

# Taxing High Wages: Evidence from the Netherlands\*

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## Abstract

We study the effects of a temporary tax on high wages levied on employers in the Netherlands. The tax imposed a 16 per cent surcharge on the portion of wages above €150,000 in 2012–2013. Using linked employer–employee data and income tax returns, and combining bunching, difference-in-differences and triple-differences designs, we find no effect on employees’ wages, implying that employers bore the full burden of the tax. In contrast, owner-managers reduced their own pay to offset the surtax. The response to the tax persists for many years after its repeal and is particularly strong among owner-managers in accounting and tax consultancy. To prevent income relabelling, anti-avoidance rules set a minimum level of compensation for owner-managers. We find no response among those for whom these rules bind, suggesting that they can effectively limit tax avoidance. Our results show that the capital-labour split in private businesses is highly sensitive to tax laws, that temporary taxes can have long-lasting effects, and that elasticities are shaped by policy design.

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# 1 Introduction

With income inequality rising in many countries, there is renewed interest in policies to address it. In the United States, policymakers have proposed raising corporate taxes on firms whose highest-paid employee earns more than 50 times the median worker’s compensation.<sup>1</sup> In Europe, several countries have introduced employer-side payroll taxes targeted at high-wage earners.<sup>2</sup> According to the canonical model of tax incidence, economic incidence is independent of statutory incidence.<sup>3</sup> The economic incidence of taxes on labour earnings should depend on the relative elasticities of labour supply and demand rather than on whether they are formally levied on employers or employees. Because estimates of the labour-supply elasticity—at least for prime-age men—are substantially smaller than estimates of the labour-demand elasticity, the conventional view among economists is that employer-side taxes are largely shifted onto employees.<sup>4</sup> Recent studies, however, have cast doubt on this long-held belief by documenting cases of incomplete—or even zero—pass-through of employer-side payroll taxes onto employees (e.g., Saez et al., 2012*b*; Bozio et al., 2025). Yet most payroll taxes are capped, leaving top earners unaffected at the margin and therefore often excluded from empirical analyses.<sup>5</sup> Moreover, top earners differ markedly from other taxpayers in the composition of their income, in the labour-market frictions they face, and in their ability to shift income across time and tax bases, all of which may affect the elasticity of their earnings with respect to taxes. Who bears the burden of employer-side taxes targeting top earners is therefore still an open question.

This paper addresses this question by studying a temporary employer-side payroll tax introduced in the Netherlands in 2012. The tax imposed a 16 per cent levy on the portion of each employee’s wage above €150,000 and lasted for two years (2012–2013). To analyse its effects, we use linked employer–employee data and personal income tax returns. Our data cover the universe of workers, who were subject to the surtax, as well as the self-employed, retirees and employees of foreign employers, who were not. Crucially, the data identify owner-managers—an uncommon feature in most administrative tax data—allowing a comparison of their responses with those of regular employees. The data are available without top-coding and cover all forms of income, whether paid in cash or in kind, making them well suited to studying behaviour at the top of the wage distribution.

The design of the surtax lets us combine multiple strategies to credibly estimate its effect on wages and labour costs. The surtax threshold at €150,000 creates a sharp kink in marginal tax rates. If there is any pass-through of the tax onto employees, it should induce bunching at the kink point. Beyond this local response, the exclusion of certain groups from the tax—most notably the self-employed—allows us to estimate pass-through using a difference-in-differences design. Finally, by comparing workers just below and above the threshold, we implement a triple-differences design that isolates behavioural responses to the tax from other contemporaneous changes that differentially affect workers and the self-employed. Together,

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<sup>1</sup>This proposal has been introduced multiple times in the US House of Representatives and the US Senate as the “Tax Excessive CEO Pay Act” in 2019, 2021, 2024, and 2025, but has not advanced beyond the committee stage (U.S. Congress, 2019, 2021, 2024*a,b*, 2025*a,b*).

<sup>2</sup>In addition to the Dutch tax studied in this paper, examples include the famous French levy on employers with employees earning over €1 million in 2013–2014, and the 5 per cent surtax in Norway on earnings over NOK 750,000 in 2023–2024.

<sup>3</sup>See chapter IX in Marshall (1920), chapter 19 in Samuelson (1948), and chapter 19 in Gruber (2011) for textbook treatments of the irrelevance of statutory incidence, and Benzarti (2025) for a critical review.

<sup>4</sup>In a survey of economists at US universities, the median estimate assigns only 20 per cent of the burden of payroll taxes to employers (Fuchs et al., 1998).

<sup>5</sup>An important exception is the study by Guillot (2021) on the French levy on employers with employees earning over €1 million.

these complementary approaches provide a comprehensive assessment of behavioural responses to the tax.

Our empirical analysis yields three main results. First, contrary to the classical model of tax incidence, employees’ wages remain entirely unaffected by the surtax. Employers do not shift the tax onto employees, implying that the resulting increase in labour costs is fully borne by employers.

Second, the wages of owner-managers decline sharply in response to the tax. Unlike regular employees, this type of worker has considerable discretion over how and when to draw income. The response to the introduction of the tax is immediate, and it does not revert following its repeal. Instead, it persists for many years. Again, this contradicts the standard model, which predicts symmetry between tax increases and decreases. The response is visible across all industries but is particularly pronounced among accountants and tax consultants—professions likely to be most familiar with the tax rules.

Third, rules regulating the compensation for owner-managers significantly limit the pass-through of employer-side taxes. These require owner-managers to pay themselves a “reasonable” salary to prevent the reclassification of labour income as capital income. We find that wages among the group of owner-managers constrained by such rules remain stable, closely mirroring the pattern observed for regular employees. This result is one of the first on the effectiveness of policies to limit income shifting and demonstrates that behavioural elasticities are not immutable parameters, but are shaped by policy design (Slemrod and Kopczuk, 2002).

This paper contributes to several strands of literature. First, it adds to the large body of work on payroll tax incidence, a question that has preoccupied economists since the advent of social insurance. Early empirical studies lacked compelling methods, often relying on cross-country comparisons or time-series evidence, and yielded widely varying estimates—from full shifting of employer contributions onto workers to none at all (Hamermesh, 1993). Later studies improved on both data and identification, using microdata and quasi-experimental variation, yet still failed to reach a consensus on the extent to which payroll taxes are shifted to wages. A few studies find near or full pass-through of payroll taxes onto wages (Gruber, 1997; Anderson and Meyer, 1997, 2000; Baicker and Chandra, 2006; Kim et al., 2022), but most find incomplete or negligible shifting (Komamura and Yamada, 2004; Murphy, 2007; Benmarker et al., 2009; Korkeamäki and Uusitalo, 2009; Kugler and Kugler, 2009; Cruces et al., 2010; Saez et al., 2012*b*; Lehmann et al., 2013; Huttunen et al., 2013; Adam et al., 2017; Alvaredo et al., 2017; Bosch and Micevska-Scharf, 2017; Bozio et al., 2017; Müller and Neumann, 2017; Neumann, 2017; Egebark and Kaunitz, 2018; Adam et al., 2019; Saez et al., 2019; Guillot, 2021; Benzarti and Harju, 2021; Guo, 2024; Bozio et al., 2025).<sup>6</sup> Because payroll taxes are typically phased out at high earnings levels, there is limited evidence on their incidence among top earners. An important exception is Guillot (2021), who finds that the burden of the French employer levy on employees earning over €1 million was split almost evenly between firms and workers. However, the threshold is so high that it applied to only about 1,000 taxpayers per year, compared with about 40,000 in the Dutch case. There are several explanations for the incomplete pass-through of payroll taxes onto workers. At the bottom of the wage distribution, statutory minimum wages prevent employers from reducing pay, and collectively bargained wage scales can have similar effects further up the distribution. In addition, fairness norms may limit within-firm wage differentials when otherwise identical workers face different tax treatment. We find that even among top earners such frictions are sufficiently large to prevent any pass-through of the

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<sup>6</sup>It is important to note that, according to Edwards and Cox Edwards (2000), Gruber (1997)’s estimate of full pass-through in Chile is largely mechanical, stemming from the legal requirement under Decree Law 3501 that employers raise gross wages to maintain workers’ net pay after the shift to employee-financed pension contributions.

surtax onto the wages of employees. In contrast, the discretion that owner-managers have in setting their own compensation means that many of them are able to overcome these frictions and reduce their wages. Our analysis highlights another mechanism relevant for top earners: their compensation may be constrained by tax rules requiring a minimum or “reasonable” level of pay, as for S-corporation owners in the US, effectively tying gross wages to legal definitions of adequate remuneration. By reducing the elasticity of earnings with respect to taxes, rules like this can lower the efficiency cost of taxes on top earners.

Second, this paper contributes to the literature on the taxation of top earners. Rising inequality has increased the fiscal importance of the rich, but their taxation comes with distinctive challenges (Güçeri and Slemrod, 2023). The composition of top incomes differs markedly from that of other taxpayers: while labour earnings dominate the incomes of the bottom 90 per cent, the income of the rich often takes the form of dividends, capital gains or retained earnings. Business ownership is prevalent among top earners, giving them considerable control over both the timing and the form of their income (Smith et al., 2019; Kopczuk and Zwick, 2020). The retention of income within the firm allows owner-managers to avoid the progressive rates of the personal income tax (Alstadsæter et al., 2014; Miller et al., 2024; Bruil et al., 2025). Additionally, some personal consumption may be disguised as business expenses, thereby escaping the corporate, personal, and consumption taxes (Leite, 2024). At the top, the boundary between capital and labour income is often blurred, limiting the extent to which these forms of income can be taxed differently without inducing relabelling responses (Gordon and Slemrod, 2000; Pirttilä and Selin, 2011; Alstadsæter and Jacob, 2016). Our analysis documents a sharp contrast in behavioural responses between regular employees and owner-managers. Whereas the surtax on high wages is not passed through to employees, owner-managers are able to reduce their own wages to offset the tax-induced increase in labour costs. This asymmetry underscores that effective taxation at the top requires attention to income-shifting opportunities between corporate, capital, and labour tax bases when designing tax rates and rules.

Finally, our paper relates to an emerging literature on temporary taxation and tax holidays. Some policies are explicitly announced as temporary; others become temporary in practice when changes in government, in macroeconomic conditions, or other factors, lead to reversals. This raises well-known credibility concerns about whether “temporary” taxes are perceived as such. Tortarolo et al. (2020), Martínez et al. (2021), Sigurdsson (2024) and Sigurdsson (2025a) study income tax holidays in Argentina, Switzerland, Norway and Iceland to estimate intertemporal labour-supply responses. Across settings, elasticities are quantitatively modest on average, but larger for more flexible groups (e.g., first-time workers, job switchers and those near retirement) and when the tax holiday is salient. Sigurdsson (2025b) shows that the increase in labour supply can come at the expense of human capital accumulation, ultimately lowering lifetime earnings. In our setting, we document a pronounced asymmetry between the introduction and repeal of the surtax: wages, at least for owner-managers, fall immediately upon introduction and remain depressed for many years after the repeal of the tax.<sup>7</sup> This finding highlights that long-run revenue effects can differ considerably from short-run effects when behavioural responses are persistent.

The rest of this paper proceeds as follows. Section 2 describes the institutional context and data. Section 3 presents the results for regular employees and Section 4 for owner-managers. Section 5 investigates how wage-setting rules for owner-managers affect the pass-through of employer-side taxes. Section 6 concludes.

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<sup>7</sup>Related asymmetries in tax incidence have been documented for value-added taxes by Benzarti et al. (2020, 2024).

## 2 Institutional setting, data and conceptual framework

### 2.1 The withholding tax on wages and the income tax

A system of wage withholding has been in place in the Netherlands since 1941.<sup>8</sup> Since then, employers have been required to remit taxes on behalf of their employees. The schedule of the withholding tax on wages, shown in Table 1 for 2013, is identical to that of the income tax, and the withholding tax serves as a prepayment of the income tax. The withholding tax covers all forms of remuneration from employment, whether in cash or in kind. In addition to regular salaries, it applies to performance-related pay, overtime, stock options, and benefits in kind such as the private use of a company car. It does not apply to income from self-employment or to wages paid by foreign employers without a Dutch payroll presence.

The personal income tax is levied on wage income as well as on other types of income, most importantly income from self-employment. It allows for a number of deductions, such as mortgage interest and certain medical expenses. When the income tax return is filed, the wage tax withheld is credited against the final income tax liability. In principle, the brackets of the withholding tax and the income tax are indexed annually to projected inflation, but the government can deviate from this rule.

Table 1: Schedule of the withholding tax on wages and the income tax, 2013

| Annual wage (€)  | Marginal tax rate (%) |
|------------------|-----------------------|
| 0 – 19,645       | 37                    |
| 19,646 – 55,991  | 42                    |
| 55,992 and above | 52                    |

Note: Thresholds and rates are taken from the tax authority’s annual wage tax manual, *Handboek Loonheffingen 2013* (Belastingdienst, 2013). Schedules for other years are reported in Tables A.1 and A.2.

### 2.2 Surtax on high wages

The surtax on high wages was first announced in April 2012 as part of a broader agreement on tax increases and spending cuts reached by coalition and opposition parties in order to comply with European budget rules. The details were specified in a letter to parliament from the Minister of Finance on 25 May: employers were required to pay an additional 16 per cent tax on the portion of an employee’s 2012 wage exceeding €150,000.<sup>9</sup> The law went into force on 1 January, 2013, and its tax base was identical to that of the wage withholding tax.<sup>10</sup> The tax was applied retroactively to all wages paid in 2012, including those from before the announcement. Like the wage withholding tax, the self-employed were excluded from the tax, as were employees of foreign employers without a Dutch payroll presence, and employees whose income was spread across multiple employers such that no single employer paid more than €150,000. By contrast, the surtax could not be credited against employees’ income tax liabilities and was charged exclusively to employers, ensuring that the legal burden fell entirely on the employer rather than the employee.

<sup>8</sup>In 1939, the Dutch government proposed a comprehensive tax reform that included withholding at source, but the bill was withdrawn later that year for lack of political support. Shortly following the German occupation of the Netherlands, a withholding tax on wages modelled on the German *Lohnsteuer* was introduced by decree and took effect in 1941 (Essers, 2012). Today’s withholding tax on wages is based on the Wage Tax Act 1964 (Staatsblad, 1964).

<sup>9</sup>Tweede Kamer der Staten-Generaal (2012b).

<sup>10</sup>The surtax was enacted through article 32bd of the Wage Tax Act 1964 (Staatsblad, 1964, 2012b).

Although the law included a sunset clause providing for automatic expiration on 1 January 2014, the government announced in March 2013 that the tax would be extended by one year in response to deteriorating macroeconomic forecasts.<sup>11</sup> After repeated assurances from government officials that the levy would not be extended a second time, it expired on 1 January 2015.<sup>12</sup>

A natural alternative to an employer levy would have been the introduction of an additional bracket in the income tax. This would have placed the legal burden of the tax on individuals rather than firms, and subjected self-employed workers to the tax on the same basis as employees. Curiously, the government justified its choice of an employer levy on the grounds that international comparisons of countries' attractiveness as business locations typically use the top marginal income tax rate as a key indicator. By opting for a levy on employers, these comparisons remained unaffected (Tweede Kamer der Staten-Generaal, 2012a; Eerste Kamer der Staten-Generaal, 2012).

**Anti-avoidance provisions.** The Dutch law contained several anti-avoidance provisions. First, wage income was aggregated at the employer–employee level, meaning that splitting a contract into multiple smaller contracts would not affect the employer's tax liability. Similarly, wages paid by “associated corporations”, defined as those in which the employer had at least one-third of the shares, were also included in the tax base.<sup>13</sup> Second, if an employee converted their employment into a self-employment contract with the same employer, the resulting income was deemed wage income for the purposes of the surtax, thereby neutralising this avoidance channel.<sup>14</sup>

**Legal challenges.** Thousands of taxpayers filed formal objections against their surtax assessments.<sup>15</sup> Several of these objections culminated in court cases that centred on the protection of property and the prohibition of discrimination.<sup>16</sup> Two of these cases reached the Dutch Supreme Court, which upheld lower courts' judgments and ruled that concerns over the retroactive nature of the tax and the differential treatment of different types of taxpayers were outweighed by the severity of the government's budgetary needs and the broad discretion afforded to the legislator in matters of taxation.<sup>17</sup> This judgment was later upheld by the European Court of Human Rights in a case brought by three parties including Feyenoord Rotterdam N.V., the Netherlands' second-most-successful professional football club.<sup>18</sup>

## 2.3 Owner-managers and reasonable compensation

Owner-managers make up an important group among top earners.<sup>19</sup> Since owner-managers are both employees and shareholders, they enjoy considerable discretion in how to structure their income. Wage income is

<sup>11</sup>Tweede Kamer der Staten-Generaal (2013b).

<sup>12</sup>Tweede Kamer der Staten-Generaal (2013a).

<sup>13</sup>As specified in article 32bd, paragraph 2 of the Wage Tax Act 1964 (Staatsblad, 1964).

<sup>14</sup>As specified in article 10f of the Wage Tax Implementation Decree 1965 (Staatsblad, 1965, 2012a).

<sup>15</sup>According to the Court of Audit, the tax authority had received almost 10,000 objections as of January 2014 (Tweede Kamer der Staten-Generaal, 2015).

<sup>16</sup>Article 1 of the First Protocol of the European Convention on Human Rights (ECHR), and Article 14 of the ECHR and Article 26 of the International Covenant on Civil and Political Rights, respectively.

<sup>17</sup>ECLI:NL:HR:2016:121; ECLI:NL:HR:2016:124.

<sup>18</sup>European Court of Human Rights, *P. Plaisier B.V. and others v. the Netherlands*, Decision of 14 November 2017, Application no. 46184/16.

<sup>19</sup>In the Dutch tax code, owner-managers (“*directeur-grotaandeelhouders*” in Dutch) are defined as employees with a “substantial ownership” in the company they work for. The concept of “substantial ownership” is defined in Article 4.6 of the Income Tax Act 2001 as holding at least 5 per cent of the shares in a company (Staatsblad, 2000).

subject to the progressive schedule in Table 1, with a top marginal tax rate of 52 per cent. In contrast, income distributed as dividends faces a combined corporate and personal marginal tax rate about ten percentage points lower.<sup>20</sup> Income can also be retained within the company, which allows shareholders to accumulate wealth while deferring personal income taxes until retained earnings are eventually distributed as dividends or realised as capital gains.

The differences in marginal rates on different types of income create strong incentives for owner-managers to minimise wage income.<sup>21</sup> To limit such income shifting, Dutch law requires owner-managers to pay themselves a minimum level of compensation.<sup>22</sup> Comparable rules exist in many countries where tax rates on capital and labour income differ. In the United States, shareholder-employees of S-corporations are required to pay themselves “reasonable compensation”, while owner-managers of closely held corporations in Germany (“*GmbHs*”) must receive “arm’s-length” remuneration.<sup>23</sup> Norway and Sweden address the issue by allowing for a “normal return” on capital to be taxed at the flat capital income rate, while all “excess” profits are taxed as labour income under a progressive schedule.<sup>24</sup> In the Netherlands, the minimum level of compensation is defined as the maximum of i) €42,000, ii) the wage for comparable jobs, and iii) the highest salary paid within the firm.<sup>25</sup> While the first and last amounts can be established objectively, the second involves a considerable degree of judgement and can lead to conflicts between the taxpayer and the tax authority. As shown in Figure A.1, the number of court cases concerning the minimum level of compensation of owner-managers has more than tripled since 2008, suggesting either stricter enforcement by the tax authority or increasing assertiveness among owner-managers and their tax advisors.

## 2.4 Data

All data are accessed through a secure connection to Statistics Netherlands’ microdata environment. The various datasets maintained by Statistics Netherlands can be linked through anonymised, unique identifiers for individuals and firms.

**Linked employer–employee data.** Data on employers and employees stem from the monthly reporting of wages to the tax authority for the purposes of wage withholding and is available for the years 2006–2024. In addition to various wage components, the dataset contains information on the contract type, employment duration, hours worked, and the employer’s sector classification. Monetary variables are available in full without top-coding. Employees may hold multiple employment relationships with the same employer. For

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<sup>20</sup>The corporate tax has a progressive schedule. Between 2006 and 2011, the higher corporate tax rate came down from 29.6 per cent to 25 per cent where it has been since. The lower rate has similarly come down from 25.5 per cent in 2006 to 19 per cent in 2019, and while it only applied to the first €22,689 of taxable profits in 2006, this threshold was substantially increased in subsequent years and amounted to €200,000 in 2019. The tax rate on dividends has ranged between 22 per cent and 25 per cent in the same period, implying a combined corporate and dividend tax rate between 37.6 per cent and 47.2 per cent.

<sup>21</sup>There are non-tax reasons to pay out income in the form of wages. For example, banks and mortgage lenders may not consider dividends as equivalent to salary income when determining an applicant’s creditworthiness. Additionally, salary payments can be directed to a specific individual, whereas dividends must generally be distributed in proportion to share ownership.

<sup>22</sup>This minimum level (“*gebruikelijk loon*”) is codified in Article 12a of the Wage Tax Act 1964 (Staatsblad, 1964).

<sup>23</sup>The notion of “reasonable compensation” has its origins in the Internal Revenue Code (§ 162(a)(1)) and accompanying Treasury regulations (§ 1.162-7), and was developed into a requirement for shareholder-employees of S-corporations through IRS revenue rulings and case law. The arm’s-length principle in Germany is derived from the Corporate Income Tax Act (§ 8(3) *KStG*), which regulates hidden profit distributions.

<sup>24</sup>In Sweden, this system is set out in the Income Tax Act (*Inkomstskattelagen, 1999:1229, Chapter 57*). In Norway, the corresponding mechanism is codified in the Tax Act (Skatteloven, 1999, sections 10-11 and 10-12).

<sup>25</sup>The amount for 2012 is €42,000. The amount was gradually increased from €39,000 in 2006 to €45,000 in 2019.

the purposes of the surtax on high wages and of our analysis, such cases are aggregated into a single observation for each employer–employee pair. The data do not cover the self-employed or workers with foreign employers without a Dutch payroll presence. For these groups, we use individual-level data from income tax returns.

Of the 8,914,783 jobs in 2012, almost 40,000, or 0.4 per cent, paid a wage above the threshold relevant for the surtax on high wages, €150,000, as shown in Table 2. Owner-managers are overrepresented at the top of the wage distribution, accounting for 10 per cent of jobs paying above €150,000 compared with less than 3 per cent of jobs below that amount.

