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# Economic Aspects of Subjective Attitudes towards the Minimum Wage Reform

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# Economic Aspects of Subjective Attitudes towards the Minimum Wage Reform

by

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## Abstract

Despite some skepticism among experts about the effects of a minimum wage, there is remarkably widespread public support for such policies. Using representative survey data from 2015 and 2016, we investigate the subjective attitudes driving public support for Germany's recent minimum wage reform. We find that socio-economic characteristics and political orientations explain a minor part of the variation in attitudes, whereas beliefs that the reform will bring positive redistributive effects and perceptions that it will help people to maintain or improve their overall economic situation (measured by living standards, income, hours worked, and job security) play a major role.

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# 1 Introduction

Debate over the merits of a minimum wage has been ongoing for decades. Although economists agree that minimum wages reduce inequality in society, they disagree over the possible adverse impacts, such as increasing unemployment, rising prices, and declining economic growth (Brown et al., 1982; Card, 1992; Card and Krueger, 1992; Machin and Manning, 1994; König and Möller, 2009; Dube et al., 2010; Frings, 2013; Neumark et al., 2014). Most economists are skeptical about the asserted positive effects of a minimum wage, particularly on low-skilled workers. In 2011, 75 percent of economists in the American Economic Association agreed with the statement that minimum wages lead to higher unemployment among the low-skilled (Fuller and Geide-Stevenson, 2014).<sup>1</sup>

In contrast, multiple opinion polls have documented widespread support for minimum wages among the general public. A 2013 Gallup poll showed that 76 percent of US citizens supported an increase in the minimum wage.<sup>2</sup> A 2014 poll conducted on behalf of the UK Department of Business, Innovation, and Skills reported that only 5 percent of respondents believed that the minimum wage was “high enough” at that time.<sup>3</sup> In Germany, public support for a minimum wage increased from about 70 percent in 2008 (Bieräugel et al., 2010) to 86 percent in 2015.<sup>4</sup> While expert opinions have been studied extensively in the literature on minimum wages (Kearl et al., 1979; Frey et al., 1984; Alston et al., 1992; Whaples, 1996; Fuller and Geide-Stevenson, 2014; O’Neill, 2015), there has been little effort to understand the determinants of public opinions on the subject. Since it is the public that stands to either

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<sup>1</sup>About a half of this number agreed, but with some caveats. Although this clearly shows that economists see serious downsides to minimum wages, it should be noted that this percentage has declined since 1979, when 90 percent of economists expressed agreement with the aforementioned statement (with or without caveats) (Kearl et al., 1979).

<sup>2</sup><http://www.gallup.com/poll/165794/americans-raising-minimum-wage.aspx>.

<sup>3</sup><https://www.gov.uk/government/statistics/national-minimum-wage-rates-survey-of-awareness-october-2014>.

<sup>4</sup><http://www.dgb.de/themen/++co++02e12b02-c246-11e4-bfbc-52540023ef1a>.

benefit from minimum wage reforms or bear the economic burdens, the drivers of public opinion are important to understand. Furthermore, studying the structure of public opinion will help to show what impacts people consider to be positive, and what negative impacts they consider to be socially acceptable (Boeri et al., 2001, 2002; Blinder and Krueger, 2004).

In the following, we analyze the driving forces behind public opinion since the introduction of the minimum wage in Germany. The present study uses data from a representative survey of the German population in which respondents were asked about their perceptions of the statutory minimum wage introduced on January 1, 2015. The survey was conducted in June 2015 and 2016 and provides data on about two thousand respondents per survey year. In addition to detailed information on socio-demographic characteristics and political orientations, it offers data on hourly wages and labor market characteristics before and after the reform, thus enabling us to differentiate among directly and indirectly affected groups. Moreover, the questionnaire covers the perceived and expected effects of the minimum wage reform. In particular, it contains questions on respondents' beliefs about the redistributive effects of the reform, such as the expected effect on low-income workers and the overall fairness of the wage distribution. Additionally, respondents were asked about the changes they have experienced in four individual outcomes: living standards, monthly wages, actual working hours, and job security. This allows us to study the role of various subjective and objective impact channels in the formation of public opinion.

In our data, we find enormous support for the reform: 89 percent of respondents in 2015 and 92 percent of respondents in 2016 said they supported the introduction of a minimum wage. When we calculate support rates in the three groups – Affected Employed (AE), Not Affected Employed (NAE), Not Affected Others (NAO) – we find that the group directly affected by the reform expressed about 20 percentage points less support in 2015 than other

groups. In 2016, the three groups expressed about the same level of support of the reform. Strikingly, about two thirds of the affected respondents in both survey years reported knowing of employer efforts to circumvent the legal regulations implemented under the reform, either from firsthand experience or from others. However, this was associated with lower support only in 2015, and it explains only a very small percentage of the variation in attitudes. Socio-economic characteristics and political orientations also explain only a negligible share of variation in attitudes in both survey years. At the same time, the expected and perceived impacts show a substantial correlation with attitudes toward the reform. In particular, beliefs about the reform's positive effects on the distribution of income and wealth and on respondents' individual economic situations (measured by living standards, monthly incomes, and hours worked) were positively correlated with support for the reform in 2015. In 2016, when positive attitudes increased, only the belief that the income situation of low-income workers had worsened since the reform was correlated with lower support for the reform.

The remainder of the paper is organized as follows. In the next section, we describe the German minimum wage reform, explain negative perceptions of the reform by many in the expert community, and discuss coverage of the reform in the German media. In Section 3, we describe the questionnaire used in the survey, and in Section 4, we present the analyzed samples. Section 5 gives an overview of public support for the reform and channels of opinion formation. In Section 6, we discuss the roles and relative importance of different socio-economic characteristics and impact channels in the formation of individual opinions on the minimum wage reform. Section 7 concludes.

## 2 Minimum wages in Germany

A statutory minimum wage of €8.50 per hour took effect in Germany on January 1, 2015.<sup>5</sup>

While the minimum wage is binding for the vast majority of dependent employees, some groups are exempted, e.g., trainees, employees under the age of 18 without formal training, and formerly long-term unemployed persons during their first six months of their new job. Furthermore, an extended transition period applies to employees in industries with a minimum wage set by collective agreement.

