

Does tax transparency affect wage setting?

Cristiano C. Carvalho Trine Engh Vattø

Abstract

Pay transparency has become a prominent topic in public discussions as a potential policy tool for promoting wage equity. We investigate the effects of an often-overlooked source of pay transparency: the public disclosure of tax information. In the fall of 2001, Norway made the tax returns of all its citizens available online, easily accessible through a simple search. This significant shift in public disclosure offers a unique opportunity to examine the effects of such transparency on wage compression and gender gaps. Our study utilizes this intervention to assess how increased pay transparency affects employees at various income levels within their firms and addresses gender wage disparities by using a difference-in-difference framework. Our central hypothesis is that pay transparency reduces labor market inequality by illuminating wage differences that workers perceive as unjustifiable. Our findings reveal that the 2001 intervention resulted in a 5.8% increase in relative wages for workers earning below the median among their peers, along with a 2.1% increase for female employees. Additionally, our analysis of worker mobility indicates that these wage increases for both groups are linked to a higher likelihood of leaving their firms, resulting in not only increased wages for those who stay but, more significantly, higher wages for those who switch employers, compared to what would be observed in a typical year.

1 Motivation:

Pay transparency has become an increasingly prominent topic in public discourse, acknowledged as a potential policy instrument for promoting equitable wages. In recent years, various countries have implemented a spectrum of policies designed to enhance wage transparency. These range from mild interventions—such as imposing penalties on employers who inhibit employees from discussing their salaries—to more rigorous measures, including full wage disclosure requirements.¹ Despite these efforts, empirical evidence regarding the impact of transparency on wage-setting practices remains limited. This scarcity of studies is largely due to the challenges associated with estimating such effects, which requires identifying variations in transparency along with access to organizational-level wage data.

We explore the effects on wage compression and gender gaps of an overlooked source of pay transparency: the public disclosure of tax information. Different countries have used such policies to enhance tax compliance², especially among business owners or self-employed individuals. However, little attention has been given to wage earners, as the potential compliance impact for this group may be limited due to their income being reported by employers. Despite this, public disclosure of tax information could act as a pay transparency mechanism, influencing firms’ wage-setting practices and potentially leading to significant impacts on wage dynamics.

Our identification strategy hinges on a significant national policy change in Norway that enhanced the transparency of individual tax returns. Historically, Norwegians’ tax records have been publicly accessible since the mid-nineteenth century, primarily through in-person visits to local tax offices or city halls. However, in the fall of 2001, this information was digitized and made available online for the first time, allowing anyone with internet access to search the records. The search results typically included the taxpayer’s full name, birth year, city, and postal code, along with details about their net income, total taxes paid, and net worth. Although the search does not provide specific information about taxpayers’ job characteristics, we leverage this sudden shift in public disclosure to identify the effects of increased pay transparency among coworkers.³

We integrate two primary data sources to delineate workers’ comparison groups. The first dataset encompasses the complete range of individual income tax returns for the Norwegian population from 1997 to 2006, providing insights into various income sources, including wages, business and capital income, and government transfers. Notably, this dataset includes key

¹According to Cullen and Pakzad-Hurson (2021), the policies in the U.S. range from punishments for employers that prevent employees from discussing salaries to requirements that employers inform prospective employees of the range of salaries currently paid to workers. EU policies range from mandating full disclosure by companies over a threshold number of employees, like in Germany, to the publication of salary statistics such as the mean, median, and gap between men and women, as in the case of the U.K. and Denmark. Also, many countries adopt full wage disclosure for employees in the public sector.

²Norway, Sweden, Finland, Pakistan.

³Note that searches would not allow individuals to get information on people in the same profession or firm unless they know their peers’ name.

variables from the publicly accessible income tax returns, such as taxable income, wealth, and total taxes paid. The second data source consists of matched employer-employee information for the same period, enabling us to associate each worker with their respective firm and, consequently, their peers. This linkage is essential for defining more nuanced measures of income distribution, such as workers' relative positions within their firms. Additionally, this dataset contains valuable information regarding wages, industry classifications of firms, and types of employment contracts.

Although the disclosed information represents the aggregated taxable income from all sources, we begin by demonstrating that it closely aligns with wage levels, except at the extremes of the income distribution, while maintaining wage rankings across the entire spectrum. Consequently, workers can reliably utilize this information shock to evaluate their relative standing among their colleagues. Additionally, we observe that national wage variance exhibited an upward trend that abruptly reversed in 2001, coinciding with the year when tax returns were made available online. This trend reversal is primarily attributed to within-firm variance, while between-firm variance remained relatively stable during this period.

We concentrate on the within-firm variation and analyze the differential effects for two distinct groups: females and workers earning below the median of their current peers. In our preferred estimation, we define peers as full-time workers within the same firm who share the same education level and tenure brackets, relying solely on within-peers variation to identify our effects. After accounting for different linear trends, we find that both groups experience similar wage growth prior to the change. However, beginning in 2001, workers below the median see a relatively higher increase of 5.8% in their yearly wages, supporting the hypothesis that wage transparency contributes to wage compression. This increase in wage compression corresponds with a reduction in the gender wage gap, as the change also results in a 2.1% higher wage increase for females compared to males.

To accurately estimate which segments of the wage distribution are influenced by wage compression, we further categorize workers into various percentiles of the within-comparison group wage distribution. Since this analysis requires focusing on comparison groups with at least 100 workers, we first confirm that the observed higher wage compression and reduced gender gaps hold true across comparison groups of varying sizes, with effects being even more pronounced in groups of 500 workers or more. Our findings indicate a strong correlation between wage growth and an employee's relative position within the distribution. Workers in the lower percentiles typically experience greater wage growth compared to those at the higher end of the distribution. Additionally, the wage growth is asymmetric; the relative wage growth seen by lower percentiles is considerably more substantial than the relative wage decrease faced by upper percentiles when compared to workers at the median.

We use two sources of heterogeneity to provide additional evidence that the change in transparency is responsible for the observed increase in wage compression and the reduction

in gender gaps. First, we analyze the effects in municipalities with and without access to printed versions of the tax lists prior to 2001. Our findings indicate that municipalities lacking printed tax catalogs experienced a stronger transparency shock, as evidenced by workers below the median and females achieving respective wage increases of 1.6% and 2% more in these areas compared to those in municipalities with printed tax lists. Second, we examine the impact across industries characterized by high and low within-firm wage variance before 2001. Our results show that the effects of tax transparency are more pronounced in industries with greater wage variance, where workers below the median and females experience respective wage increases of 2.9% and 1.4% more in high variance industries compared to their counterparts in low variance sectors.

To investigate the mechanisms underlying the observed increase in wage compression and reduction in the gender gap, we fix the treatment status and comparison groups in 2000, tracking the same workers over the subsequent three years. To address potential mean reversion concerns, we conduct a placebo analysis using data from 1997 to adjust all estimated results for the 2000 cohort based on this natural labor market trend. Our analysis focuses exclusively on the variation within the comparison group over time. The findings indicate that workers below the median and females experience increases in their termination rates of 1.56 percentage points and 1.53 percentage points compared to their control group, respectively. However, this rise in termination rates translates only partially into higher job-to-job transitions for females. Corresponding with an increase in job search activity, these groups achieve relative wage growth of 1.44% and 1.08%, respectively, after three years.

We investigate whether the wage increase stems from workers receiving better offers within their firms or from sorting into better matches with different firms, and our findings indicate that both effects play a role. Initially, we focus on workers who remained in their baseline firms for all three years following the intervention. Within this group, workers below the median and females experience wage growth of 1.14% and 0.65%, respectively, compared to alternative groups. The effects are even more pronounced among workers who switched firms during any of the subsequent three years. Specifically, those who changed firms show an additional wage growth of 1.08% for workers below the median and 1.17% for females when compared to alternative groups, with results benchmarked against the placebo effects.

We further investigate the effects of tax transparency on wages for workers in different deciles among their peers in the baseline year, focusing on comparison groups with at least ten workers. Our findings indicate that wage growth three years after the intervention is stronger for workers in lower positions in the baseline within-comparison group distribution. Specifically, compared to workers at decile 5, the wage growth is asymmetric: workers in the first decile experience a 6.2% relative increase, while those in the last decile see a 1.24% relative decrease. This pattern holds true for both genders, although females at the bottom of the distribution tend to experience higher growth than males when controlling for their baseline decile. While accounting for relative position makes the average reduction in the gender gap

statistically non-significant, it masks the fact that gender gaps decrease significantly at the bottom of the distribution while remaining unchanged at the top.

To demonstrate that the mechanism estimations are well identified, we utilize the variation among cities in the circulation of tax catalogs and the variance of wages within the comparison group in the baseline year. We begin by comparing the effects for firms in municipalities with and without the circulation of printed tax lists prior to 2001. Our findings indicate that the point estimates for wage and termination effects are consistent, showing that municipalities without tax catalogs experience a higher transparency shock, specifically regarding wage compression estimates. However, these results lack statistical significance due to the limited sample size⁴. Additionally, we categorize the comparison groups in the baseline year into high and low variance categories and find that the termination and wage effects are statistically more pronounced in the high variance groups. These high variance groups exhibit elevated termination rates for workers below the median wage among their peers and females, along with greater wage compression and a reduced gender gap.

As a robustness check, we estimate an alternative specification that takes advantage of the wage variation among different comparison groups for workers in the same earning percentile within their local labor market. This approach allows us to leverage the fact that the same wage can position a worker either below or above the median, depending on how much their firm compensates their peers. We control for factors that may influence workers in different wage percentiles over the years in our sample differently. Our findings indicate a comparable increase in wage compression and a decrease in gender gaps, with workers below the median and females experiencing relative wage growth of 0.8% and 1.28%, respectively, after three years. These results remain robust against shocks that affect workers in various percentiles of the local labor market income distribution differently. Moreover, although the institutional context limits firms' abilities to utilize tax information for poaching—given that the lists do not disclose where individuals are employed—this strategy further constrains the potential for poaching, as it is unlikely that poaching firms would possess information about workers' relative positions among their peers.

2 Related Literature:

This paper contributes to several strands of literature. First, it provides evidence that workers care about how their wages compare to those of their peers. While recent studies have identified negative effects of pay disparities on morale, job satisfaction, and effort, this evidence has largely been limited to small-scale experiments (Bracha, Gneezy, and Loewenstein, 2015; Breza, Kaur, and Shamdasani, 2018), data from specific firms (Cullen and Perez-Truglia, 2022; Dube, Giuliano, and Leonard, 2019), or universities (Card et al., 2012). A key contribution of this study is introducing a large-scale, non-experimental intervention that

⁴Information about the tax catalog is available only for a subset of the municipalities included in the survey.

increases pay transparency nationwide. We offer new insights into workers' and firms' labor market responses in equilibrium, demonstrating that wage growth and job turnover are influenced by workers' relative wage positions.

Second, this paper contributes to the literature examining the aggregate effects of pay transparency on wages. In line with existing evidence, we find that pay transparency results in greater wage compression and reduced gender gaps at the firm level. Our findings complement previous studies, which face two key limitations. First, many focus on a narrow definition of pay transparency, such as the disclosure of aggregate wage statistics by gender (Böheim and Gust, 2021; Bennedsen et al., 2020; Gulyas, Seitz, and Sinha, [Forthcoming](#)). Second, papers that explore individual-level disclosures tend to examine specific sectors, like universities (Baker et al., 2021; Card et al., 2012) or public sector jobs (Mas, 2017). Our study fills this gap by focusing on the private sector and examining a transparency shock at the individual level.

Our results also complement the findings of Cullen and Pakzad-Hurson (2021), who measure the effects of laws that penalize employers for retaliating against workers who disclose or inquire about coworkers' wages in the U.S. They show that such laws can decrease average wages by giving firms a reason to avoid raising wages. While our identification strategy does not allow us to examine unconditional average wage effects, we provide complementary evidence on wage compression and gender gaps by analyzing an intervention that introduces a higher pay transparency shock.

Third, our results offer insights into the extent of workers' misperceptions regarding their true relative position among peers. Although we do not directly measure this misperception, we provide a strong test by showing that the tax transparency policy leads to significant labor market changes, which likely result from correcting inaccurate perceptions. This aligns with documented evidence indicating a high degree of error in how individuals perceive their relative position in the wage distribution (Cullen and Perez-Truglia, 2022; Kristoffer B, Kreiner, and Stantcheva, 2023; Jäger et al., 2024). Crucial to our findings is the observation that workers tend to anchor their expectations about outside options and peer earnings on their own wages, generally leading lower-paid workers to overestimate and higher-paid workers to underestimate their standing relative to peers.

Fourth, our results also show that governments' public disclosure of tax and income information can significantly affect inequality in the labor market. A considerable number of countries⁵ adopted public disclosure of tax information as a policy that could deter people from evading by potentially increasing the whistle-blowing threat or the reputation cost of evasion. The deterrence effects are supported by the literature, using the same tax disclosure policy in Norway, Bø, Slemrod, and Thoresen (2015) find that the 2001 internet tax disclosure intervention reduces tax evasion among business owners by 2.7 percent. Our results show that detailed tax information can also work as a proxy for pay and be used as a way for

⁵Norway, Finland, Sweden, Iceland, and Pakistan

workers to assess their relative position among their peers. Therefore, policymakers should also consider the labor market effects of releasing tax information.

Finally, other studies also use the effects of Norway’s tax disclosure policy. Perez-Truglia (2020) shows that posting tax information on the internet increased the gap in happiness between richer and poorer individuals by 29 percent, and it increased the life satisfaction gap by 21 percent. These results are even more striking, given that we find significant compression in the wage distribution after the returns are posted online. Reck, Slemrod, and Vattø (2022) use the microdata of searches after the 2014 reform and find that social comparisons motivate the bulk of searches rather than tax compliance. Importantly, they also document that 15% of the searches target people in the same employment network even after the search anonymity is not in place anymore. Their results find no evidence that individuals increase their reported income after being targeted.