Table 2: Number of jobs above and below €150,000 in 2012

|                   | Above €150,000 |            | Below €150,000   |            |
|-------------------|----------------|------------|------------------|------------|
|                   | Number         | Share (%)  | Number           | Share (%)  |
| <b>A. Treated</b> |                |            |                  |            |
| Employee          | 34,175         | 58         | 6,610,503        | 75         |
| Owner-manager     | 5,696          | 10         | 223,629          | 3          |
| <b>B. Control</b> |                |            |                  |            |
| Self-employed     | 15,487         | 26         | 617,212          | 7          |
| Retired           | 2,586          | 4          | 1,383,356        | 16         |
| Foreign employer  | 719            | 1          | 24,006           | 0          |
| <b>Total</b>      | <b>58,663</b>  | <b>100</b> | <b>8,858,706</b> | <b>100</b> |

Note: This table presents the aggregate number of jobs in 2012 for different groups, separately for those earning above and below €150,000. For employees and owner-managers, a job is defined as a unique employer–employee combination. For the self-employed and workers with foreign employers, we do not have information about contractors or employers, so that strictly speaking, these numbers represent the number of individuals rather than jobs. Retirees are similarly defined at the individual level.

Table 3 reports the industry mix of employees below and above the €150,000 threshold.<sup>26</sup> High-earning employees are concentrated in a small set of industries such as professional, scientific and technical activities; financial and insurance activities; and information and communication. By contrast, they are scarce in education and in public administration and defence, both of which are subject to a public sector salary cap. Table 4 shows that owner-managers are predominantly employed in professional, scientific and technical activities, with an additional over-representation in human health.<sup>27</sup> Within the former, management consultancy, law, accounting and tax consultancy account for most of the employment; within the latter, non-hospital medical and dental practices dominate.

**Individual-level data** For the self-employed, retirees, and employees of foreign employers without a Dutch payroll presence, we use individual-level data that are available on an annual basis for the years 2006–2023. This dataset covers the entire Dutch population as registered in the population registry on January 1 each year and draws primarily on income tax returns for information on income. The information on income is reported in full without top-coding. Among the 632,699 self-employed individuals, 15,487 (2 per cent) have incomes above €150,000. The corresponding numbers for retirees and employees of foreign employers are 2,586 (0 per cent) and 719 (3 per cent), respectively.

<sup>26</sup>See Tables A.3 and A.4 for the industry mix at the 2- and 3-digit level.

<sup>27</sup>See Tables A.5 and A.6 for the industry mix at the 2- and 3-digit level.

Table 3: Sectoral composition of employees in 2012 (ISIC, 1-digit level)

| Industry, ISIC 1 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Professional, scientific and technical activities                    | 19             | 6              |
| Financial and insurance activities                                   | 18             | 4              |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 16             | 14             |
| Manufacturing  | 14             | 12             |
| Human health and social work activities                              | 8              | 18             |
| Information and communication  | 8              | 3              |
| Transportation and storage   | 6              | 5              |
| Administrative and support service activities                        | 2              | 9              |
| Construction   | 2              | 5              |
| Education  | 0              | 7              |
| Public administration and defence; compulsory social security        | 0              | 7              |
| Real estate activities   | 0              | 1              |

Note: This table shows the distribution of employees across industries in 2012, separately for those paid above and below €150,000. Employees are grouped into industries based on their employer's 1-digit International Standard Industrial Classification (ISIC).

Table 4: Sectoral composition of owner-managers in 2012 (ISIC, 1-digit level)

| Industry, ISIC 1 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Professional, scientific and technical activities                    | 34             | 26             |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 13             | 19             |
| Human health and social work activities                              | 9              | 4              |
| Financial and insurance activities                                   | 5              | 12             |
| Manufacturing  | 5              | 9              |
| Construction   | 2              | 9              |
| Information and communication  | 1              | 5              |
| Administrative and support service activities                        | 1              | 4              |
| Real estate activities   | 1              | 3              |
| Transportation and storage   | 0              | 3              |

Note: This table shows the distribution of owner-managers across industries in 2012, separately for those paid above and below €150,000. Owner-managers are grouped into industries based on their employer's 1-digit International Standard Industrial Classification (ISIC).

## 2.5 Conceptual framework

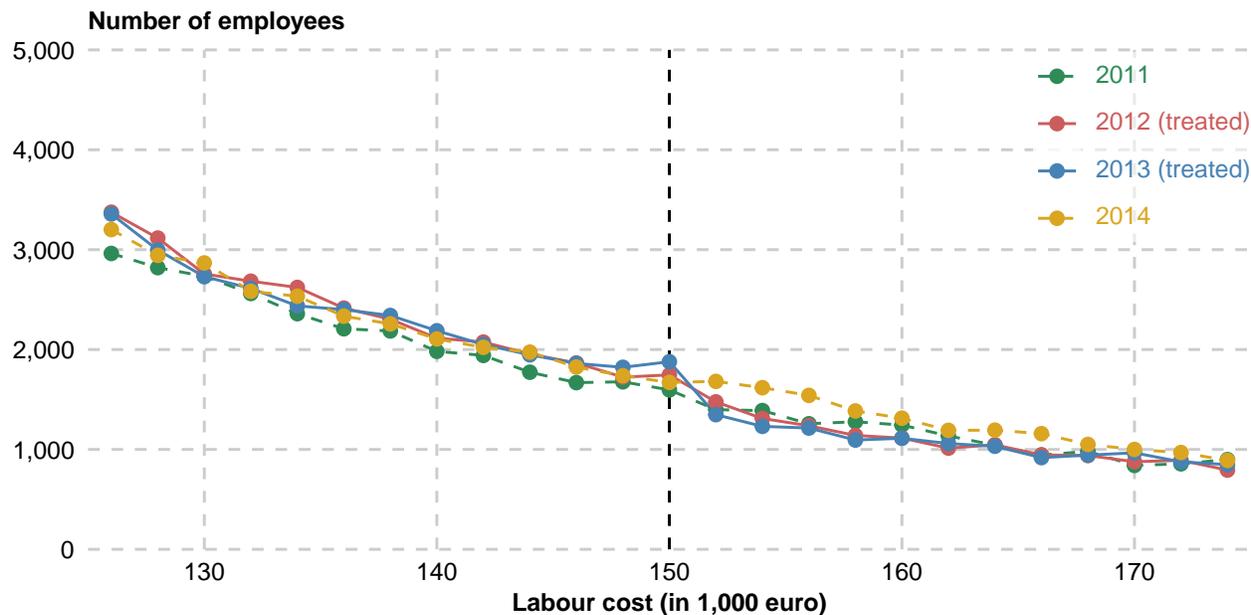
In the canonical model of tax incidence, workers' choices are based on the disposable wage,  $w_d$ , while employers care about labour costs,  $w_{lc}$ . The wedge between them is created by the payroll tax,  $\tau_p$ , and the income tax,  $\tau_i$ :  $w_d = (1 - \tau_i) \frac{w_{lc}}{1 + \tau_p}$ . This implies a marginal tax rate with respect to labour costs equal to:  $\frac{\tau_i + \tau_p}{1 + \tau_p} = \frac{0.16 + 0.52}{1.16} = 0.59$ . In a frictionless framework, the legal incidence is irrelevant for economic incidence. When either the payroll or income tax rate is increased, a worker should reduce their labour supply if the substitution effect exceeds the income effect. In practice, however, contracts, collective bargaining agreements, and other frictions make wages sticky. As a result, labour supply can respond differently to changes in income and payroll taxes (Lehmann et al., 2013).

## 3 Evidence for employees

### 3.1 Bunching evidence: Employees

The surtax applied to the portion of wages above €150,000 at a rate of 16 per cent. This threshold introduced a sharp discontinuity in marginal tax rates, creating a strong incentive for employers to reduce the wages of their highest-paid employees. If employers were successful in doing so, we would expect to observe bunching at the kink point in the wage distribution where tax incentives change discontinuously (Saez, 1999, 2010; Kleven, 2016). To test this empirically, we group all employees into €2,000 bins and plot their frequencies in Figure 1. In 2011, one year before the surtax was introduced, there is little evidence of bunching at the kink point, with fewer than 2,000 employees earning exactly €150,000. When the surtax takes effect in 2012, the distribution of employees remains largely smooth, with a minimal amount of apparent bunching that slightly increases in 2013 and disappears in 2014.

Figure 1: The number of employees across the labour cost distribution

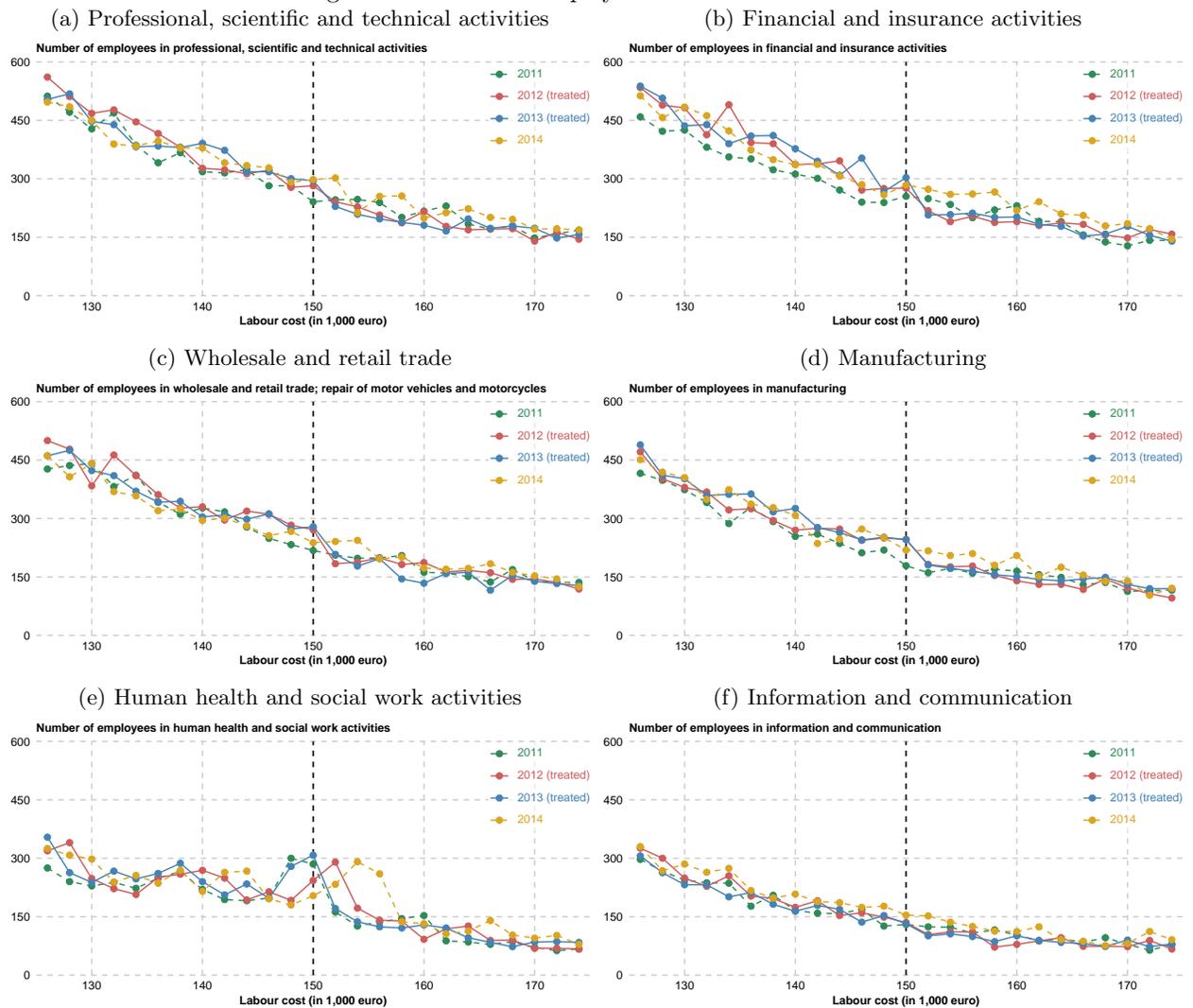


Note: This figure groups employees into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

### 3.2 Bunching by industry: Employees

To further investigate the bunching patterns, we group employees by their employer's industry (ISIC, 1-digit). As Table 3 shows, high-earning employees are concentrated in six sectors: professional, scientific and technical activities; financial and insurance activities; wholesale and retail trade; manufacturing; human health and social work activities; and information and communication. Figure 2 confirms that there is no meaningful bunching among employees in any industry. The apparent exception is human health and social work activities. However, the bunching there predates the surtax and, as Figure A.19 shows, is driven by the hospital sector. This pattern is explained by the hospital sector's collective bargaining agreement, which sets full-time salaries for medical specialists around €150,000 (Nederlandse Vereniging van Ziekenhuizen, 2011). To prevent this from affecting our results, we exclude the hospital sector from subsequent analyses.

Figure 2: Number of employees in different industries



Note: This figure groups employees into €2,000 bins of labour costs and plots the bin counts for each year for different industries defined at the ISIC 1-digit level in 2011–2014.

### 3.3 Difference-in-differences and triple-differences: Comparing employees to the self-employed

Bunching identifies behavioural responses among taxpayers near the kink. Our analysis finds no response for employees, implying that, locally around the kink, employers bore the full burden of the tax. To assess whether this holds more broadly, we exploit the fact that some groups, notably the self-employed, were not subject to the surtax.

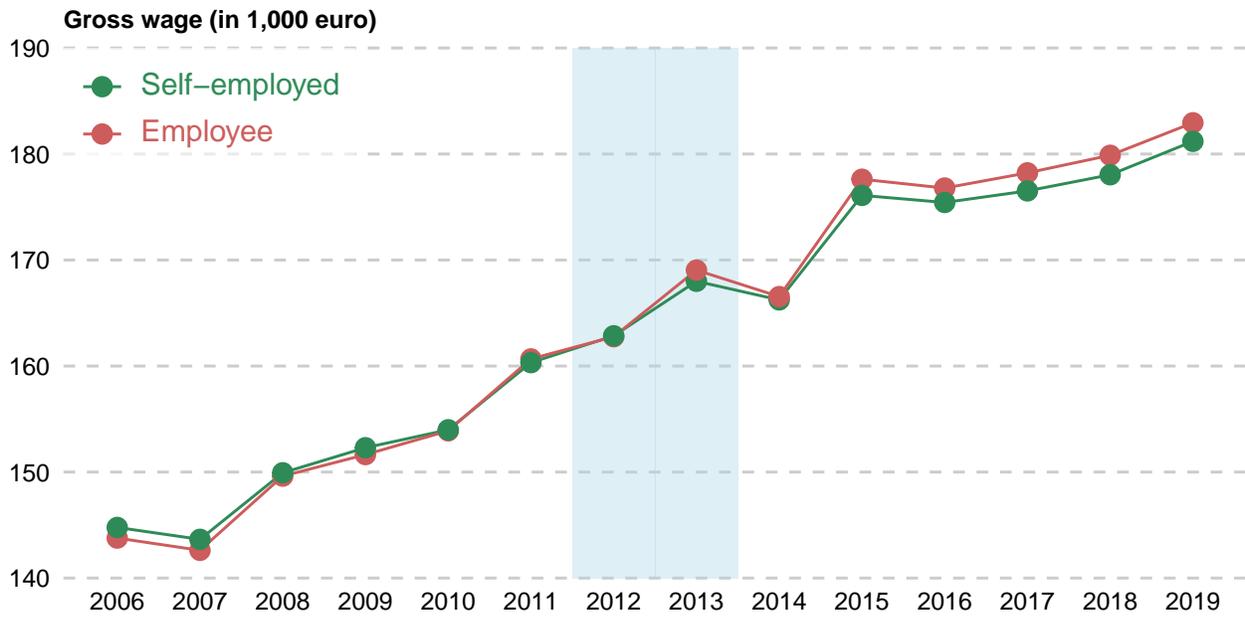
Estimating behavioural responses at the top of the distribution poses distinct challenges. First, labour income at the top often takes multiple forms (e.g., bonuses and in-kind payments). Because all labour income is taxable in the Netherlands, regardless of the precise form, our administrative data provide a comprehensive picture of the labour income of top earners. Second, some individuals reach the top due to large positive transitory incomes. Mean reversion implies that their incomes are likely to fall even absent a tax change, mechanically inducing a negative correlation between changes in income and tax cuts at the top (Saez et al., 2012a). We address this issue by implementing a difference-in-differences design using repeated cross-sections of the top 0.5 per cent of employees and the top 0.5 per cent of self-employed individuals. We also estimate a triple-differences specification that uses the bottom half of the top 1 per cent as an additional control group. This specification nets out shocks that are specific to either employees or the self-employed, but common across the top and bottom halves of their top 1 per cent. We choose the 0.5 per cent cut-off so that the group still includes the €150,000 threshold in 2019, the final year of our analysis. Consequently, in 2012–2013 a small share of employees in this group have incomes just below €150,000, which dilutes treatment and may bias our estimate slightly toward zero. This design relies on parallel trends: absent the surtax, wages and labour costs for employees and the self-employed would have evolved similarly. Figure 3 provides visual support: it plots the unadjusted averages of gross wages and labour costs for both groups from 2006 to 2019, with visibly parallel trends prior to the tax. When the tax is in place, gross wages continue to evolve similarly, so that labour costs rose by approximately the full amount of the tax.

Concretely, to estimate the effect of the surtax on employees’ gross wages and labour costs, we implement an event-study difference-in-differences on repeated cross-sections of the top 0.5 per cent of employees and top 0.5 per cent of self-employed individuals:

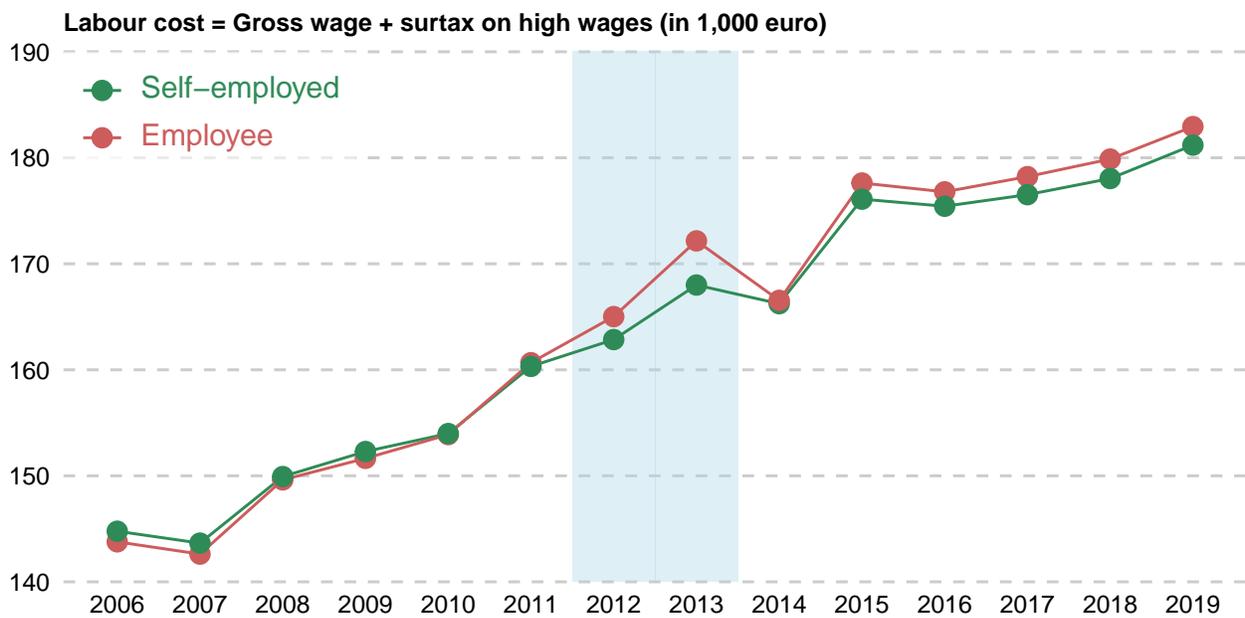
$$w_{igt} = \alpha_t + \lambda_g + \sum_{k \in \{2006, \dots, 2019\} \setminus \{2011\}} \beta_k \mathbf{1}\{t = k\} \times \mathbf{1}\{g = \text{employee}\} + X_{it}\gamma + \varepsilon_{it}, \quad (1)$$

where  $w_{igt}$  denotes gross wage or labour cost of individual  $i$  of group  $g \in \{\text{employee, self-employed}\}$  in year  $t$ ;  $\alpha_t$  are year fixed effects;  $\lambda_g$  are group fixed effects; and  $X_{it}$  are industry controls (ISIC, 3-digit level). By construction, labour costs and gross wages are identical in all years except when the surtax applies in 2012 and 2013. We also estimate a triple-differences specification that uses the bottom half of the top 1 per cent as an additional control. Figure 4 plots the coefficients. Before the tax, the coefficients are all close to zero and mostly statistically insignificant. When the surtax is in place, the effect on gross wages remains zero, while the effect on labour costs jumps, returning to zero in 2014, after the tax has been repealed. The effect goes up to slightly above zero in subsequent years, indicating a divergence between employees’ wages and the incomes of the self-employed from 2015 onwards, but there is no clear link to the surtax. The bottom panel shows the triple-differences estimates, which are virtually identical to the difference-in-differences results.

