

Summary and conclusions

A key element in policy design is the assessment of welfare losses caused by behavioral responses to income taxation. These responses encompass both real responses, such as investment and working hours, and income shifting responses, such as tax avoidance and tax evasion. This dissertation contributes new insights to the labour supply and public economic literature that examine individual labour market responses to tax incentives. In four empirical studies, we analyze the impact of tax incentives on hours, income, occupational choice and labour costs. To identify the causal impact exogenous changes in tax incentives are crucial. For that reason, exogenous cross-section variation caused by thresholds or variation over time due to tax reforms is exploited. The findings contribute to a better understanding to what extent and how individuals respond to tax incentives, and this knowledge helps in designing better tax policies.

Chapter 2 evaluates the labour supply response of married women to changes in their after-tax wage caused by the tax reform of 2001. First, the tax reform reduced marginal tax rates, most substantially in the highest two brackets, where tax rates were reduced by eight percentage-points. Second, tax allowances were replaced by tax credits which removed some fixed costs of working. Before the reform, working at a low income was financially relatively unattractive for women with a high-income partner as this would increase taxes at the family level. Since the tax credit is a fixed reduction, the total tax reduction remains the same irrespective of the participation decision. We find that the labour supply response of married women to changes in after-tax wage is rather small. The estimated uncompensated wage elasticity is not significantly different from zero. This suggests that although the tax reform

increased after-tax hourly wages it did not increase hours. However, the tax reform had a substantial positive effect on labour force participation, which we attribute to the shift from allowance to tax credit. Female labour force participation increased by 2.4%-points. Simulations with our estimated model show that the positive effect on labour force participation dominates the negative effect of wages. Our empirical results contradict earlier studies finding that the uncompensated wage elasticity is between 0 and 0.3 (Meghir and Phillips, 2010). As a sensitivity analysis we apply the grouping estimator, which gives a positive and significant uncompensated wage elasticity in the same order as found in Blundell et al. (1998). However, this result is unreliable as the instrument is not strong enough. This article was published in *Labour Economics* in 2012.

Chapter 3 examines the income and occupational choice responses of self-employed. On average, self-employed pay less tax than wage employed. According to the theory of optimal taxation, income from self-employment should be taxed less than income from wage employment (Mirrlees, 1971, 1976). One reason is that self-employed individuals have more possibilities to evade or avoid paying taxes. The estimations results indicate that Dutch self-employed respond to changes in tax rates by adjusting their income and less by changing their occupational status. The estimated elasticity of taxable income (ETI) is 0.3. The income response is much stronger to the large reform in 2001 compared to the smaller targeted reforms in 2005 and 2007. Since the reforms are only few years apart, it is unlikely that structural preferences for work have changed. It is plausible that the sizable differences are due to differences in salience. Contrary to other studies, our ETI for self-employed with a lower income is much higher than the ETI for high-income self-employed. Since the hours response is found to be relatively small (Gruber and Saez, 2002; Jongen and Stoel, 2016), we believe that tax avoidance and evasion are main drivers of the higher ETI at the lower end of the income distribution. Also, the different findings between wage employed and self-employed suggests that lack of third-party reporting facilitates this behaviour. We might estimate a lower ETI for high-income earners than earlier studies because we do not observe their itemized deductions that have an upward effect on the ETI. We emphasize the fact that the choice of the income weighting is not innocuous, which was demonstrated in (Weber, 2014). The estimations results on the occupational choice margin suggest that earnings differentials cannot explain (the increase in) self-employment. The combination of our analyses reveals an interesting pattern. Workers hardly switch their occupational status and they easily adjust their income. Possible explanations for this finding are adjustments costs such as fixed

costs of running a business. By contrast, self-employment income responses are more flexible due to possibilities to adjust hours or shift income by tax avoidance and tax evasion.

Chapter 4 assesses the sensitivity of income responses to changes in tax rates at three thresholds in the income tax system. We examine whether individuals adjust their income to stay below the threshold of a tax bracket, which is known as bunching (Saez, 2010). In order to detect bunching, we first determine the optimal bunching window around the threshold. This is necessary as individuals are not able to perfectly adjust their income to stay below the threshold. So far, researchers choose the bunching window by visual inspection which results in uncertain estimates. We propose a simple, data-driven procedure which allows the window to be asymmetric around the threshold and to be more flexible. It also enhances the reproducibility of studies implementing the bunching approach. We find clear evidence of bunching behaviour at all three thresholds of the Dutch tax schedule with a precise estimated elasticity of 0.023 at the upper threshold. We find much larger estimates for women and self-employed individuals. We also identify significant bunching behaviour for individuals in paid employment, which we can mostly attribute to tax deductions that can be shifted between married tax filers. Since bunching is absent among single tax filers, we conclude that real responses to taxation are modest.

Chapter 5 evaluates the economic incidence of social security contribution (ssc). The relevant question is who ultimately bears the costs of ssc, which is the economic incidence. If employers are able to shift their share to employees, then the economic incidence is on employees. The discontinuity in the marginal rates due to the existing upper threshold in the social security system (in Dutch: *grens werknemersverzekeringen*) is exploited. The actual distributions of labour costs and gross earnings provide information on incidence at this threshold. Labour costs are determined by level of gross earnings and level of employer social security contributions. The idea behind the cross-sectional method is that a discontinuity in the marginal tax rate should cause a discontinuity in at least one of the three distributions of income since these are deterministically related (Alvaredo et al., 2017). We name this “deterministic discontinuity”. Our estimation results reveal that economic incidence of ssc is on the employer, at least in the short run. Possible explanations for non-shifting to employees are unawareness by employers and employees because of non-salience (Saez, 2010). A relevant policy implication is that ssc could be made more visible by including the employer contributions on the wage slip. Other explanation is non-flexible wage adjustments due to collective

bargaining instead of individual bargaining. We show that this case is compatible with a bargaining model where unions have zero bargaining power. This article was published in *De Economist* in 2017.

A common finding of these four studies is that employee' responses to taxations are relatively small. Individuals hardly adjust their hours or their income when facing a change in their tax rate. Likewise, employers do not shift (changes in) social security contributions to their employees. Possible explanations for the absence of strong labour market response are adjustments costs, imperfect knowledge of tax rates and thresholds and too small changes in tax rates to overcome fixed costs of switching hours or occupation. The self-employed are the only exception to these findings; they do adjust their income in response to a higher marginal tax rate, probably because of their increased possibilities.

The first policy lesson taken from this thesis is that in designing tax policies, employees' behavioural responses are small which suggest that efficiency costs are small as well. More specifically, small tax increases will not result in large efficiency costs. The underlying reason for this is that small changes are not salient and too small to overcome fixed costs and optimizations frictions.

A second lesson is that tax avoidance and tax evasion may be important drivers of changes in taxable income, especially for high-income earners and the self-employed. This means the ETI is largely dependent on the definition of the tax base and enforcement; both are controlled by policy makers.

The final – and key – lesson is that labour market responses are heterogeneous. In this respect, the self-employed stand out. Self-employed are more flexible in adjusting their hours and income. Their increased responsiveness should be taken into account in designing tax policies with minimal efficiency costs. As a result, some degree of complexity in the tax-benefit system is inevitable.