The minimum wage was set at the 15th percentile of the wage distribution (Brenke, 2014), which corresponds to the OECD average (OECD, 2015) but is substantially higher than the minimum wage level in the US (Autor et al., 2016). Many in the German expert community therefore expected higher disemployment effects than those found in the US.<sup>6</sup> Moreover, findings of disemployment effects in studies on industry-specific minimum wages (Bachmann et al., 2008; König and Möller, 2009) and predictions of negative outcomes in simulation studies (Müller and Steiner, 2010, 2013) supported the widespread skepticism in the expert community. As a result, the German Council of Economic Experts advised against the introduction of a statutory minimum wage (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, 2013), echoing warnings of the drawbacks of minimum wages reported in the media. Leading research institutes had previously published commentaries emphasizing the reform's potential drawbacks. Headlines included "False hope in the minimum wage" by M. Fratzscher and G. Wagner (DIW Berlin) in *Tagesspiegel*, "Magnificent mistake" by K. Zimmermann (IZA Bonn) in *Die Welt*, "A recipe for stagnation" by H.-W. Sinn (ifo Munich) in *Süddeutsche Zeitung*. Moreover, another leading newspaper *Frankfurter Allgemeine Zeitung* pub-

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<sup>5</sup>Gesetz zur Regelung eines allgemeinen Mindestlohns (MiLoG), <http://www.gesetze-im-internet.de/milog/>.

<sup>6</sup>See also Castillo-Freeman and Freeman (2004), who estimate the effect of a minimum wage that "really bites".

lished an open letter to politicians signed by 130 renowned professors of economics with the warning of high and rising unemployment following the introduction of a minimum wage. At that time, there were only a few studies presenting a more optimistic picture (Bosch, 2007; Möller, 2012).

When looking at the media coverage of the minimum wage in detail, it becomes apparent that the most negative reports in overall tone and predictions were not necessarily those with the highest visibility, as seen in Figure 1. The low public visibility of specialized reports may be one explanation for the discrepancy between the views of the expert community and public opinion polls. However, if it is not the views of experts that shape public opinion on minimum wages, it becomes all the more important to understand what influences do affect public opinion on minimum wages, and what the main channels of these effects are.

### **3 Questionnaire and description of the sample**

Our study builds on a representative survey conducted in the two subsequent years after introduction of the minimum wage focusing on how subjective attitudes toward the reform affect people's assessments of its impact on labor market outcomes. The survey was commissioned by the Socio-Economic Panel (SOEP) study, based at the German Institute for Economic Research (DIW Berlin), and conducted in June 2015 and 2016 by TNS Infratest. The survey data were collected using computer-assisted personal interviews as a part of omnibus surveys of a representative sample of the German population aged 14 or older and living in private households.

In addition to standard questions on socio-demographic characteristics and political orientations (e.g., voting in the 2013 federal election), respondents were asked to state their



assessments of the minimum wage reform as well as their views about its redistributive effects and any impacts it had had on their own economic situation. Below, we quote the relevant questions on respondents' beliefs and economic situation:

**Opinion: low income** “One of the goals of the minimum wage reform was to improve the income situation of low-income workers. In your opinion, are low-income workers better off, worse off, or about the same as last year?”

**Opinion: fairness income** “In your opinion, is the distribution of income in Germany fairer than last year, less fair, or about the same?”

**Living standard:** “How has your standard of living – that is, the goods and services you are able to afford – changed since the introduction of the minimum wage: Has your standard of living gone up, gone down, or stayed about the same?”

**Monthly income:** “Has your gross monthly income changed since the introduction of the minimum wage? (No, my gross monthly income has not changed. / Yes, my gross monthly income has increased. / Yes, my gross monthly income has decreased.)”

**Monthly working hours:** “What about the total number of hours you work (including any paid or unpaid overtime): Have your total working hours increased, decreased, or stayed the same?”

**Job security:** “One possible effect of the introduction of the minimum wage could be that employment opportunities change. What about you: How secure is your job since the introduction of the minimum wage? (My job just as secure as last year. / My job is more secure than last year. / My job is less secure than last year?)”

Appendix A contains the questionnaire for 2015. In 2016, the questionnaire was identical except for a change in wording when referring to the pre-reform period (“in 2014” was used instead of “last year”). Moreover, the data come with the frequency weights we used to

calculate all of the statistics and empirical estimations presented.

## 4 Descriptive statistics

The total sample comprises 2,013 respondents in 2015 and 2,033 respondents in 2016. For the subsequent analysis, we define three mutually exclusive groups<sup>7</sup> of respondents that are exposed to the minimum wage reform to differing extents.

1. Affected Employed (AE, 102 respondents in 2015 and 112 respondents in 2016), who are eligible for minimum wages and earned below €8.50 prior to the reform;
2. Not Affected Employed (NAE, 753 respondents in 2015 and 739 respondents in 2016), who are eligible for minimum wages but earned more than €8.50 prior to the reform;
3. Not Affected Others (NAO, 1158 respondents in 2015 and 1182 respondents in 2016), who comprise civil servants, self-employed people, trainees, interns, and the non-employed.

It is evident from this classification that the last group, although not *directly* affected by the reform, contributes most to public opinion due to its sheer size.

Table 1 provides an overview of the socio-demographic characteristics and political orientations of these three groups of respondents. With regard to gender composition, the NAE and NAO groups exhibit an even distribution of genders in both 2015 and 2016, whereas the AE group contains more women, especially in 2015. The average age in the NAO group was 54 in both 2015 and 2016. The NAE group was 9 years younger on average in both survey years. The average age in the AE group was 41 in 2015 and 46 in 2016. However, due to the large standard deviation, differences in age are not significant. The distribution of marital

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<sup>7</sup>The suggested division and naming of the three groups makes it easier to analyze and interpret the results. In the long run, the introduction of minimum wages can indirectly affect the entire population. However, when discussing the short-term perspective, this classification appears appropriate.

statuses remained similar in the three groups over time. It is noticeable that the NAO group has a higher proportion of widowed respondents, which, together with the average age of this group, points to the higher proportion of pensioners in the group.