Figure 3: Average gross wage and labour costs for the top 0.5 per cent of employees and of the self-employed  
 (a) Gross wage

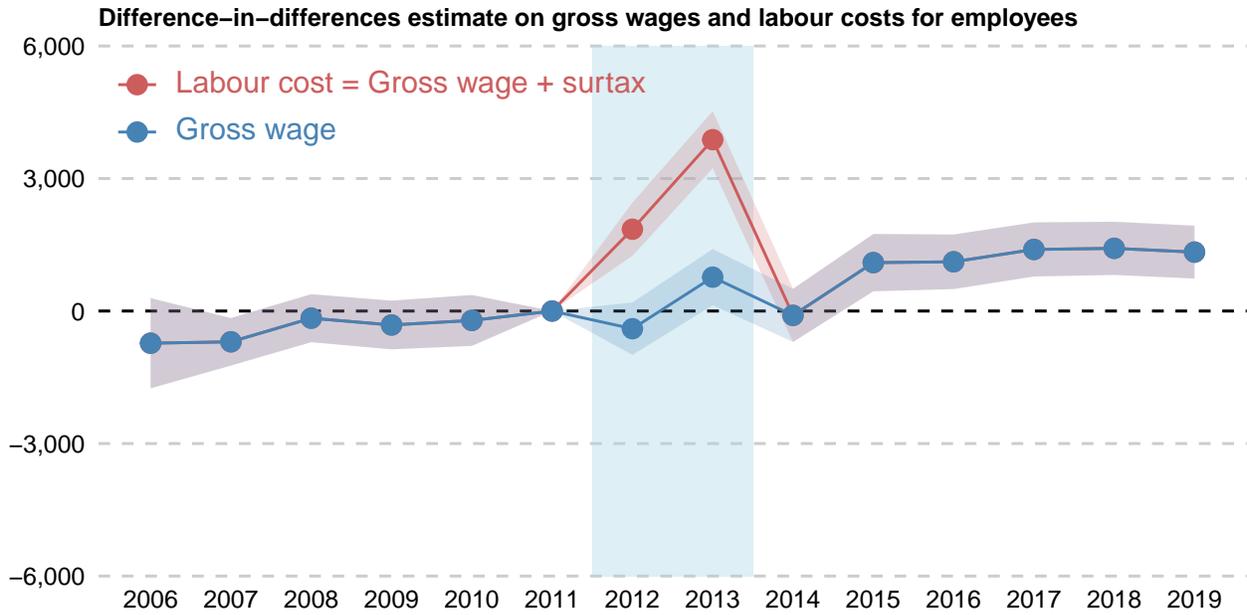


(b) Labour cost

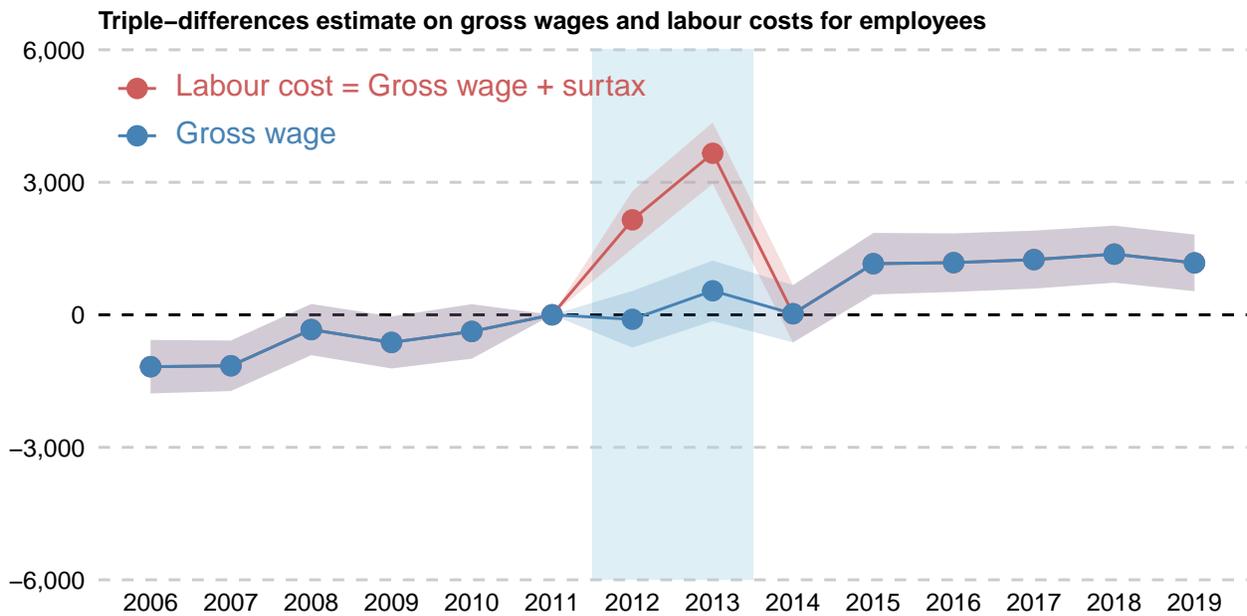


Note: This figure separately ranks employees and self-employed individuals by labour costs and computes average wages and labour costs for the top 0.5 per cent of each group. Labour costs are defined as the sum of gross wages and the surtax on high wages.

Figure 4: The estimated effect of the surtax on gross wages and labour costs of employees  
 (a) Difference-in-differences



(b) Triple-differences



Note: This figure plots event-study coefficients from Equation 1 comparing employees to the self-employed, each defined within their top 0.5 per cent. Coefficients are normalised to zero in 2011; shaded ribbons denote 95 per cent confidence intervals. The bottom panel adds a third difference by using the bottom half of the top 1 per cent within each group as an additional control.

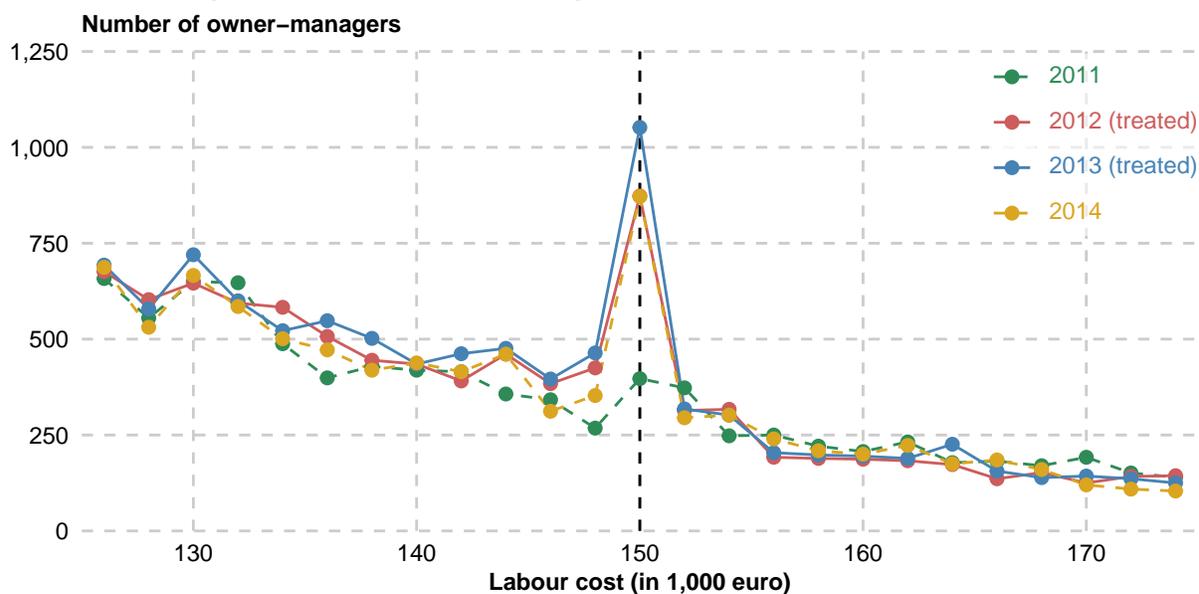
The near absence of a behavioural response among employees points to the importance of labour-market frictions that prevent employers from passing the surtax on to employees. Employment contracts and collective bargaining agreements limit the extent to which employers and employees can adjust wages or hours. Although top earners are typically less bound by such institutional features and receive a larger share of their income in more flexible forms such as performance pay, we nevertheless find no effect on their gross wages. Our estimates also rule out sizeable avoidance responses through employer–employee collusion of the type documented by Feinmann et al. (2024) in Brazil. Finally, while some frictions exist independently of policy, the surtax intentionally introduced new ones through anti-avoidance provisions that prohibited employees from working as self-employed contractors to the same employers.

## 4 Evidence for owner-managers

### 4.1 Bunching evidence: Owner-managers

We now turn to the effect of the surtax on owner-managers. As Table 2 shows, this group is overrepresented among top earners. Unlike regular employees, their (partial) ownership stake gives them greater control over the form (wages vs. dividends) and timing of income, as well as over actual labour supply. As before, we first examine whether the surtax induced bunching at the threshold of €150,000. Figure 5 plots the number of owner-managers across the labour cost distribution for 2011–2014. Already in 2011, one year before the surtax, this number is somewhat elevated around €150,000, with around 400 owner-managers earning exactly €150,000. When the tax is introduced in 2012, this number more than doubles to roughly 900, and rises further in 2013. After repeal in 2014, there is still a substantial amount of bunching. Figure A.2 shows that bunching persists for many years and is still visible in 2018, showing that temporary taxes can have long-lasting effects.

Figure 5: Number of owner-managers across the labour cost distribution

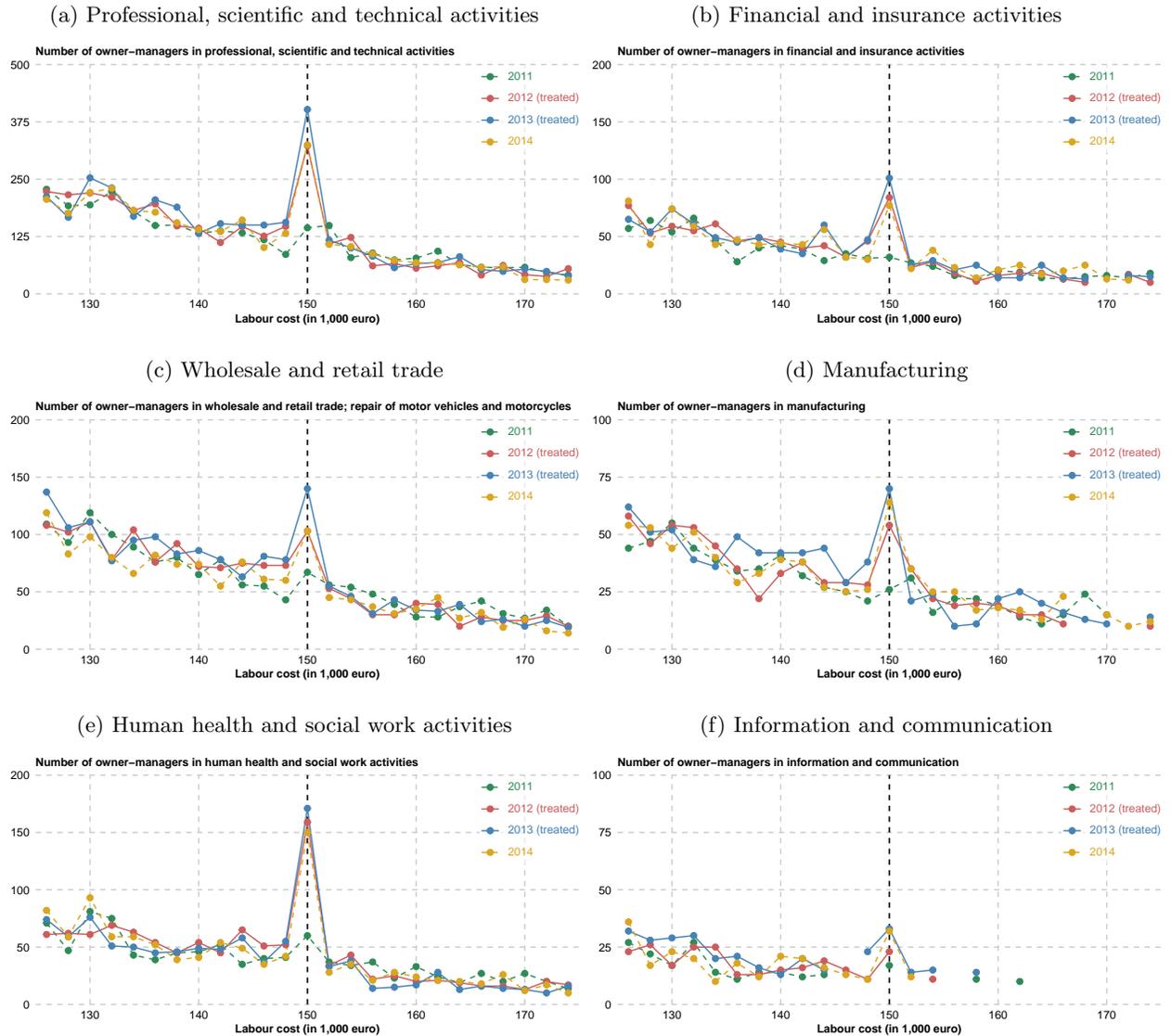


Note: This figure groups owner-managers into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

## 4.2 Bunching by industry: Owner-managers

As shown in Table 4, more than a third of owner-managers are employed in professional, scientific and technical activities. At the three-digit level (Table A.6), these are concentrated in management and consultancy, legal services, accounting, bookkeeping, auditing, and tax consultancy. Another important sector—human health and social work activities—consists largely of medical and dental practices. As with employees, very few top-earning owner-managers work in the public sector. Despite substantial cross-industry differences, Figure 6 shows clear bunching in every industry. Consistent with the aggregate pattern, there is no bunching in 2011 (the pre-tax year), and the bunching persists after the tax was repealed.

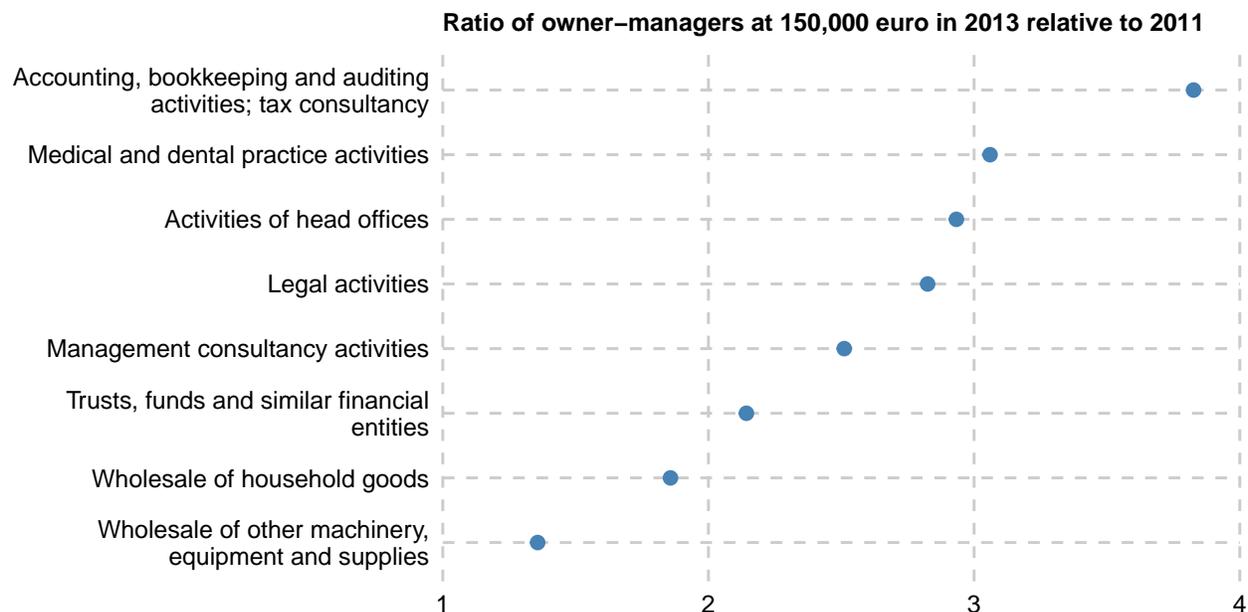
Figure 6: Number of owner-managers in different industries



Note: This figure groups owner-managers into €2,000 bins of labour costs and plots the bin counts for each year for different industries defined at the ISIC 1-digit level in 2011–2014. For reasons of statistical disclosure, bin counts below 10 are omitted from these figures.

Which industry bunches most? To gauge relative bunching, Figure 7 plots, for each industry, the number of owner-managers at €150,000 in 2013 divided by the corresponding 2011 count. If the number of owner-managers in 2013 is equal to that in 2011, this ratio is equal to 1. Bunching is visible across industries, but it is most pronounced in accounting, bookkeeping and auditing, and tax consultancy: in this industry, nearly four times as many owner-managers cluster at €150,000 in 2013 as in 2011, compared with roughly 2.5 times in “management consultancy activities.” This pattern suggests that those most familiar with the tax rules responded most strongly.

Figure 7: Ratio of the number of owner-managers in 2013 relative to 2011



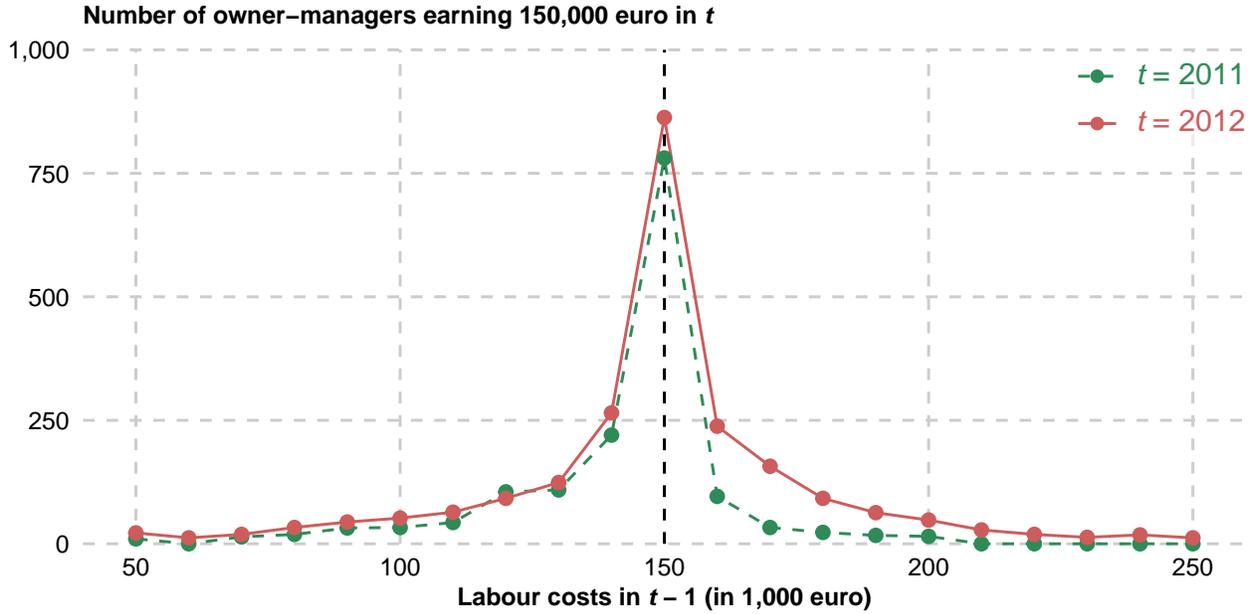
Note: For each three-digit industry, the figure plots the number of owner-managers at €150,000 in 2013 divided by the corresponding 2011 count. A value of 1 indicates no change.

### 4.3 Where do bunchers come from?

Theory predicts that a kink in the tax schedule induces taxpayers with earnings just above the threshold to relocate to the kink. The panel structure of our data allows us to track where owner-managers who earn €150,000 in year  $t$  come from. Figure 8 plots their locations in the prior-year labour cost distribution. In 2011 (green), most bunchers had wage income below €150,000 in 2010; just over 750 were already at the kink in 2010.<sup>28</sup> Because there was no surtax in 2011, we treat the 2011 “origin curve” as the no-tax counterfactual. The origin of 2012 bunchers (in red) differs markedly from the 2011 bunchers. Relative to 2011, many more previously had wage income above €150,000, consistent with a downward adjustment toward the kink. To verify that this shift is driven by the surtax, Figures A.30 and A.31 plot origin curves for owner-managers earning €100,000 and €130,000 in year  $t$ , and who were thus not subject to the surtax. These curves are essentially unchanged between 2011 and 2012.

<sup>28</sup>This number is not directly comparable with the number of bunchers in earlier figures. For reasons of statistical disclosure, these figures use €10,000 rather than €2,000 bins.

Figure 8: Number of owner-managers earning €150,000 in  $t$  across the  $t-1$  labour cost distribution



Note: For all owner-managers at €150,000 in year  $t$ , the figure shows their position in the prior-year ( $t-1$ ) labour cost distribution. Bins are €10,000.

