression analysis following Jenkins and Bryson (2015), which allows me to differentiate the individual ethnicity and ethnic share effects on workplace trust to estimate overall workplace trust. For employees' trust in trade unions, I focus on five questions that ask employees whether a trade union is their best representative when dealing with managers regarding pay, working hours, training, complaints, and punishment negotiations. As these questions involve binary responses, I use the probit model here. Finally, because of limited information on the ethnicity of the employees reported at the workplace level in WERS, I use the ethnic share as a proxy to measure the degree of ethnic diversity within each workplace. I assume that a workplace with a larger ethnic share tends to be more ethnically diverse. As the relationship between ethnic diversity and trust is likely to be nonlinear (Montalvo and Reynal-Querol, 2005a; 2005b; Dincer, 2011), trust is also modelled as a function of ethnic share and squared ethnic share.

Several key results emerge. First, I find that the relationship between ethnic diversity and the overall workplace trust is nonlinear at the workplace level. There is a U-shaped relationship between ethnic diversity and overall workplace trust. Higher ethnic diversity reduces trust between employees and their managers at some low levels of ethnic share. After a threshold is reached, ethnic diversity is positively correlated with overall workplace trust. From my estimation, the overall workplace trust is at its lowest when the ethnic share within the workplaces reaches 14.1%. Second, the relationship between ethnic diversity and the trust in a trade union has an inverted U-shape. When the diversity is low, increasing diversity leads to more trust in trade unions. However, trust in trade unions is likely to decline when the ethnic share within the workplaces reaches the range of 37–49%. Finally, the workplace trust index is negatively correlated with the trust in trade unions. This is the overall workplace trust effects, which are controlled for ethnicity within the workplaces. A unit increase in the employee trust index reduces the probability of trusting a trade union by approximately 5– 2.7%. The results are robust and are tested against the problem of endogeneity bias.

The rest of this paper is organised as follows. Section 2 elaborates on the data and basic descriptive statistics derived from WERS. Section 3 presents the empirical specifications and results. The issues concerning endogeneity between ethnic diversity and trust within the workplaces are discussed in section 4. Finally, conclusions are given in section 5.

2. Data and Descriptive Statistics

2.1 Data

The WERS surveys of 2004 and 2011 are used in this study. The WERS 2004 and WERS 2011 represent the fifth and sixth national surveys of the UK workplace by the UK government. The data have both repeated cross-sectional and panel samples. The sampling frame is randomly selected from the Interdepartmental Business Register (IDBR) of the UK Office of National Statistics (ONS). The IDBR database collects a list of more than 2.6 million UK businesses in every sector in the UK economy. Therefore, WERS provides rich and detailed workplace characteristics, practices, and employment relations across sectors and types. The population covers UK workplaces with at least five employees, excluding operations in agriculture, forestry, fishing, mining, and quarrying. The survey consists of three primary sections: management questionnaires, employee profile questionnaires, and workplace representative questionnaires. The overall response rates to the surveys were 64% in 2004 and 46% in 2011.

The response rate in 2011 was significantly lower than that in 2004. Several factors explain the declining response rate, such as the feeling of a reduced sense of obligation to participate and either greater reluctance to or refusal to provide sensitive work relations data during a time of high economic uncertainty in 2011. The main reasons for choosing these 2004 and 2011 datasets are that they are the most two recent surveys and have the same questions of interested. Regarding the 2011 recession, I also control for the year 2011 when performing empirical analysis. For this paper, I use the management and the employee profile sections. Next, I link these two sections into a single employer-employee database. My main cross-sectional database consists of a total of 4,975 UK establishments and 44,432 employee profiles.

2.2 Descriptive Statistics

This section presents all the primary descriptive statistics derived from selected surveys of managers and employees in WERS. As shown in Table 1, the UK workplaces have an average of 8.41% of the ethnic minority employee share.[2] Regarding workplace conflicts in the last twelve months during the survey period, 11% of workplaces report industrial actions by their employees. Furthermore, 25% of the UK workplaces indicate that they were involved in dispute cases that went to the Employment Tribunals. In addition, 62% of workplaces report that their trade union density is less than 25%. In terms of workplace demographics, the workplace's average employment size is 433, with 52% of total employees being female.

As for occupation shares, 11% of total employees are managers. At the same time, those who are considered to be in a group of skilled workers, including professionals, associate professionals, administrative staff, skilled trades, caring and leisure staff, sales

---

[2] From Table 1B, for private SMEs and large enterprises, the average ethnic shares are 5.65% and 8.26%, respectively. Regarding economic sectors, service sector has 7.61% ethnic share, while manufacturing sector has 6.19% ethnic share, on average. This indicates that, within the private sector, larger workplaces and workplaces in service sector tend to be more ethnically diverse. For public sector, the ethnic share is at 7.14%.

and customer service staff, and operatives, account for 76% of the total workforce. Finally, 13% of employees are in elementary occupations.

Table 1 also shows key individual statistics derived from the employee profile in WERS. In all, 93% of employee profiles indicate white ethnicity, and 7% come from other ethnicities. Female employees account for 55% of the total employee profiles in the data. As for educational qualifications, employees who do not have college degrees account for 70% of the total employee profiles.

Regarding wages, from the employee profile section in WERS, the information for individual wages can be obtained via 'How much do you get paid for your job here, before tax and other deductions?' In WERS 2011, wages are reported as weekly and in fourteen bands that range from 'less than £60 (£50 in WERS 2004) per week' through to '£1,051 (£871 in WERS 2004) or more per week'. Also, these bands in 2004 are different from those in 2011. To estimate the hourly wages, I follow Pendleton et al. (2017) by dividing the weekly bands' midpoints by weekly working hours. For either the highest or the open-ended band, the upper bound is 1.5 times the lower bound values. The average weekly working hours and average real hourly wages are 32.3 hours per week and £9.60 per hour, respectively.

In all, 96% of employees indicate that they have a permanent job. Next, 37% of employees are in a trade union. Regarding trade union membership by type and size of the enterprise in the UK, on average, the small and medium enterprises have only 9.6% trade union density. In contrast, in large workplaces, 30.6% of workers reported that they joined trade unions. The manufacturing sector has more trade union members than in the service sector. The trade union density values are 30.9% and 21.6% for the manufacturing and service sectors. Last, the UK's public sector has the highest trade union density, with a value of 62.5% trade union density.

2.3 Trust and Ethnic Diversity Measures

This paper focuses on the relationship between trust and ethnic diversity within the workplace. There are six outcome trust variables and one main explanatory variable, namely ethnic diversity. For the trust variables, I measure two types of trust: (a) whether employees trust their managers and (b) whether employees trust trade unions. For ethnic diversity, the ethnic share within each workplace is used as a proxy for the ethnic diversity measure. This section discusses these two measures in more detail, as follows.

Regarding how much employees trust their managers, I measure this workplace trust index by following an approach introduced in Breda and Manning (2016). In order to prevent measurement bias, responses from managers are excluded from the analysis. In particular, trust between employees and their managers in the workplace is gauged via five-point Likert scale questions in WERS that ask workers *'whether managers can be trusted upon to keep to their promises'*, *'whether managers are sincere in attempting to understand employees' views'*, *'whether managers deal with employees honestly'*, *'whether managers treat employees fairly'*, and *'how good the relationship between managers and employees is'*. Following the construction of the trust index of Breda and Manning (2016), I also construct a composite trust index because the correlations across these five questions are positive and strong.[3] The composite index is a mean average across these five questions. The highest value (5) of the index indicates the strongest trust between employees and managers. In contrast, the lowest value (1) captures the most distrusting relationship between employees and managers.