Closer to our paper is Rege and Solli (2015). Using the transparency shock generated by the tax returns being posted online in 2001, they find a higher job separation rate and wage growth among the low earner’s workers relative to the high earners. Our results bring new evidence by first documenting that the transparency shock increased wage compression and decreased gender gaps in the labor market. Second, we also show that the policy increases the separation rates for workers in the lower part of the wage distribution and females. Part of the separation is driven by workers who do not return to the labor market after three years. These groups also enjoy higher wage growth, observed both among job switchers and stayers. The effect, however, is more pronounced for switchers. Our project includes all the gender analyses and brings additional evidence on the potential mechanism and general impact on the labor market.

3 Policy:

Although Norway has a long tradition of disclosing tax information, de facto access was limited before 2001. If individuals wanted to consult someone else’s tax information, they had to visit the local tax office or the city hall during regular hours until three weeks after the tax assessment was finished. This process was drastically simplified in the fall of 2001 when a national newspaper published all tax reports on its web page. After this, anyone with access to the internet could search for other taxpayers’ information. The websites listed full names and their respective income, wealth and total taxes paid. The searches could be done by multiple fields, such as last names, postal codes, and others.

Importantly, the tax searches do not provide information about individuals’ jobs. Therefore, the searches would not allow individuals to get information on people in the same profession or firm unless they know their peers’ names. This limits the possibility of firms using the tax information to poach workers from other firms since it would require them to target the workers beforehand. Additionally, the income information is an aggregate measure of all

sources of income that are taxable after applying the standard deductions. Therefore, even though all types of wage income are included in this measure⁶, it is impossible to observe them separately in the search.

After some years, the searchers started being regulated by the government. In 2004, the Norwegian government forbade the publication of tax report data by means other than the official search tool provided by the tax agency. The searches were also confined to a three-week time window after the data release, but this restriction was lifted after 2006. Another change was introduced in 2011 when searchers were required to log in to the official website administered by the tax agency using their PIN code and a password. Finally, the major change happened in October 2014, when the anonymity of the search was eliminated. The tax agency made it visible to taxpayers who searched for them if they were targeted.

Posting the tax returns online made them easily accessible to a high share of the Norwegian population. According to the Norwegian Monitor Survey, 66% of the respondents between 25 and 65 years old reported having access to the internet at home in 2001. This number is increasing over time and reaches 98% in 2011. Unfortunately, no information is available on how popular the online tax lists were in the early years of their introduction. However, according to a survey conducted by Synovate in 2007, 40% of the respondents report having used online search tools for tax information. The same survey provides evidence that a considerable share of individuals use the searches to get information about their employment network, given that 26% of the interviewed people report searching for a working colleague⁷ (Perez-Truglia, 2020). The relevance of the searchers targeting peers in the same employment network is confirmed by analyses of the administrative data of searchers. Reck, Slemrod, and Vattø (2022) document 15% of the searches target people in the same employment network even after the search anonymity is not in place anymore⁸.

4 Data and descriptive statistics:

We explore two main data sources in this project. The first set includes the universe of individual income tax returns for the Norwegian population from 1997 to 2006, which allows us to observe different sources of income, such as wage, business and capital income, and government transfers. Importantly, this data also contains the variables from the income tax return posted online: ordinary income, wealth, and total taxes paid. Even though this data set allows us to follow individuals over time, it does not bring additional information on employees' labor market outcomes apart from the total wage income in a specific year.

To complement the tax returns information and get a full picture of the labor market, we use the matched employer-employee information from 1997 to 2006. This data contains

⁶Fixed pay, bonuses, tips, commissions, etc.

⁷Searching for working colleagues is the fourth most common reason behind: a) searching for close relative (61%), searching for themselves (53%), and search for friends (42%).

⁸This number is calculated after excluding self-searches.

the universe of workers matched with their firms, which allows us to link each worker to their peers. It includes information about the job, such as wages, firms' industry, and employees' type of contracts (part or full-time), and about the workers, such as gender, education level, municipality of residence, and age.

We combine both datasets, and our final sample consists of workers for whom we have their tax information and the information on their firms. Our final sample focuses on full-time workers aged 25 to 65 years old employed in the private sector. We exclude the public sector, given that they potentially have higher wage rigidity, and self-employed firms to avoid cases in which the owner works in the firm. We focus on workers who were employed in a single firm in December of each year and normalize their wages to the monthly level by dividing the total wage received in the year by the number of days the contract was active and multiplying by 30⁹. We use the normalized monthly wage to define if workers are below or above the median in their comparison group defined as all workers in the same firm, same education level, and same tenure bracket¹⁰.

One important aspect of our context is that the magnitude of the transparency shock depends on how well the income variable posted online is associated with workers' wages, especially because the ordinary income measure includes all sources of income and tax deductions. As we show in figure 1, the ordinary income measure preserves the same ranking property as the wage income, which means that even though individuals cannot precisely know the wage income of other people, they can still use the measure to compare their relative position. Additionally, except for people on the percentile extremes, the wage income constitutes almost entirely the gross income, which implies that the role of other sources of income is limited for our sample. More precisely, from the percentile 5 to the percentile 91, the wage income represents more than 90% of the gross income.

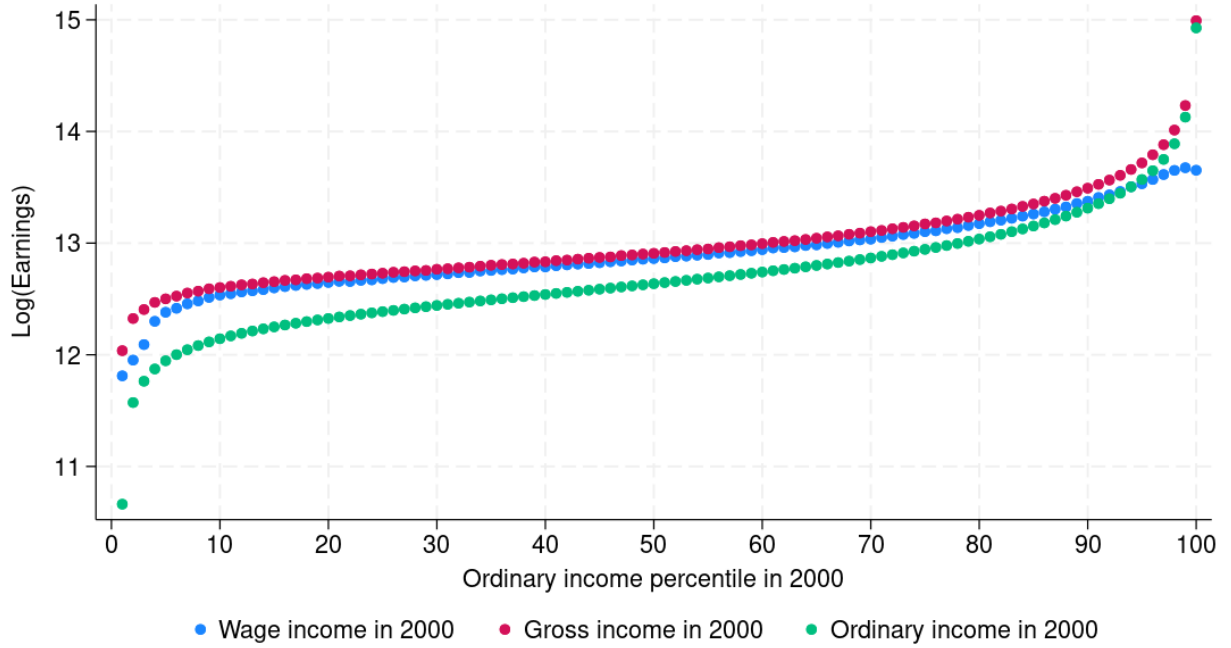
One potential concern is that within-firm wage variation would be of least importance since Norway, like other Nordic countries, has a high prevalence of union agreements. In figure 2a, we show the time trend for the wage variance in Norway, decomposing it into within and between firms variance. First, from 1997 to 2006, the within-firm variance is more important in explaining the total variance of wages (around two-thirds), which indicates that firms have the discretion to set their workers' wages. Second, the wage variance had a positive trend up to 2000; in 2001, when taxes were posted on the internet, the variance interrupted the positive trend and dropped. Importantly, the decrease in the variance that occurred after the tax transparency shock was driven by the within-firm variation as presented in 2b.

Gender gaps in Norway were also relatively high in the period considered in our analysis. Figure 3 presents the average gender gaps in each comparison group that had both men and women workers weighted by the group size. This measure is close to the within-comparison group results presented in the following sections since it considers the general gender gaps

⁹We impose the single firm requirement to make the ordinary income a better approximation for wages in a specific job.

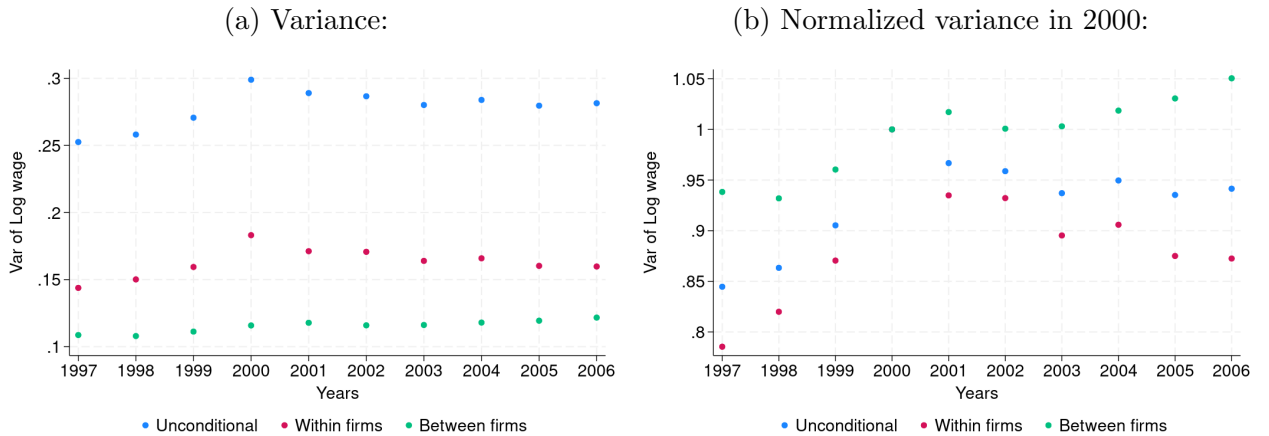
¹⁰The tenure bracket is a binary variable indicating if the workers are more than one year in their firm

Figure 1: Wage variables by ordinary income percentiles:



Note: First, we use the selected sample to order workers in percentiles of the national distribution using their ordinary income in 2000. Second, we plot the average ordinary income, gross income, and wage income for each percentile bin to check the ranking order is maintained in the other variables.

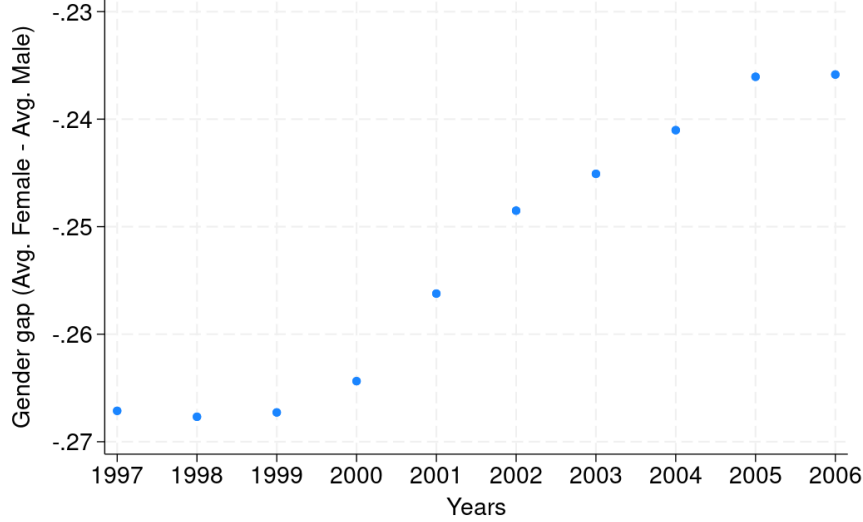
Figure 2: Wage variance within and between firms:



Note: In each year, we decompose the total variance of the wages into within and between firms components in the following way: $\frac{1}{N-1} \sum_{i=1}^N (w_{ift} - \bar{w}_t)^2 = \frac{1}{N-1} \sum_{i=1}^N (w_{ift} - \bar{w}_{ft})^2 + \frac{1}{N-1} \sum_{i=1}^N (\bar{w}_{ft} - \bar{w}_t)^2$. Where N is the total number of workers in a specific year, w_{ift} is the individual wage, \bar{w}_{ft} is the firms' average wage, and \bar{w}_t is the unconditional average wage in a specific year.

if men and women were equally distributed among different comparison bins¹¹. On average, women earn around 26.6% less than men before 2001. With an increase in tax transparency in 2001, the gender gap sharply decreases to 25.6% and keeps decreasing until 2006, when it reaches 23.5%.

Figure 3: Gender gaps by comparison group:



Note: We first calculate the gender gaps for each specific comparison group, which is defined as all workers in the same firm with the same education level and tenure bracket. We focus on comparison groups with both men and women and use the total number of workers in each comparison group as a weight to calculate the yearly average gender gap.

5 Design:

We rely on the 2001 change to measure the differential effects of increased tax transparency for two different groups: workers below the median in their comparison group and females. We justify dividing the workers by the median with the documented fact that they tend to anchor their expectations about how much their peers make in their current wage, which in general makes lower-paid workers overestimate, higher-paid workers underestimate, and workers at the middle precisely infer their relative position among their peers (Kristoffer B, Kreiner, and Stantcheva, 2023; Jäger et al., 2024). We use two different strategies to assess the effects of higher transparency on wage compression and gender gaps. First, we measure the general differential effects in the labor market by gender and relative position within the current comparison group, allowing workers to change their reference groups over time. This result helps us to document how within comparison group inequality changes with the analyzed policy. Second, we fix the worker's comparison group in 2000¹² and follow the same workers three years ahead to check if they present differential responses after they learn about their relative position through the higher transparency policy. This result helps us to

¹¹The comparison groups are defined as all workers in the same firm, same education level, and same tenure bracket.

¹²One year before the taxes are posted on the internet.

address the mechanisms in place.