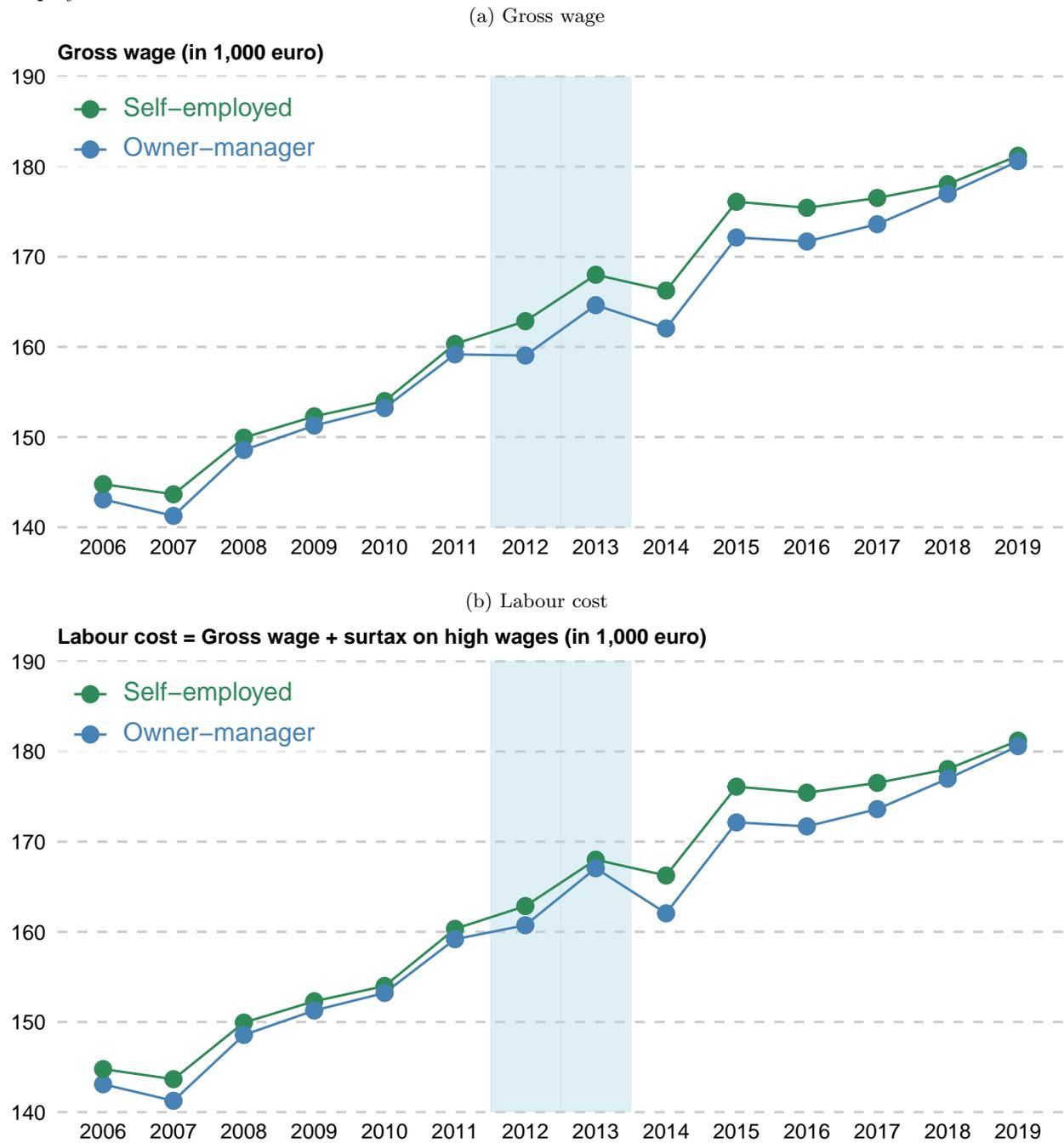
#### 4.4 Difference-in-differences and triple-differences: Comparing owner-managers to the self-employed

The bunching analysis shows that owner-managers—unlike employees—adjust their behaviour in response to the surtax. Do these responses extend to taxpayers further away from the kink? To answer this question, we apply the same difference-in-differences design as in Section 3.3, comparing the top 0.5 per cent of owner-managers with the top 0.5 per cent of self-employed individuals, and the same triple-differences design that uses the bottom half of each group’s top 1 per cent as an additional control group. Figure 9 plots average gross wages and labour costs for owner-managers and the self-employed. Before the surtax, both series grow at roughly the same pace for the two groups. When the tax is introduced, growth in owner-managers’ gross wages immediately slows down relative to that of the self-employed, by an amount that approximately offsets the tax-induced rise in labour costs in 2012–2013. After repeal, gross wages and labour costs do not return to their prior path until 2018, indicating a persistent effect well beyond the tax period.

Figure 10 plots the coefficients for the effect of the surtax on wages and labour costs using the difference-in-differences and triple-differences designs. As for employees, the coefficients before the tax are close to zero and insignificant. Upon introduction of the tax, gross wages fall immediately by around €3,000 on average. This is exactly enough to offset the tax-induced rise in labour costs, so that the estimated effect on labour costs remains flat until 2013. Labour costs fall sharply when the tax is repealed and both labour costs and gross wages remain depressed for many years after the repeal and only return to their pre-tax trend in 2018.

In the case of regular employees, employers bore the burden of the tax because labour-market frictions prevented them from adjusting wages downward. Since owner-managers are both employer and employee, such frictions do not protect them from the surtax. The only way to avoid the tax is to lower their own gross

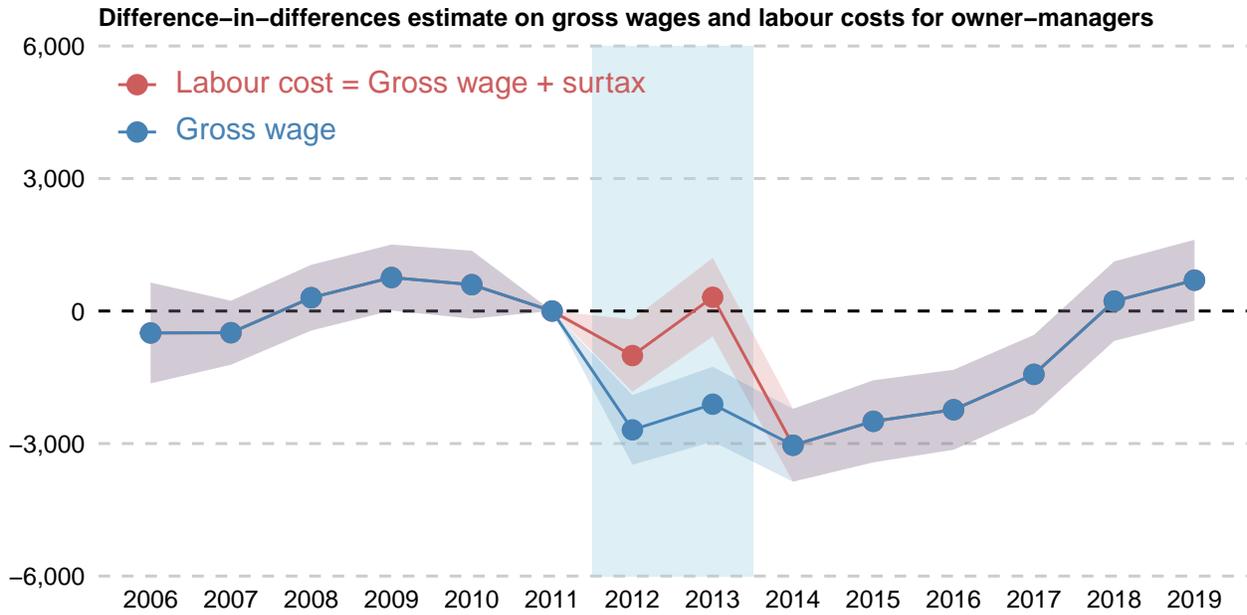
Figure 9: Average gross wage and labour costs for the top 0.5 per cent of owner-managers and of the self-employed



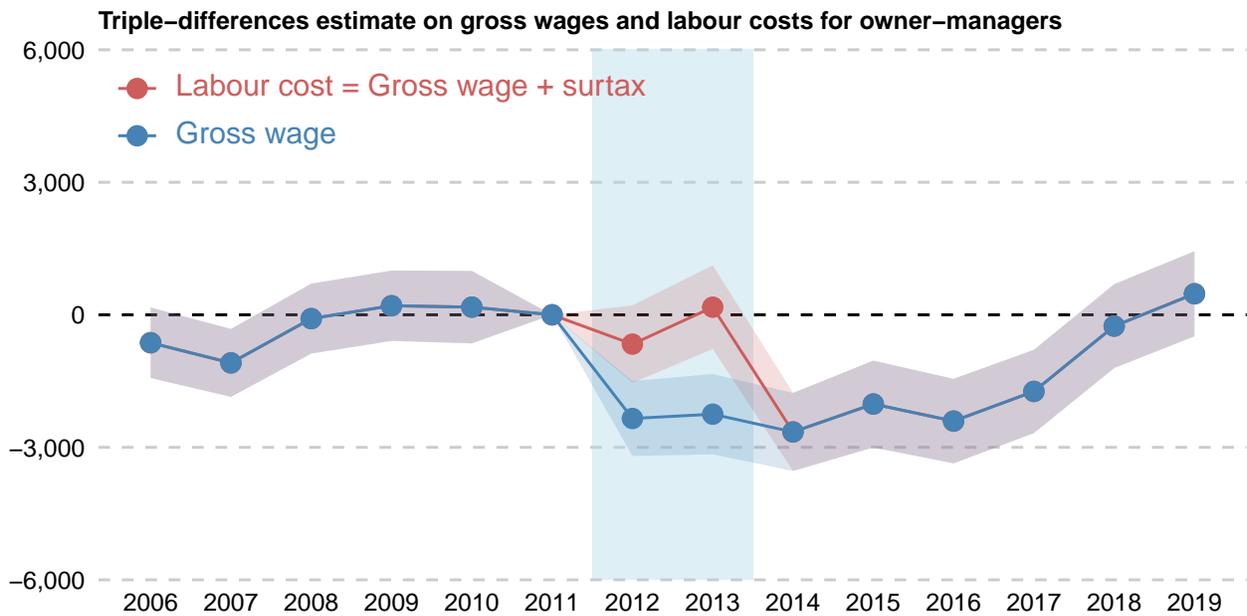
Note: This figure separately ranks owner-managers and self-employed individuals by labour costs and computes average wages and labour costs for the top 0.5 per cent of each group. Labour costs are defined as the sum of gross wages and the surtax on high wages.

Figure 10: Estimates on gross wages and labour costs of owner-managers

(a) Difference-in-differences



(b) Triple-differences



Note: These panels plot event-study coefficients for owner-managers relative to a comparison group using difference-in-differences (top) and triple-differences (bottom). Coefficients are normalised to zero in 2011. Shaded ribbons denote 95 per cent confidence intervals. The specifications include industry controls; labour cost is defined as gross wage plus the surtax.

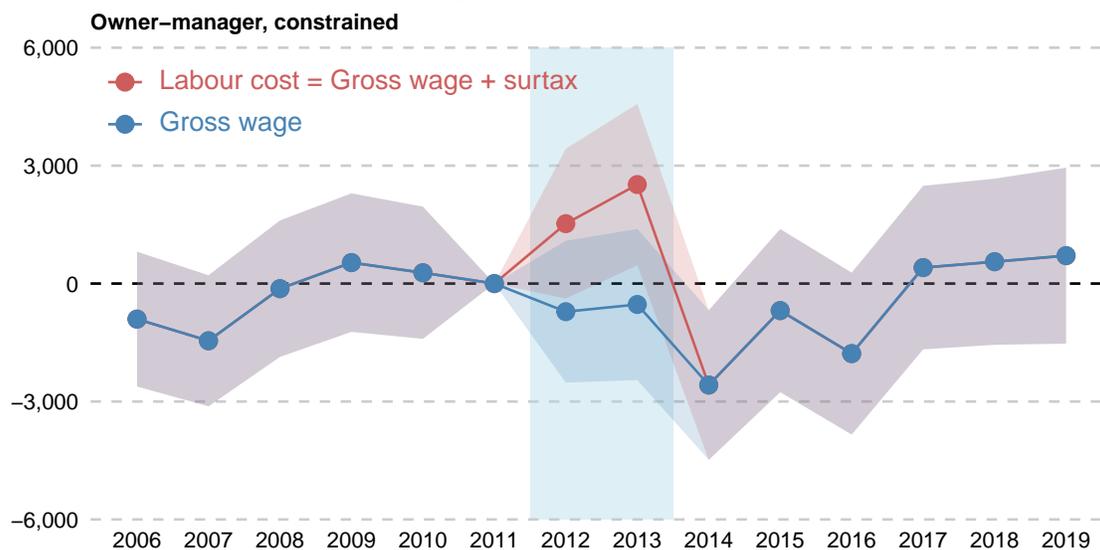
wage, and that is what we observe. Owner-managers still have reasons to pay themselves labour income, for example because too low a wage can trigger a tax audit, but the surtax reduced the relative attractiveness of earning labour income compared to retaining profits in the firm or paying dividends.

## 5 Reasonable compensation

Rules on “reasonable compensation” constrain how owner-managers set their pay. In countries where capital and labour income face different tax rates, such rules limit the relabelling of labour income as capital income. As explained in Section 2.3, Dutch owner-managers must pay themselves at least the highest of: (i) €42,000; (ii) the wage common for comparable jobs at other firms; (iii) the highest wage paid within their own firm. Can these rules explain why owner-managers do not cut wages more than they do? To answer this, we identify a group of owner-managers who are actually bound by the rules. The first criterion is too low to matter for those subject to the surtax, and the second relies on a subjective external comparison. The third criterion, however, is objectively verifiable: when a firm employs other highly paid workers, an owner-manager cannot reduce his or her (but usually his) own wage as much as in firms without such employees.

We therefore define a “constrained owner-manager” as an owner-manager in a firm with at least one other worker in the top 1 per cent of earners.<sup>29</sup> Figure 11 plots triple-differences estimates for this group. In stark contrast to the results for all owner-managers, constrained owner-managers show no fall in gross wages, so that labour costs rise by approximately the full size of the surtax. These findings suggest that anti-avoidance rules regulating owner-manager pay can effectively limit behavioural responses to taxation. They also confirm that the capital-labour split in private businesses, where there is often considerable overlap between owners and highly-paid employees, is highly sensitive to tax rates and rules.

Figure 11: Triple-differences estimates on gross wages and labour costs of constrained owner-managers



Note: This figure plots event-study coefficients for constrained owner-managers relative to a comparison group using triple-differences. Coefficients are normalised to zero in 2011. Shaded ribbons denote 95 per cent confidence intervals. The specifications include industry controls; labour cost is defined as gross wage plus the surtax.

<sup>29</sup>Note that this identifies one group for whom the rules bind; the rules may bind in other cases as well, and the tax authority sometimes invokes the first (subjective) criterion to challenge reported salaries.

## 6 Conclusion

Rising wage inequality has spurred policymakers to think about policies to address it. One such policy is an employer-side payroll tax targeted at high-wage earners. Standard theory predicts that such taxes should be passed on to employees. This paper studies a temporary employer-side payroll tax on top earners in the Netherlands and finds that there is, in fact, zero pass-through for regular employees. Employment contracts, collective bargaining agreements and other frictions prevent adjustments to employees' wages, so the full burden of the tax is borne by employers. In sharp contrast, labour market frictions do not protect owner-managers from the surtax as they are both employee and employer. They can only reduce their tax liability by lowering their gross wage, which is what they do. The fall in wages is immediate and persists for many years after the repeal of the tax. However, owner-managers cannot adjust their wages freely. They are subject to rules that limit income shifting by requiring a minimum level of compensation. We identify a group of owner-managers bound by these rules and find that they are effective: this group does not lower their wages in response to the surtax. These results show that tax laws play a crucial role in determining whether income is paid out as dividends or as wages in privately held businesses. This also means that elasticities of taxable income are highly dependent on tax and non-tax policies (Slemrod and Kopczuk, 2002).

Our results have important implications for policy design. Employer-side payroll taxes that target high-wage earners are motivated by concerns over rising inequality. The absence of shifting onto regular employees implies that they largely fail to compress the wage distribution. Instead, the surtax reduces the profits of employers whose production relies on high-wage labour inputs, while leaving more capital-intensive employers relatively untouched. Despite this, the surtax is still likely to reduce income inequality because it lowers profits, which are concentrated at the top of the income distribution.

Another implication concerns revenue projections. Because regular employees, the largest group of affected taxpayers, do not adjust their wages, the static revenue effect of the surtax is close to the mechanical effect. However, the persistent behavioural response among owner-managers means static scoring overstates long-run revenue. Accounting for these dynamics is essential when evaluating temporary taxes whose effects can outlast the policy window.

Finally, our results indicate that anti-avoidance rules regulating the pay of owner-managers can effectively limit tax-base shifting. Rules addressing this issue typically rely on legally ambiguous concepts such as “reasonableness” or “appropriateness”, which makes enforcement costly and vulnerable to legal challenge. A strength of the Dutch rules is their reliance, at least in part, on an objective criterion - the highest wage paid in a company - that is less amenable to manipulation.

This paper fits in a large body of empirical research documenting incomplete pass-through of employer-side payroll taxes onto workers, challenging the canonical model of tax incidence (Benzarti, 2025). If employers bear a meaningful share of these taxes, future research should examine how they affect decisions at the firm-level. This would allow for a more comprehensive analysis of tax incidence, considering the effects on employees, employers as well as consumers, both in the short and the long run.

Our results also underscore the importance of studying owner-managers separately, as the ways in which they can respond to tax changes differ sharply from those of regular employees. Recent research examines tax avoidance via consumption through the firm (Leite, 2024) and intertemporal income shifting (Miller et al., 2024), yet there remains little evidence on how these policies differ across countries and on how effective they are at restraining such behaviour.

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## A Additional tables and figures

Table A.1: Schedule of the withholding tax on wages and the income tax, 2006–2012

| <b>Rate (%)</b>            | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|
| First bracket              | 34.15  | 33.65  | 33.60  | 33.50  | 33.45  | 33.00  | 33.10  |
| Second bracket             | 41.45  | 41.40  | 41.85  | 42.00  | 41.95  | 41.95  | 41.95  |
| Third bracket              | 42.00  | 42.00  | 42.00  | 42.00  | 42.00  | 42.00  | 42.00  |
| Fourth bracket             | 52.00  | 52.00  | 52.00  | 52.00  | 52.00  | 52.00  | 52.00  |
| <b>Upper threshold (€)</b> |        |        |        |        |        |        |        |
| First bracket              | 17,046 | 17,319 | 17,579 | 17,878 | 18,218 | 18,628 | 18,945 |
| Second bracket             | 30,631 | 31,122 | 31,589 | 32,127 | 32,738 | 33,436 | 33,863 |
| Third bracket              | 52,228 | 53,064 | 53,860 | 54,776 | 54,367 | 55,694 | 56,491 |

Note: The thresholds and rates are taken from the tax authority's annual wage tax manuals, *Handboek Loonheffingen 2007–2012* (Belastingdienst, 2007, 2008, 2009, 2010, 2011, 2012).

Table A.2: Schedule of the withholding tax on wages and the income tax, 2013–2019

| <b>Rate (%)</b>            | 2013   | 2014   | 2015   | 2016   | 2017   | 2018   | 2019   |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|
| First bracket              | 37.00  | 36.25  | 36.50  | 36.55  | 36.55  | 36.55  | 36.65  |
| Second bracket             | 42.00  | 42.00  | 42.00  | 40.20  | 40.80  | 40.85  | 38.10  |
| Third bracket              | 42.00  | 42.00  | 42.00  | 40.20  | 40.80  | 40.85  | 38.10  |
| Fourth bracket             | 52.00  | 52.00  | 52.00  | 52.00  | 52.00  | 51.95  | 51.75  |
| <b>Upper threshold (€)</b> |        |        |        |        |        |        |        |
| First bracket              | 19,645 | 19,645 | 19,822 | 19,922 | 19,982 | 20,142 | 20,384 |
| Second bracket             | 33,363 | 33,363 | 33,589 | 33,715 | 33,791 | 33,994 | 34,300 |
| Third bracket              | 55,991 | 56,531 | 57,585 | 66,421 | 67,072 | 68,507 | 68,507 |

Note: The thresholds and rates are taken from the tax authority's annual wage tax manuals, *Handboek Loonheffingen 2013–2019* (Belastingdienst, 2013, 2014, 2015, 2016, 2017, 2018, 2019).

Table A.3: Sectoral composition of employees in 2012 (ISIC, 2-digit level)

| Industry, ISIC 2 (%)  | Above €150,000 | Below €150,000 |
|---|----------------|----------------|
| Wholesale trade   | 14             | 7              |
| Activities of head offices; management consultancy activities | 13             | 2              |
| Financial service activities                                  | 12             | 2              |
| Human health activities                                       | 7              | 7              |
| Computer programming, consultancy and related activities      | 5              | 2              |
| Insurance, reinsurance and pension funding                    | 3              | 1              |
| Legal and accounting activities                               | 2              | 2              |
| Manufacture of chemicals and chemical products                | 2              | 1              |
| Retail trade  | 1              | 6              |
| Manufacture of food products                                  | 1              | 2              |
| Warehousing and support activities for transportation         | 1              | 1              |
| Education   | 0              | 7              |
| Public administration and defence; compulsory social security | 0              | 7              |
| Employment activities   | 0              | 6              |
| Residential care activities                                   | 0              | 6              |
| Social work activities without accommodation                  | 0              | 4              |
| Land transport and transport via pipelines                    | 0              | 3              |
| Specialised construction activities                           | 0              | 3              |

Note: This table shows the distribution of employees across industries in 2012, separately for those paid above and below €150,000. Employees are grouped into industries based on their employer's 2-digit International Standard Industrial Classification (ISIC).

Table A.4: Sectoral composition of employees in 2012 (ISIC, 3-digit level)

| Industry, ISIC 3 (%)  | Above €150,000 | Below €150,000 |
|---|----------------|----------------|
| Activities of head offices  | 11             | 1              |
| Monetary intermediation   | 10             | 2              |
| Hospital activities   | 6              | 5              |
| Computer programming, consultancy and related activities                        | 5              | 2              |
| Wholesale of household goods  | 3              | 2              |
| Insurance   | 2              | 1              |
| Wholesale of information and communication equipment                            | 2              | 1              |
| Accounting, bookkeeping and auditing activities; tax consultancy                | 1              | 1              |
| Management consultancy activities   | 1              | 1              |
| Other specialised wholesale   | 1              | 1              |
| Temporary employment agency activities  | 0              | 6              |
| Administration of the state and the economic and social policy of the community | 0              | 5              |
| Primary education   | 0              | 3              |
| Provision of services to the community as a whole                               | 0              | 3              |
| Secondary education   | 0              | 3              |
| Other social work activities without accommodation                              | 0              | 2              |
| Retail sale of other goods in specialised stores                                | 0              | 2              |
| Social work activities without accommodation for the elderly and disabled       | 0              | 2              |

Note: This table shows the distribution of employees across industries in 2012, separately for those paid above and below €150,000. Employees are grouped into industries based on their employer's 3-digit International Standard Industrial Classification (ISIC).

Table A.5: Sectoral composition of owner-managers in 2012 (ISIC, 2-digit level)

| Industry, ISIC 2 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Legal and accounting activities  | 14             | 5              |
| Activities of head offices; management consultancy activities            | 11             | 15             |
| Human health activities  | 9              | 3              |
| Wholesale trade  | 8              | 10             |
| Financial service activities   | 2              | 8              |
| Retail trade   | 1              | 6              |
| Activities auxiliary to financial services and insurance activities      | 1              | 4              |
| Real estate activities   | 1              | 3              |
| Specialised construction activities                                      | 0              | 5              |
| Architectural and engineering activities; technical testing and analysis | 0              | 3              |
| Computer programming, consultancy and related activities                 | 0              | 3              |
| Advertising and market research  | 0              | 2              |

Note: This table shows the distribution of owner-managers across industries in 2012, separately for those paid above and below €150,000. Owner-managers are grouped into industries based on their employer's 2-digit International Standard Industrial Classification (ISIC).