---

[3] See the correlation matrix in Table 3A

Table 1: Key descriptive statistics of workplace and individual characteristics

Variable	Observation	Mean	Standard Deviation	Min	Max
Workplace characteristics					
Share ethnic	4,790	8.41	15.57	0	100
Trade union density by levels					
0–24%	4,736	0.62	0.49	0	1
25–49%	4,736	0.13	0.33	0	1
50–74%	4,736	0.13	0.33	0	1
75–100%	4,736	0.12	0.34	0	1
Employment size	4,975	433.04	1,099.89	5	20,746
Share female	4,939	0.52	0.29	0	1
Share managers	4,975	0.11	0.11	0	1
Share professionals	4,975	0.14	0.21	0	1
Share associate professionals	4,975	0.11	0.20	0	1
Share administrative staff	4,975	0.15	0.20	0	1
Share skilled trades	4,975	0.07	0.16	0	1
Share caring and leisure	4,975	0.09	0.23	0	1
Share sales and customer service	4,975	0.12	0.25	0	1
Share operatives	4,975	0.08	0.20	0	1
Share elementary occupations	4,975	0.13	0.25	0	1
Individual characteristics					
White ethnicity	43,378	0.93	0.25	0	1
Female	44,180	0.55	0.50	0	1
Education level					
Below GCSE	43,326	0.30	0.46	0	1
GCSE	43,326	0.26	0.44	0	1
A level	43,326	0.14	0.35	0	1
Bachelor	43,326	0.22	0.41	0	1
Postgrad	43,326	0.08	0.28	0	1
Average weekly working hours	43,145	32.30	1.72	0	62
Average hourly wages (£)	41,836	9.60	1.86	0	91
Holding permanent job	44,432	0.96	0.20	0	1
Trade union member	44,186	0.37	0.48	0	1

Source: Author's calculations from WERS 2004 and 2011.

As for the employees' trust in trade unions, this is again based solely on the employees' views of five aspects: wage increases, wage or working hour cuts, training, workplace complaints, and employee punishments. The five related questions in WERS involve binary responses. They are: '*Trade union is the best representative in dealing with managers about getting pay increase*', '*Trade union is the best representative in dealing with managers about cutting hours or pay*', '*Trade union is the best representative in dealing with managers about getting training*', '*Trade union is the best representative in dealing with managers about a complaint about working here*', and '*Trade union is the best representative in dealing with managers if the manager wanted to discipline you*'. I exclude responses from people in managerial positions.

Table 2 summarises all trust variables used in this study. For the workplace trust index, the average value of the index is 3.42, which stays above the median value. This indicates that employees are, on average, likely to trust their managers. Regarding the trust shown towards trade unions, 36% of employees say that they trust their trade unions most when dealing with managers about pay increases. A total of 40% of employees choose to trust trade unions when they have an issue concerning reduced working hours or deducted pay. In all, 21% and 35% of employees decide to trust trade unions to make

complaints about working conditions and when managers want to discipline their employees, respectively. Compared to all other aspects, employees show the least trust in their trade unions in respect of getting more training. Only 5% of employees believe a trade union is their best representative in dealing with such an issue.

Table 2: Summary statistics of trust variables

Variable	Observation	Mean	Standard Deviation	Min	Max
Workplace Trust index	41,798	3.42	0.95	1	5
Trust towards trade union					
A trade union is the best representative in dealing with managers about:					
Getting pay increase	43,243	0.36	0.48	0	1
Cutting hours or pay*	21,384	0.40	0.49	0	1
Getting training	43,340	0.05	0.22	0	1
Complaint about working	43,405	0.21	0.40	0	1
If a manager wants to discipline employees	43,189	0.35	0.47	0	1

Note: *This question is only available in WERS 2011's employee profile sections.
Source: Author's calculations from WERS 2004 and 2011.

For ethnic diversity, this paper uses ethnic share as a proxy for measuring workplace ethnic diversity, as do many existing UK empirical studies (i.e., Nathan, 2010; Lee and Nathan, 2010; Lee, 2011; 2015; Longhi, 2013). However, this approach is not an ideal measure, as there are a couple of limitations. First, though the information on the workplace's ethnic share is reported in the management survey, the details of ethnic composition inside the workplace are unavailable. It has to be assumed that a workplace with a higher level of ethnic share could be ethnically diverse. As for how one should interpret the ethnic diversity effects, this paper treats all ethnic minority employees as coming from different ethnic groups. Therefore, it must be borne in mind that the estimated effects of ethnic diversity on various economic outcomes in this paper could be overestimated. Next, due to the data's nature, the ethnic share in each workplace in WERS is concentrated around 0–20%. The problem of low variations in this variable exists after the ethnic share exceed 20%. Therefore, one may expect a problem of heteroscedasticity from such outliers.[4]

3. Empirical Specification and Results

3.1 Empirical Specifications

Concerning the empirical investigation, this section discusses the empirical models used. For the first research question, I estimate the relationship between workplace trust and ethnic diversity at the workplace level. The empirical analysis in this part uses a two-step estimation procedure following Jenkins and Bryson (2015). First, I regress the workplace trust index, y_{ijt}, on individual characteristics, x_{ijt}, for each individual i in workplace j at time t. This is a regression at the individual level. Next, I estimate workplace-specific fixed effects of the overall workplace trust, θ_{jt}, which are not affected by respondents' demographic characteristics, including ethnicity, gender, age, and education. The workplace-specific effects capture both the observed and unobserved workplace effects shown below.

$$y_{ijt} = \beta x_{ijt} + \theta_{jt} + \varepsilon_{ijt} \qquad (1)$$

---

[4] See Figure 1A

Next, I regress the estimated workplace-specific fixed effects, $\hat{\theta}_{jt}$, on the ethnic diversity within the workplace, d_{jt}, and other workplace characteristics, w_{jt}

$$\hat{\theta}_{jt} = \alpha_0 w_{jt} + \alpha_1 d_{jt} + u_{jt} \qquad (2)$$

The lists of the workplace and individual controls included in this empirical analysis are shown in Table 1A and 2A. I use a similar set of establishment and individual controls as those used by Sessions and Theodoropoulos (2014) and Breda and Manning (2016). Regarding workplace controls, I use employment size, age of workplace, female share, nine occupation shares, three levels of trade union density, three levels of labour cost to sales, eleven categories of economic sector, nine dummy variables for the region, and an indicator for being part of a larger organisation. The list of individual controls includes weekly working hours, real hourly wages, five dummy variables for age group, four categories for education level, four dummy variables for years of working at the workplace, eight categories for occupation (excluding the managerial position), and five indicators for non-white, female, married, holding permanent job, and trade union member.

The key advantages of this approach are as follows. First, it allows me to differentiate between the impacts of individual ethnicity and ethnic share on the outcome of all workers. Next, it prevents bias estimation from the case wherein the individual characteristics are correlated with the error at the workplace level, u_{jt}, when estimating both individual and workplace levels together. Last, the estimated coefficients are more robust, as the variation used here comes from both between- and within-workplace information. Besides, I also perform a naive estimate, in which equation 2 is simply plugged into equation 1. In this case, one should expect larger estimates of both coefficient and variance of ethnic diversity than those used in Jenkins and Bryson (2015)'s approach.

Regarding the second question, I check whether employees choose to trust trade unions more in the more ethnically diverse workplace. Here, I perform another set of regressions at the individual level. As this employees' trust towards trade union is based on workers' views, and they are binary responses, the estimation technique used is a conventional probit model. In order to obtain the estimated the effects of ethnic diversity and the overall workplace trust index on the trust in trade unions, the equation of interest is:

$$H_{ijt} = \delta_0 x_{ijt} + \delta_1 w_{jt} + \delta_2 d_{jt} + \delta_0 \theta_{jt} + \eta_{ijt} \qquad (3)$$

In equation 3, H_{ijt} is a latent variable for whether employees trust trade unions regarding the matters of pay increase, working hours and pay cuts, getting more training, complaints about working conditions, and punishment. Like the model in the first part, d_{jt} denotes ethnic diversity, where x_{ijt} and w_{jt} are the individual and workplace characteristics, respectively.