The first specification relies on:

$$y_{i,g,t} = \sum_{j \neq 2000} \delta_j \cdot 1\{t = j\} \cdot T_{i,g,t} + \beta_1 \cdot T_{i,g,t} + \mu_{t,g} + \varepsilon_{i,g,t} \quad (1)$$

where $y_{i,g,t}$ represents the logarithm of the earnings variable for worker i in comparison group g in year t . $T_{i,g,t}$ is a dummy variable indicating the workers' position within his comparison group in the specifications measuring the effect of tax transparency on wage compression or a dummy for female workers in the estimations measuring the impact in gender gaps. In the main specification for wage compression, $T_{i,g,t}$ is defined by workers being below the median wage in their comparison group in the current year t , and the comparison group is defined as all workers in the same firm, same education level and same tenure bracket¹³. $\mu_{t,g}$ represents comparison group fixed effects for each year in the sample.

The regression has a difference-in-differences interpretation and δ_j is the coefficient of interest. Since tax reports were available online in 2001, the coefficients estimated for the years before the policy change should work as a placebo exercise and not be significant if the identification strategy is well specified. After the change, a positive coefficient implies that an increase in tax transparency increases the wage growth for lower-earning individuals compared to higher-earning or increases wage growth for females compared to males, depending on the specification. The main results are estimated in two steps. First, the outcome variable is detrended by subtracting its predicted value after estimating a specific linear trend for the treated group in the pre-period. Second, we estimate the model in Equation 1 with the detrended variable. The results without detrending the outcome are presented in the Appendix.

To further explore if the effects come from increased pay transparency, We explore two sources of heterogeneity. First, we estimate different effects for workers in industries with low and high variance before the legislation. Second, we estimate different effects for municipalities with and without the widespread presence of printed versions of the tax list before it was published on the internet in 2001¹⁴. We expect a higher effect in the municipalities without the printed version since the transparency shock is more significant for them and in the firms with higher variance in the pre-period, given that the transparency is more relevant to them.

The results are estimated using the following triple difference style equation:

¹³The tenure bracket is a binary variable indicating if the workers are more than one year in their firm

¹⁴We rely on one additional variation source used by Bø, Slemrod, and Thoresen (2015). Before the tax reports were published on the internet in 2001, some cities had widespread printed versions of the tax lists. In some, but not all, geographic areas, football club members or the community band would go door-to-door and offer copies of the entire tax transcript of that area for sale. We use the cities list in our estimations.

$$y_{i,g,h,t} = \sum_{j \neq 2000} \delta_j \cdot 1\{t = j\} \cdot T_{i,g,t} \cdot het_{i,h,t} + \sum_{j \neq 2000} \gamma_j \cdot 1\{t = j\} \cdot T_{i,g,t} + \beta_1 \cdot T_{i,g,t} \cdot het_{i,h,t} + \beta_2 \cdot T_{i,g,t} + \mu_{t,g} + \varepsilon_{i,g,h,t} \quad (2)$$

where $het_{i,h,t}$ represents a dummy variable for the different heterogeneity groups. In the first exercise, $het_{i,h,t}$ is a dummy variable that equals 1 for peer groups in industries with within-firm variance above the median before the legislation. In the second exercise, $het_{i,h,t}$ is a dummy variable that equals 1 for municipalities without printed versions of the tax catalog before the legislation. Notice that the comparison group fixed effects for each year are more granular than the two sources of heterogeneities¹⁵, which allows us to omit some of the triple difference terms.

We use an alternative strategy to address the mechanisms driving the wage compression and gender gaps. In this strategy, the treatment status and the comparison groups are fixed in 2000 and kept constant when we follow the same individuals over time. We use a placebo cohort as an additional control to avoid any concern related to mean reversion. We use the first year of our sample, 1997, to fix individuals' treatment status and comparison group. The specification is presented below:

$$y_{i,(g,t_0),c,t} = \sum_{j=1}^3 \delta_j \cdot 1\{t - t_0 = j\} \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\} + \sum_{j=1}^3 \gamma_j \cdot 1\{t - t_0 = j\} \cdot T_{i,(g,t_0),c} + \beta_1 \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\} + \beta_2 \cdot T_{i,(g,t_0),c} + \mu_{t,(g,t_0),c} + \varepsilon_{i,(g,t_0),c,t} \quad (3)$$

where $y_{i,g,t}$ represents the logarithm of the earnings or a dummy for separation from the firm for worker i in comparison group (g, t_0) , in cohort c , and in year t . $T_{i,(g,t_0),c}$ is a dummy variable indicating the workers' position within his comparison group defined in the baseline period for each cohort in the specifications measuring the effect of tax transparency on wage compression or a dummy for female workers in the estimations measuring the impact in gender gaps. The comparison groups and relative positions are fixed in 1997 or 2000, and the same groups are followed irrespective of their separation decisions. In the main specification for wage compression, $T_{i,(g,t_0),c}$ is defined by workers being below the median wage in their comparison group in the baseline year t_0 of their cohort c , and the comparison group is defined as all workers in the same firm, same education level and same tenure bracket¹⁶. $\mu_{t,(g,t_0),c}$ represents comparison group fixed effects for each year in the sample. We estimate versions

¹⁵The least granular comparison group is defined as all workers in a firm. Since in our sample, we only keep firms that did not change industries and municipalities over time, industry and municipality fixed effects will be colinear with firm fixed effects.

¹⁶The tenure bracket is a binary variable indicating if the workers are more than one year in their firm

with and without individual fixed effects in the main specification.

We also estimate fourth difference style coefficients by allowing different effects by the heterogeneous groups. We estimate different effects for switchers and stayers, high and low variance comparison groups in the baseline period¹⁷, and firms in municipalities with and without printed versions of the tax catalog before the legislation.

6 Results:

6.1 General effects of posting tax on the internet:

The pay transparency results on wage compression and gender gaps estimated using the regression model in equation 1 are presented in figure 4. In figure 13a, we present the wage compression results without accounting for different wage growth pre-trends for workers below and above the median wage in their comparison group¹⁸. The results illustrate that inequality was increasing within the comparison group, with workers above the median having a higher wage growth than workers below the median. However, this trend is interrupted in 2001, when the tax returns are posted on the Internet. Figure 4a presents the results after accounting for the differential trends in the pre-period. The graph shows a sharp trend break in 2001, with workers below the median growing more than workers above the median relative to the pre-trend. In aggregate, workers below the median present a wage growth of 5.8% more than workers above the median compared to a counterfactual scenario without the policy implementation.

The results on gender gaps are reported in figure 13b. Similar to what is found in the literature, pay transparency reduces gender disparities in the labor market in our context. The results show that gender gaps were constant in the pre-period even without accounting for differential pre-trends by gender. After the tax returns are posted on the internet in 2001, there is sharp increase in the wage growth for females in comparison to males that continues throughout the years in our sample. Figure 4b presents the results after accounting for differential trends in the pre-period, which are very similar¹⁹. In aggregate, female workers display a wage growth of 2.1% greater than male workers due to increased transparency.

6.2 Effect by size and by percentiles:

We further investigate how the increased tax transparency affects wage growth over different percentiles of the within-comparison group wage distribution. On the one hand, dividing workers below and above the median among their peers and comparing the wage

¹⁷In this specification, we use the comparison group instead of industry variance because the risk of comparison group variance reversion is accounted by using the placebo cohort.

¹⁸The comparison group is defined as workers within the same firm, education level, and tenure bracket

¹⁹Accounting for differential trends does not make a difference for the main results on gender, but, for consistency, we also use the detrended versions as our main results.

growth for both groups is a convenient measure since it can be calculated whenever there are at least two workers within the same firm, education, and tenure bracket. On the other hand, only comparing those two groups provides very limited information on what parts of the distribution are more affected by tax transparency. Considering that breaking the within-group relative position into percentiles will require at least 100 workers in the same bin, we first check how the tax transparency effects change with the number of workers part of the same comparison group.

The pay transparency results on wage compression and gender gaps by different bin sizes are presented in figure 5. Figure 5a compares the wage growth for workers below and above the median wage within comparison groups with different sizes. Starting in 2001, a sharp increase in wage compression is observed for all different groups, with a higher relative growth observed for workers below the median. The effects of tax transparency are even larger for bins with more than 100 workers. Figure 5b reports the results on gender gaps for different size bins. Increasing pay transparency reduces gender disparities, with no clear distinguishable pattern between different comparison group sizes.

Considering that the tax transparency results follow the same pattern irrespective of the bin size, we focus on comparison groups with at least 100 workers to estimate different effects for workers in each wage percentile of the wage distribution among their peers. Figure 6 presents the aggregate results of the tax transparency policy on the wage growth for workers in different percentiles using as a baseline workers in the percentile 50th²⁰. In Figure 6a, we find that the wage compression happens according to employees' relative position, with workers at the lower percentiles experiencing higher wage growth and workers at the top percentiles presenting lower wage growth than workers at the middle of the distribution. Additionally, the wage growth is asymmetric; the relative wage growth experienced by the lower percentiles is much larger than the relative wage decrease in the upper percentiles. To illustrate, the first percentile experiences a wage growth of 84% and the last a wage decrease of 6% compared to the median percentile²¹.

6.3 Heterogeneity by municipality, industry variance and gender gap, and by internet access:

We further explore the heterogeneous effects of the policy separating groups potentially more affected by pay transparency. We first rely on the pre-period variation in the tax transparency level used by Bø, Slemrod, and Thoresen (2015). Before the tax reports were published on the internet in 2001, some cities had widespread printed versions of the tax lists. In some, but not all, geographic areas, football club members or the community band would

²⁰In the estimated results in figure 6a, we run a variation of the regression model in Equation 1 that estimates a single δ for all years after 2001 for all different percentiles but the 50th (baseline group). The coefficients represent the additional wage growth caused by the policy for each percentile compared to workers in the middle of the distribution.

²¹Wage growth stills above 10% up to the 10th percentile, and decreases only 2% in the 90th percentile.

go door-to-door and offer copies of the entire tax transcript of that area for sale. We use this geographic variation and present the pay transparency results on wage compression and gender gaps by municipalities with and without printed versions of the tax catalogs estimated using the regression model in equation 2 in figure 7.

Figure 7a compares the wage growth experienced by workers below the median relative to workers above the median in their groups for municipalities with and without the tax catalog. The results show a sharp trend break in 2001 for both types of municipalities, with workers below the median growing more than workers above the median relative to the pre-trend. However, the results on wage compression are stronger for municipalities that did not have the widespread printed version before the taxes were posted on the internet. Two conjectures can be made. First, posting taxes on the internet is an information shock even for municipalities that historically had printed versions of the tax lists. Second, the information shock is stronger for municipalities that did not have widespread versions of the tax catalogs. In aggregate, compared to their peers that are above the median wage, workers below the median experience a wage increase of 1.6% more in municipalities without the printed version than what is experienced by the same group in municipalities with the printed version.

Figure 7b compares the change in gender gaps for municipalities with and without the tax catalog. The results are also consistent with municipalities without the printed version of the tax list experiencing a stronger transparency shock when the tax returns are posted on the internet. This group of municipalities mainly drives the decrease in gender gaps. After the increase in tax transparency in 2001, there is a sharp increase in the wage growth for females compared to males only in the municipalities that did not have printed versions of the tax list. Compared to males, female workers in the cities without the tax catalog had a higher growth of 2% in their wages compared to what was observed in cities with the circulation of printed versions of the tax list.

Another source of heterogeneity is based on the pre-period within-firm variation in each industry. Increasing pay transparency should have stronger effects on industries where firms traditionally operated with high wage variance. In figure 8, we present the effects on wage compression and gender gaps by industries with within-firm variance below and above the median from 1997 to 2000. Figure 8a presents the results on wage compression. The results show a sharp trend break in 2001 for both industry groups, with workers below the median growing more than workers above the median relative to the pre-trend. As expected, a more pronounced wage compression is observed for industries with high variance in the pre-period. On average, workers below the median experience a relative wage increase of 2.9% more in high-variance industries compared to the same group in low-variance industries.

Figure 8a uses the same industry heterogeneity to estimate the results on gender gaps. After the tax returns are posted on the internet in 2001, we show that the gender gaps decrease in both industry groups. However, the effects are stronger in industries with higher within-firm variance in the pre-period. In aggregate, female workers in high-variance industries had

a relatively higher growth of 1.4% in their wages when compared to what was observed in low-variance industries. The results imply that high discretion in the wage-setting process, proxied by the industry within firm variance, could also imply more room to improve gender equality.

6.4 Mechanisms:

6.4.1 General effects:

To explore the mechanisms behind the observed within-comparison group wage compression and the reduction in the gender gaps, we fix workers' comparison groups and follow them over time. This exercise allows us to check if the main mechanisms are due to workers switching to better matching due to the new information or if the benefits are mainly accrued by workers getting better offers in their firms. We start by looking at how likely workers are to leave their firms and how likely they are to find a job in a new firm. Figure 9 reports the relative probability that workers below the median have to leave their baseline firm compared to workers above the median in their comparison group. Figure 9a shows that in both cohorts - 1997 and 2000 - workers at the bottom of their comparison group wage distribution are more likely not to be found in their baseline firms in the following 3 years. However, the effects are much larger for the 2000 cohort. Assuming that the pattern observed for the 1997 cohort is what would have happened to the 2000 cohort in the absence of increased tax transparency, we show that posting the taxes online increases the probability of leaving in any period by 1.56 p.p. for workers earning less than their peers in the baseline period.

We investigate if the higher probability of leaving is due to a higher job-to-job transition in figure 9b. Even though workers below the median have a higher probability of leaving their firms, this does not translate to a higher probability of a job-to-job transition. In both cohorts, workers earning less than their peers have a low probability of being found in a firm different from the one they were working in the baseline period. This implies they have higher chances of experiencing gaps in their employment history. After taking the difference from the job-to-job transition probabilities observed for the placebo cohort, we find insignificant changes in the probability of working for a new firm. This implies that wage transparency has an adverse effect on increasing the employment gaps for workers who are paid less than their peers.