Table A.6: Sectoral composition of owner-managers in 2012 (ISIC, 3-digit level)

| Industry, ISIC 3 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Management consultancy activities  | 7              | 10             |
| Medical and dental practice activities                                     | 7              | 2              |
| Legal activities   | 6              | 2              |
| Accounting, bookkeeping and auditing activities; tax consultancy           | 3              | 3              |
| Activities of head offices   | 2              | 5              |
| Activities of holding companies  | 1              | 5              |
| Wholesale of household goods   | 1              | 2              |
| Architectural and engineering activities and related technical consultancy | 0              | 3              |
| Computer programming, consultancy and related activities                   | 0              | 3              |
| Trusts, funds and similar financial entities                               | 0              | 3              |
| Activities auxiliary to financial services                                 | 0              | 2              |
| Construction of residential and non-residential buildings                  | 0              | 2              |
| Retail sale of other goods in specialised stores                           | 0              | 2              |
| Wholesale of other machinery, equipment and supplies                       | 0              | 2              |

Note: This table shows the distribution of owner-managers across industries in 2012, separately for those paid above and below €150,000. Owner-managers are grouped into industries based on their employer's 3-digit International Standard Industrial Classification (ISIC).

Table A.7: Sectoral composition of the self-employed in 2012 (ISIC, 1-digit level)

| Industry, ISIC 1 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Human health and social work activities                              | 51             | 9              |
| Professional, scientific and technical activities                    | 17             | 16             |
| Agriculture, forestry and fishing                                    | 6              | 10             |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 5              | 14             |
| Information and communication  | 3              | 4              |
| Manufacturing  | 1              | 4              |
| Transportation and storage   | 1              | 4              |
| Construction   | 0              | 15             |
| Accommodation and food service activities                            | 0              | 6              |
| Other service activities   | 0              | 5              |
| Administrative and support service activities                        | 0              | 4              |
| Arts, entertainment and recreation                                   | 0              | 4              |

Note: This table shows the distribution of the self-employed across industries in 2012, separately for those paid above and below €150,000. Self-employed individuals are grouped into industries based on their 1-digit International Standard Industrial Classification (ISIC).

Table A.8: Sectoral composition of the self-employed in 2012 (ISIC, 2-digit level)

| Industry, ISIC 2 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Human health activities  | 50             | 7              |
| Activities of head offices; management consultancy activities            | 10             | 5              |
| Crop and animal production, hunting and related service activities       | 6              | 10             |
| Legal and accounting activities  | 2              | 3              |
| Computer programming, consultancy and related activities                 | 2              | 2              |
| Retail trade   | 1              | 8              |
| Wholesale trade  | 1              | 4              |
| Architectural and engineering activities; technical testing and analysis | 1              | 2              |
| Specialised construction activities                                      | 0              | 9              |
| Construction of buildings  | 0              | 5              |
| Food and beverage service activities                                     | 0              | 5              |
| Other personal service activities  | 0              | 4              |
| Creative, arts and entertainment activities                              | 0              | 3              |
| Wholesale and retail trade and repair of motor vehicles and motorcycles  | 0              | 2              |
| Warehousing and support activities for transportation                    | 0              | 0              |

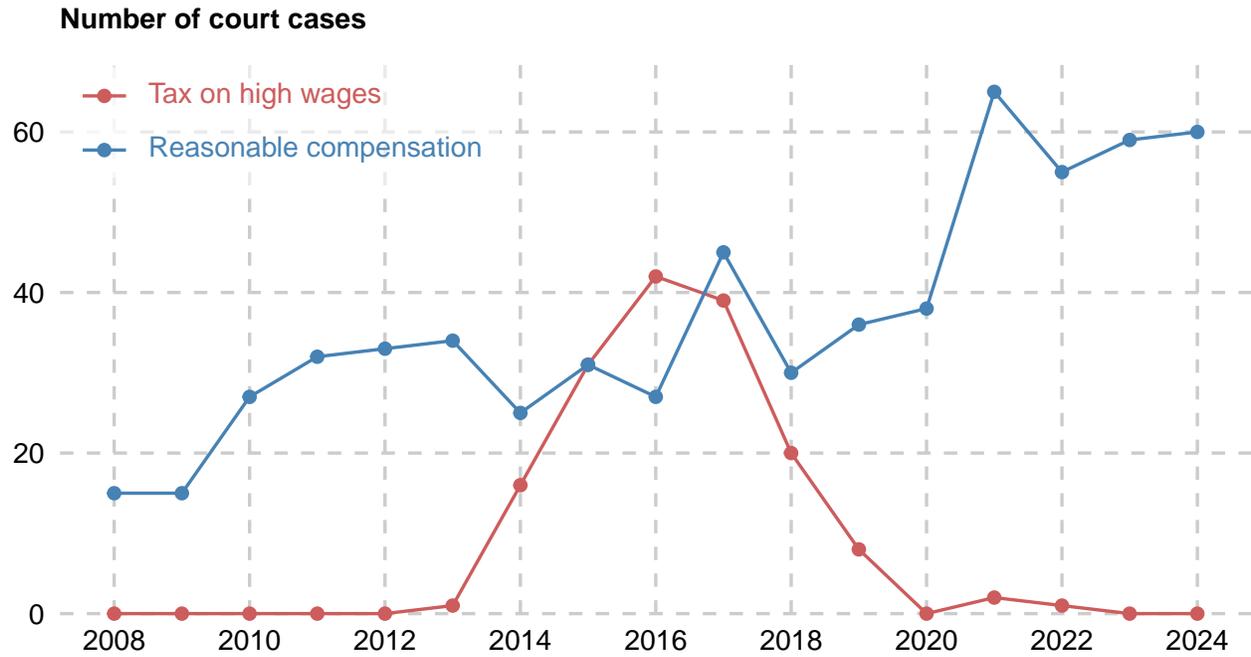
Note: This table shows the distribution of the self-employed across industries in 2012, separately for those paid above and below €150,000. Self-employed individuals are grouped into industries based on their 2-digit International Standard Industrial Classification (ISIC).

Table A.9: Sectoral composition of the self-employed in 2012 (ISIC, 3-digit level)

| Industry, ISIC 3 (%)   | Above €150,000 | Below €150,000 |
|--|----------------|----------------|
| Medical and dental practice activities                                     | 46             | 2              |
| Management consultancy activities  | 9              | 5              |
| Other human health activities  | 3              | 5              |
| Animal production  | 2              | 5              |
| Computer programming, consultancy and related activities                   | 2              | 2              |
| Architectural and engineering activities and related technical consultancy | 1              | 2              |
| Growing of non-perennial crops   | 1              | 2              |
| Legal activities   | 1              | 1              |
| Building completion and finishing  | 0              | 5              |
| Construction of residential and non-residential buildings                  | 0              | 5              |
| Other personal service activities  | 0              | 4              |
| Creative, arts and entertainment activities                                | 0              | 3              |
| Other education  | 0              | 3              |
| Restaurants and mobile food service activities                             | 0              | 3              |
| Retail sale of other goods in specialised stores                           | 0              | 3              |
| Accounting, bookkeeping and auditing activities; tax consultancy           | 0              | 2              |
| Support activities for transportation                                      | 0              | 0              |

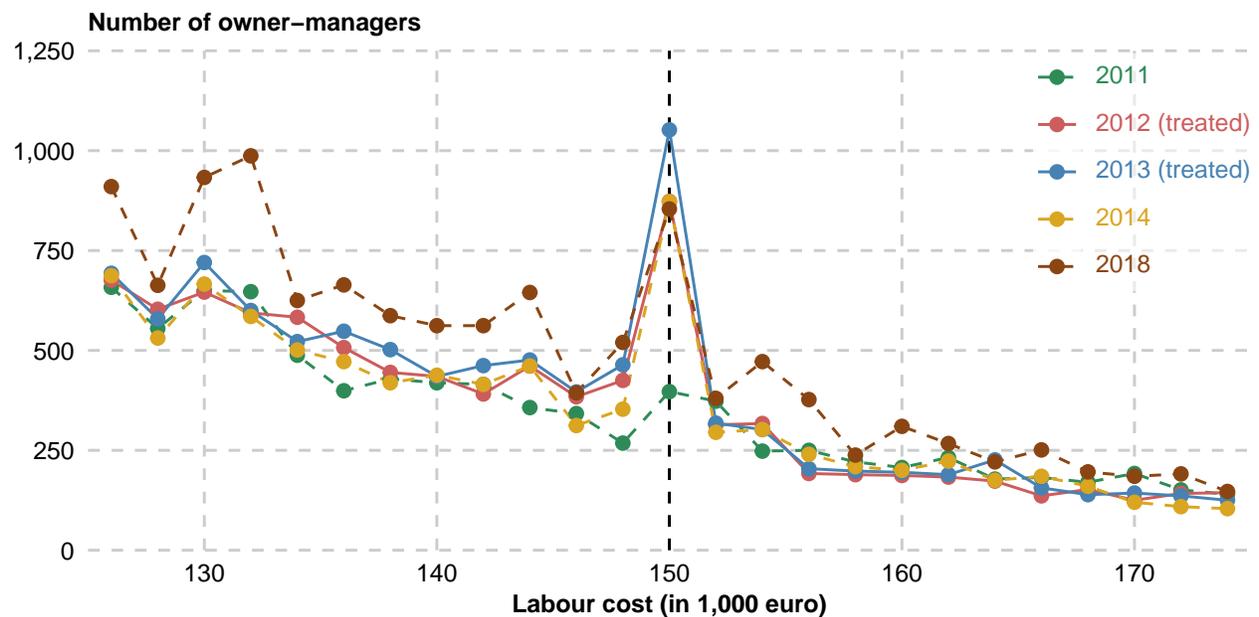
Note: This table shows the distribution of the self-employed across industries in 2012, separately for those paid above and below €150,000. Self-employed individuals are grouped into industries based on their 3-digit International Standard Industrial Classification (ISIC).

Figure A.1: The number of court cases over the surtax on high wages (red) and “reasonable compensation” (blue)



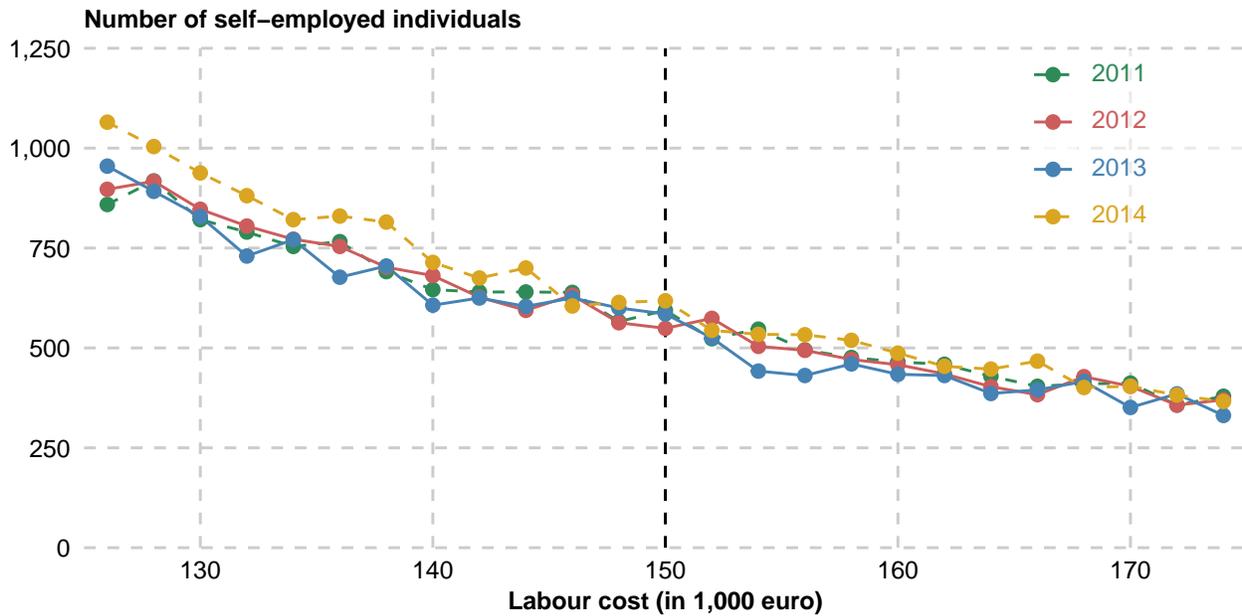
Note: This figure plots the annual number of published court cases related to the surtax on high wages (red) and to the minimum compensation rules for owner-managers (“reasonable compensation”, blue). Counts are based on searches in the Dutch case-law database *Rechtspraak.nl*.

Figure A.2: Number of owner-managers across the labour cost distribution



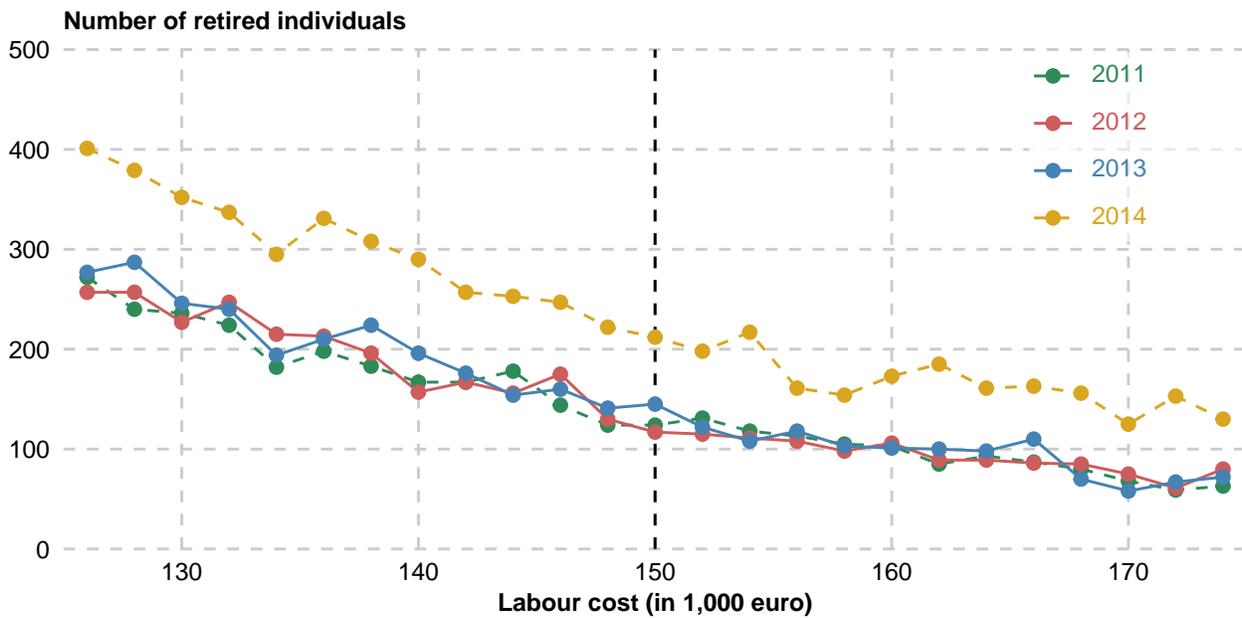
Note: This figure groups owner-managers into €2,000 bins of labour costs and plots the bin counts for 2011–2014 and 2018.

Figure A.3: Number of self-employed individuals across the labour cost distribution



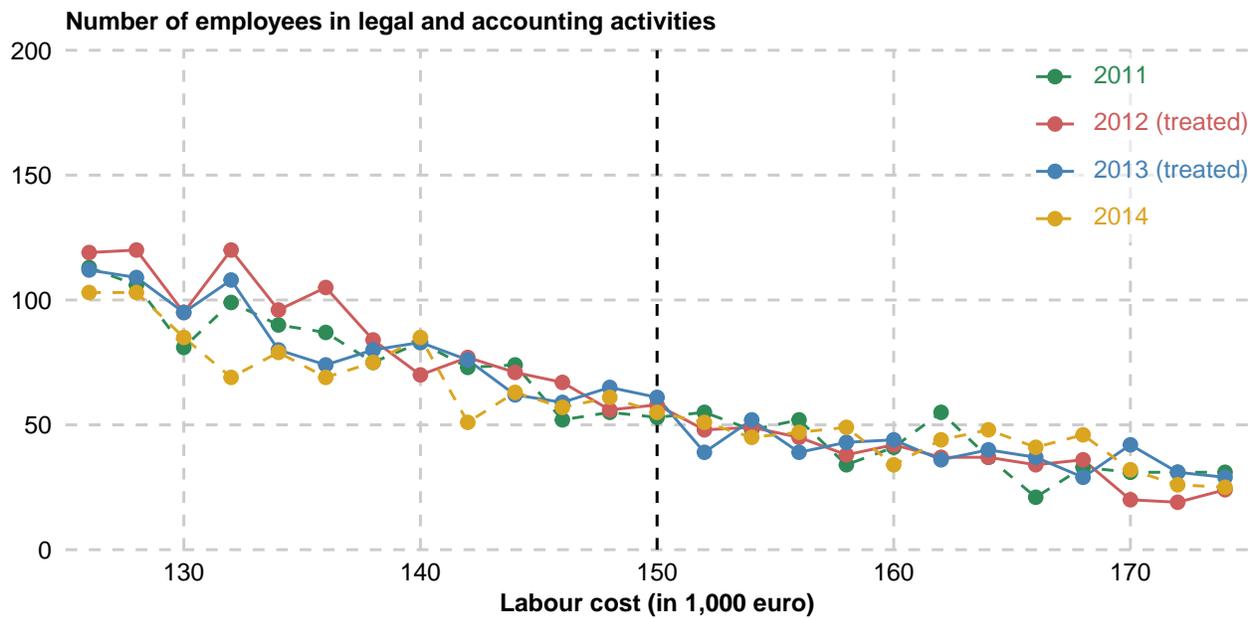
Note: This figure groups self-employed individuals into €2,000 bins of labour costs and plots the bin counts for 2011–2014.

Figure A.4: Number of retired individuals across the retirement income distribution



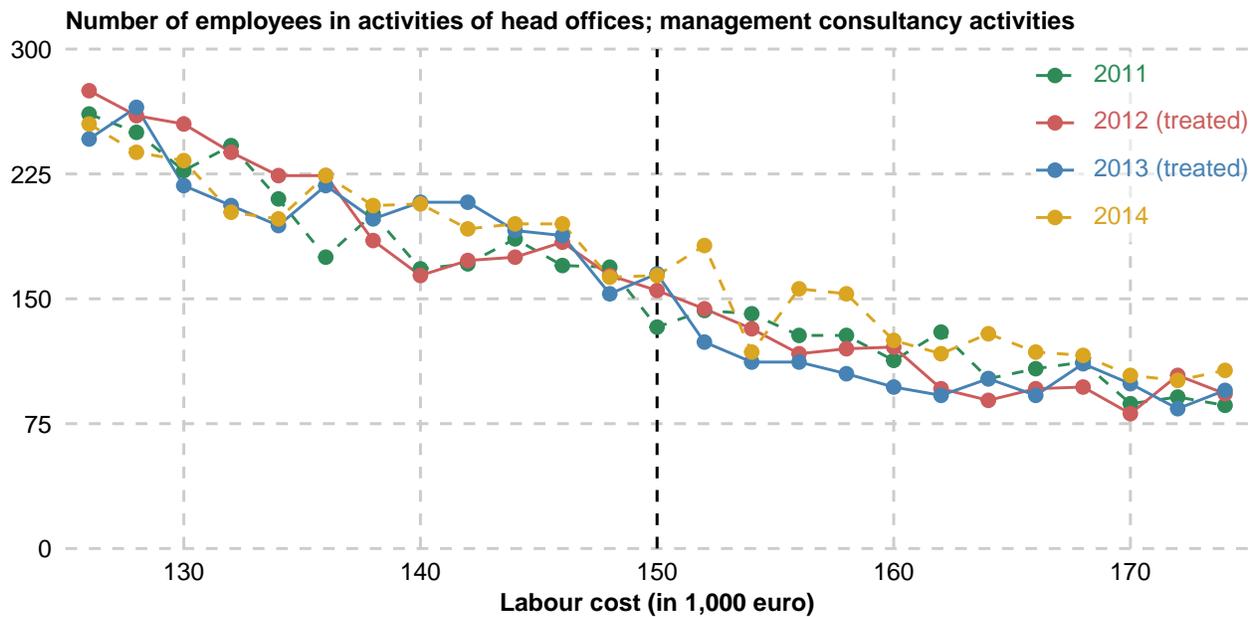
Note: This figure groups retired individuals into €2,000 bins of labour costs and plots the bin counts for 2011–2014.