3.2 Empirical Results

This part presents empirical analyses of the trust regressions. The observations are weighted with employee weights, and standard errors in all regressions are clustered at the workplace level.

Results from the individual-level regression are reported in Table 5A. I find a positive relationship between holding non-white ethnicity and workplace trust. The estimated coefficient of ethnicity is statistically significant. On average, the workplace trust index increases by 0.06 units when employees are non-white, compared to when

employees are of white ethnicity. These findings are in contrast to Alesina and la Ferrara (2002) and Uslaner (2006), in which trust is often lower in the ethnic minority groups. However, at the workplace level, my results here are consistent with Breda and Manning (2016), wherein minorities have a higher level of trust within the UK workplace. Hence, the minority status of employees could yield an upward estimate for the degree of the overall workplace trust index.

For other controls, I find that being female boosts trust between employees and managers. Hourly wages are not associated with the workplace trust index; however, having higher weekly working hours reduces the workplace trust index by 0.05 units. Next, those who are either older or have more years of tenure within the same workplace could have a lower workplace trust index compared to the reference groups (younger employees and employees with one year of tenure). Regarding the educational attainment level of employees, those with high levels of education tend to distrust others compared to those below the GCSE level. Finally, workplace trust is 0.19 units lower in employees who hold trade union memberships than those who are not in any trade unions.

Next, to find how the overall workplace trust index is affected by ethnic diversity at the workplace level, I also estimate the workplace effects of the overall workplace trust index that are not influenced by the demographic characteristics of respondents (i.e., ethnicity, gender, age, education). The overall workplace trust index regressions at the workplace level are presented in Table 3.

Based on section 2.3, the ethnic share is condensed at 9%, and the values above 20% are likely to be outliers. I estimate the workplace-specific effects of the overall workplace trust index regressions using all samples and three sub-sample workplaces (less than 9% ethnic share, 9–20% ethnic share, and more than 20% ethnic share) in specifications 1–4. Ethnic share is used as a proxy for ethnic diversity in these four specifications. For the first specification (column 1), with all workplaces, the estimated coefficient of ethnic share on the overall workplace trust index is positive but not significant. However, when breaking the samples into three groups, I find negative relationships between ethnic shares and the overall workplace trust for the samples with less than 9% ethnic share (column 2) and the samples with 9–20% ethnic share (column 3). In workplaces with less than 9% ethnic share (column 2), a 1% increase in ethnic share reduces the overall workplace trust by 0.69 units.

Regarding the workplace with a 9–20% ethnic share, I find that the negative relationship between ethnic share and the overall workplace trust index is larger than the previous specification. Among these ethnically diverse workplaces, the overall workplace trust declines by 1.45 units as the ethnic share increases by 1%. Finally, column 4 presents an estimation result for the workplaces with more than 20% ethnic share. For these, I do not find any evidence of the negative relationship between ethnic share and the overall workplace trust index.

Regarding specification 5, based on the nonlinear relationship between ethnic diversity and trust hypothesis in Montalvo and Reynal-Querol (2005a, 2005b) and Dincer (2011), I add a quadratic term of ethnic diversity to this specification. The estimates are statistically significant. The estimated coefficients on ethnic share and the square of ethnic share are negative and positive, respectively. This possibly depicts a U-shaped relationship between ethnic diversity and trust within the workplace. The overall workplace trust is minimised at 0.4 units when ethnic share within the workplaces reaches 14.1%.[5] At the very low level of ethnic share, the marginal effects of ethnic share on the

---

[5] According to data in Table 3B, the ethnically diverse workplaces report that 15% of them had industrial actions, while only 5% of the workplaces that employ only white people indicate industrial action in the last twelve months. Moreover, 35% of the ethnically diverse workplaces have dispute cases between

overall workplace trust are negative. Having more minority workers would reduce trust within the workplace. Next, when ethnic share stays above 14.1%, I find that the marginal effects become positive. 377 workplaces have ethnic share above 14.1% in this analysis. Based on our tabulated statistics, it is likely that these workplaces are large, having a high female share, and engaging in the healthcare sector in the south-east region.[6]

Next, I estimate the overall workplace trust index by plugging the workplace ethnic diversity dummies and other workplace controls into the individual-level regression. The results in column 6 also indicate a negative relationship between the workplaces with a higher ethnic share and the overall workplace trust index. Both the estimated ethnic share and its quadratic term are significant. However, as discussed earlier in the empirical model section, I find that the estimated effects of ethnic share on the overall workplace trust index are likely to be upward, as this employee trust index could also be positively influenced by other individual characteristics, such as being a member of a minority group and being female. As regards this, the estimated turning point that minimises the overall workplace trust is now lower than 27% of ethnic share within the workplace. Figure 1 presents the estimated average marginal effects of ethnic share on the workplace trust based on specification 5 (upper line) and 6 (lower line) in Table 3. Here, workplace trust is likely to be a weakly decreasing function on ethnic share when ethnic share level is very low. However, after a certain point, as ethnic share increases, the workplace trust level is improved.

Figure 1: Average marginal effects with 95% CIs plots of ethnic share on the workplace trust based on specification 5 (upper line) and 6 (lower line) in Table 3
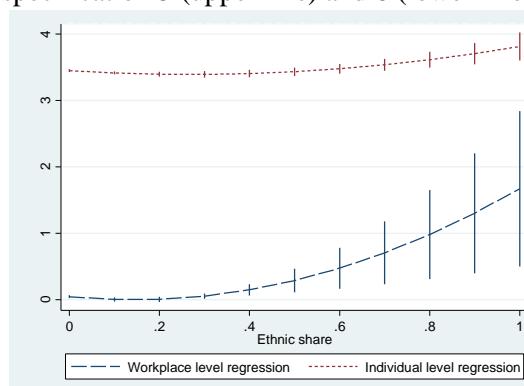

Source: Author's calculation

The nonlinearity results from specification 5 could be largely induced by the observations with ethnic share less than 20%. Here the effects of ethnic share on the workplace trust could be monotonic or weakly decreasing relationship. Considering the only workplace with ethnic share less than 20%, the estimated coefficients of ethnic share in column 2 and 3 are negative and significant. However, I do not find a significant positive effect of ethnic share in column 1 and 4, where all samples and workplaces with the ethnic share are greater than 20% are used, respectively. It could be that the effect of ethnic share is negative when the ethnic share is less than 20%, and the effect is close to zero when the ethnic share is larger than 20%. I perform a kernel-weighted local polynomial regression between the estimated workplace trust and ethnic share to investigate this point. Figure 2 shows that the nonlinear relationship between ethnic share and trust is likely to be driven by the 1,878 workplaces with the ethnic share less than 20%.

---

employees and their managers that went to the Employment Tribunals. Only 7% of the non-ethnically diverse workplaces report having this kind of problem.
[6] See Table 4B.

Figure 2: A polynomial smooth with 95% CIs plot of workplace trust and ethnic share
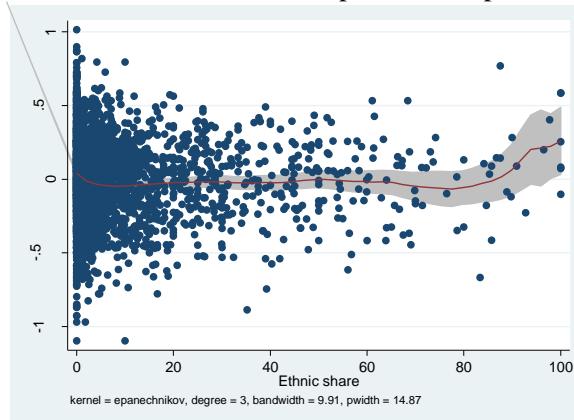
Source: Author's calculation

My results here, which are at the workplace level, are quite similar to the U-shaped relationship between ethnic diversity and social trust Dincer (2011) found at the state-level in the US. A contact hypothesis could explain this. When people from different ethnic groups are contacted frequently, they might become less affected by others' ethnicities. In turn, this increases trust and inter-ethnic collaboration among those from different ethnic groups (Uslaner, 2006; Putnam, 2007; Stolle et al., 2008). As the UK workplaces have been increasingly ethnically diverse, this may be true for the UK workplaces. Employees from different ethnic groups may have to collaborate regularly.