To check if males and females respond differently to tax transparency, we analyze the gender responses by following the same comparison group in the baseline. Figure 10 reports the relative probability that females have to leave their baseline firm compared to males. Figure 10a shows females are more likely to leave their firms in all three years after the baseline year in both cohorts. After taking the difference of the coefficients between both cohorts, the results show that higher transparency increases females' probability of leaving their baseline firms by 1.53 p.p. in any period. The job-to-job transitions presented in figure

10b indicate that the higher leaving partially translates into a higher job-to-job transition for females, especially in the next year after the tax returns are posted online. However, this group also has an increase in the employment gap.

We continue the analysis by looking at the effects on wages over the three years after the increase in tax transparency. Even though there was some increase in the employment gaps due to posting the tax returns online, workers may sort into better matchings after they return. Figure 11 presents the results on wage compression and gender gaps three years after the baseline with and without including individual fixed effects. Comparing both specifications helps to understand how the results are influenced by workers who leave their firms and never return as employees since the version with individual fixed effects would only identify the effects for workers also observed after the baseline year, and the version without is sensitive to the wage relative position of the workers that quit and never return²².

Figure 11a and 11b report the relative wage increase of workers below the median compared to workers above the median in their comparison group, respectively, without and with including individual fixed effects. First, in both sets of estimates, individuals in the lower position of their comparison group have a higher wage growth path in the subsequent years for both cohorts. This highlights the importance of controlling for mean reversion, which is accounted for when we use the 1997 cohort as a placebo to net it out of the effects estimated for the 2000 cohort. Second, the triple difference estimates indicate that tax transparency increases wages for the groups of workers earning less than their peers who were observed in the labor market in any of the subsequent years. However, the wage effects are larger and happen even at the year of implementation when not using individual fixed effects. This implies that part of the wage compression happens due to workers at the bottom never returning to the labor market in the next 3 subsequent years. After only using the variation for workers that do return by including individual fixed effects, the positive wage effects only manifest in the next year after the tax returns were posted. The average relative wage growth observed for workers below their peers due to higher transparency falls from 2.9% to 0.7% when accounting for workers that never return.

Figure 11c and 11d report the results related to gender gaps, respectively, without and with including individual fixed effects. First, without accounting for terminations, the average wage for females grows more than for males for both cohorts. However, this pattern is reversed when accounting for individual fixed effects, meaning that, on average, lower-earning females leave their firms and never return more often than lower-earning males. For those who return after the baseline period, the wage growth for males is higher than that for females in both cohorts. Second, in both specifications, the triple difference estimates indicate that tax transparency increases the wages of females when compared to males, lowering the gender gaps. However, the positive wage effects are smaller when accounting for workers who never

²²Estimating with individual fixed effects excludes the variation that comes from workers that do never come back on the estimation of the diff-in-diff coefficients and can be interpreted as the wage change for workers that are still in the labor market after the tax returns were posted.

return in the next three years. The average relative wage growth observed for female workers due to higher transparency falls from xx to xx when accounting for workers that never return.

We focus on the specifications with individual fixed effects since they are not directly affected by the workers who terminate their job contracts and never return. We break the effects by switchers and stayers and focus on the wage effects 3 years after the baseline year. The results for wage compression and gender gaps are reported in table 1. Column 1 presents the baseline triple difference coefficient for the wage growth of workers below the median compared to workers above. It represents the difference in the wage growth between workers below and above the median from the baseline year to three years after, after netting it out for the same growth in the placebo cohort. The average relative wage growth observed for workers below their peers due to higher transparency after three years is 1.44%.

Column 2 breaks the effects for switchers and stayers by including additional interactions for switchers in the regression model. The first-row coefficient shows that the average relative wage growth observed for workers below their peers is 1.14% when considering only workers in both groups that stayed in their firms all subsequent 3 years. The second row shows that the wage effects are 1.08% larger when considering workers who left their baseline firm at some point in both groups. The third-row coefficients present the wage effects of switching for the workers above their peers. Reassuringly, the coefficients are not significant after netting it out for the placebo cohort, which means that the benefit of switching increased only for workers below their peers after the taxes were posted online.

As observed for the wage compression, the effects on the gender gap are more pronounced for the group of switchers. Column 3 presents the baseline triple difference coefficient for the wage growth of females compared to males. After netting it out for the growth in the placebo cohort, the average relative wage growth observed for females due to higher transparency after three years is 1.08%. Column 4 presents separate effects for switchers and stayers. The first-row coefficient shows that the average relative wage growth observed for females is 0.65% when considering only workers of both genders that stayed in their firms all subsequent 3 years. The second row shows that the wage effects for females are 1.17% larger when considering workers that left their baseline firm at some point in both groups. The third row of coefficients presents the wage effects of switching for males. The coefficients are insignificant after netting it out for the placebo cohort, meaning that the benefit of switching increased only for females after the taxes were posted online.

6.4.2 Effect by deciles:

We further investigate how increased tax transparency affects wage growth over different within-comparison group wage distribution deciles²³. Note that breaking the within-group relative position into deciles requires at least 10 workers in the same bin. Figure 12a presents

²³We opt to use deciles in this specification because the sample is smaller. The percentile results present a similar pattern but are harder to see in a graphical exposition due to their imprecision.

the aggregate results of the tax transparency policy on the wage growth of workers in different deciles in their comparison group using as a baseline workers in the decile 5. First, the wage growth for both cohorts decreases with workers' relative position, meaning that workers at the bottom of the distribution naturally experience a higher wage growth. However, this pattern is much more pronounced for the 2000 cohort due to the increased tax transparency. The wage growth is asymmetric, as observed in the flexible relative positions specification²⁴. The relative wage growth experienced by the lower percentiles is much larger than the relative wage decrease in the upper percentiles. To illustrate, workers in the first decile experience a wage increase of 6.2%, and workers at the top decile experience a wage decrease of 1.24%. The positive and significant effects are observed up to the third decile and the negative effects are concentrated on the two top deciles.

Figure 12 expands on the analysis reported in 12a and presents the wage growth by gender for each wage decile using workers at the decile 5 as a baseline. The relative wage growth experienced by the lower percentiles is much larger than the relative wage decrease in the upper percentiles for both genders, however, females' wage growth is relatively higher in the bottom of the distribution when compared to the top. In other words, gender gaps decrease relatively more for the bottom of the distribution after a higher transparency is in place. To formally test this, table 5 display the gender gaps reduction after controlling for the relative position in the baseline. The average wage effect without controlling for the relative position is a higher increase of 1.27% for women relatively to men as displayed in the first column. Columns 2 and 3 present the results after controlling for the relative position, which makes the effect insignificant. Even though the average effect is insignificant, this hides the fact that the reduction in gender gap varies across the income distribution. All the gender gap reduction is concentrated on workers that are observed below the median of their peers, and no reduction is observed for workers above the median, as can be observed in columns 4 and 5.

We also test if the gender difference in turnover persists after we control for the relative position. The baseline results are presented in column 1 of table 6. As reported in section 7.5.1, females display a higher probability of leaving their firms, both to a different job as well as to unemployment. After we control for the relative positions in column 2 and 3, the job to job transitions persists, and the job to unemployment is not statistically significant. Even though the wage effects are different depending on the income position, the relative gender turnover is not statistically differently for workers below and above the median in their groups.

6.4.3 Heterogeneous effects:

To further test if the effects are due to the increased transparency, we test if the estimates differ for firms in municipalities with and without the tax catalog and high and low variance

²⁴Section 7.2

comparison groups in the baseline. The heterogeneous results for termination are presented in table 2. We do not find any significant different pattern for the municipalities without the tax catalog regarding the terminations. The variance heterogeneity results, however, corroborate the effects in our main specifications. A higher tax transparency increases the probability of workers below the median and females leaving their baseline firms. These effects are, respectively, 1.2 p.p. and 2.1 p.p. higher for workers below the median and females if they were in a high variance group. This additional termination does not translate to a higher probability of a job-to-job transition for workers earning less than their peers, and is totally explained by a higher employment gap three years after. Females in high variance groups, on the other hand, can partially translate the higher termination rate in job transitions. They are 1.1 p.p. more likely to be in another job 3 years after and 1.2 p.p. to have an employment gap.

We explore the same heterogeneities to measure the wage effects of an increase in tax transparency and present the results in table 3. We do not find any significant different pattern for the municipalities with and without the tax catalog regarding the wage growth. Although the point estimate suggests a relative higher wage growth of 1.6% in the municipalities without the tax catalog for workers earning less than their peers as presented in column 1, the sample reduction makes the results not significant. Reassuringly, the higher wage growth for workers below their peers and females comes essentially from high variance groups in the baseline. More specifically, workers below the median in their comparison group and females, respectively, experience a wage increase of 2.5% and 0.95% more when they are in a high variance baseline group than when they are in a low variance group.

6.4.4 Robustness:

We test a different specification to address one potential concern and rule out one additional mechanism. First, macroeconomic shocks that affect workers differently according to their wages and coincides with the tax returns being posted on the internet could be a threat to our identification. Second, even though the tax lists do not bring information about where the individuals work, firms could also potentially use the tax lists to poach workers that they were already targeting from other firms. To deal with it, we run a specification that, instead of controlling for comparison groups interacted with time fixed effects, we control for the workers percentile position in their municipality in the baseline year interacted with time fixed effects, and municipalities interacted with time fixed effects.

The results are robust to any factor that affects workers in different percentiles of the local labor market differently overtime, such as macroeconomic shocks. The variation left comes from workers that earn the same wage in the baseline period working among different earning peers. In other words, the same wage could place a worker below or above the median depending on how much the firm pays to the workers' peers. We use this variation to identify wage effects that comes essentially from having different relative positions. This strategy

is robust to poaching since it is unlikely that the poaching firms will have the information of the workers relative position among their peers. Table 4 shows how the results on wage compression and gender gaps compare to our main specification. Column 1 and 2 report that the wage growth for workers below the median are estimated to be 1.45% higher in our main specification and 0.8% higher in our alternative specification. Column 3 and 4 report that the wage growth for females are estimated to be 1.1% higher in our main specification and 1.28% higher in our alternative specification. Given that both strategies produces similar estimates, this indicates a limited role of firms using the tax lists to poach.

7 Conclusion:

Pay transparency has emerged as a potential policy tool to promote wage equity, with various countries adopting measures ranging from penalties for salary secrecy to full wage disclosure. However, empirical evidence on the impact of transparency on wage setting is limited, primarily due to challenges in accessing organizational-level data. This study investigates a less-explored form of pay transparency: the public disclosure of tax information. While many countries have implemented such policies to enhance tax compliance, especially among self-employed individuals, the effects on wage earners have received little attention. Given that wage earners' income is generally reported by employers, compliance is not typically a concern. Nonetheless, public disclosure of tax information may act as a pay transparency tool within firms, with the potential to significantly influence wage-setting practices.

Our analysis focuses on a national policy shift in Norway, where individual tax returns were made publicly accessible online in 2001. This abrupt increase in transparency offers a unique opportunity to measure the effects of heightened pay transparency among work peers. We utilize two primary data sources—individual income tax returns and matched employer-employee information. This allows us to construct comparison groups within firms and leverage within-group variation to examine how the transparency change affected wage compression and gender disparities. Although the disclosed tax information aggregates all income sources, our findings show that wages account for over 95% of total income, except at the extremes of the income distribution, enabling workers to credibly assess their relative position among their peers.

Our analysis reveals that the transparency shock led to greater wage compression, benefiting workers below the median and reducing the gender gap. The findings suggest that the increased transparency prompted higher termination rates, followed by more frequent job-to-job transitions for certain groups, ultimately resulting in higher wage growth for workers earning less than their peers and for females. Moreover, wage growth was most pronounced for workers in the lower percentiles of the income distribution, with females experiencing relatively higher gains at the bottom. These results underscore the impact of tax transparency on wage-setting practices within firms and its broader implications for addressing wage inequality.

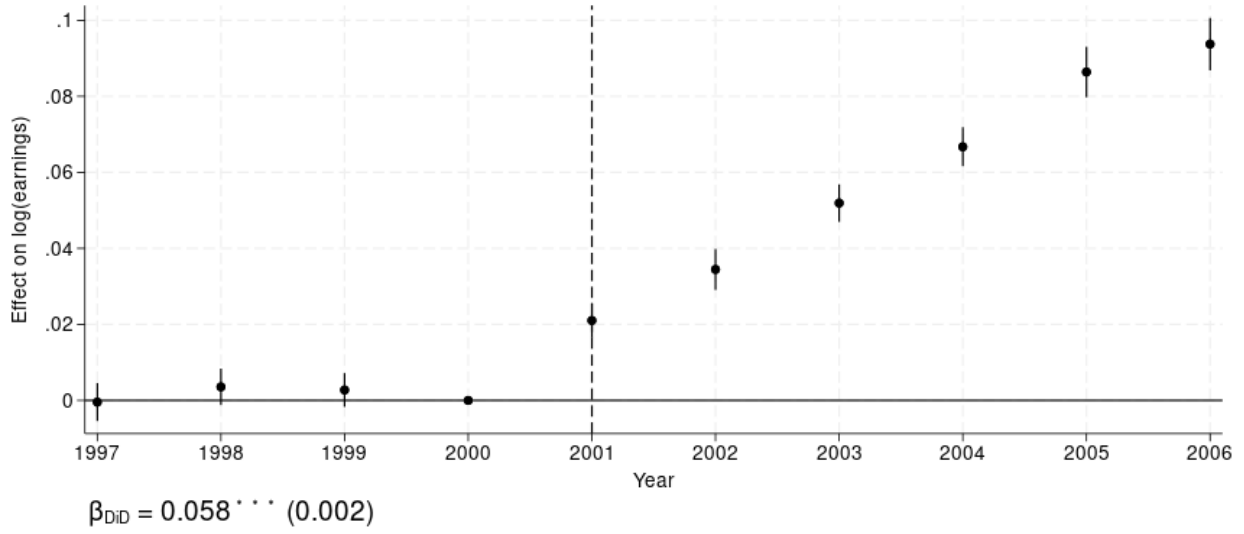
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Figure 4: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