The personal income distribution shows similar patterns within the analyzed groups over time. Between groups, however, differences are evident. Between 6 and 10 percent of respondents in the NAO and NAE groups earn over €3,000 per month. In the NAE group, the majority of respondents earn between €1,500 and €3,000 per month. Most NAO respondents earn less than €1,000 per month. As expected, the affected respondents (AE group) are more likely to have low income – in 2015, 60 percent and in 2016, 49 percent of respondents in the AE group earned below €1,000 per month. According to calculations not presented in the Table 1, 12.4 percent of respondents in 2015 and 15.6 percent of respondents in 2016 reported having hourly wages below €8.50 prior to the reform. These shares correspond to those reported in other studies on the scope of the German minimum wage reform, e.g., Brenke (2014).

By construction, salaried workers are not included in the NAO group, which consists mainly of non-employed people (76 percent in 2015 and 74 percent in 2016) as well as civil servants, self-employed people, and trainees/interns. The NAE group as well as the target AE group both consist entirely of salaried workers.

The distribution of respondents by their voting decisions in the 2013 Bundestag elections also remained stable in the analyzed groups over time. In all three groups, the majority of respondents did not vote or did not provide a specific answer to this question. Among those who voted, the highest shares of votes went to the largest political parties in Germany: the Social Democratic Party (SPD) and the Christian Democratic Union / Christian Social Union (CDU/CSU). Strikingly, the Left (Die Linke) had higher shares of votes among respondents

affected by the reform (AE group).

Table 1 about here

## **5 Public opinion on the minimum wage reform**

### **5.1 Support rates**

Table 2 documents enormous support for the minimum wage reform across the board. Interestingly, support for the reform was substantially lower in the AE group in 2015 but not in 2016. Supporters of the reform faced potential negative impacts that are likely to occur in monopsonistic markets, for instance, rising prices on services such as restaurants and cabs. In all three subgroups, only a small percentage disagreed with the reform when reporting having observed these negative impacts. In general, attitudes towards the reform remained stable.

Opponents of the reform were asked about the reasons for their opinion. Among the NAO and NAE groups, about 30 percent in 2015 and 20 percent in 2016 said they were generally against minimum wages. Within the AE group, this share was much higher – 42.6 percent in 2015 and 50.3 percent in 2016. Interestingly, about 9 percent of the NAO group and 13-16 percent of the NAE group thought that the minimum wage was too high. Nine percent of the AE group in 2015 shared this view, although in 2016, no one in the affected group expressed this opinion. A substantial share of respondents reported thinking that the introduced minimum wage was too low. Moreover, this share rose substantially from 2015 to 2016 in all analyzed groups.

Table 2 about here

## 5.2 The role of (non-)compliance

Although the issue of compliance is not widely discussed in the literature, it might be relevant when a minimum wage reform is introduced (Brenke and Wagner, 2013) and might also play a role in perceptions of the reform. In our survey, we asked respondents whether they knew of cases in which employers had attempted to avoid paying the minimum wage, either from their own experience or from someone else, and then linked this information to the respondents' opinions about the reform.

The upper panel of Table 3 contains descriptive statistics on experiences of compliance with the reform reported by respondents in the three groups. In the NAO group in both survey years, almost no one had an employer who had avoided paying the minimum wage by using what we refer to as circumvention methods, or knew someone else who had experienced this from an employer. In 2015, 14.5 percent and in 2016, 9.5 percent knew someone who had experienced this. In the NAE group, the majority (77–78 percent) had not experienced circumvention methods from an employer themselves, and only 18–20 percent knew someone who had. Within the AE group, the percentage who had experienced circumvention methods was much higher: more than half of the affected workers had experienced circumvention methods from their own employer, and 13 to 19 percent knew someone else who had. The lower panel of Table 3 gives the share of supporters of the minimum wage conditional on the compliance experienced by respondents. In the NAO group, approval rates were high in 2015 and rose even further in 2016. In the NAE group, only 64.7 percent of individuals who experienced circumvention methods supported the minimum wage in 2015. This number increased sharply to 75.0 percent in 2016. For the groups who knew someone who had experienced circumvention methods and those who had no firsthand or other experience of circumvention

methods, approval rates were high in both years, lying between 91 and 93 percent. Among the AE group, all approval rates took a leap from 2015 to 2016. Of those who experienced circumvention methods themselves, 81.3 percent supported the minimum wage in 2015 compared to 93.8 percent in 2016. Among those who knew someone who had experienced circumvention methods, 81.3 percent supported the reform in 2015 and 100 percent in 2016. The approval rate among those who did not know anyone who had experienced circumvention methods increased from 87 percent in 2015 to 98 percent in 2016.

Thus, we conclude that circumvention methods play a substantial role in perceptions of the reform in the target and the affected population. At the same time, the issue of non-compliance is not highly visible to the non-target and non-affected populations, although it is of great concern to those employees who experience it. However, the small size of the AE group impedes the circulation of knowledge about circumvention methods undertaken by employers, which are therefore likely to have only a small impact on public opinion about the minimum wage reform.

Table 3 about here

### **5.3 The role of beliefs and the individual economic situation**

In the data description in Section 3, we quoted the survey questions dealing with beliefs about the reform's effect ("opinion: low income" and "opinion: fairness income") and about changes in the respondent's economic situation ("living standard", "monthly income", "actual working hours", "job security"). For these six outcomes, we calculated the observed distribution of answers (decrease, no change, or increase) for each group and year (see upper panels of Tables 4a–4f). Moreover, we calculated the share of supporters of the minimum wage reform

conditional on experiencing a decrease, no change, or an increase in the respective outcome (see lower panels of Tables 4a–4f).

The upper panel of Table 4a summarizes the results for respondents' opinions about whether the minimum wage reform had changed the economic situation of low-income workers. The distribution of opinions is very similar between the NAE and NAO groups. About 4-5 percent of respondents thought that low-income workers were worse off since the reform. The majority in these groups thought nothing had changed: 72 percent in 2015 and 66-67 percent in 2016. Twenty-four to 30 percent thought that the reform had increased earnings at the bottom of the income distribution. Interestingly, the AE group took a more positive view of the reform's effects on low-income workers: in 2015, 10 percent of this group thought low-income workers were worse off, whereas 46 percent thought they were better off. In 2016, the share of those who thought that this group was better off after the reform fell by 5 percentage points.