Finally, I simply verify the quadratic relationship between ethnic share and trust by adding a cubed ethnic share as another regressor into the model. Column 7 shows that the estimated coefficients of ethnic share and squared ethnic share are still negative and positive as in column 5 and 6. Also, both the estimated ethnic share and its quadratic term are significant. Regarding the cubic function of ethnic share, I find that the estimated coefficient is negative and insignificant. This indicates that the quadratic specification of ethnic share here is correctly specified.

Table 3: Estimated workplace effects of employee trust index regressions

OLS estimates	(1) All samples	(2) Samples with ethnic share < 9%	(3) Samples with ethnic share 9–20%	(4) Samples with ethnic share 20%+	(5) All samples: Squared share	(6) All samples: Squared share - the individual level	(7) All samples: Squared and cubed share
Ethnic diversity							
Ethnic share	0.058	-0.693*	-1.453**	0.101	-0.650**	-0.423***	-0.133**
	(0.056)	(0.402)	(0.715)	(0.097)	(0.282)	(0.158)	(0.054)
Ethnic share^2					0.023***	0.787***	0.086**
					(0.009)	(0.233)	(0.041)
Ethnic share^3							-0.132
							(0.081)
Individual controls						Included	
Workplace controls	Included	Included	Included	Included	Included	Included	Included
Observations	2,157	1,624	254	269	2,032	22,729	2,157
R^2	0.149	0.173	0.330	0.343	0.157	0.128	0.158
Adjusted R^2	0.127	0.145	0.156	0.185	0.134	0.127	0.135

Note: Observations are weighted using employee weights. Observations for both workplace level and individual regressions are reduced to 2,157 workplaces and 23,723 individuals. This is because there are employees who refused to answer the trust-related questions, and there are missing responses in the data. Therefore, the trust index at the workplace level is not available for those workplaces. The Robust standard errors are in parentheses and clustered at the workplace level. Specifications are measured at the workplace level, except for the specification in column 6. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
Source: Author's estimation

Let us turn to the empirical investigations of whether employees in ethnically diverse workplaces choose to trust trade unions more. Table 4 presents the effects of both the ethnic shares and the overall workplace trust on the trust shown towards unions regarding the five employment relations' issues. The estimations presented are marginal effects. Overall, I find empirical evidence of an inverted U-shaped relationship between ethnic share and trust in trade unions across all specifications, except for specifications 2 and 7.

Regarding the first five columns, I find no evidence of higher trust in trade unions when employees negotiate with their managers regarding pay and working hours cuts. However, as for the other four aspects, column 1 shows that a 1% increase in ethnic share boosts the probability of trusting a trade union when dealing with managers about getting a pay increase (column 1), getting more training (column 3), and complaints about conditions (column 4), in addition to when managers want to discipline their employees (column 5), by 0.17, 0.09, 0.23, and 0.21 percentage points, respectively. The positive relationships are more likely to happen at a very low level of ethnic share. The estimated turning points of ethnic share for specifications in columns 1, 3, 4, and 5 are 49%, 37%, 46%, and 45%, respectively. On average, after the ethnic share within the workplaces exceeds the turning points, the probability of trusting trade unions regarding these four aspects begins to decline, showing evidence of an inverted U-shaped relationship between ethnic share and trust in trade unions as shown in Figure 3. The marginal effects of ethnic share become negative when ethnic share exceeds these turning points. The number of individuals in the workplaces with the ethnic share above the turning points in specification 1, 3, 4 and 5 is 657, 1,096, 757, and 822, respectively.

Figure 3: A plot of the estimated probabilities of trust shown towards trade unions with 95% CIs in relation to ethnic share in the workplace in the UK
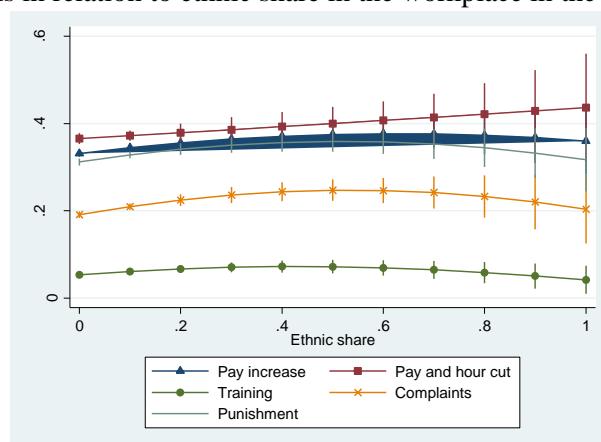
Source: Author's estimations

Next, I estimate both effects of the overall workplace trust and ethnic share on the trust in trade unions, as shown in specifications 6–10 in Table 4. Regarding the overall workplace trust index, I find that employees tend to have less trust in trade unions across five specifications when the overall workplace trust is higher. The estimated coefficients of the overall workplace trust index are negative and significant across specifications. When the degree of the overall workplace trust index increases by 1 unit, the probabilities of employees showing trust in trade unions in negotiations with managers about pay increase (column 6), working hours or pay cuts (column 7), more training (column 8), and complaints about work condition (column 9), in addition to when managers want to discipline their employees (column 10) all decline, by 0.10, 0.12, 0.05, 0.11, and 0.09, respectively.

For the ethnic share effects, I find that the signs of the estimated coefficients on both ethnic share and its square terms are still consistent with the first five specifications, except for the square term of ethnic share in specification 7. Although the estimated coefficients of both ethnic share and its square term are positive and negative in specification 7, they are insignificant. Also, the quadratic term of ethnic share in specification 6 is changed to negative, but, again, it is insignificant. The effects of ethnic share on the trust shown towards trade unions are interpreted as being similar to those in columns 1 to 5. However, the estimated effects of ethnic share variables are slightly smaller.

One might be concerned that the results may suffer from the problem of a reverse causal effect between trust in trade unions and ethnic diversity. A workplace that has either higher trust or a good relationship between a trade union and ethnic minority employees may be attractive to other ethnic minority workers. In this case, ethnic minority employees may prefer a workplace with strong unionisation compared to other workplaces with weak unionisation. Thus, this would lead to biased estimation in the analysis. For this study, the endogeneity problem is checked, and the instrumental variable (IV) estimation is performed in the next section.

4. Endogeneity

Based on the previous section, I find that the relationship between ethnic diversity and overall workplace trust is likely to be negative. In contrast, the relationships between ethnic diversity and trust in trade unions tend to be positive. One might argue that the relationship between trust and ethnic diversity could suffer the problem of two-way causality, resulting, in turn, in endogeneity-biased estimation. Regarding this endogeneity issue, trusting individuals may choose to be in a more diverse workplace. However, Putnam (2007) and Rudolph and Popp (2010) argued that the reversal of the negative relationship between ethnic share and overall workplace trust could be less likely to occur in this case. Because this would imply that low trusting employees would sort themselves into the more diverse workplaces. Moreover, some unobserved determinants could simultaneously affect trust and individuals' employment choice (Dinesen and Sønderskov, 2015).