Figure A.5: Number of employees in legal and accounting activities (M69)



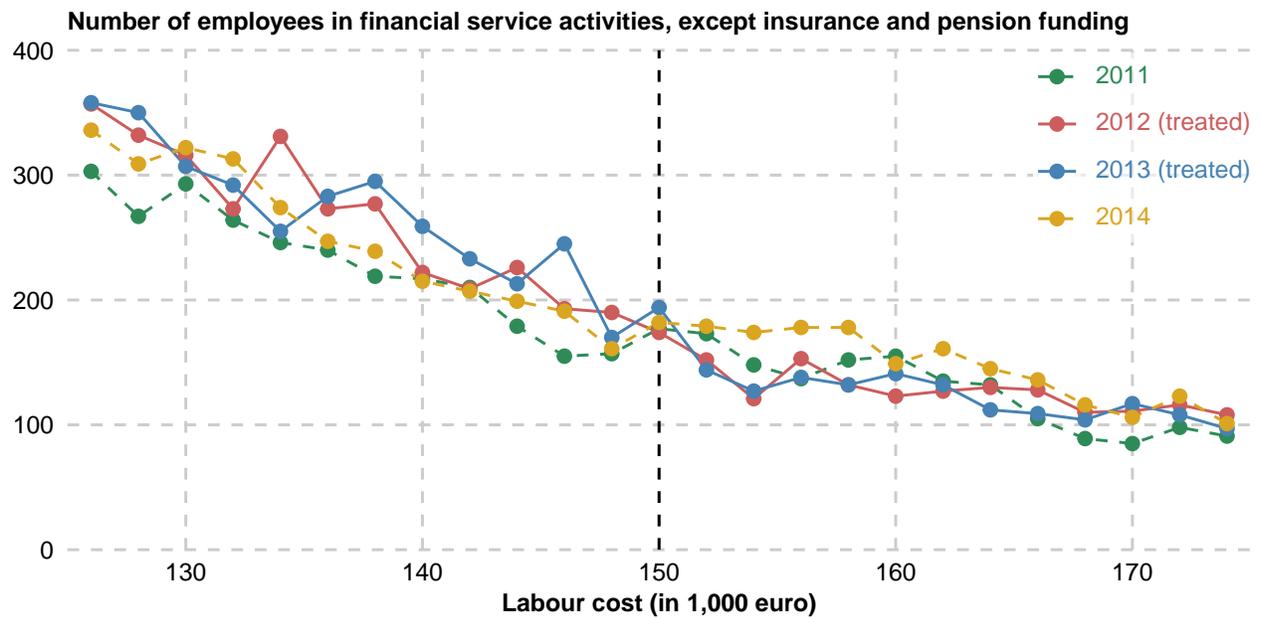
Note: This figure groups employees in legal and accounting activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.6: Number of employees in activities of head offices; management consultancy activities (M70)



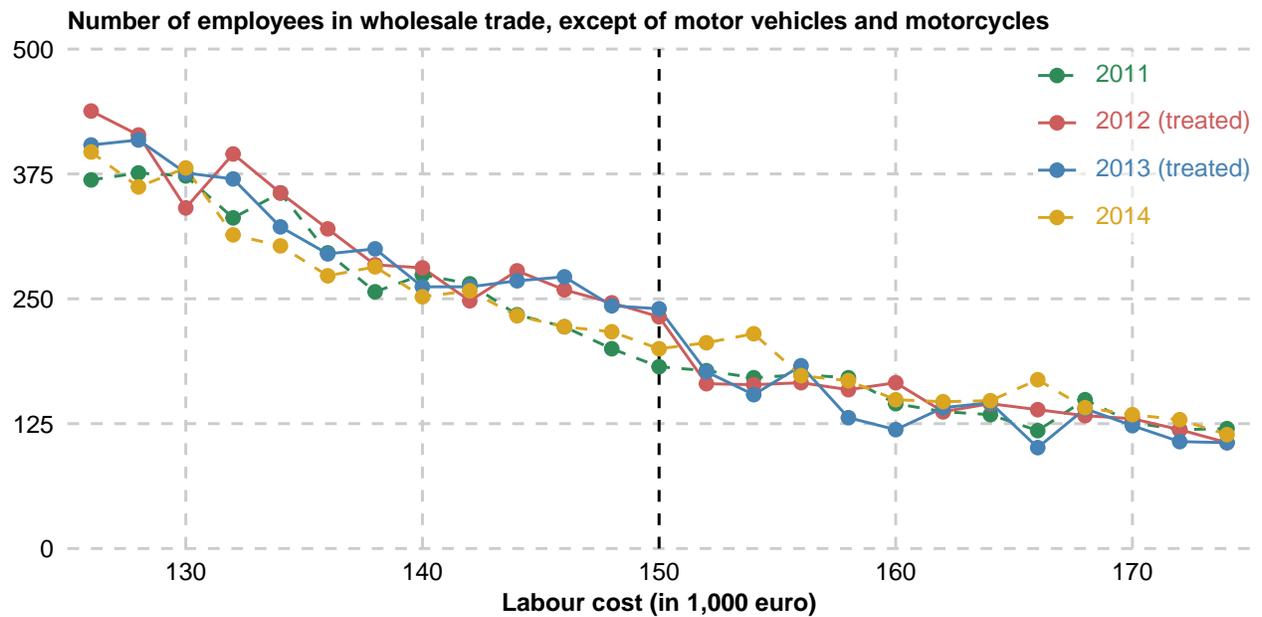
Note: This figure groups employees in activities of head offices; management consultancy activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.7: Number of employees in financial service activities, except insurance and pension funding (K64)



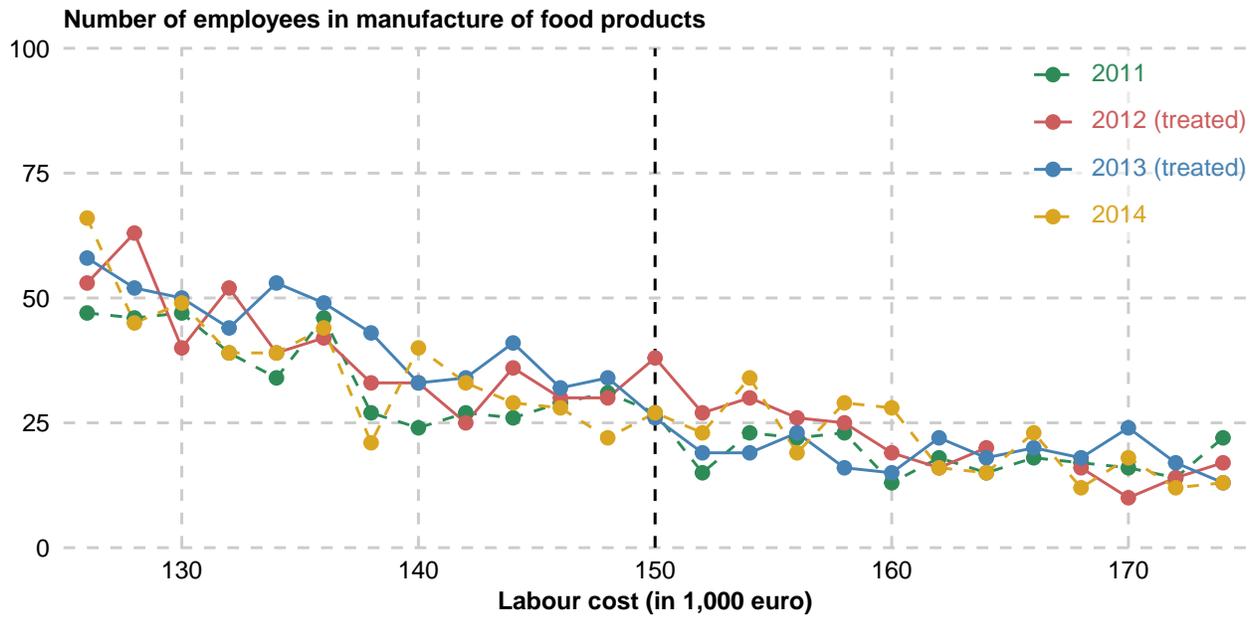
Note: This figure groups employees in financial service activities, except insurance and pension funding into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.8: Number of employees in wholesale trade, except of motor vehicles and motorcycles (G46)



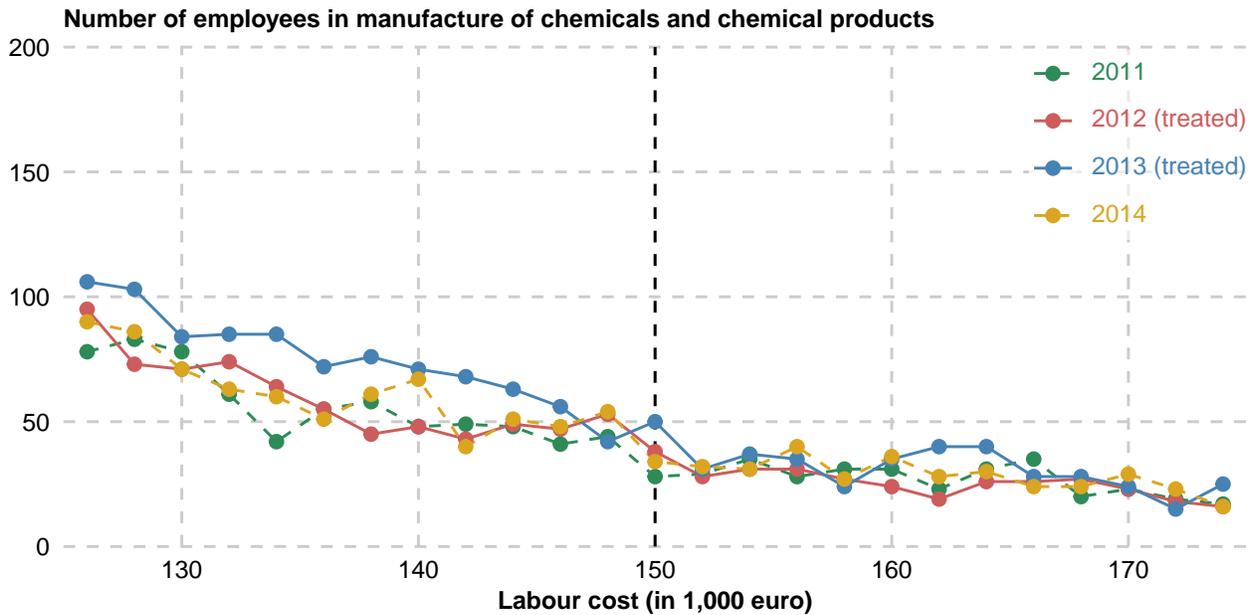
Note: This figure groups employees in wholesale trade, except of motor vehicles and motorcycles into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.9: Number of employees in manufacture of food products (C10)



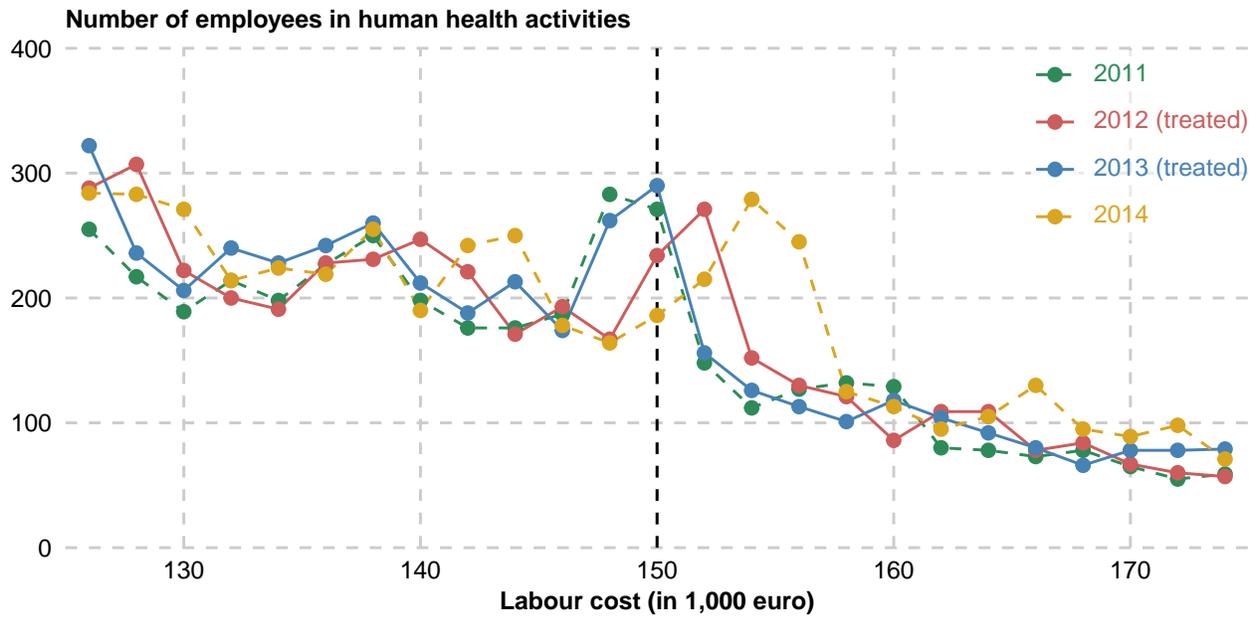
Note: This figure groups employees in manufacture of food products into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.10: Number of employees in manufacture of chemicals and chemical products (C20)



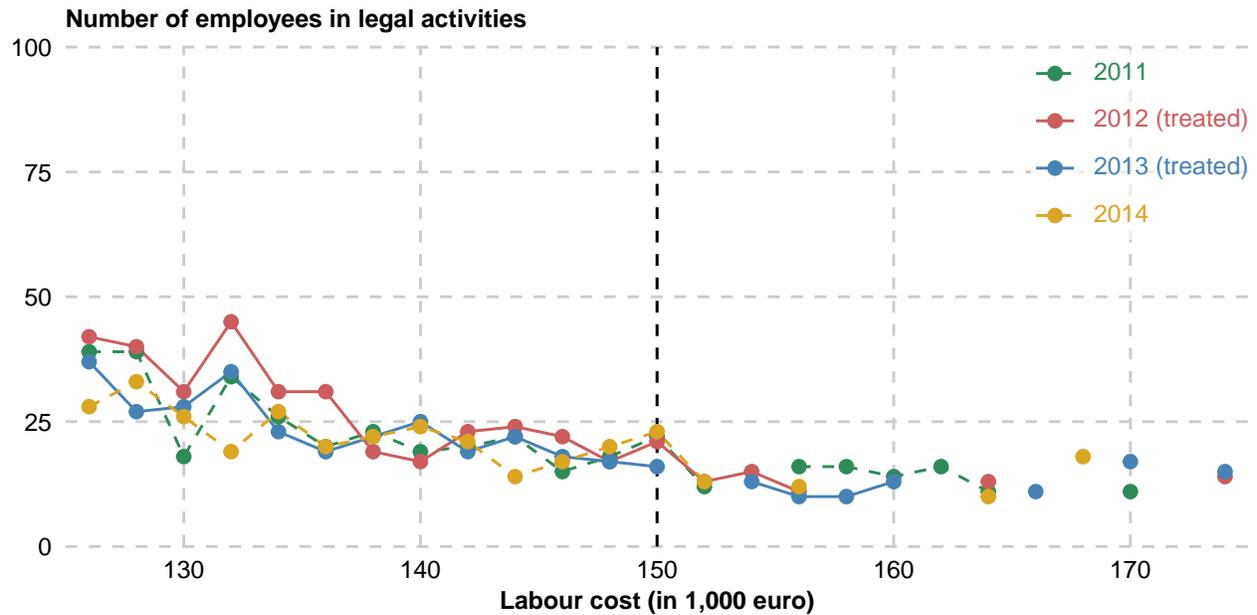
Note: This figure groups employees in manufacture of chemicals and chemical products into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.11: Number of employees in human health activities (Q86)



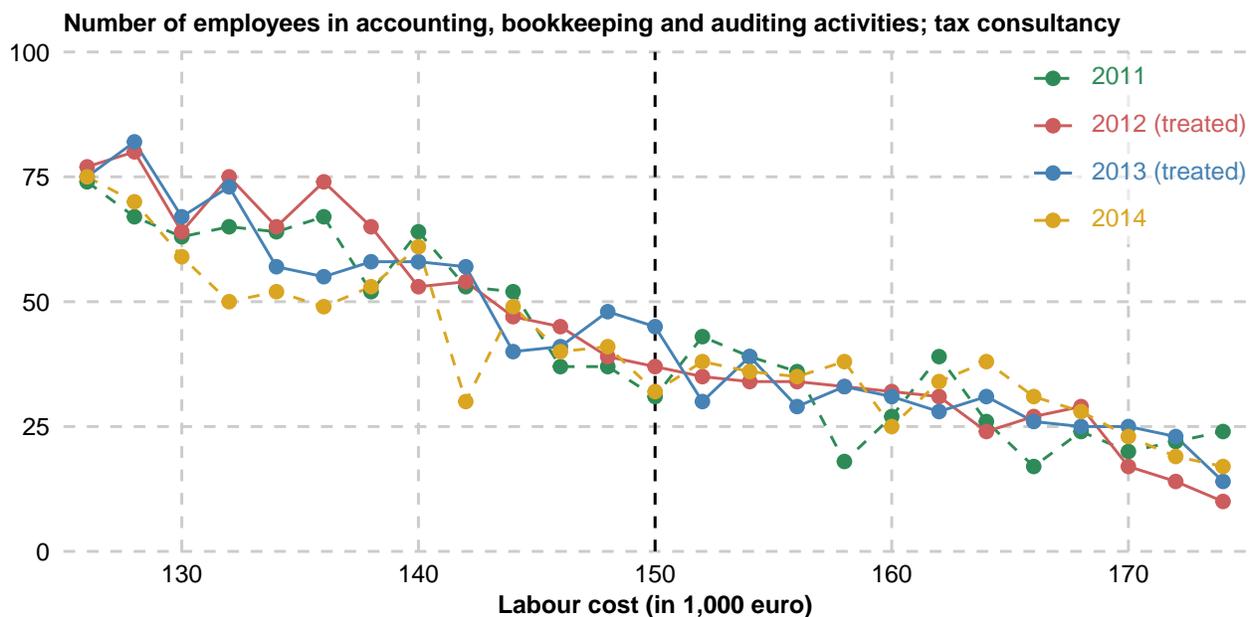
Note: This figure groups employees in human health activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.12: Number of employees in legal activities (M691)



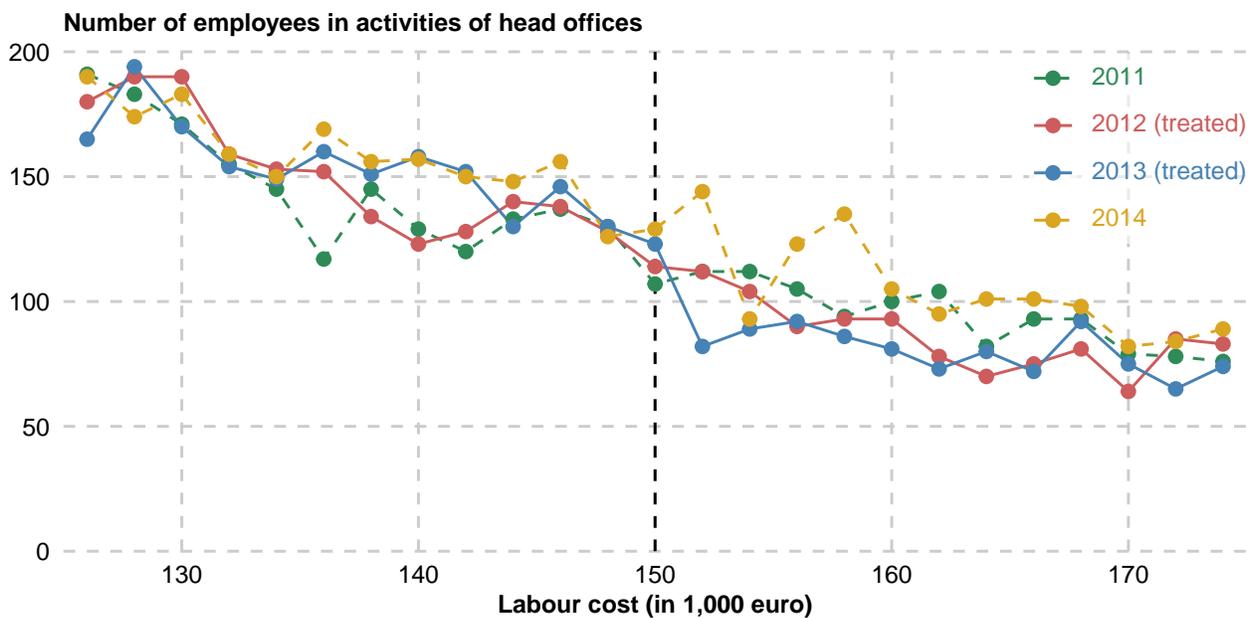
Note: This figure groups employees in legal activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.13: Number of employees in accounting, bookkeeping and auditing activities; tax consultancy (M692)



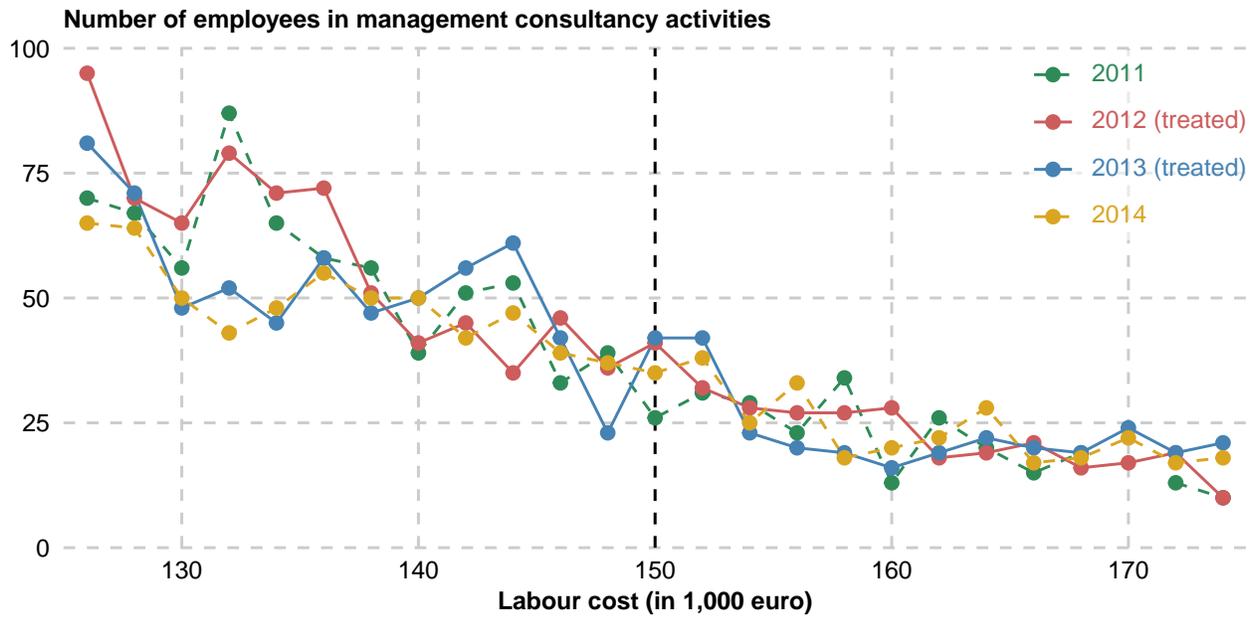
Note: This figure groups employees in accounting, bookkeeping and auditing activities; tax consultancy into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.14: Number of employees in activities of head offices (M701)