The lower panel of Table 4a shows the shares of supporters of the minimum wage reform conditional on their opinions as to whether the reform had improved the situation of low-income workers. These figures show that beliefs about the effect of the minimum wage reform on low-income workers act as a channel of overall support for the reform in all years and in all groups: The share of supporters of the reform among those who believed the situation of low-income earners' had improved was over 89 percent across all groups and years. Among those who believed low-income workers were worse off after the reform, the share of supporters was only 50 percent in the NAE and in the AE group in 2015, but it increased to 75 and 80 percent, respectively, in 2016. In the AE group, the share of reform supporters increased by 11 percentage points from 84 to 95 percent from 2015 to 2016 among those who thought the reform had not changed the situation of low-income earners. Similarly, the share of reform supporters increased from 89 to 100 percent among those who thought the reform

had improved the situation of low-income workers. The improvement in support for the reform was even higher among respondents who believed in its positive distributional effects on low-income workers.

Table 4b displays the results for beliefs about the effects of the minimum wage reform on the overall wage distribution. This question is closely related to the previous one, although it is more general. On average, the distribution of answer categories and the shares of reform's supporters within these categories is very similar to the results displayed in Table 4a. Among those who believed that the minimum wage reform had brought about a positive effect on the overall wage distribution, support rates were higher in all groups and years (with the exception of the AE group in 2016, who were almost unanimous in their support for the reform).

The next four measures were related to the change in the individual labor market situation of the three analyzed groups. Table 4c documents changes in respondents' standard of living. Both in 2015 and 2016, more than 90 percent of the respondents in the NAE and NAO groups did not experience any change in their standard of living. In the AE group, these shares were lower, with 33 percent in 2015 and 22 percent in 2016 reporting an improvement in their living standard since the minimum wage reform. As expected, the share of reform supporters was higher among respondents whose standard of living had either remained unchanged or improved since the reform.

Table 4d displays results on individual monthly income, which is related to the standard of living but is a more precise measure of material well-being. However, this variable imposes a severe restriction on sample size that affects the NAO group in particular. As in the table above, the majority of respondents in the NAO and NAE groups report no change in their monthly income since the reform. Remarkably, about 20 percent in both these groups reported an increase in their monthly income in 2016. As expected, in the AE group, a much higher share



of respondents reported an increase in monthly income since the reform – 65 percent in 2015 and 60 percent in 2016. Supporters of the reform made up over 85.5 percent of respondents whose monthly income had remained unchanged or increased. In the group of respondents whose monthly income had decreased, support rates were lower (with the exception of the AE group, where only a few people reported a decrease in their monthly income).

One of the potential threats of the minimum wage reform is that it will affect the number of hours people work. Employers reduce employee's working hours to reduce payroll costs, and they increase their working hours through unpaid overtime to save labor costs. Table 4e summarizes the results on actual hours worked for the three groups. Note that this variable exists only for employed respondents. In the NAO and NAE groups, the majority of respondents did not experience a change in working hours. In the AE group, only 61 to 65 percent reported no change in working hours, whereas 20 to 22 percent reported an increase and 13 to 18 percent reported a decrease in working hours. In 2015, all respondents who experienced a decrease in working hours reported substantially lower support for the minimum wage reform. In 2016, this group had much higher support rates. Thus, the change in opinion of those with decreased working hours seems to be one valid explanation for the increased support for the minimum wage reform in 2016.

The potential effect of a minimum wage on employment has been discussed at length in the economic literature (e.g. Card and Krueger, 1992; Neumark et al., 2014). Table 4f displays results on the extent to which individuals believe their job security has been affected by the reform. The upper panel shows that the majority (86–90 percent) of the NAE and NAO groups state in both years that their job security has not changed due to the reform. The results are less clear in the AE group. Here, 20 percent in 2015 and 30 percent in 2016 stated a decrease in job security. While 10 percent of the affected answered that their job security increased

after the reform in 2015, that number fell to 2 percent in 2016. The lower panel again shows the share of minimum wage supporters conditional on the job security response. In most groups, we see an increase in the approval rate from 2015 to 2016. Surprisingly, we even find an increase in approval among the AE group but decreasing job security. In 2015, only 75 percent of respondents in this group were in favor of the minimum wage reform, whereas 96 percent supported it in 2016. At the same time, the development was the opposite for the NAO, where the support among those with decreasing job security fell from 78 to 70 percent.

## 6 Structure of individual attitudes towards the reform

Until now, we have discussed the channels of impact on individual attitudes towards the minimum wage reform separately. In the following, we quantify the importance of these channels for opinion formation jointly using regression analysis. In particular, we estimate the following regression equation:

$$Y_i = \alpha + \beta'X_i + \epsilon, \quad (1)$$

where  $X_i$  differs in six different specifications:

1.  $X_{1,i}$  is a vector of socio-economic characteristics including gender, age, marital status (with single as reference category), monthly individual income (with income over €3000 as reference category) and employment status (with salaried employee as reference category).
2.  $X_{2,i}$  comprises political preferences according to the voting decision in the 2013 Bundestag elections, with the SPD, the party that advocated most vigorously for the reform,

as the reference category.

3.  $X_{3,i}$  is set of dummies denoting exposure to the reform, with the NAO group being the reference category.
4.  $X_{4,i}$  contains two (not mutually exclusive) dummies that equal one if the respondent experienced circumvention methods (CM) herself or knows others who experienced circumvention methods.
5.  $X_{5,i}$  comprises dummies related to the six impact channels of the reform discussed in Section 5. For each channel, we use the category “decrease” as the reference category and include categories “no change” and “increase” in the regression specification. Note that some variables in this specification have valid entries only for the employed, which leads to a lower number of observations available for the estimation.
6.  $X_{6,i}$  includes  $X_{1,i} - X_{5,i}$  simultaneously.

For the sake of simplicity, we estimate the regression separately for 2015 and 2016. The marginal effects from a logit regression are displayed in Tables 5 and 6, accordingly.