To account for this issue, I perform the instrumental variable estimation technique using forbidden regression, as suggested in Wooldridge (2010). The strategy is as follows. First, I select a set of exogenous variables that potentially determine the level of ethnic share within the workplace. I use three dummy variables indicating whether the workplace has an equal opportunities' policy that explicitly mentions and encourages ethnic diversity, whether the workplace has ethnic monitoring for recruitment, and whether the workplace has ethnic monitoring for promotion. Next, the fitted value of the ethnic share and its squared term is obtained by estimating the reduced form for ethnic share on the omitted variables and other controls. Then, I perform a forbidden regression by instrumenting the ethnic share and squaring the ethnic share with the fitted value of the ethnic share and its squared term. The correlation matrix shows high correlation values between the endogenous regressors and the IVs. Meanwhile, the correlation between our IVs and the outcome variables are low or very close to zero.[7]

The rationale behind these exogenous variables discussed previously is that they could capture whether the workplace has a friendly attitude towards ethnic minorities. Some ethnic minority workers may prefer to work in a workplace with an explicit policy promoting diversity and a multicultural working environment. Regarding the exogeneity

---

[7] A correlation matrix between IVs and outcome variables is presented in Table 6A

of my IVs, one might argue that these policies could also be determined by a high level of ethnic diversity or a good relationship between employees and employers within the workplaces. Since 2003, the diversity and inclusion policies at the workplace level have been increasingly encouraged by the UK government. This diversity policy is still not legally binding, while the number of UK workplaces committed to promoting diversity has been increasing (McGregor-Smith, 2017). However, the workplaces may only superficially adopt the policy to promote the company's public image and boost financial profits (Comer and Soliman, 1996), wherein economic outcomes from such initiatives are barely evaluated (Comer and Soliman, 1996; Bland et al., 1999; McGregor-Smith, 2017). Based on our tabulated statistics from WERS, only around 18% of the UK workplaces that report having diversity policies are workplaces with more than 20% ethnic share. Moreover, about 25% of UK workplaces indicate having diversity policies, but they do not employ any minority employees. Therefore, while the UK workplaces are free to implement the diversity policy guidance in their ways, the intention to adopt this kind of policy is least likely influent by ethnic share or trust within the workplaces.

Table 5 compares my original estimations with the results from the IV estimations. For the overall workplace trust estimation in column 1, I find that the IV estimate results are the same as in the original estimation. However, the estimated coefficient for ethnic share from the IV estimation is smaller and insignificant, except for the estimated coefficient of the squared ethnic share. The statistical tests also show that the IV estimate is not either under-identified or weakly identified. Moreover, the endogeneity test indicates that there is no evidence of the endogeneity problem in this case. This is in line with Putnam (2007) and Rudolph and Popp (2010) argument discussed earlier. This suggests that the results from the original estimate are more consistent than those from the IV estimate.

Regarding the trust towards trade union regressions in columns 2–6, I find that the IV estimates are similar to the original estimations, except for the IV estimation in column 3. As regards columns 2, 4, 5, and 6, the IV regressions indicate that the relationships between various kinds of trust in trade unions and ethnic share are still inverted U-shaped. However, I find that only the specifications in columns 2 and 6 could suffer the problem of endogeneity.

Table 4: Trade union trust regressions measured at the individual level

Marginal effects	(1) Pay increase	(2) Working hours or pay cuts	(3) Getting more training	(4) Complaints about work conditions	(5) Punishment	(6) Pay increase	(7) Working hours or pay cuts	(8) Getting more training	(9) Complaints about work conditions	(10) Punishment
Estimated workplace effects on employee trust						-0.102*** (0.011)	-0.127*** (0.018)	-0.053*** (0.006)	-0.119*** (0.010)	-0.094*** (0.011)
Ethnic diversity										
Ethnic share	0.175*** (0.057)	0.366 (0.354)	0.092*** (0.032)	0.235*** (0.056)	0.209*** (0.055)	0.143** (0.057)	0.067 (0.090)	0.084*** (0.031)	0.201*** (0.056)	0.180*** (0.055)
Ethnic share^2	-0.176** (0.080)	-0.165 (0.480)	-0.124*** (0.043)	-0.255*** (0.081)	-0.229*** (0.077)	-0.114 (0.080)	0.001 (0.124)	-0.096** (0.043)	-0.188** (0.081)	-0.174** (0.077)
Individual controls	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Workplace controls	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	23,617	11,552[a]	23,684	23,723	23,604	23,615	11,551[b]	23,681	23,721	23,602
Wald chi^2	5,170.64	2,423.71	1,076.14	2,745.44	5,615.72	5,263.31	2,469.70	1,157.70	2,875.62	5,627.32
Pseudo R^2	0.299	0.299	0.147	0.187	0.323	0.302	0.303	0.156	0.195	0.327

Note: Observations are weighted using employee weights. [a, b]The estimations in columns 2 and 7 use observations from WERS 2011 only as this question was just introduced in the 2011 survey. Observations for both workplace level and individual regressions are reduced to 2,157 workplaces and 23,723 individuals. This is because there are employees who refused to answer the trust-related questions, and there are missing responses in the data. Therefore, the trust index at the workplace level is not available for those workplaces. Robust standard errors are in parentheses and clustered at the workplace level. All specifications are measured at the individual level. * p < 0.1, ** p < 0.05, *** p < 0.01

Source: Author's estimation

Table 5: IV estimations

All samples used	(1) Overall workplace trust	(2) Pay increase	(3) Pay cut	(4) Getting more training	(5) Complaint about work conditions	(6) Punishment
Original estimations	OLS			Probit		
Ethnic diversity						
Ethnic share	-0.650**	0.175***	0.366	0.092***	0.235***	0.209***
	(0.282)	(0.057)	(0.354)	(0.032)	(0.056)	(0.055)
Ethnic share^2	0.023***	-0.176**	-0.165	-0.124***	-0.255***	-0.229***
	(0.009)	(0.080)	(0.480)	(0.043)	(0.081)	(0.077)
Second-stage IV estimations	Linear IV			Probit IV		
Ethnic diversity						
Instrumented Ethnic share	-0.025	0.180***	-0.066	0.068	0.159***	0.158***
	(0.016)	(0.027)	(0.047)	(0.098)	(0.041)	(0.050)
Instrumented Ethnic share^2	0.049*	-0.344***	0.164	-0.111	-0.296***	-0.302***
	(0.029)	(0.059)	(0.112)	(0.198)	(0.089)	(0.108)
Individual controls		Included	Included	Included	Included	Included
Workplace controls	Included	Included	Included	Included	Included	Included
Observations	1,998	22,846	11,108^a	22,924	22,957	22,842
Under-identification test (chi^2)	19.77					
Weak identification test (Wald)	10.11					
Endogeneity test (chi^2)	3.527					
Wald chi^2		8,043.71	2,296.03	1,105.56	4,953.37	7,093.28
Wald test of exogeneity (chi^2)		37.56	1.61	1.26	14.99	9.50

Note: Observations are weighted using employee weights. [a] The estimations in column 3 use observations from WERS 2011 only as this question was just introduced in the 2011 survey. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Source: Author's estimation

5. Conclusions

This paper empirically investigates two research questions regarding the relationship between trust and ethnic diversity at the workplace level. First, I study how ethnic diversity affects workplace trust and employees' trust in trade unions. Next, I investigate whether employees choose to trust trade unions more as the workplace becomes more ethnically diverse. The key results are that the relationship between ethnic diversity and overall workplace trust is likely to be a U-shaped one. Meanwhile, the relationship between ethnic diversity and trust in trade unions tends to be an inverted U-shaped function. Next, there is a trade-off between overall workplace trust and trust in a trade union. When overall workplace trust is low, employees may choose to trust a trade union more. Here the mechanism of how ethnic diversity could affect overall workplace trust here could also be explained via both the conflict hypothesis (i.e., Alesina and La Ferrara 2002; Putnam, 2007) and the contact hypothesis (i.e., Uslaner, 2006; Putnam, 2007; Stolle et al., 2008; Koopmans, and Veit, 2014; Schmid et al., 2014; Gundelach, 2014).