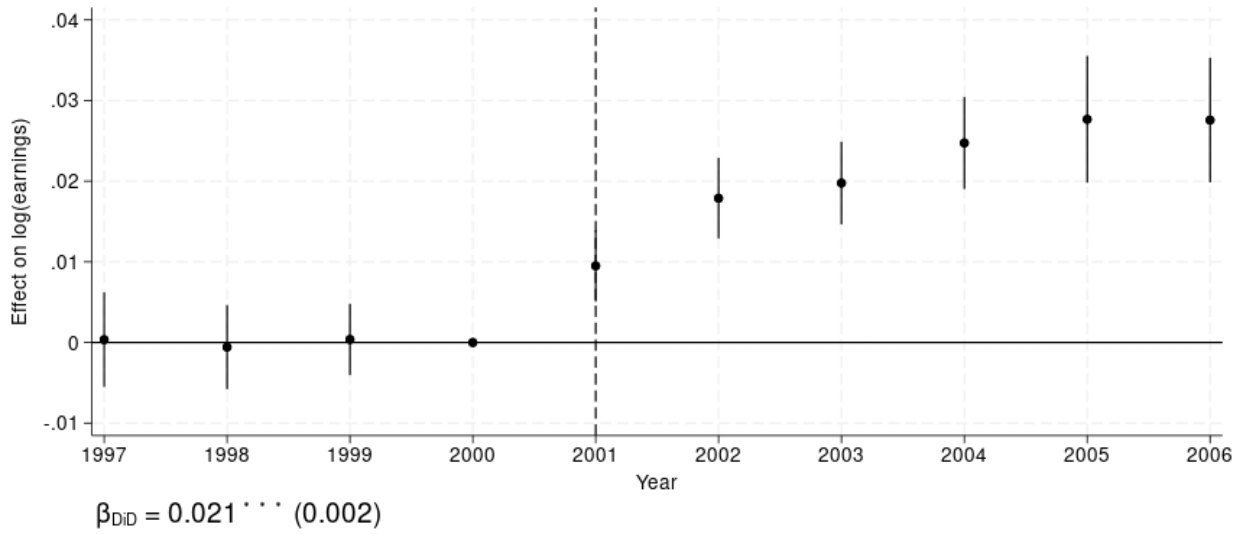
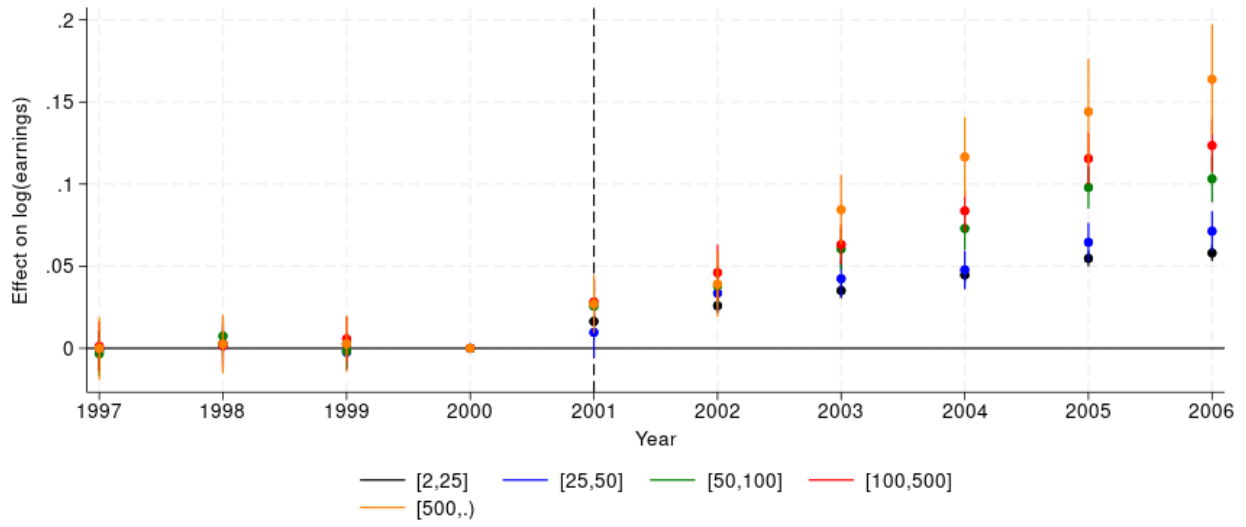


Figure 5: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

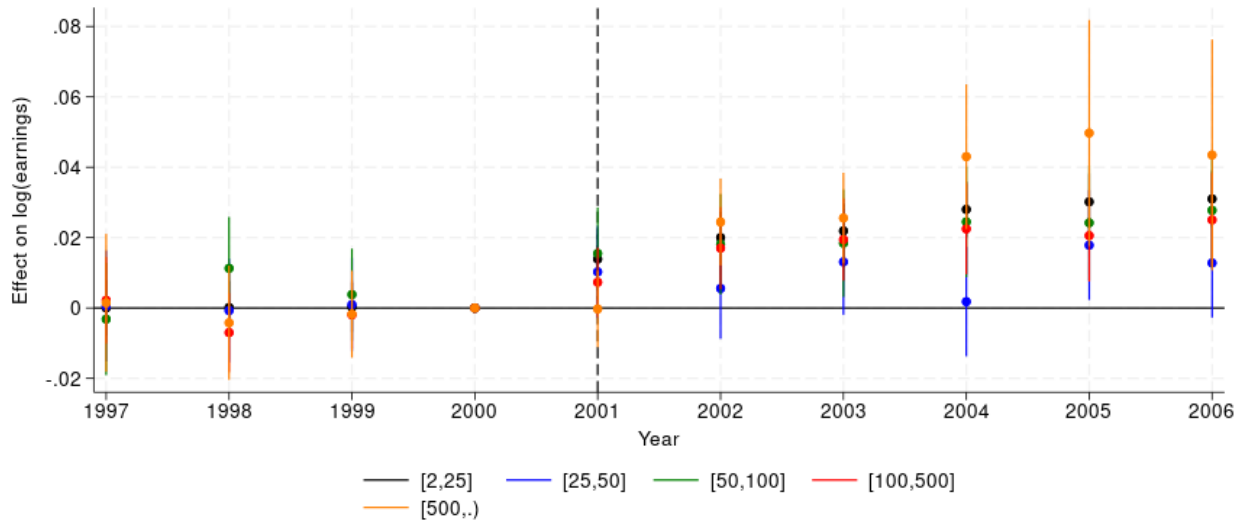
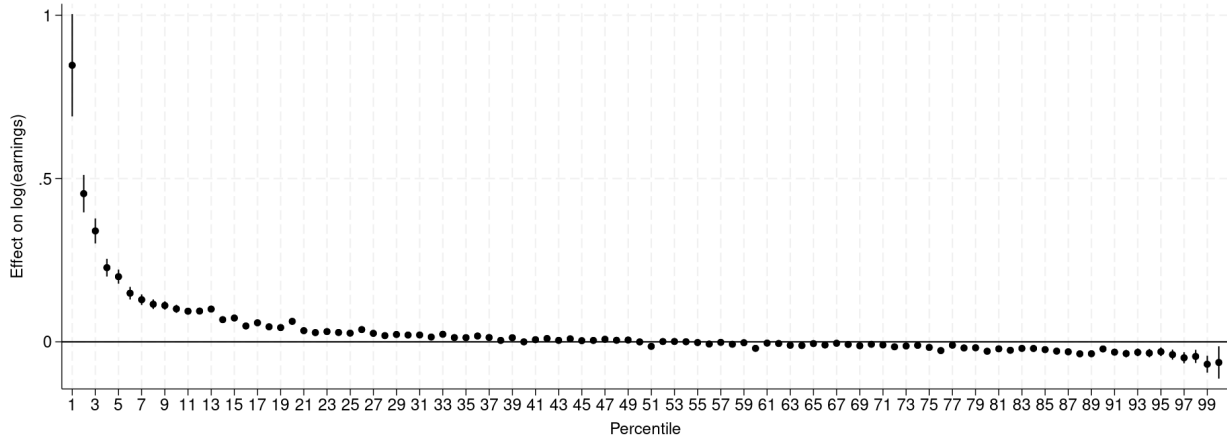


Figure 6: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

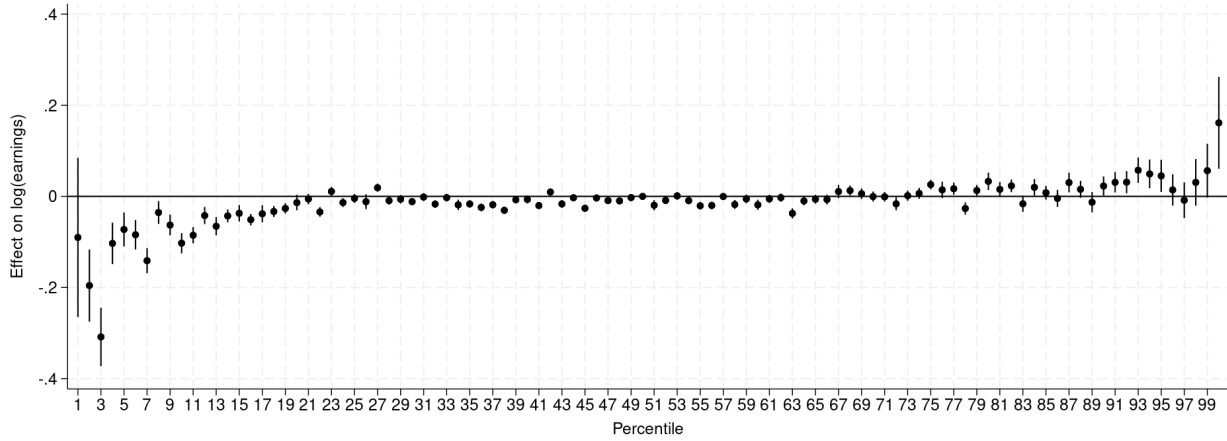
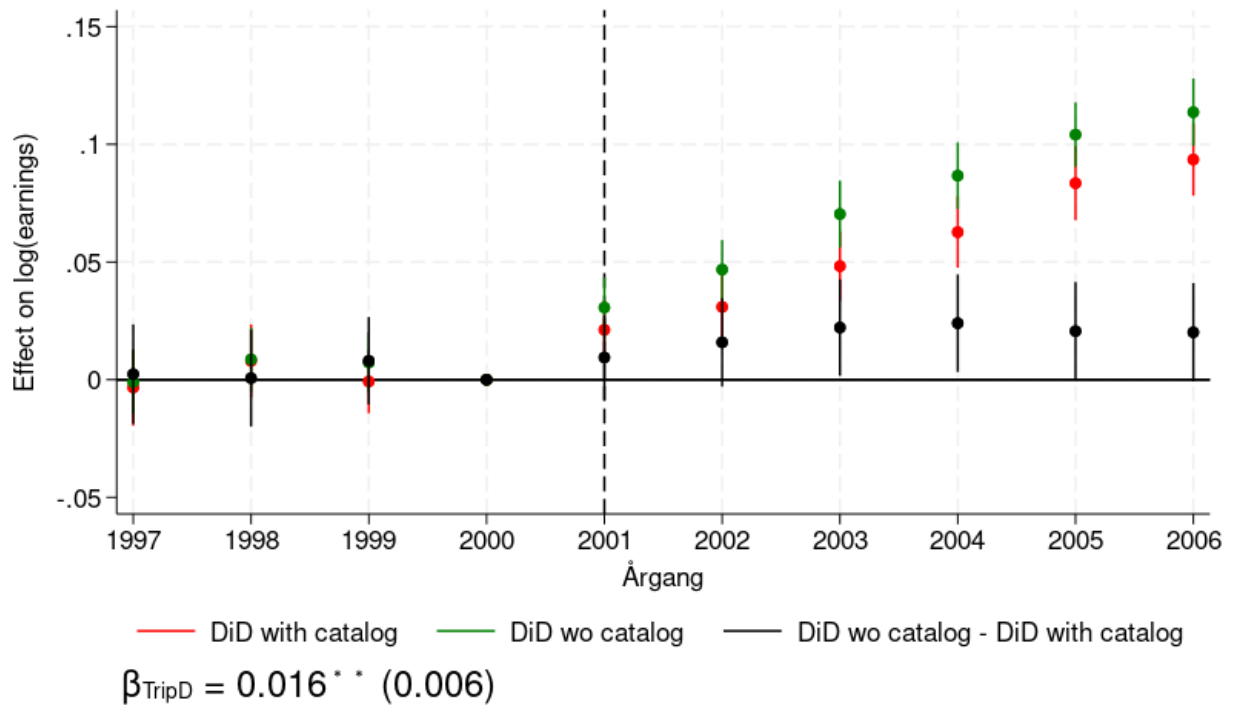