Specification 1 in Table 5 shows that socio-economic characteristics explain a small share of variation in attitudes towards the minimum wage reform. On average, civil servants exhibit 9 percentage points higher support for the reform, whereas the non-employed exhibit 4 percentage points higher support for the reform than employed people. However, neither of these groups is the target of the minimum wage reform.

Specification 2 in Table 5 documents that voters for the Free Democratic Party (FDP) are, on average, 22 percentage points less likely to support the reform than SPD voters.

Specification 3 in Table 5 shows that, compared to the NAO group, respondents in the group of directly affected employees (AE) report, on average, 21 percentage points lower

support for the reform.

Specification 4 in Table 5 shows that respondents who themselves experienced circumvention methods are 16 percentage points less likely to support the reform. Having acquaintances who experienced circumvention methods does not play a significant role.

Specification 5 in Table 5 deals with beliefs about the reform and changes in the respondent's individual economic situation. On average, only opinions about the reform's impact on low-income workers and overall fairness as well as working hours exhibit a significantly positive correlation with individual opinions about the reform. Note, however, that increasing working hours are correlated with higher living standards and increases in monthly income. Noticeably, the pseudo  $R^2$  for this specification is higher than those in specifications 1–4.

In the specification 6 in Table 5, we jointly analyze the correlations of different impact channels with individual opinions about the minimum wage reform. This joint specification reveals that, on average, civil servants, self-employed people, and voters for the Left party (Die Linke) show 5–6 percentage points higher support for the reform. With regard to the perceived effects of the reform, beliefs about the reform's positive effects on low-income workers and overall fairness, as well as stable or increasing working hours correlate with significantly more positive attitudes toward the reform.

Table 6 displays the estimation results for 2016. Note that in this year, the rate of support for the reform was higher and, consequently, attitudes showed less variation than in 2015. In terms of socio-economic characteristics (specification 1), support for the reform among the self-employed was 15 percentage points lower than among employed people. In regard to voting in the 2013 Bundestag elections, voters for the Greens (Grüne) were 5 percentage points more likely to support the reform. In 2016, there was no significant difference either in the level of affectedness by the reform (specification 3) or in having personally experienced cir-

cumvention methods (specification 4). Concerning the perceived implications of the reform (specification 5), only beliefs about the positive redistributive effect of the reform on low-income workers and on overall fairness have a significantly higher correlation with individual attitudes. In the joint estimation (specification 6), belonging to the NAE group yields 5 percentage points lower support for the reform, whereas beliefs about its positive effects on the overall fairness of the wage distribution is related to 4 percentage points higher support for the reform.

## 7 Discussion

In this paper, we studied the factors affecting individual attitudes towards the minimum wage reform within three groups – Affected Employed (AE), Not Affected Employed (NAE), and Not Affected Others (NAO). In line with other opinion studies, we find a high approval rate in all groups in 2015 that rose further in 2016. However, in 2015, the group of workers who were directly affected by the reform reported lower support than other groups. In 2016, this was no longer the case. In both survey years, supporters of the reform were unlikely to change their opinions when confronted with potential price increases brought about by the reform, which may suggest that price increases are a socially acceptable negative consequence of the minimum wage reform. In both survey years, opponents of the reform said that they were either generally opposed to the reform or that the minimum wage was too low.

We also find that a remarkable two thirds of affected workers had either been affected by circumvention methods – that is, methods used by employers to avoid paying the minimum wage – themselves or knew someone else who had. In other groups, awareness of such circumvention methods did not exceed 25 percent.

Furthermore, we find that perceptions of the impacts of the minimum wage reform played an important role in the formation of individual opinions. Thus, beliefs about the positive redistributive effect of the reform were related to more positive attitudes towards the reform. Moreover, stable or increasing living standards, monthly incomes, and working hours were related to more positive attitudes. This finding indirectly implies that introduction of minimum wages during an economic upswing and expansion of the labor market yields higher support for the introduction of minimum wages. Last but not least, perceptions of unchanging job security are also related to higher support for the reform.

In the joint estimation of the role of various impact channels, the expected and perceived impacts of the minimum wage reform explained the majority of variation in people's opinions. In 2015, stable working hours and beliefs about the positive redistributive effect of the reform are related to higher support rates. Among the expected and perceived impacts, only the belief about the reform's positive effect on the overall fairness of incomes has a positive correlation with the opinions about the reform. However, in 2016, overall opinions of the minimum wage reform were more positive, which was largely due to increased support rates among affected workers with a decrease in working hours and perceived job security.

There are several possible explanations for the sizable difference between expert and public opinion about minimum wages. First, expert opinion is based on the possible adverse effects of the reform on a particular group of workers that is small in size and that does not substantially shape public opinion. This is partly because the negative consequences of the reform, such as circumvention methods, are not visible outside the group of directly affected individuals. Second, economic upswings play a major role in the perceived success of the minimum wage reform in the population. An improvement in public opinion of the reform from 2015 to 2016 may also be explained, at least in part, by the increasingly positive tone of media reports

over time (as shown in Figure 1). However, our data do not exhibit the variation needed to empirically test this hypothesis. Thus, external impact channels on public support for the minimum wage reform will remain a subject for further research.

# Appendices

## A Questionnaire: Support for the minimum wage reform

1. In January 2015, with only a few exceptions, a uniform statutory minimum wage of €8.50 an hour went into effect in Germany. Do you think it was a good idea to introduce the minimum wage?
  - I think it was a good idea (skip to question → 3)
  - I don't think it was a good idea
2. Why don't you think it was a good idea to introduce the minimum wage?
  - I am opposed to the minimum wage in general
  - I think that a minimum wage of €8.50/hour is too high
  - I think that a minimum wage of €8.50/hour is too low
  - Other reasons (skip to question → 4)
3. One possible effect of introducing a minimum wage could be an increase in the prices of goods and services, such as cab fares and restaurant meals. Do you still think introducing the minimum wage was or wasn't a good idea?
  - I still think the minimum wage was a good idea
  - I don't think the minimum wage was a good idea due to the possibility of inflation
4. How has your standard of living – that is, the goods and services you are able to afford – changed since the introduction of the minimum wage: Has your standard of living gone up, gone down, or stayed about the same?
  - My standard of living has gone up