This paper contributes to the existing literature in several ways. First, by looking at the nonlinear effects of ethnic diversity on trust at the workplace level, I further investigate the works of Montalvo and Reynal-Querol (2005a; 2005b) and Dincer (2011), which empirically found a nonlinear relationship between trust and ethnic diversity at the regional level. My results suggest that the nonlinear relationship is also evident at the workplace level. Overall, workplace trust tends to improve as the workplace becomes ethnically diverse. Second, I apply a two-step regression analysis, as in Jenkins and Bryson (2015). This allows me to differentiate the individual ethnicity and ethnic share effects on workplace trust to estimate a more robust overall workplace trust. Third, I also attempt to investigate the relationship between ethnic diversity and trust in trade unions. My results suggest that the effects of ethnic diversity on the two types of trust in this study are heterogeneous at the workplace level. One could extend this study by

investigating in more depth the mechanism behind the nonlinear relationship between ethnic diversity and trust in trade unions.

There have been significant efforts from the UK government and many developing counties to promote workplace diversity and inclusion policy in the last two decades. However, it is challenging to promote diversity without conflicts. As trust is one of the keys that improves workplace performance, a policy implication that arises from this paper is that there should be a policy that focuses on increasing workplace trust in the workplace with a low minority share. This could be the main area that needs more attention from the policymakers and employers in developing countries where workforce diversity is lacking. Our migration policy should embrace more people from different ethnicities, races, or birthplaces at the workplace level, as this workforce diversity improves trust in the workplaces. Next, in order to simultaneously enhance these two types of trust in this study, both managers and trade unions may aim to promote minority employment, at least 14.1% of the total workforce. Also, managers in workplaces where distrust is high may choose to cooperate more with a trade union to alleviate workforce diversity's adverse effects.

Acknowledgement

References

Alesina, A., & La Ferrara, E. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, *43*(3), 762–800.

Alesina, A., & La Ferrara, E. (2002). Who trusts others? *Journal of Public Economics*, *85*(2), 207–234.

Alesina, A., & La Ferrara, E. (2000). Participation in heterogeneous communities. *Quarterly Journal of Economics*, *115*(3), 847–904.

Achur, J. (2011). *Trade union membership 2010*. London: Department for Business, Innovation and Skills.

Bellini, E., Ottaviano, G. I. P., Pinelli, D., & Prarolo, G. (2013). Cultural diversity and economic performance: Evidence from European Regions. In R. Crescenzi & M. Percoco (Eds.), *Advances in Spatial Science (The Regional Science Series)* (pp. 121–141). Berlin, Heidelberg: Springer Berlin Heidelberg.

Bland, N., Mundy, G., Russell, J. & Tuffin, R. (1999). Career progression of ethnic minority police officers. *Police Research Series, Paper 107*. London: Home Office.

Breda, T., & Manning, A.D. (2016). Diversity and social capital within the workplace: Evidence from Britain. *LSE Research Online Documents on Economics*.

Brown, S., Gray, D., McHardy, J., & Taylor, K. (2015). Employee trust and workplace performance. *Journal of Economic Behaviour and Organization*, *116*, 361–378.

Bryan, M. L., & Jenkins, S. P. (2016). Multilevel modelling of country effects: A cautionary tale. *European Sociological Review*, *32*(1), 3–22.

Comer, D.R. & Soliman, C.E. (1996). Organizational efforts to manage diversity: Do they really work? *Journal of Managerial Issues*, 8(4), 470–484.

Delhey, J., & Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or Nordic exceptionalism? *European Sociological Review*, *21*(4), 311–327.

Department of Trade and Industry, Employment Market Analysis and Research, Forth, J., Policy Studies Institute, Advisory, Conciliation and Arbitration Service. (2014). *Workplace employee relations survey, 2004; Cross-section survey, 2004 and panel survey, 1998-2004, wave 2*. [data collection]. *5th Edition*. UK Data Service. SN: 5294.

Department for Business, Innovation and Skills, National Institute of Economic and Social Research, Advisory, Conciliation and Arbitration Service. (2015). *Workplace employee relations survey, 2011*. [data collection]. *6th Edition*. UK Data Service. SN: 7226.

Dincer, O. C. (2011). Ethnic diversity and trust. *Contemporary Economic Policy*, 29(2), 284-293.

Dinesen, P. T., & Sønderskov, K. M. (2015). Ethnic diversity and social trust: Evidence from the Micro-Context. *American Sociological Review*, *80*(3), 550–573.

Ferguson, J. P. (2016). Racial diversity and union organizing in the United States, 1999-2008. *Industrial and Labor Relations Review*. Cornell University.

Gundelach, B. (2014). In diversity we trust: The positive effect of ethnic diversity on outgroup trust. *Political Behaviour*, *36*(1), 125–142.

Kemeny, T., & Cooke, A. (2018). Spillovers from immigrant diversity in cities. *Journal of Economic Geography*, *18*(1), 213–245.

Koopmans, R., & Veit, S. (2014). Ethnic diversity, trust, and the mediating role of positive and negative interethnic contact: A priming experiment. *Social Science Research*, *47*, 91–107.

Lazear, E. P. (1999a). Culture and language. *Journal of Political Economy*, *107*(6), 95–126.

Lazear, E. P. (1999b). Globalisation and the market for team-mates. *The Economic Journal*, *109*(454), 15–40.

Lee, N. (2011). Ethnic diversity and employment growth in English cities. *Urban Studies*, *48*(2), 407–425.

Lee, N. (2015). Migrant and ethnic diversity, cities and innovation: Firm effects or city effects? *Journal of Economic Geography*, *15*(4), 769–796.

Lee, N., & Nathan, M. (2010). Knowledge workers, cultural diversity and innovation: evidence from London. *International Journal of Knowledge-Based Development*, *1*(1/2), 53.

Longhi, S. (2013). Impact of cultural diversity on wages, evidence from panel data. *Regional Science and Urban Economics*, *43*(5), 797–807.

McGregor-Smith, R. (2017), *Race in the workplace*. London: Department for Business, Energy and Industrial Strategy.

Meer, T. van der, & Tolsma, J. (2014). Ethnic diversity and its effects on social cohesion. *Annual Review of Sociology*, *40*(1), 459–478.

Montalvo, J. G., & Reynal-Querol, M. (2005a). Ethnic diversity and economic development. *Journal of Development Economics*, *76*(2), 293–323.

Montalvo, J., & Reynal-Querol, M. (2005b). Ethnic polarisation, potential conflict, and civil wars. *The American Economic Review, 95*(3), 796-816.

Nathan, M. (2010). The long-term impacts of migration in British cities: Diversity, wages, employment and prices. *Migration Studies Unit Working Papers*, *09*(February), 209–231.

Okten, C., & Osili, U. O. (2004). Contributions in heterogeneous communities: Evidence from Indonesia. *Journal of Population Economics*, *17*(4), 603–626.

Ottaviano, G. I. P., & Peri, G. (2006). The economic value of cultural diversity: Evidence from US Cities. *Journal of Economic Geography*, *6*(1), 9–44.

Ottaviano, G. I. P., & Peri, G. (2005). Cities and cultures. *Journal of Urban Economics*, *58*(2), 304–337.

Putnam, R. D. (2007). E pluribus unum: Diversity and community in the twenty-first century the 2006 Johan Skytte prize lecture. *Scandinavian Political Studies*, *30*(2), 137–174.

Rudolph, T. J., & Popp, E. (2010). Race, environment, and interracial trust. *Journal of Politics*, *72*(1), 74–89.