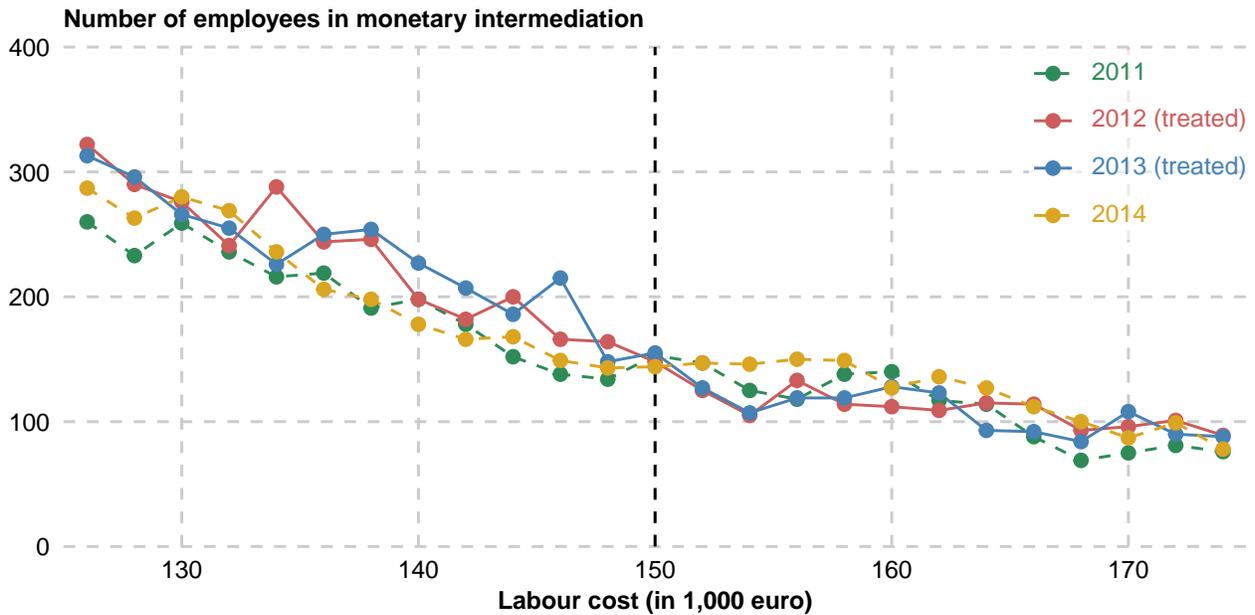
Note: This figure groups employees in activities of head offices into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.15: Number of employees in management consultancy activities (M702)



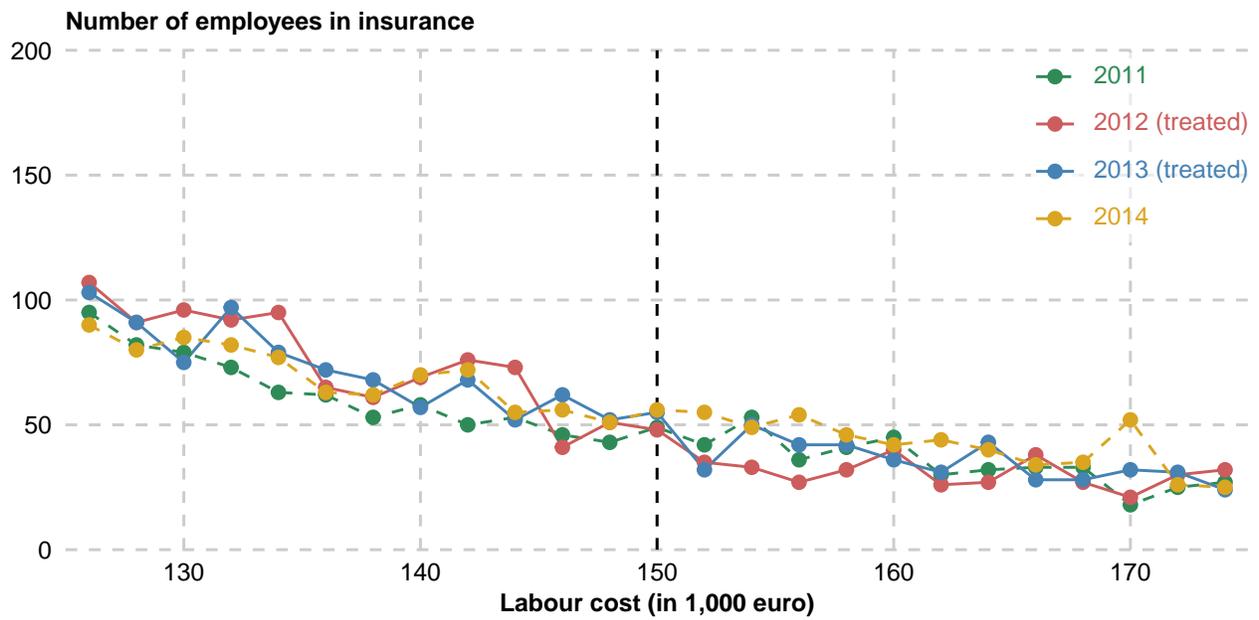
Note: This figure groups employees in management consultancy activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.16: Number of employees in monetary intermediation (K641)



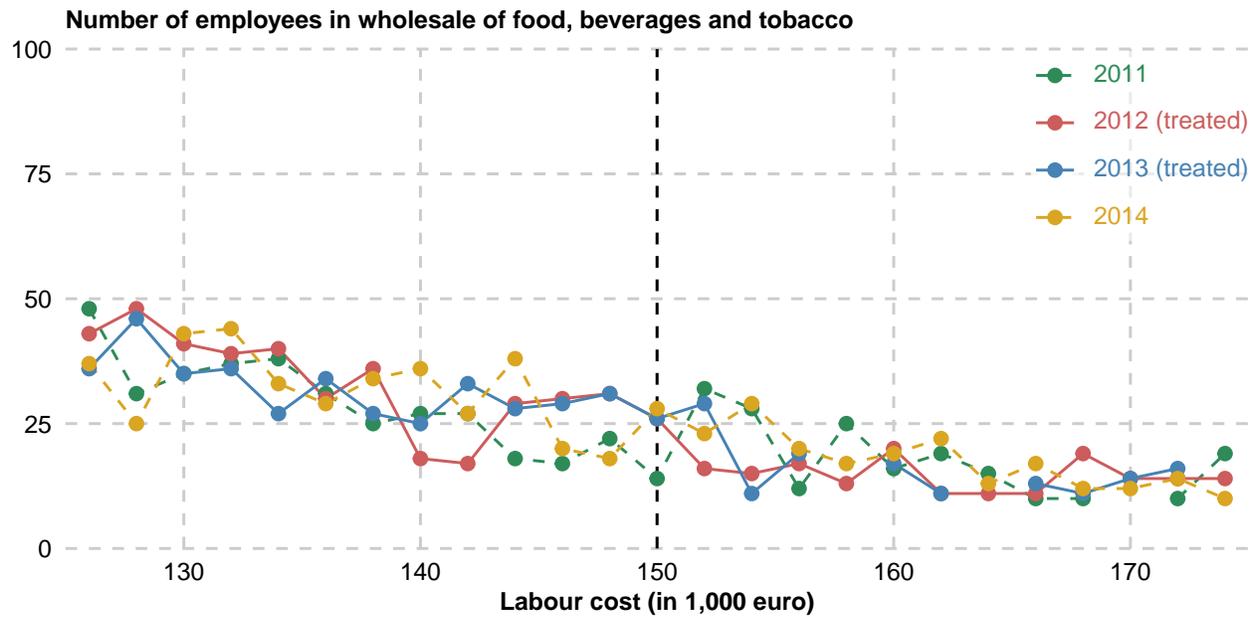
Note: This figure groups employees in monetary intermediation into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.17: Number of employees in insurance (K651)



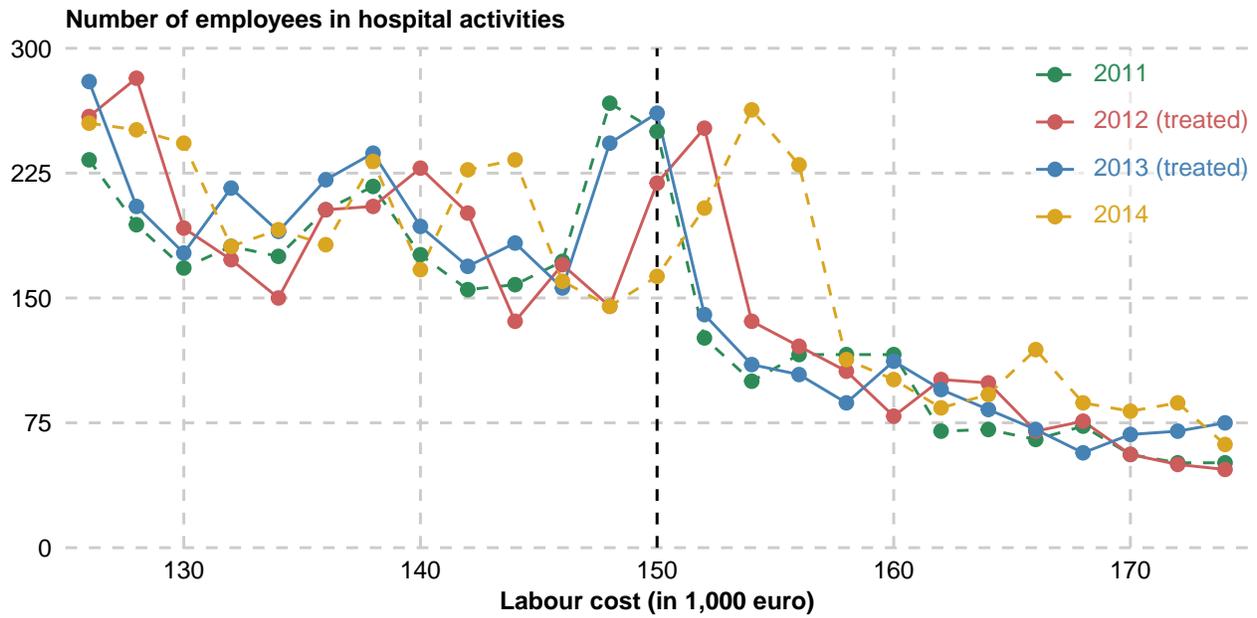
Note: This figure groups employees in insurance into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.18: Number of employees in wholesale of food, beverages and tobacco (G463)



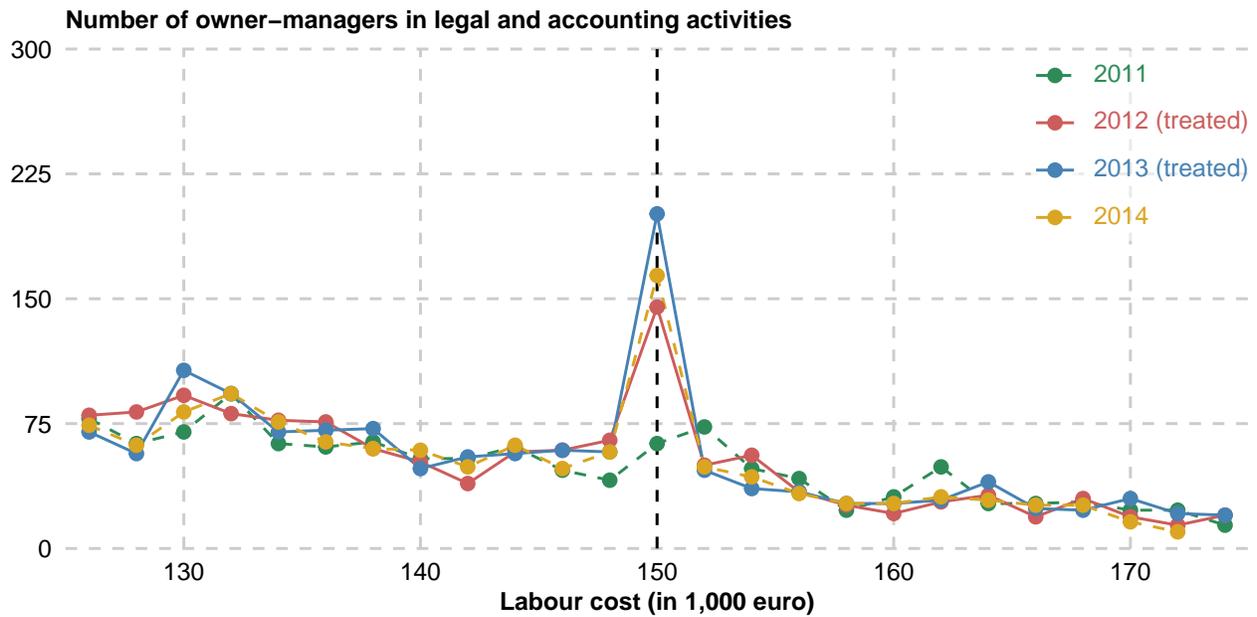
Note: This figure groups employees in wholesale of food, beverages and tobacco into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.19: Number of employees in hospital activities (Q861)



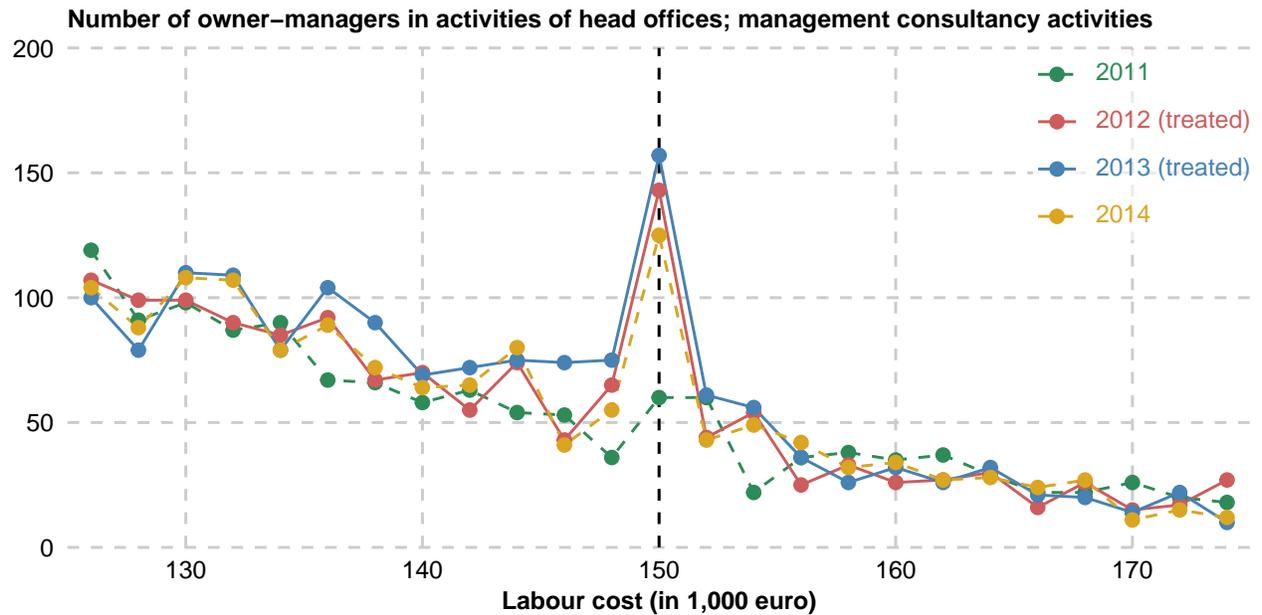
Note: This figure groups employees in hospital activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.20: Number of owner-managers in legal and accounting activities (M69)



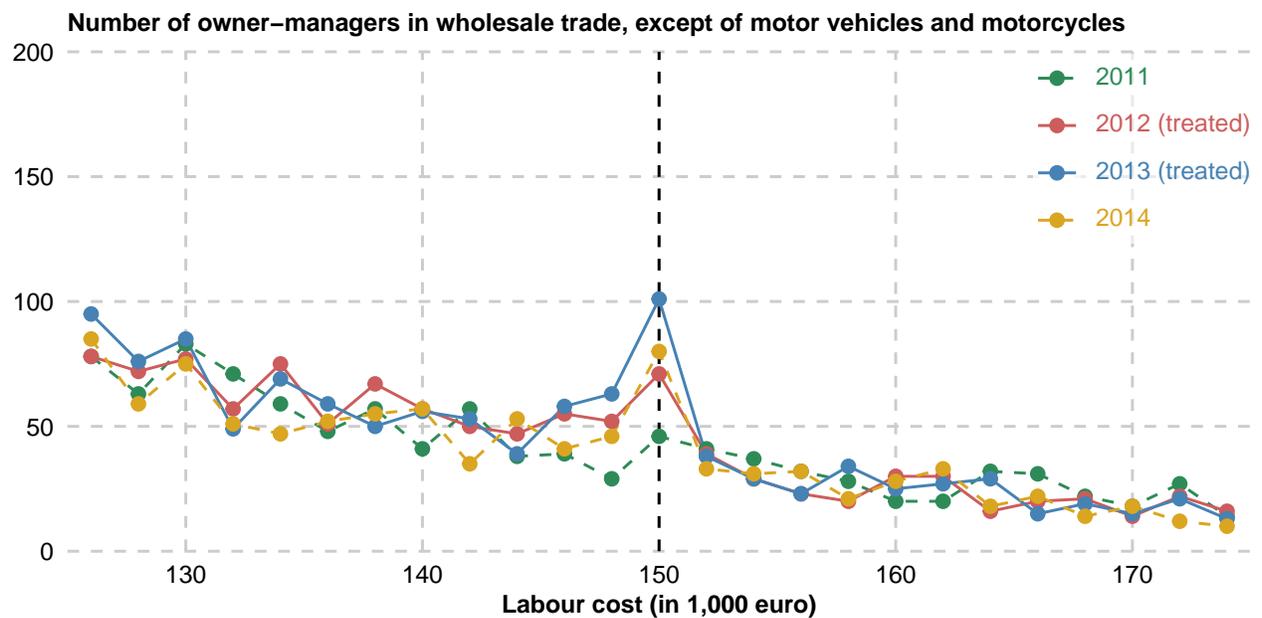
Note: This figure groups owner-managers in legal and accounting activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.21: Number of owner-managers in activities of head offices; management consultancy activities (M70)



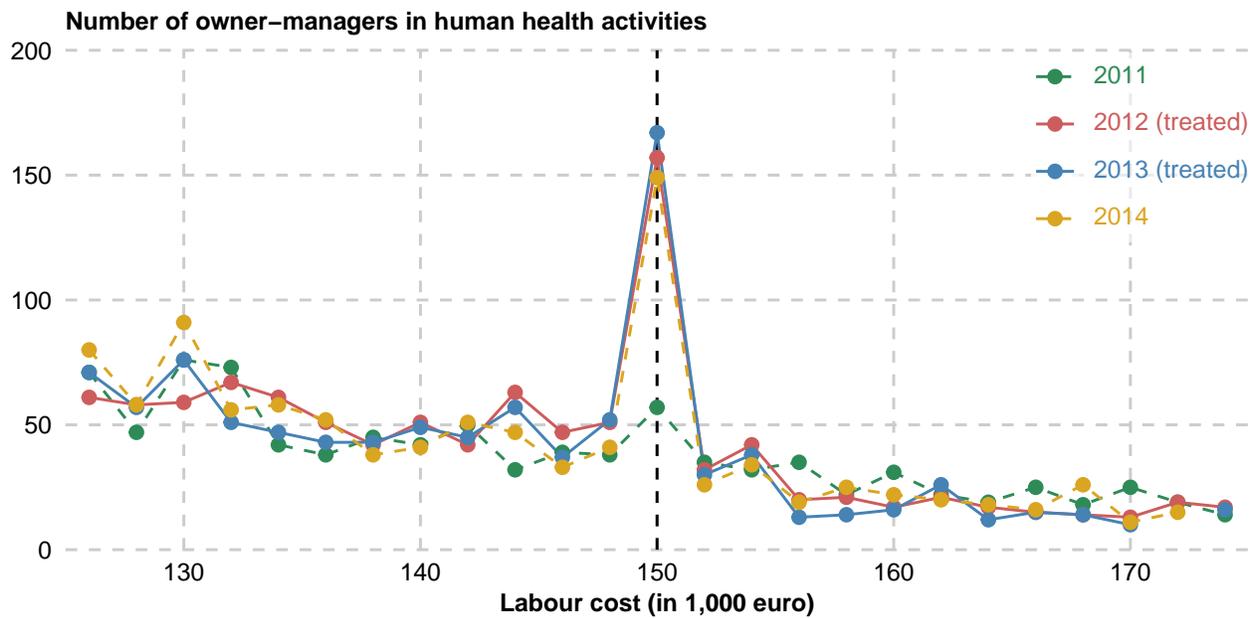
Note: This figure groups owner-managers in activities of head offices; management consultancy activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.22: Number of owner-managers in wholesale trade, except of motor vehicles and motorcycles (G46)



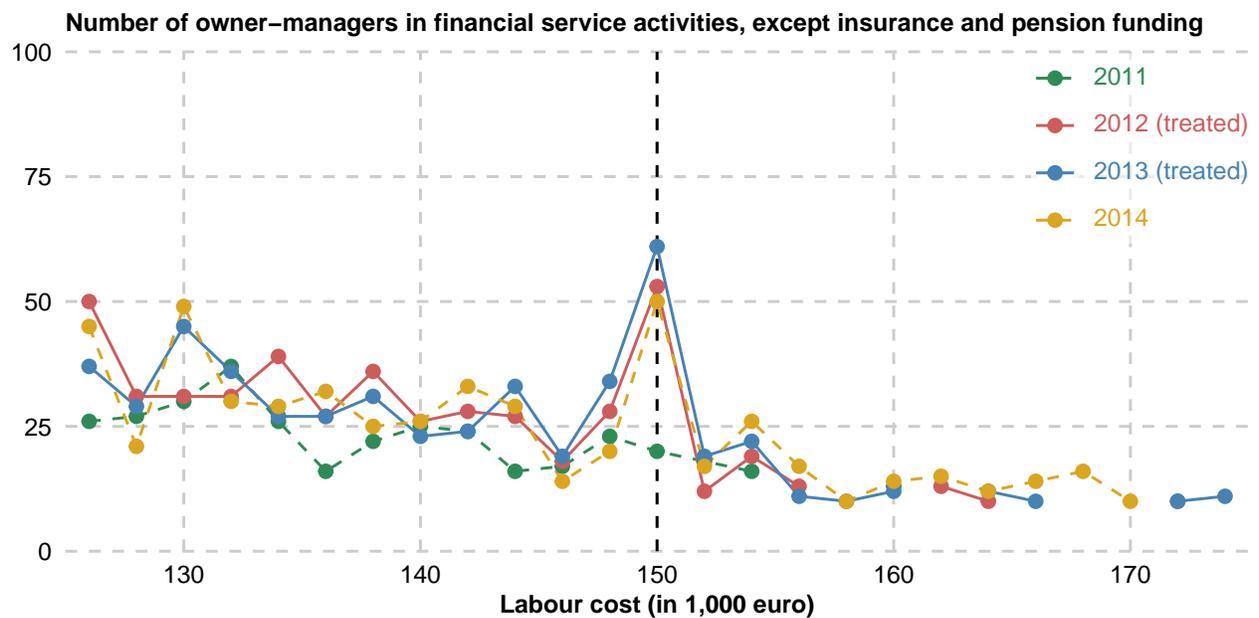
Note: This figure groups owner-managers in wholesale trade, except of motor vehicles and motorcycles into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.23: Number of owner-managers in human health activities (Q86)



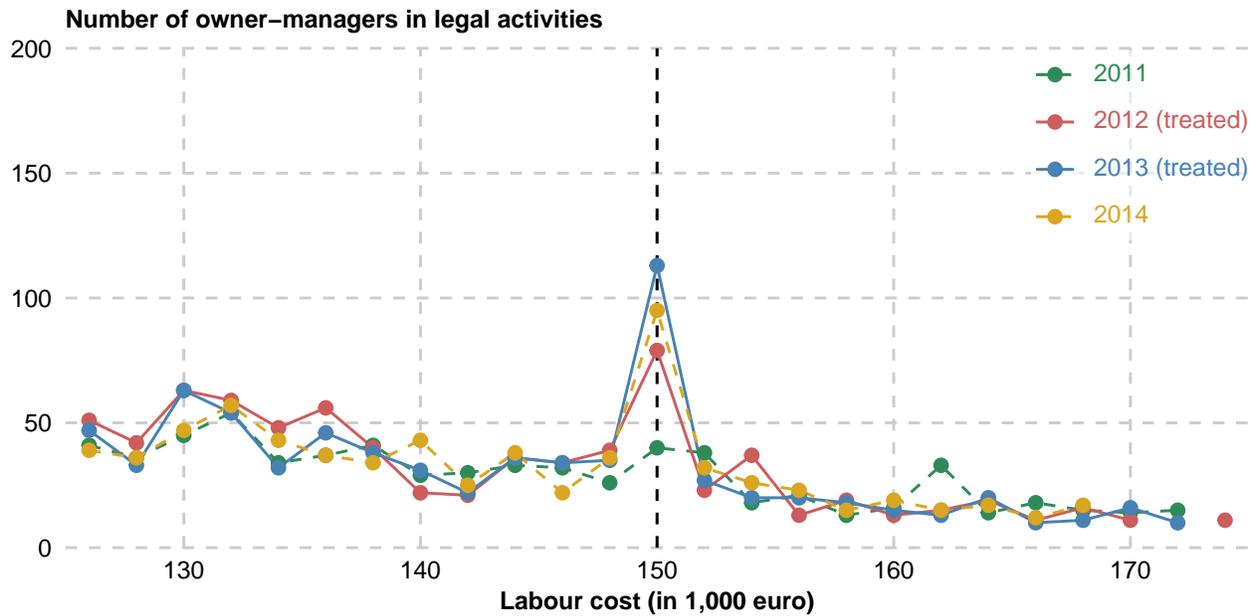
Note: This figure groups owner-managers in human health activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.24: Number of owner-managers in financial service activities, except insurance and pension funding (K64)



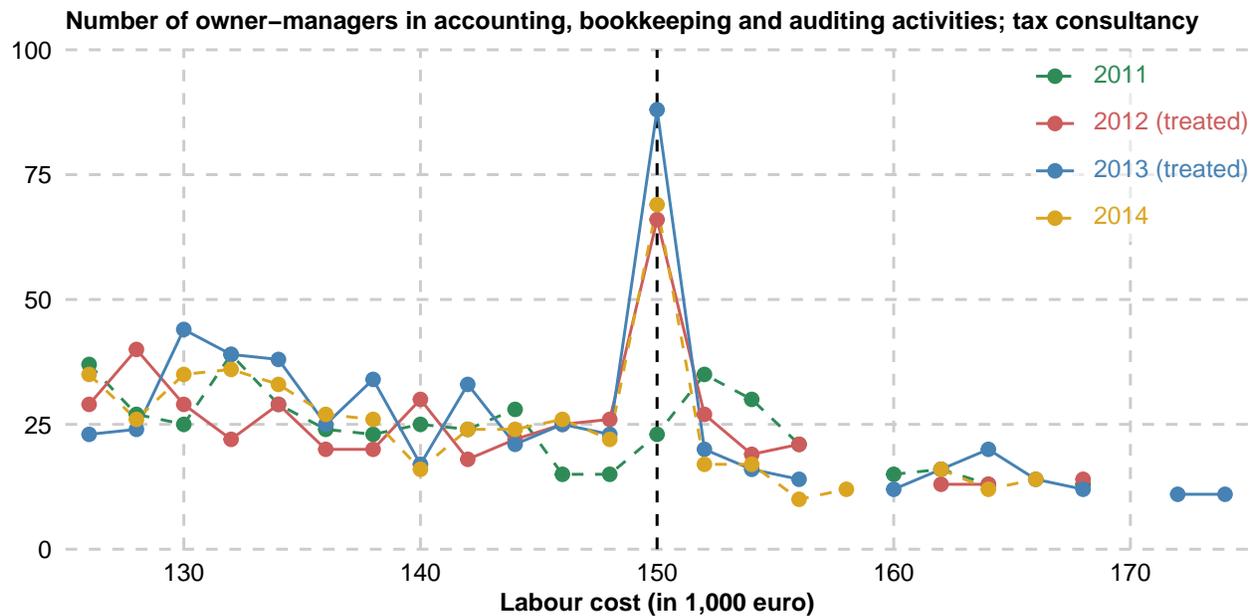
Note: This figure groups owner-managers in financial service activities, except insurance and pension funding into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.25: Number of owner-managers in legal activities (M691)



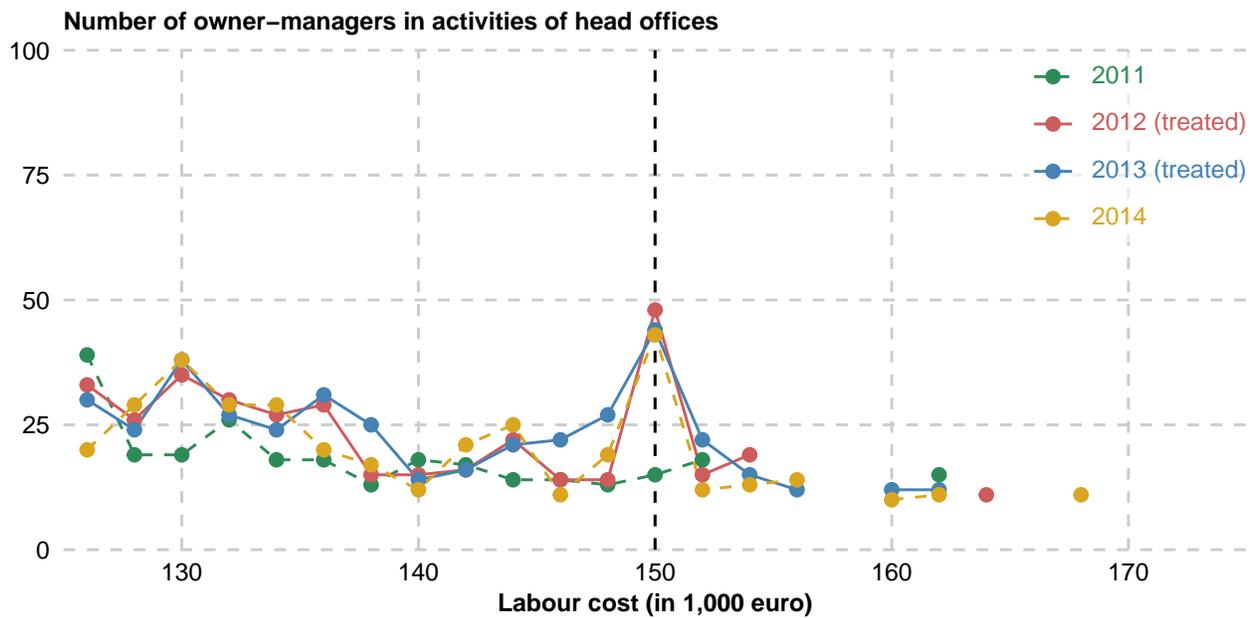
Note: This figure groups owner-managers in legal activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.26: Number of owner-managers in accounting, bookkeeping and auditing activities; tax consultancy (M692)



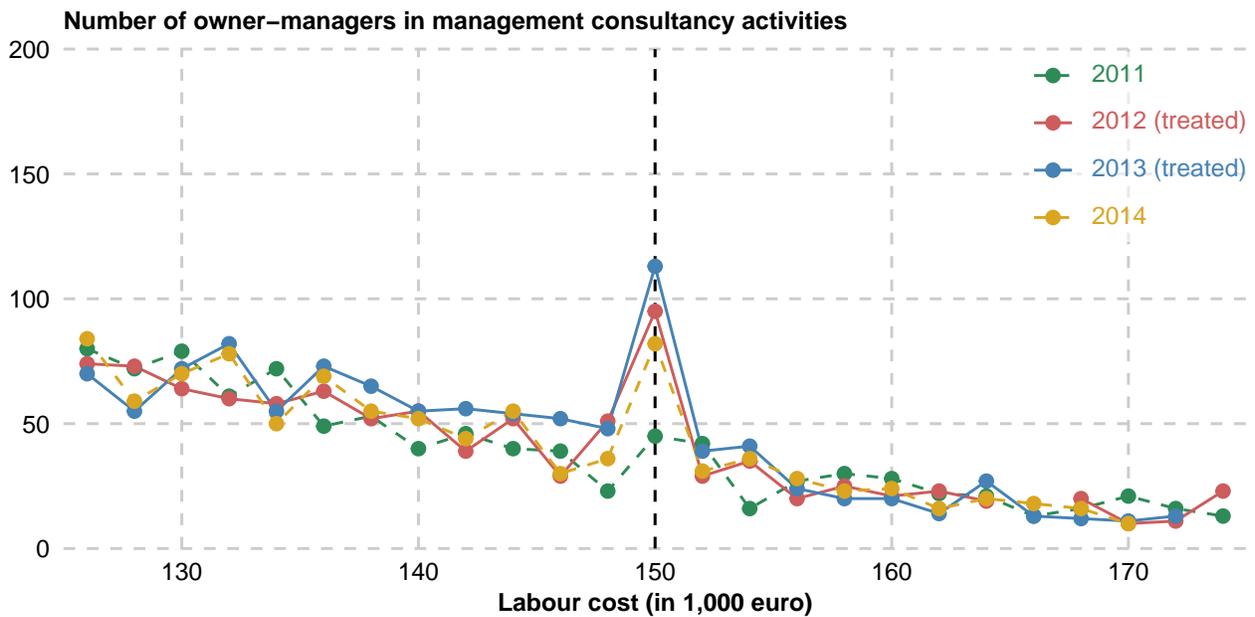
Note: This figure groups owner-managers in accounting, bookkeeping and auditing activities; tax consultancy into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.27: Number of owner-managers in activities of head offices (M701)



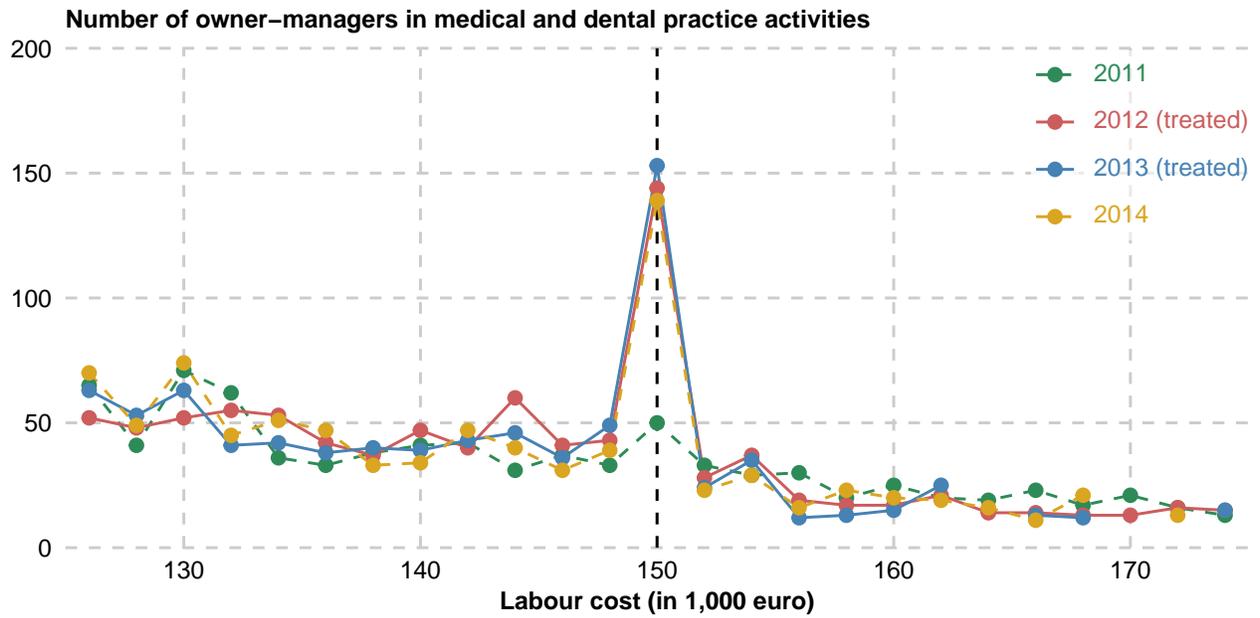
Note: This figure groups owner-managers in activities of head offices into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.28: Number of owner-managers in management consultancy activities (M702)



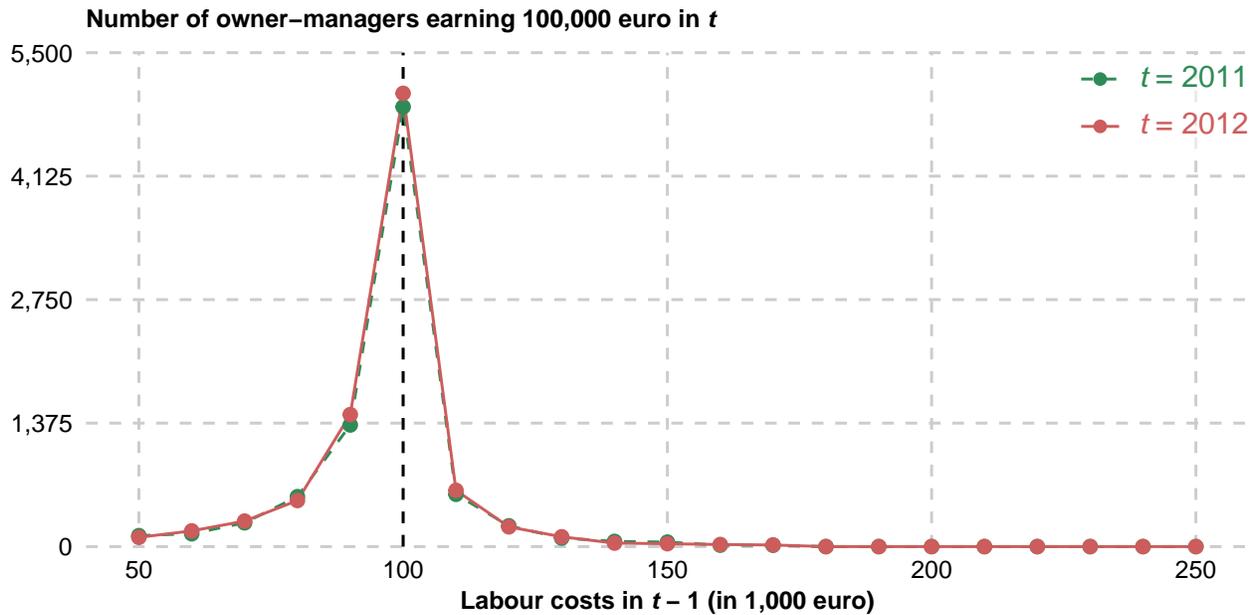
Note: This figure groups owner-managers in management consultancy activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.29: Number of owner-managers in medical and dental practice activities (Q862)



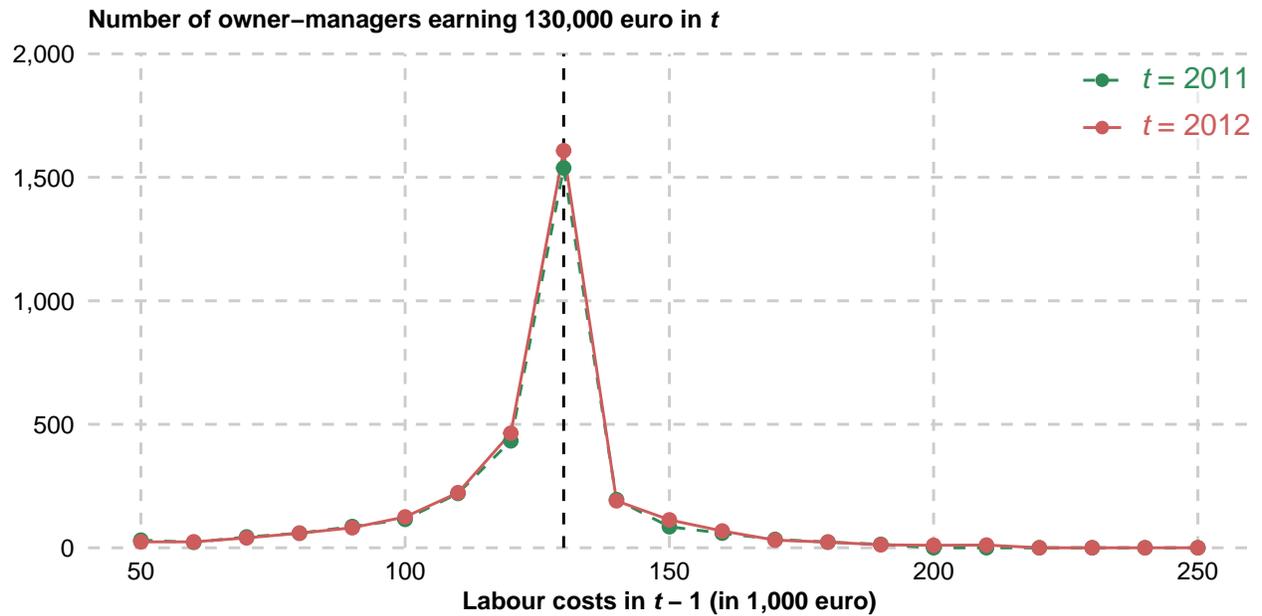
Note: This figure groups owner-managers in medical and dental practice activities into €2,000 bins of labour costs and plots the bin counts for each year in 2011–2014.

Figure A.30: Number of owner-managers earning €100,000 in  $t$  across the  $t-1$  labour cost distribution



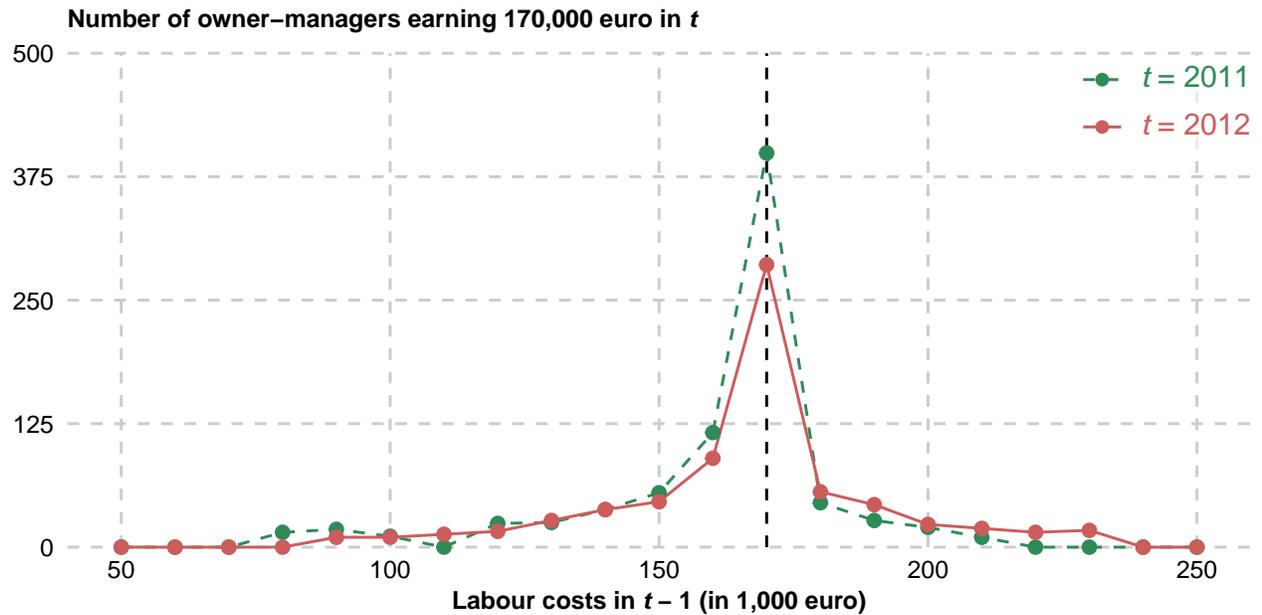
Note: For all owner-managers at €100,000 in year  $t$ , the figure shows their position in the prior-year ( $t-1$ ) labour cost distribution. Bins are €10,000.

Figure A.31: Number of owner-managers earning €130,000 in  $t$  across the  $t-1$  labour cost distribution



Note: For all owner-managers at €130,000 in year  $t$ , the figure shows their position in the prior-year ( $t-1$ ) labour cost distribution. Bins are €10,000.

Figure A.32: Number of owner-managers earning €170,000 in  $t$  across the  $t-1$  labour cost distribution



Note: For all owner-managers at €170,000 in year  $t$ , the figure shows their position in the prior-year ( $t-1$ ) labour cost distribution. Bins are €10,000.