- My standard of living has gone down
  - My standard of living has stayed about same
5. One of the goals of the statutory minimum wage was to improve the income situation of low-income workers. In your opinion, are low-income workers better off, worse off, or about the same as last year?
- Better off
  - Worse off
  - About the same
6. In your opinion, is the distribution of income in Germany fairer than last year, less fair, or about the same?
- Fairer
  - Less fair
  - About the same
7. There has been discussion surrounding the introduction of the minimum wage about employers who use various methods to avoid paying the minimum wage (such as requiring employees to work unpaid overtime, giving them added work responsibilities, or increasing performance expectations). Have you been affected by such methods yourself or do you know someone who has? Please tick all that apply!
- Yes, I have been affected
  - Yes, someone I know has been affected
  - No, I have not been affected, and I do not know anyone who has
8. What was your employment status last year, that is, in the year before the introduction

of the statutory minimum wage? → If you had more than one job, we are referring to the main one here and in the following questions!

- Salaried employee
- Civil servant
- Self-employed
- Trainee (→ 12)
- Intern
- Does not apply, I was not employed in the last year (→ 10)

9. Was your gross hourly wage less than €8.50 last year, that is, in the year before the introduction of the minimum wage?

- Yes, my hourly gross hourly wage was less than €8.50
- No, my hourly gross hourly wage was already €8.50 or more last year

10. What is your employment status now? → If you have more than one job, we are referring to the main one here and in the following questions!

- Salaried employee
- Civil servant
- Self-employed
- Trainee (→ 12)
- Intern
- Does not apply, I am not employed (→ 18)

11. Do you work part-time, full-time, or in marginal or irregular jobs?

- Full-time

- Part-time
- In marginal or irregular jobs

12. Is your current hourly gross wage less than €8.50?

- Yes, my hourly gross wage is less than €8.50. (→ Additional questions 12a)
- No, my hourly gross wage is €8.50 or more.

12a. What sector do you work in? (Open question) (Q8 = does not apply → 18)

13. Are you still in the same job as last year, before the introduction of the minimum wage?

- Yes, in the same job as last year
- No, I switched jobs

14. Has your gross monthly income changed since the introduction of the minimum wage?

- No, my gross monthly income has not changed
- Yes, my gross monthly income has increased
- Yes, my gross monthly income has decreased

15. Have your variable wage components, for instance, profit-sharing or bonuses, changed in any way since the introduction of the minimum wage?

- No, the rules for variable wage components have stayed the same
- Yes, variable wage components were increased or introduced
- Yes, variable wage components were reduced or eliminated
- Does not apply, I do/did not have variable wage components

16. What about the total number of hours you work (including any paid or unpaid overtime):  
Have your total working hours increased, decreased, or stayed the same?

- My total working hours have increased

- My total working hours have decreased
  - My total working hours have stayed the same
17. One possible effect of the introduction of the minimum wage could be that employment opportunities change. What about you: How secure is your job since the introduction of the minimum wage? (→ 20)
- My job is just as secure as last year
  - My job is more secure than last year
  - My job is less secure than last year
18. Are you looking for a new job?
- Yes (→ 19)
  - No (→ 20)
19. One of the possible effects of the introduction of the minimum wage could be that employment opportunities change. How do you think your chances are of finding a job now compared to last year?
- My chances of finding a job are just as good as last year
  - My chances of finding a job are better than last year
  - My chances of finding a job are worse than last year
20. May we ask you a further question regarding your political orientation?
- Yes (→ 21)
  - No (→ End of the module)
21. What party did you vote for in the last Bundestag election on September 22, 2013?
- SPD

- CDU
- CSU
- FDP
- Bündnis 90/Die Grünen
- Die Linke
- Piratenpartei
- AfD
- NPD/Republikaner/Die Rechte
- Another party
- I did not vote
- I was not eligible to vote

End of the module

## B Tables and Figures

**Table 1:** Descriptive statistics, by group

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
<b>Gender, Age</b>						
Observations	102	112	753	739	1158	1182
Women	0.823	0.601	0.497	0.514	0.501	0.507
Men	0.177	0.399	0.503	0.486	0.499	0.493
Age, mean	41.212	45.749	44.611	45.268	54.106	53.797
s.d.	14.736	14.917	12.731	12.092	22.722	23.084
<b>Marital status</b>						
Observations	101	109	744	728	1155	1168
Single	0.356	0.280	0.273	0.270	0.284	0.315
Married	0.401	0.487	0.608	0.584	0.505	0.485
Widowed	0.030	0.020	0.032	0.021	0.146	0.145
Separated	0.213	0.213	0.086	0.125	0.065	0.054
<b>Personal monthly income</b>						
Observations	102	112	753	739	1158	1182
less than €1000	0.604	0.490	0.218	0.184	0.455	0.397
€1000 to less than €1500	0.294	0.335	0.218	0.249	0.201	0.228
€1500 to less than €3000	0.102	0.158	0.500	0.469	0.256	0.274
€3000 and more	0	0.017	0.064	0.098	0.087	0.101
<b>Labor market status</b>						
Observations	102	112	753	739	1141	1161
Salaried workers	1	1	1	1	0	0
Civil servant	0	0	0	0	0.057	0.059
Self-employed	0	0	0	0	0.120	0.113
Trainee/Intern	0	0	0	0	0.062	0.088
Non-employed	0	0	0	0	0.761	0.740
<b>Voting decision at Bundestag elections 2013</b>						
Observations	102	112	753	739	1158	1182
SPD	0.235	0.157	0.174	0.208	0.184	0.172
CDU/CSU	0.117	0.075	0.186	0.195	0.199	0.220
FDP	0.042	0.008	0.026	0.014	0.026	0.012
Gruene	0.059	0.020	0.086	0.118	0.047	0.072
Linke	0.137	0.074	0.062	0.029	0.052	0.052
other	0.074	0.072	0.052	0.069	0.035	0.032
did not vote / n.a.	0.335	0.592	0.415	0.367	0.458	0.440

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 2:** Follow-up questions on support for the minimum wage reform by group and year

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	102	111	732	719	1106	1130
MW Reform was a good idea	0.732	0.925	0.891	0.929	0.920	0.904
<i>out of which</i>						
... despite price effects	0.933	0.986	0.969	0.975	0.959	0.981
Not a good idea if prices increase	0.067	0.014	0.031	0.025	0.041	0.019
MW Reform was a bad idea	0.268	0.075	0.109	0.071	0.080	0.096
<i>out of which</i>						
Opposed to MW in general	0.426	0.503	0.314	0.197	0.301	0.215
Think €8.50 is too high	0.090	0.000	0.130	0.164	0.094	0.090
Think €8.50 is too low	0.341	0.497	0.395	0.608	0.283	0.522
Disapprove due to other reasons	0.143	0.000	0.161	0.031	0.322	0.173

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 3:** Experience of circumvention methods (CM) and support for the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	102	111	732	719	1106	1130
$X_1$ : Personally affected by CM	51.9	53.4	3.1	3.6	1.8	2.2
$X_2$ : Know someone affected by CM	12.7	18.7	20.1	18.4	14.5	9.5
$X_3$ : Neither know someone nor personally affected	35.9	34.5	76.7	78.1	83.0	87.1
N/A	0.0	1.6	0.4	0.5	0.8	1.4
Share of supporters:						
$Y X_1$ : Personally affected by CM	81.3	93.8	64.7	75.0	85.7	87.5
$Y X_2$ : Know someone affected by CM	81.3	100.0	91.6	92.7	87.2	89.3
$Y X_3$ : Neither know someone nor personally affected	87.2	97.7	91.2	93.1	90.3	90.7
N/A		100.0	100.0	80.0	88.9	83.3

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.



**Table 4a:** Opinion on the low-income earners' situation due to the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	101	109	708	702	1058	1079
Answer categories:						
Z <sub>1</sub> : Decrease	9.9	4.6	3.4	4.0	4.3	5.1
Z <sub>2</sub> : No change	44.6	53.2	71.9	65.8	71.2	66.8
Z <sub>3</sub> : Increase	45.5	42.2	24.7	30.2	24.5	28.1
Share of supporters:						
Y Z <sub>1</sub> : Decrease	50.0	80.0	50.0	75.0	76.1	69.1
Y Z <sub>2</sub> : No change	84.4	94.8	90.2	91.6	88.6	90.2
Y Z <sub>3</sub> : Increase	89.1	100.0	97.1	96.7	95.4	94.4

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 4b:** Opinion on change in overall fairness of the wage distribution due to the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	102	108	709	700	1060	1080
Answer categories:						
$Z_1$ : Decrease	12.7	9.3	8.5	10.4	8.3	9.9
$Z_2$ : No change	45.1	64.8	66.1	63.7	64.7	64.5
$Z_3$ : Increase	42.2	25.9	25.4	25.9	27.0	25.6
Share of supporters:						
$Y Z_1$ : Decrease	46.2	100.0	78.3	80.8	76.1	74.8
$Y Z_2$ : No change	82.6	94.3	88.9	91.7	89.2	90.0
$Y Z_3$ : Increase	95.3	100.0	98.9	97.8	96.2	97.8

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 4c:** Change in individual standard of living due to the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	99	108	727	716	1095	1112
Answer categories:						
Z <sub>1</sub> : Decrease	5.1	3.7	3.3	4.1	4.6	4.1
Z <sub>2</sub> : No change	61.6	74.1	92.7	90.8	93.2	92.7
Z <sub>3</sub> : Increase	33.3	22.2	4.0	5.2	2.2	3.1
Share of supporters:						
Y Z <sub>1</sub> : Decrease	60.0	75.0	54.2	79.3	78.0	76.1
Y Z <sub>2</sub> : No change	86.9	97.5	92.1	93.7	90.4	91.1
Y Z <sub>3</sub> : Increase	81.8	100.0	86.2	83.8	95.8	88.6

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 4d:** Change in the individual monthly income due to the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	85	92	654	617	189	171
Answer categories:						
Z <sub>1</sub> : Decrease	2.4	3.3	0.6	2.3	4.8	2.9
Z <sub>2</sub> : No change	32.9	37.0	89.8	77.3	86.8	76.0
Z <sub>3</sub> : Increase	64.7	59.8	9.6	20.4	8.5	21.1
Share of supporters:						
Y Z <sub>1</sub> : Decrease	0.0	100.0	75.0	71.4	66.7	80.0
Y Z <sub>2</sub> : No change	89.3	94.1	92.2	93.9	88.4	94.6
Y Z <sub>3</sub> : Increase	85.5	98.2	85.7	92.1	93.8	86.1

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 4e:** Change in actual working hours due to the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	86	88	658	621	182	170
Answer categories:						
Z <sub>1</sub> : Decrease	12.8	18.2	1.7	4.2	2.7	3.5
Z <sub>2</sub> : No change	65.1	61.4	90.9	82.0	87.4	80.0
Z <sub>3</sub> : Increase	22.1	20.5	7.4	13.8	9.9	16.5
Share of supporters:						
Y Z <sub>1</sub> : Decrease	54.5	93.8	63.6	88.5	60.0	100.0
Y Z <sub>2</sub> : No change	92.9	98.1	92.6	93.9	89.9	91.9
Y Z <sub>3</sub> : Increase	78.9	94.4	83.7	87.2	94.4	82.1

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 4f:** Change in job security due to the minimum wage reform

	AE		NAE		NAO	
	2015	2016	2015	2016	2015	2016
Observations	81	83	649	613	183	167
Answer categories:						
Z <sub>1</sub> : Decrease	19.8	30.1	5.9	6.0	4.9	6.0
Z <sub>2</sub> : No change	70.4	67.5	90.4	88.6	89.1	85.6
Z <sub>3</sub> : Increase	9.9	2.4	3.7	5.4	6.0	8.4
Share of supporters:						
Y Z <sub>1</sub> : Decrease	75.0	96.0	76.3	75.7	77.8	70.0
Y Z <sub>2</sub> : No change	86.0	96.4	93.4	94.7	92.6	92.3
Y Z <sub>3</sub> : Increase	87.5	100.0	70.8	78.8	72.7	100.0