Sessions, J. G., & Theodoropoulos, N. (2014). Tenure, wage profiles and monitoring. In S. W. Polachek and K. Tatsiramos (Eds.). *New Analyses of Worker Well-Being (Research in Labor Economics, Volume 38)* (pp.105 - 162). Bingley , West Yorkshire: Emerald Group Publishing Limited.

Schmid, K., Ramiah, A. A., & Hewstone, M. (2014). Neighborhood ethnic diversity and trust: The role of intergroup contact and perceived threat. *Psychological Science*, *25*(3), 665–674.

Sparber, C. (2008). A theory of racial diversity, segregation, and productivity. *Journal of Development Economics*, *87*(2), 210–226.

Sparber, C. (2009). Racial diversity and aggregate productivity in U.S. industries: 1980-2000. *Southern Economic Journal*, *75*(3), 829–856.

Sparber, C. (2010). Racial diversity and macroeconomic productivity across US states and cities. *Regional Studies*, *44*(1), 71–85.

Stolle, D., Soroka, S., & Johnston, R. (2008). When does diversity erode trust? Neighbourhood diversity, interpersonal trust and the mediating effect of social interactions. *Political Studies*, *56*(1), 57–75.

Sturgis, P., Brunton-Smith, I., Read, S., & Allum, N. (2011). Does ethnic diversity erode trust? Putnam's hunkering down thesis reconsidered. *British Journal of Political Science*, *41*(1), 57–82.

Trax, M., Brunow, S., & Suedekum, J. (2015). Cultural diversity and plant-level productivity. *Regional Science and Urban Economics*, *53*, 85–96.

Uslaner, E. M. (2012). *Segregation and mistrust: Diversity, isolation, and social cohesion.* New York: Cambridge University Press.

Uslaner, E. M. (2006). Does diversity drive down trust? *FEEM Working Paper No. 69.*

Williams, K. Y., & O'Reilly III, C. a. (1998). Demography and diversity in organisations: A review of 40 years of research. *Research in Organisational Behavior.*

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data.* Cambridge, Mass: MIT Press.

Appendix A

Table 1A: Workplace characteristics

Variable	Observation	Mean	Std. Dev.	Min	Max
Ethnic share	4,790	8.41	15.57	0	100
Trade Union Density					
0–24%	4,736	0.62	0.49	0	1
25–49%	4,736	0.13	0.33	0	1
50–74%	4,736	0.13	0.33	0	1
75–100%	4,736	0.13	0.34	0	1
Labour cost to sales					
<25%	4,352	0.19	0.39	0	1
25–49%	4,352	0.28	0.45	0	1
59–74%	4,352	0.28	0.45	0	1
>=75%	4,352	0.25	0.43	0	1
Being part of a larger organisation	4,975	0.98	0.14	0	1
Employment size	4,975	433	1,099	5	20,746
Age of workplace	4,780	42.20	61.45	0	250
Female share	4,939	0.52	0.29	0	1
Share Managers	4,975	0.11	0.11	0	1
Share Professionals	4,975	0.14	0.21	0	1
Share Associate Professionals	4,975	0.11	0.20	0	1
Share Administrative Staff	4,975	0.15	0.20	0	1
Share Skilled Trades	4,975	0.07	0.16	0	1
Share Caring and Leisure	4,975	0.09	0.23	0	1
Share Sales and Customer Service	4,975	0.12	0.25	0	1
Share Operatives	4,975	0.08	0.20	0	1
Share Elementary Occupations	4,975	0.12	0.25	0	1
Sector					
Manufacturing	4,972	0.11	0.32	0	1
Electricity, gas, and water	4,972	0.02	0.14	0	1
Construction	4,972	0.04	0.20	0	1
Wholesale and retail	4,972	0.12	0.33	0	1
Hotels and restaurants	4,972	0.06	0.23	0	1
Transport and communication	4,972	0.06	0.24	0	1
Financial services	4,972	0.04	0.19	0	1
Other business services	4,972	0.13	0.33	0	1
Public administration	4,972	0.08	0.26	0	1
Education	4,972	0.11	0.31	0	1
Health	4,972	0.16	0.36	0	1
Others	4,972	0.08	0.27	0	1
Region					
North	4,975	0.05	0.22	0	1
Yorkshire and Humberside	4,975	0.08	0.28	0	1
East midlands	4,975	0.07	0.25	0	1
East Anglia	4,975	0.04	0.19	0	1
South east	4,975	0.32	0.47	0	1
South west	4,975	0.08	0.27	0	1
West midlands	4,975	0.09	0.28	0	1
North west	4,975	0.11	0.32	0	1
Wales	4,975	0.05	0.22	0	1
Scotland	4,975	0.10	0.30	0	1

Source: Author's calculations from WERS 2004 and 2011.

Table 2A: Employee characteristics

Variable	Observation	Mean	Std. Dev.	Min	Max
White	43,378	0.93	0.25	0	1
Non-white	43,378	0.07	0.25	0	1
Female	44,180	0.55	0.50	0	1
Married	44,432	0.68	0.47	0	1
Age group:					
18–21	44,186	0.05	0.22	0	1
22–29	44,186	0.15	0.36	0	1
30–39	44,186	0.23	0.42	0	1
40–49	44,186	0.28	0.45	0	1
50–59	44,186	0.23	0.42	0	1
60 or above	44,186	0.06	0.24	0	1
Education					
Below GCSE	43,326	0.30	0.46	0	1
GCSE	43,326	0.26	0.44	0	1
A level	43,326	0.14	0.35	0	1
Bachelor	43,326	0.21	0.41	0	1
Postgrad	43,326	0.08	0.28	0	1
Average weekly working hours	43,145	32.30	1.72	0	62
Average hourly wages (£)	41,836	9.60	1.86	0	91
Holding permanent job	44,432	0.96	0.20	0	1
Trade union member	44,186	0.37	0.48	0	1
Years of working at the workplace					
Less than 1 year	44,182	0.14	0.34	0	1
1–2 years	44,182	0.11	0.32	0	1
2–5 years	44,182	0.25	0.44	0	1
5–10 years	44,182	0.21	0.41	0	1
10 years or above	44,182	0.28	0.45	0	1
Occupation					
Managerial	43,632	0.12	0.32	0	1
Professional	43,632	0.13	0.33	0	1
Associate Professional and Technical	43,632	0.17	0.38	0	1
Administrative and Secretarial	43,632	0.18	0.38	0	1
Skilled Trades	43,632	0.06	0.24	0	1
Caring, Leisure, and Other Services	43,632	0.10	0.30	0	1
Sales and Customer Service	43,632	0.06	0.23	0	1
Process, Plant, and Machine Operatives	43,632	0.07	0.25	0	1
Elementary occupations	43,632	0.12	0.32	0	1
Others	43,632	0.01	0.08	0	1

Source: Author's calculations from WERS 2004 and 2011.

Table 3A: Correlation matrix of the workplace trust questions in WERS

	(1)	(2)	(3)	(4)	(5)
Managers can be relied upon to keep to their promises (1)	1.00				
Managers are sincere in attempting to understand employees' views (2)	0.79	1.00			
Managers deal with employees honestly (3)	0.78	0.82	1.00		
Managers treat employees fairly (4)	0.72	0.74	0.77	1.00	
In general, relationship between managers and employees is good (5)	0.75	0.74	0.73	0.74	1.00

Source: Author's calculations from WERS 2004 and 2011.

Table 4A: Correlation matrix of dependent variables

	(1)	(2)	(3)	(4)	(5)	(6)
Workplace trust index (1)	1					
Trust towards union – pay increase (2)	-0.22	1				
Trust towards union – pay and work hours cut (3)	-0.25	0.69	1			
Trust towards union – more training (4)	-0.16	0.27	0.22	1		
Trust towards union – complaint (5)	-0.24	0.46	0.46	0.35	1	
Trust towards union – punishment (6)	-0.22	0.59	0.67	0.26	0.58	1

Source: Author's calculations from WERS 2004 and 2011.