Figure 7: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

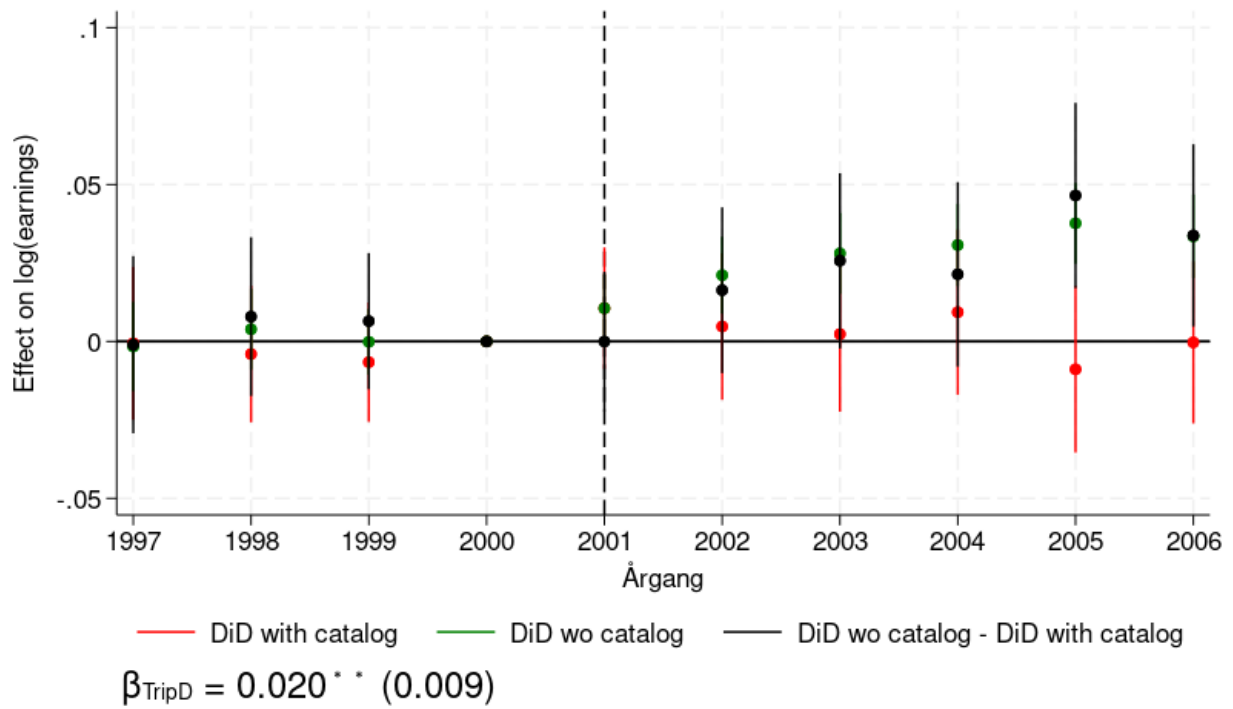
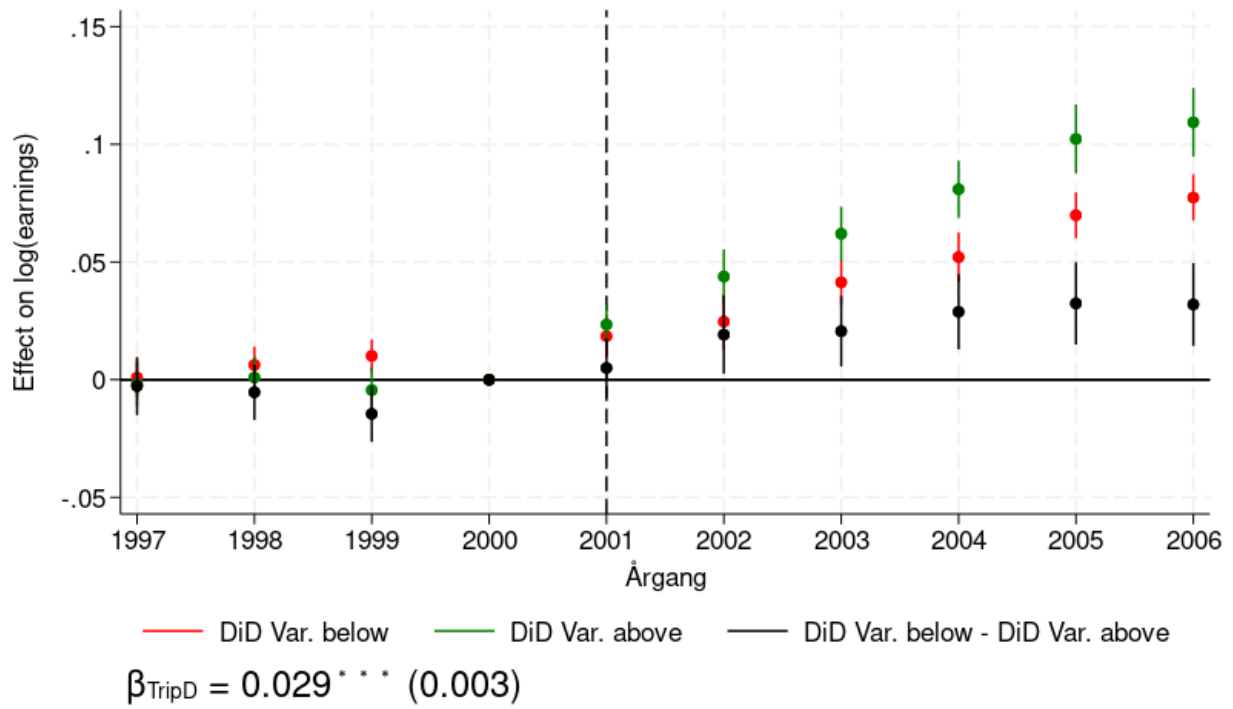


Figure 8: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

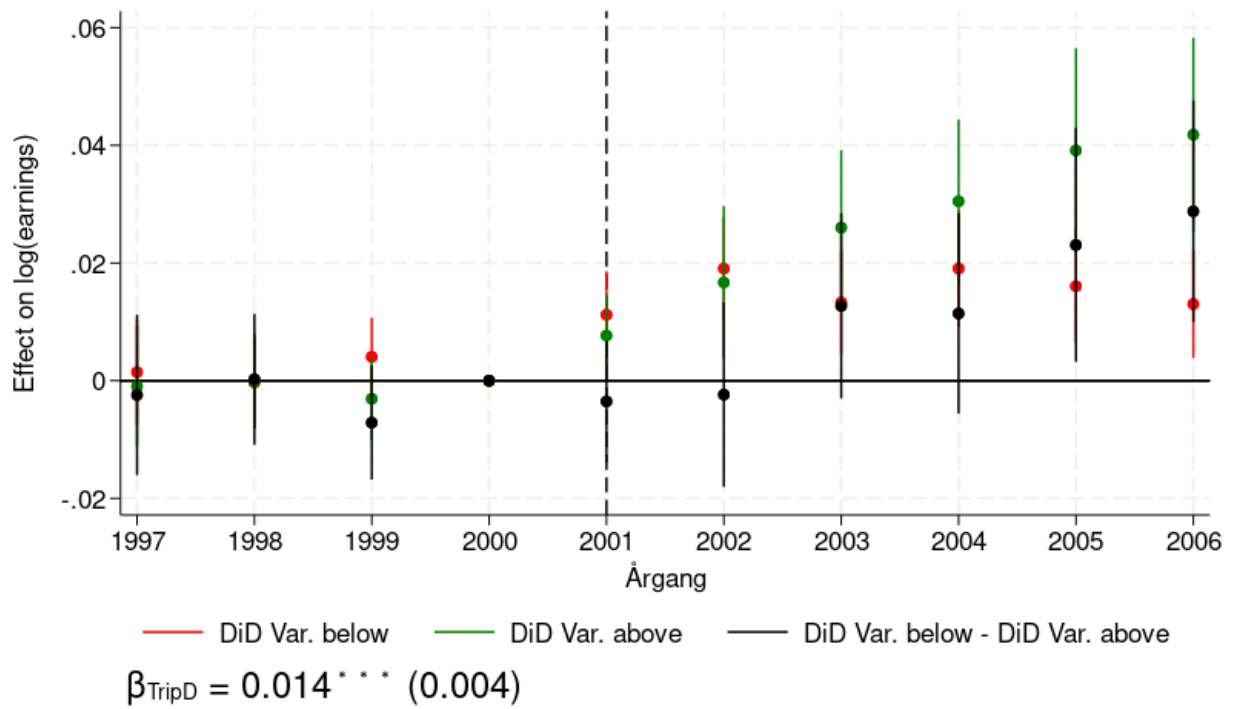


Figure 9: Switching - relative position:

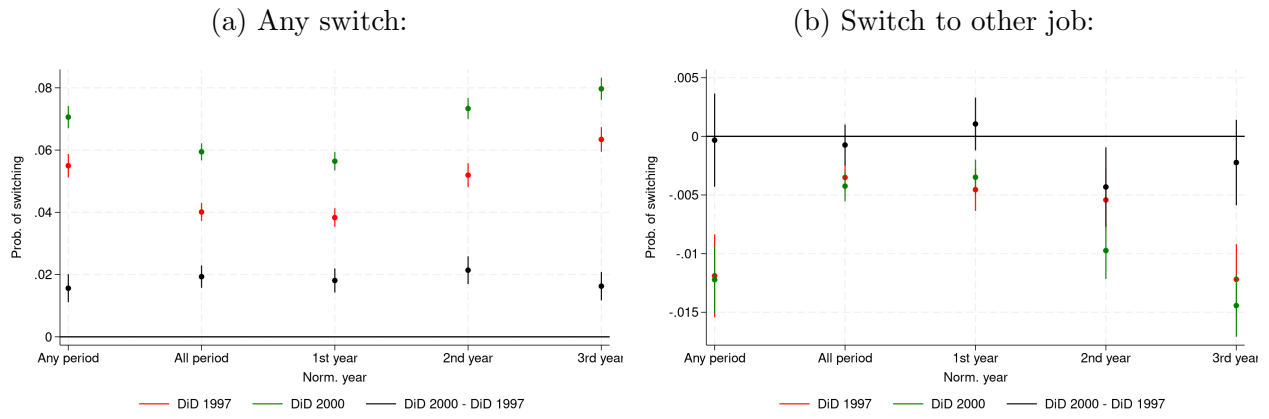


Figure 10: Switching - female

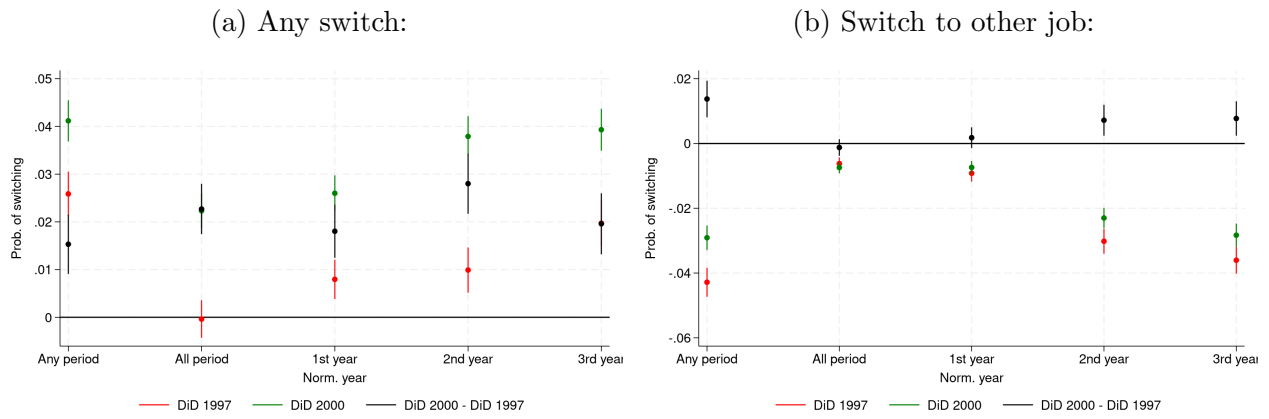


Figure 11: Wage:

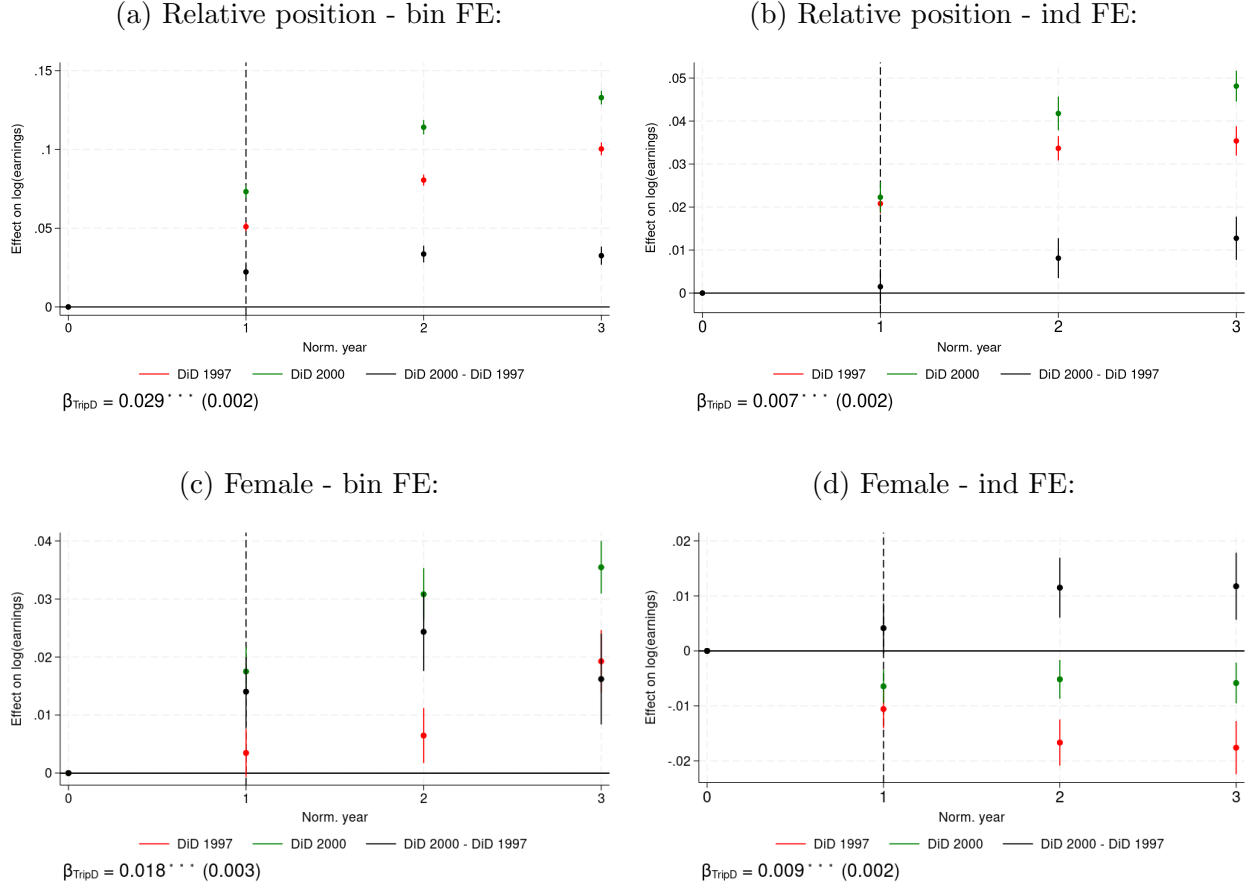


Table 1: Wage effects for switchers and stayers:

Dep. Var: Log(Wage)	Relative position		Gender	
	(1)	(2)	(3)	(4)
$After \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\}$	0.0144*** (0.0027)	0.0114*** (0.0026)	0.0108*** (0.0031)	0.0065* (0.0035)
$After \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\} \cdot Switch_i$		0.0108** (0.0048)		0.0117** (0.0057)
$After \cdot 1\{c=2000\} \cdot Switch_i$		-0.0021 (0.0035)		0.0010 (0.0030)
Observations	1364948	1364948	1371194	1371194

Note: Significance levels: * 10%, ** 5%, ***1%. The results are clustered by the firms in the baseline.