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

**Table 5:** Structure of personal attitudes towards minimum wages, 2015. Logit estimation, marginal effects

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.: Approval MW reform						
Male	-0.03					-0.01
Age	0.00					0.00
Married	-0.04					-0.00
Widowed	-0.05					0.03
Divorced	-0.04					-0.01
Less than €1000	-0.02					0.02
€1000 to less than €1500	0.01					-0.01
€1500 to less than €3000	0.00					-0.03
Civil Servant	0.09***					0.06***
Self-employed	0.01					0.05**
Trainee/Intern	0.03					
Non-employed	0.04**					
CDU/CSU		-0.02				-0.03
FDP		-0.22*				-0.05
Gruene		0.05				0.02
Linke		0.01				0.06***
Other		-0.11				-0.09
Did not vote / n.a.		-0.01				-0.00
NAE			-0.03			0.06
AE			-0.21***			
Personally affected by CM				-0.16**		0.02

Know someone affected by CM					0.01	0.03*
Income of low-income earners, no change					0.11	0.11
Income of low-income earners, increase					0.13***	0.11***
Fairness income, no change					0.02	0.02
Fairness income, increase					0.08**	0.07**
Living standard, no change					0.01	0.06
Living standard, increase					0.00	0.03
Gross income, no change					-0.03	-0.06**
Gross income, increase					-0.12	-0.24
Working hours, no change					0.33***	0.43***
Working hours, increase					0.08***	0.07***
Job security, no change					0.04	0.05
Job security, increase					-0.03	-0.03
Observations	1918	1940	1940	1940	857	825
Pseudo $R^2$	0.02	0.02	0.02	0.02	0.18	0.27

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

CM - Circumvention methods



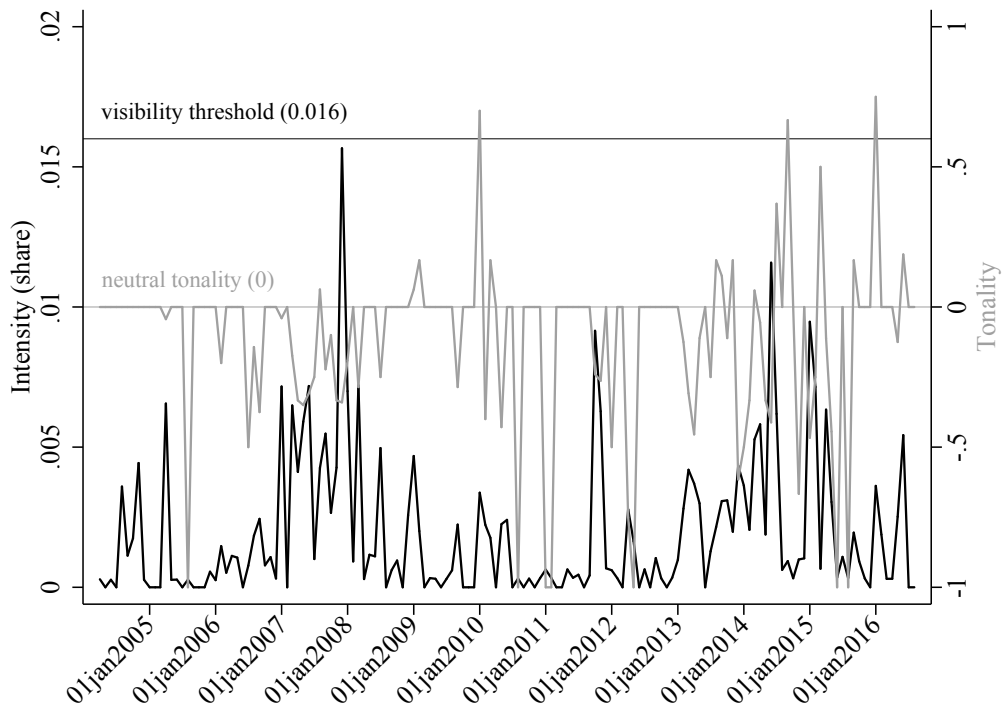
**Table 6:** Structure of personal attitudes towards minimum wages, 2016. Logit estimation, marginal effects

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.: Approval MW reform						
Male	-0.02					0.00
Age	-0.00					-0.00
Married	-0.04					-0.02
Widowed	-0.05					-0.16
Divorced	0.00					0.02
Less than €1000	-0.05					0.00
€1000 to less than €1500	-0.06					0.01
€1500 to less than €3000	-0.04					-0.02
Civil Servant	0.04					-0.10
Self-employed	-0.15**					-0.26
Trainee/Intern	0.00					-0.34
Non-employed	0.01					
CDU/CSU		0.00				-0.04
FDP		-0.14				-0.07
Gruene		0.05**				0.02
Linke		-0.02				-0.02
Other		0.01				-0.00
Did not vote / n.a.		-0.03				-0.04
NAE			0.02			-0.05**
AE			0.02			
Personally affected by CM				-0.06		-0.11

Know someone affected by CM					0.00	0.01
Income of low-income earners, no change					0.05	0.03
Income of low-income earners, increase					0.07*	0.05
Fairness income, no change					0.02	0.01
Fairness income, increase					0.06***	0.04**
Living standard, no change					0.02	-0.01
Living standard, increase					-0.06	-0.14
Gross income, no change					0.03	0.04
Gross income, increase					0.03	0.03
Working hours, no change					-0.02	-0.02
Working hours, increase					-0.10	-0.12
Job security, no change					0.03	0.04
Job security, increase					0.02	0.02
Observations	1925	1960	1960	1960	812	803
Pseudo $R^2$	0.05	0.01	0.00	0.00	0.10	0.21

Source: Special omnibus survey to representative samples of German citizens, 2015 and 2016. Designed by SOEP, conducted by TNS Infratest. Own calculations, weighted using frequency weights.

CM - Circumvention methods



**Figure 1:** Prominence and tenor of minimum wage discussion in the German media

Source: Media Tenor International. Based on 1,164 reports with Minimum Wage as main topic from the total of 478,911 reports from 19 main TV, radio and print media, 1/2004-5/2016.

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