Table 5A: Individual-level estimation of the workplace trust index

	Workplace trust index
Non-white ethnicity	0.064***
	(0.025)
Being female	0.070***
	(0.013)
ln(weekly working hours)	-0.058***
	(0.012)
ln(real hourly wages)	0.008
	(0.013)
Married	0.017
	(0.012)
Age group (18–21 is the reference group)	
22–29	-0.099***
	(0.029)
30–39	-0.094***
	(0.029)
40–49	-0.083***
	(0.029)
50–59	-0.060**
	(0.030)
60 or above	0.061*
	(0.036)
Holding a permanent job	-0.070***
	(0.027)
Years of working at the workplace (less than 1 year is the reference group)	
1 to less than 2 years	-0.155***
	(0.021)
2 to less than 5 years	-0.320***
	(0.018)
5 to less than 10 years	-0.381***
	(0.019)
10 years or more	-0.415***
	(0.020)
Having trade union membership	-0.190***
	(0.014)
Education (Below GCSE is the reference group)	
GCSE	-0.070***
	(0.016)
A level	-0.081***
	(0.019)
Bachelor	-0.091***
	(0.019)
Postgrad	-0.091***
	(0.025)
Occupation (Professional is the reference group)	
Associate Professional and Technical	-0.098***
	(0.022)
Administrative and Secretarial	-0.114***
	(0.023)
Skilled Trades	-0.300***
	(0.031)
Caring, Leisure, and Other Services	-0.105***
	(0.029)
Sales and Customer Service	-0.114***
	(0.033)
Process, Plants and Machine Operatives	-0.341***
	(0.033)
Elementary occupations and others	-0.203***
	(0.029)
2011	0.041**
	(0.017)
Constant	4.244***
	(0.074)
Observations	29,280
Wald chi^2	1,422.50

Note: Observations are weighted using employee weights. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
Source: Author's estimation

Table 6A: Correlation matrix IV

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Workplace trust index (1)	1.00									
Trust towards union – pay increase (2)	-0.13	1.00								
Trust towards union – pay and work hours cut (3)	-0.12	0.68	1.00							
Trust towards union – more training (4)	-0.09	0.23	0.21	1.00						
Trust towards union – complaint (5)	-0.12	0.41	0.46	0.34	1.00					
Trust towards union – punishment (6)	-0.13	0.57	0.66	0.23	0.55	1.00				
Ethnic share (7)	-0.02	0.00	-0.01	0.02	0.02	0.01	1.00			
Ethnic share^2 (8)	0.03	-0.01	-0.02	0.01	0.01	-0.01	0.91	1.00		
IV1-Fitted value from forbidden regression (9)	-0.16	0.00	0.01	0.02	0.02	0.01	0.33	0.21	1.00	
IV2-Squared fitted value from forbidden regression (10)	-0.13	0.01	0.01	0.02	0.03	0.01	0.33	0.22	0.92	1.00

Source: Author's calculations from WERS 2004 and 2011.

Figure 1A: A kernel density plot of ethnic share
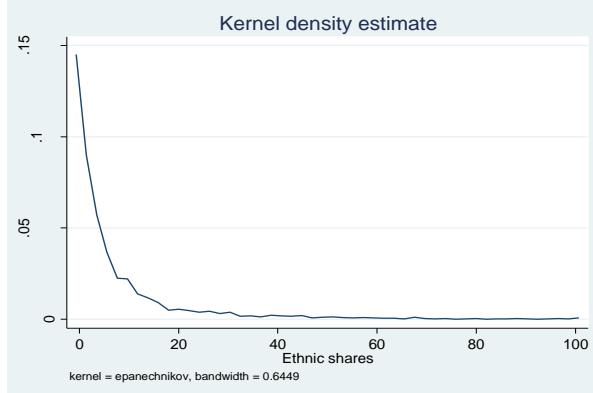
Source: Author's calculation

Appendix B

Table 1B: Trade union memberships by types of workplaces

Type and size of enterprise in UK	Average ethnic share
SMEs	5.65%
Large private enterprise	8.26%
Private manufacturing	6.19%
Private services	7.61%
Public sector	7.14%

Note: SMEs stand for small and medium enterprises classified as workplaces with 250 employed persons or less. Large enterprises have more than 250 employed persons.
Source: Author's calculations from WERS 2004 and 2011.

Table 2B: Trade union memberships by types of workplaces

Trade union memberships	SMEs	Large private enterprise	Private manufacturing	Private services	Public sector
No	90.40%	69.42%	69.05%	78.37%	37.46%
Yes	9.60%	30.58%	30.95%	21.63%	62.54%

Note: SMEs stand for small and medium enterprises classified as workplaces with 250 employed persons or less. Large enterprises have more than 250 employed persons.
Source: Author's calculations from WERS 2004 and 2011.

Table 3B: Conflicts in the UK workplaces

Type of workplace	Industrial action last year		Disputes between employees and employers that went to the Employment Tribunals	
	No	Yes	No	Yes
Non-diverse workplace	95%	5%	93%	7%
Diverse workplace	85%	15%	65%	35%

Source: Author's calculations from WERS 2004 and 2011.

Table 4B: The UK workplaces that have at least 14.1% ethnic share

Variable	Observation	Mean	Std. Dev.	Min	Max
Ethnic share	788	34.73	20.88	14.10	1
Trade Union Density					
0–24%	885	0.60	0.49	0	1
25–49%	885	0.14	0.35	0	1
50–74%	885	0.14	0.35	0	1
75–100%	885	0.11	0.31	0	1
Labour cost to sales					
<25%	834	0.17	0.38	0	1
25–49%	834	0.25	0.43	0	1
59–74%	834	0.29	0.46	0	1
>=75%	834	0.29	0.45	0	1
Being part of a larger organisation	961	0.98	0.13	0	1
Employment size	961	700.33	1,409.31	5	11,776
Age of workplace	907	41.36	64.77	0	250
Female share	944	0.54	0.26	0	1
Share Managers	961	0.09	0.11	0	1
Share Professionals	961	0.16	0.23	0	1
Share Associate Professionals	961	0.10	0.19	0	1
Share Administrative Staff	961	0.15	0.21	0	1
Share Skilled Trades	961	0.04	0.11	0	1
Share Caring and Leisure	961	0.10	0.23	0	1
Share Sales and Customer Service	961	0.14	0.29	0	1
Share Operatives	961	0.06	0.18	0	1
Share Elementary Occupations	961	0.14	0.28	0	1
Sector					
Manufacturing	961	0.07	0.26	0	1
Electricity, gas, and water	961	0.02	0.12	0	1
Construction	961	0.02	0.14	0	1
Wholesale and retail	961	0.13	0.33	0	1
Hotels and restaurants	961	0.05	0.22	0	1
Transport and communication	961	0.07	0.25	0	1
Financial services	961	0.05	0.22	0	1
Other business services	961	0.16	0.37	0	1
Public administration	961	0.08	0.27	0	1
Education	961	0.10	0.30	0	1
Health	961	0.21	0.41	0	1
Others	961	0.06	0.23	0	1
Region					
North	961	0.04	0.20	0	1
Yorkshire and Humberside	961	0.02	0.13	0	1
East midlands	961	0.08	0.27	0	1
East Anglia	961	0.05	0.22	0	1
South east	961	0.01	0.12	0	1
South west	961	0.57	0.50	0	1
West midlands	961	0.03	0.16	0	1
North west	961	0.11	0.31	0	1
Wales	961	0.08	0.27	0	1
Scotland	961	0.01	0.11	0	1

Source: Author's calculations from WERS 2004 and 2011.