Table 2: Heterogeneous termination effects 3 years after:

Dep. Var: Any quit	Relative position		Gender	
	Catalog	Variance	Catalog	Variance
$T_{i,(g,t_0),c} \cdot 1\{c=2000\} \cdot het_i$	0.0029 (0.0107)	0.0120*** (0.0045)	-0.0222 (0.0165)	0.0213*** (0.0058)
$T_{i,(g,t_0),c} \cdot 1\{c=2000\}$	0.0101 (0.0093)	0.0102*** (0.0023)	0.0433*** (0.0147)	0.0077** (0.0034)
Observations	198401	989998	199436	994589
Dep. Var: Job switch	Relative position		Gender	
	Catalog	Variance	Catalog	Variance
$T_{i,(g,t_0),c} \cdot 1\{c=2000\} \cdot het_i$	-0.0020 (0.0080)	-0.0041 (0.0025)	-0.0037 (0.0105)	0.0114*** (0.0035)
$T_{i,(g,t_0),c} \cdot 1\{c=2000\}$	-0.0030 (0.0070)	0.0006** (0.0003)	0.0108 (0.0091)	-0.0012*** (0.0003)
Observations	198401	989998	199436	994589
Dep. Var: No employment	Relative position		Gender	
	Catalog	Variance	Catalog	Variance
$T_{i,(g,t_0),c} \cdot 1\{c=2000\} \cdot het_i$	0.0049 (0.0097)	0.0122*** (0.0040)	-0.0185 (0.0146)	0.0124** (0.0061)
$T_{i,(g,t_0),c} \cdot 1\{c=2000\}$	0.0131 (0.0084)	0.0120*** (0.0023)	0.0325** (0.0128)	0.0055 (0.0037)
Observations	198401	989998	199436	994589

Note: Significance levels: * 10%, ** 5%, ***1%. The results are clustered by the firms in the baseline.

Table 3: Heterogeneous wage effects:

Dep. Var: Log(Wage)	Relative position		Gender	
	Catalog	Variance	Catalog	Variance
$After \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\} \cdot het_i$	0.0167 (0.0134)	0.0255*** (0.0047)	-0.0034 (0.0170)	0.0095* (0.0055)
$After \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\}$	0.0052 (0.0094)	-0.0026 (0.0025)	0.0097 (0.0154)	0.0038 (0.0039)
Observations	278140	1364948	279546	1371194

Note: Significance levels: * 10%, ** 5%, ***1%. The results are clustered by the firms in the baseline.

Table 4: Testing results with different specification:

Dep. Var: Log(Wage)	Relative position		Gender	
	(1)	(2)	(3)	(4)
$After \cdot T_{i,(g,t_0),c} \cdot 1\{c=2000\}$	0.0145*** (0.0027)	0.0080*** (0.0026)	0.0110*** (0.0031)	0.0128*** (0.0031)
Comparison group interacted with time FE	YES	NO	YES	NO
Municipality percentile interacted with time FE	NO	YES	NO	YES
Observations	1363280	1368206	1369518	1477298

Note: Significance levels: * 10%, ** 5%, ***1%. The results are clustered by the firms in the baseline.

Table 5: Gender gaps after controlling for relative position:

Dep. Var: Log(Wage)	Relative position interacted with gender				
	(1)	(2)	(3)	(4)	(5)
$After \cdot Gender_i \cdot 1\{c=2000\}$	0.0127*** (0.0037)	0.0021 (0.0044)	0.0052 (0.0048)	-0.0081* (0.0048)	-0.0050 (0.0057)
$After \cdot Gender_i \cdot 1\{c=2000\} \cdot Below_{i,(g,t_0),c}$				0.0157** (0.0073)	0.0167** (0.0085)
Baseline wage deciles interacted with time and cohort FE	NO	YES	NO	YES	NO
Baseline wage deciles interacted with comparison group, time and cohort FE	NO	NO	YES	NO	YES
Observations	940666	940666	786086	940666	786086

Note: Significance levels: * 10%, ** 5%, ***1%. The results are clustered by the firms in the baseline.

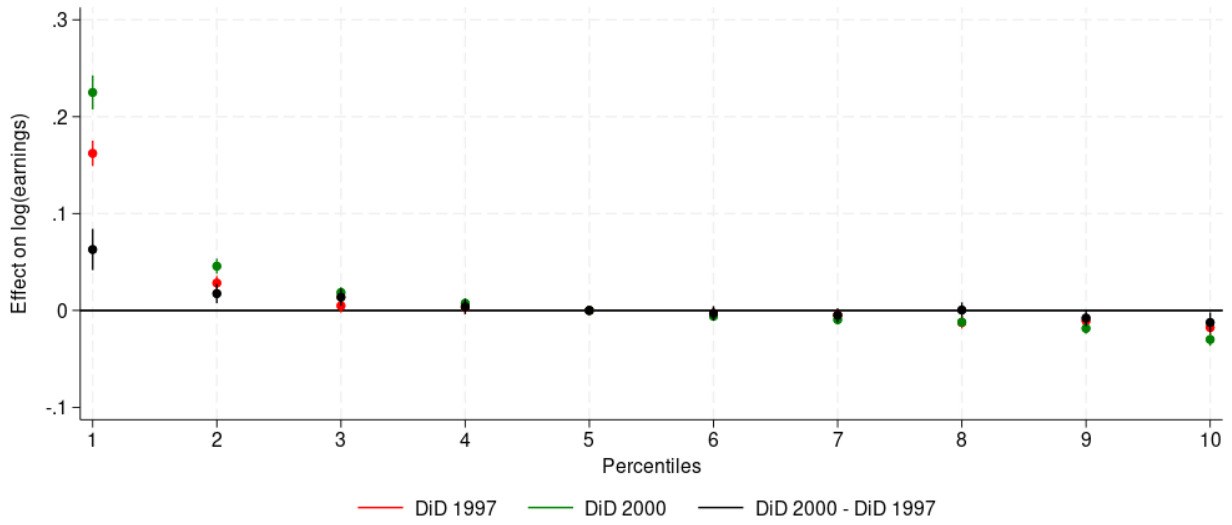
Table 6: Gender gaps after controlling for relative position:

Dep. Var: Any quit	Relative position interacted with gender				
	(1)	(2)	(3)	(4)	(5)
$Gender_i \cdot 1\{c=2000\}$	0.0243*** (0.0042)	0.0185*** (0.0042)	0.0168*** (0.0052)	0.0222*** (0.0060)	0.0210*** (0.0078)
$Gender_i \cdot 1\{c=2000\} \cdot Below_{i,(g,t_0),c}$				-0.0056 (0.0066)	-0.0067 (0.0088)
Baseline wage deciles interacted with time and cohort FE	NO	YES	NO	YES	NO
Baseline wage deciles interacted with comparison group, time and cohort FE	NO	NO	YES	NO	YES
Observations	658869	658869	584101	658869	584101
Dep. Var: Job switch	Relative position interacted with gender				
	(1)	(2)	(3)	(4)	(5)
$Gender_i \cdot 1\{c=2000\}$	0.0097*** (0.0035)	0.0104*** (0.0035)	0.0118*** (0.0044)	0.0141*** (0.0044)	0.0109* (0.0059)
$Gender_i \cdot 1\{c=2000\} \cdot Below_{i,(g,t_0),c}$				-0.0056 (0.0046)	0.0014 (0.0065)
Baseline wage deciles interacted with time and cohort FE	NO	YES	NO	YES	NO
Baseline wage deciles interacted with comparison group, time and cohort FE	NO	NO	YES	NO	YES
Observations	658869	658869	584101	658869	584101
Dep. Var: No employment	Relative position interacted with gender				
	(1)	(2)	(3)	(4)	(5)
$Gender_i \cdot 1\{c=2000\}$	0.0146*** (0.0038)	0.0081** (0.0038)	0.0050 (0.0045)	0.0081 (0.0052)	0.0102 (0.0064)
$Gender_i \cdot 1\{c=2000\} \cdot Below_{i,(g,t_0),c}$				0.0000 (0.0062)	-0.0080 (0.0081)
Baseline wage deciles interacted with time and cohort FE	NO	YES	NO	YES	NO
Baseline wage deciles interacted with comparison group, time and cohort FE	NO	NO	YES	NO	YES
Observations	658869	658869	584101	658869	584101

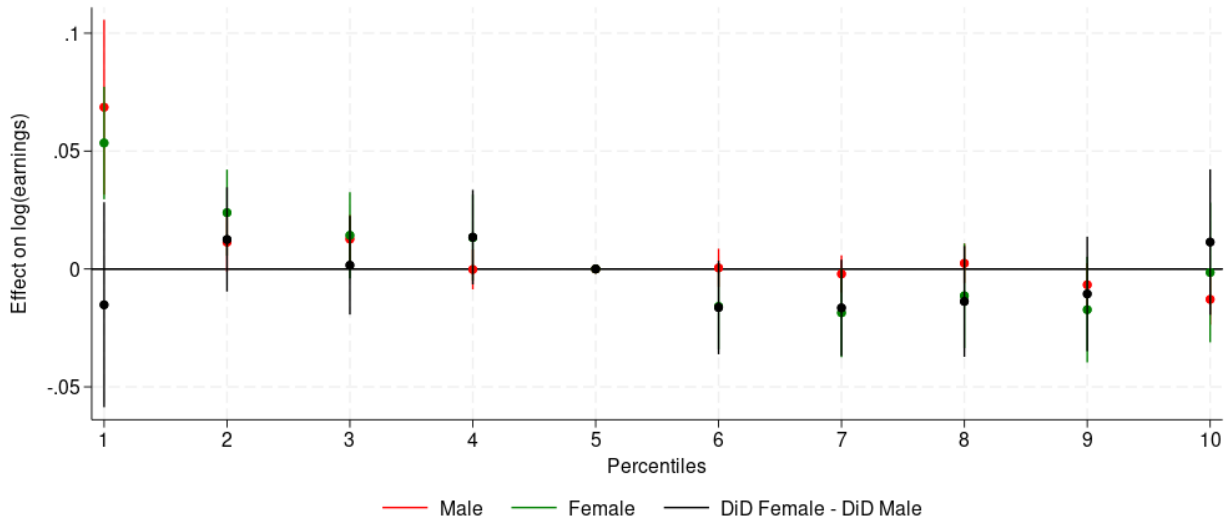
Note: Significance levels: * 10%, ** 5%, ***1%. The results are clustered by the firms in the baseline.

Figure 12: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within the firm, education level, and tenure bracket:



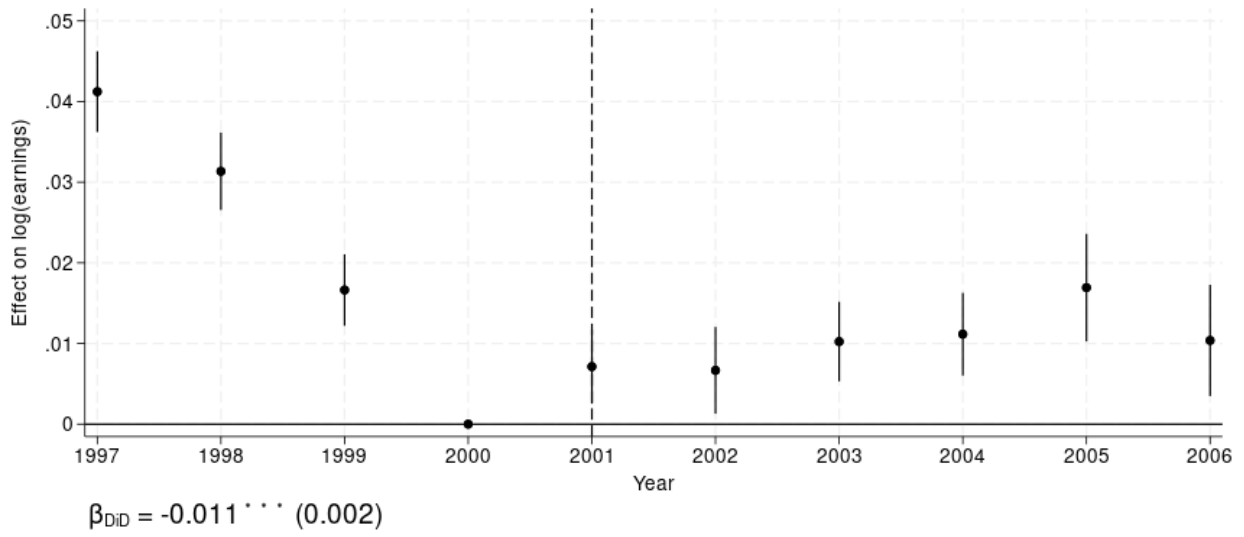
(b) Treatment group defined as female:



8 Appendix:

Figure 13: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

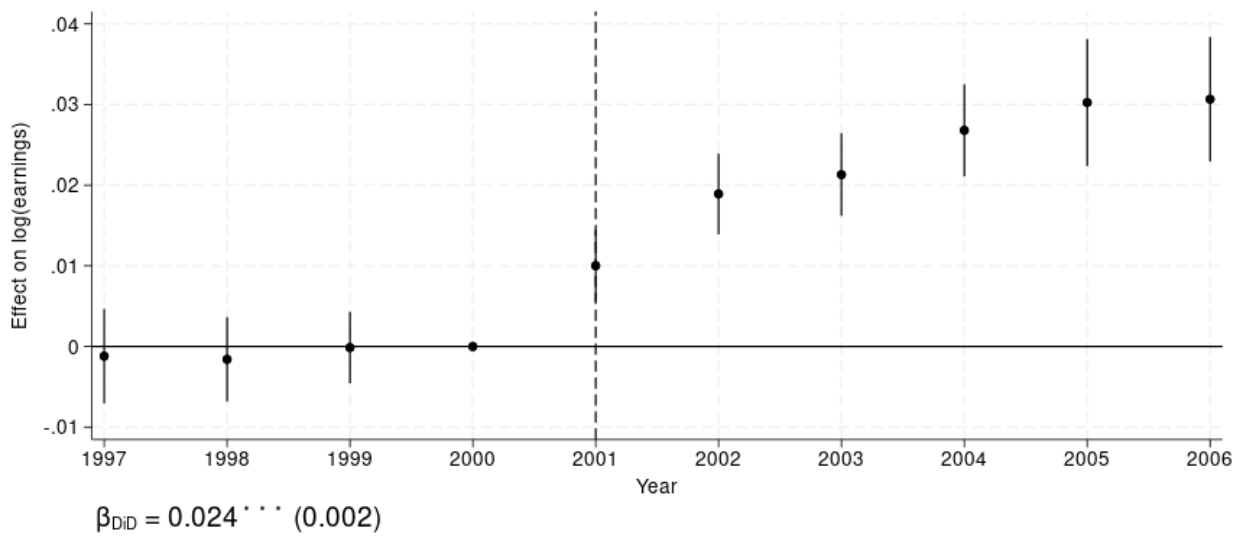
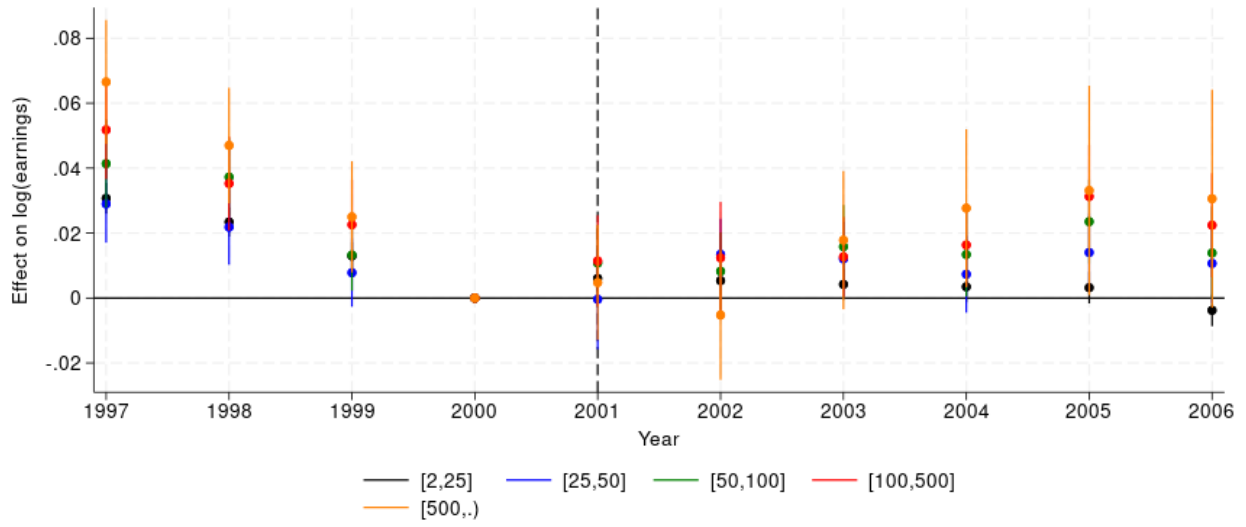


Figure 14: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

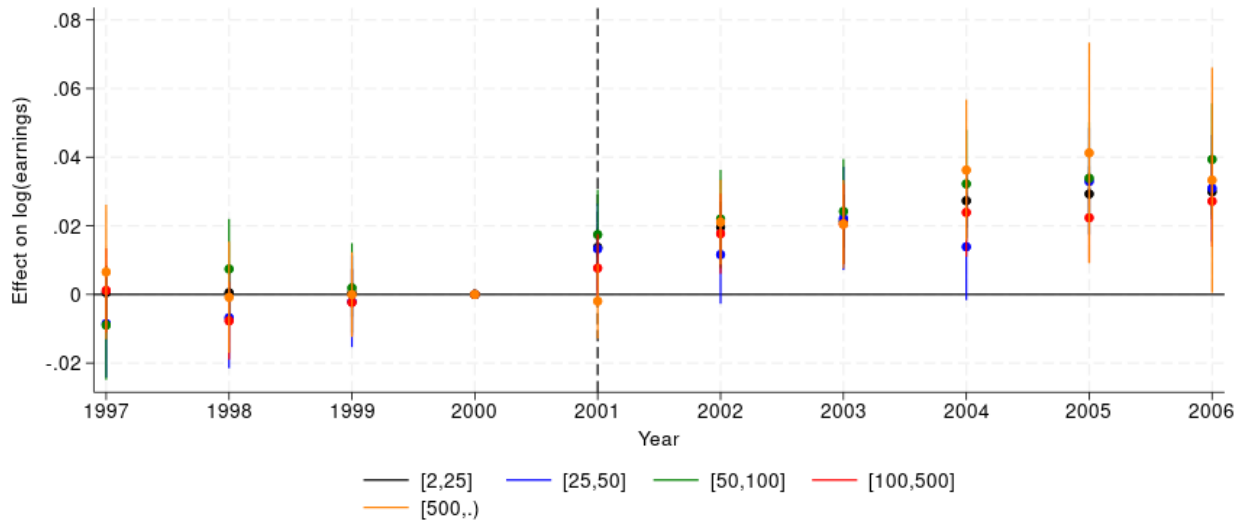
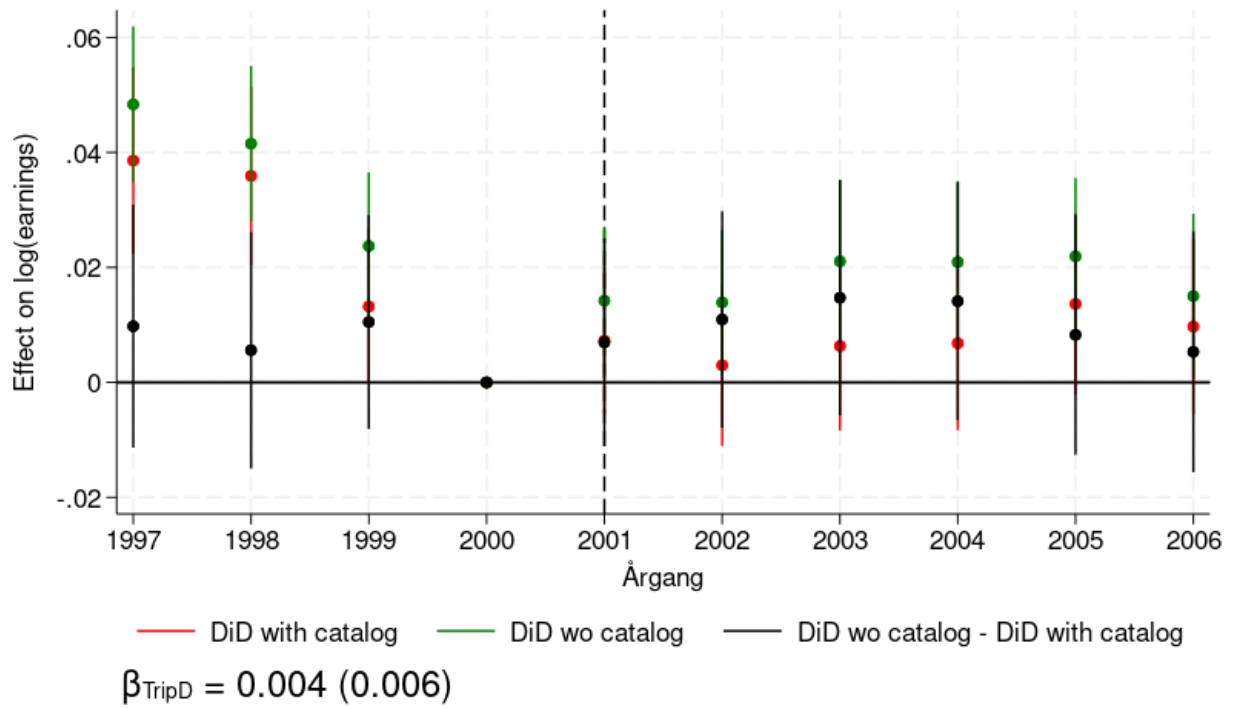


Figure 15: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

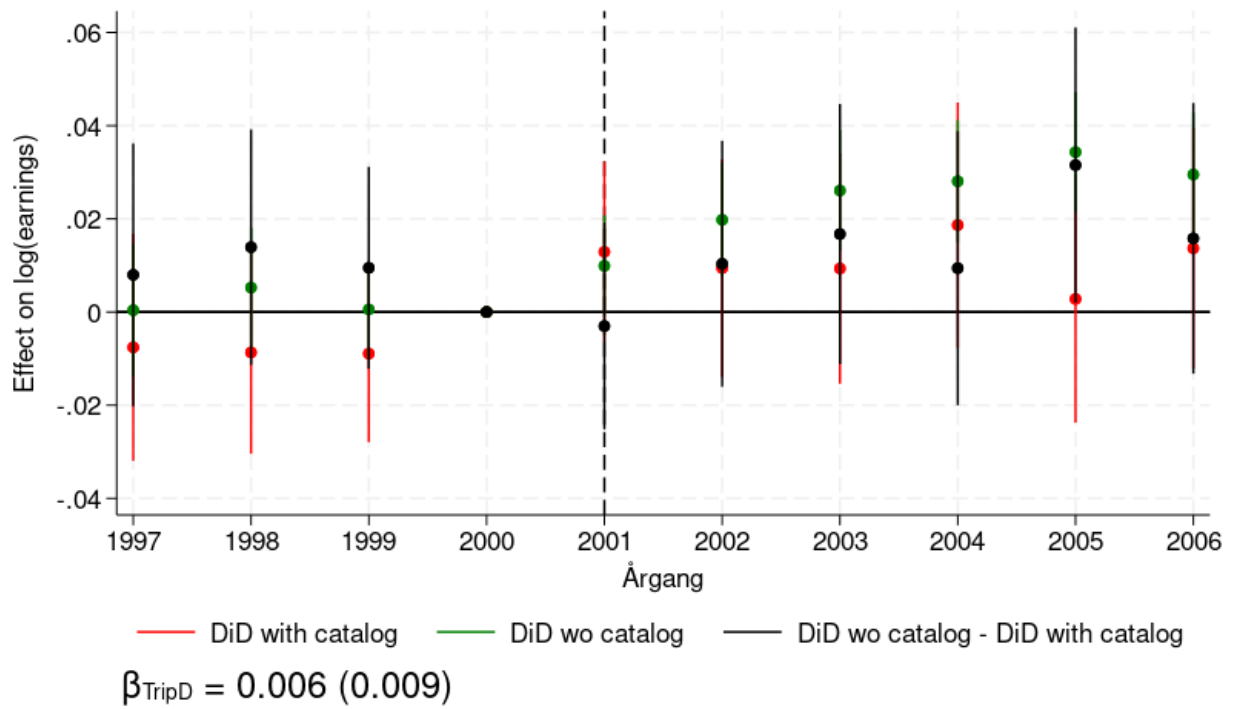
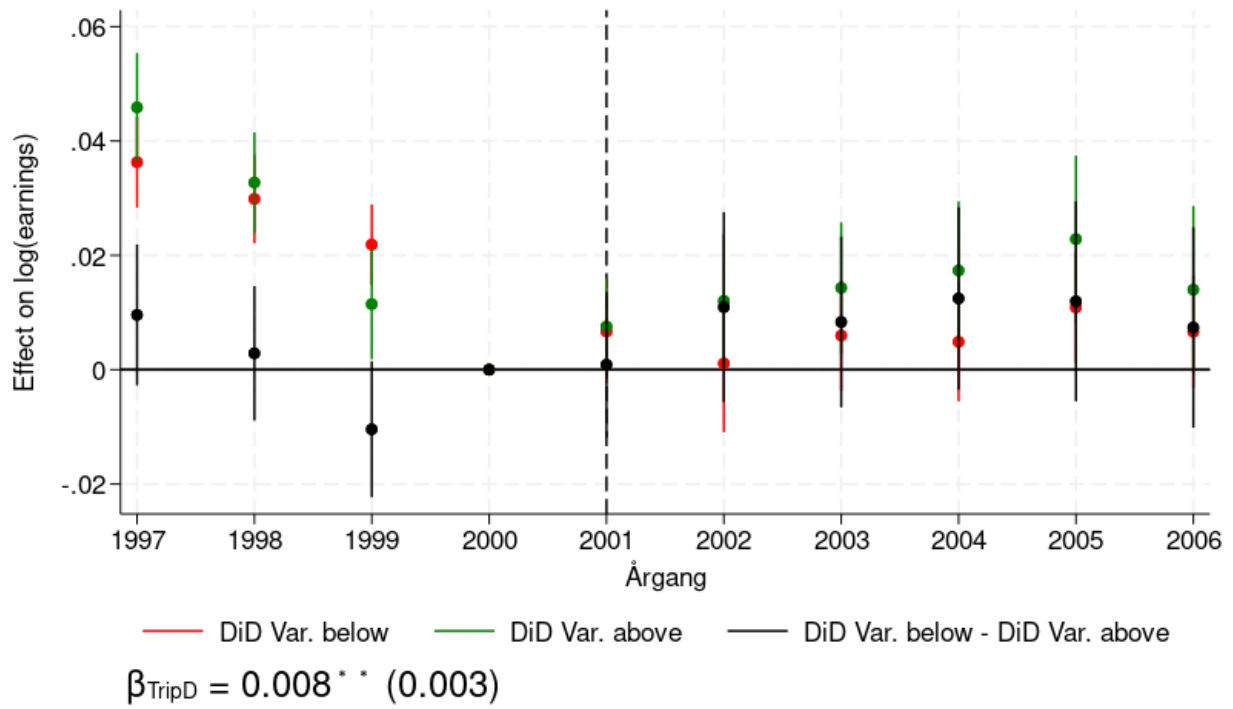


Figure 16: Difference in difference coefficients for the effect tax transparency on wage dispersion and gender gaps

(a) Treatment group defined as below the median wage within firm, education level and tenure bracket:



(b) Treatment group defined as female:

