35 years of reforms: a panel analysis of the incidence of, and employee and employer responses to social security contributions in the UK

Stuart Adam, David Phillips and Barra Roantree

Institute for Fiscal Studies

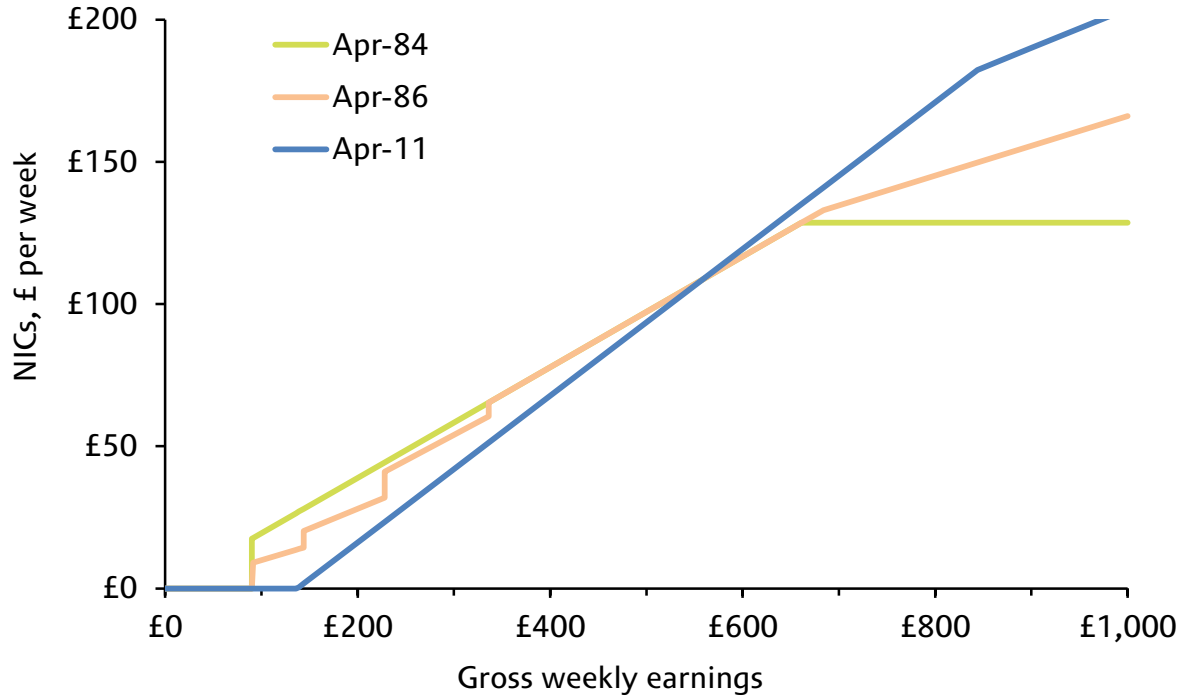
EXTENDED ABSTRACT

The UK's system of social security contributions – National Insurance contributions (NICs) – has been subject to significant reform since the 1970s. This paper exploits this policy variation using long-running pseudo-administrative panel data to examine the incidence of NICs alongside the behavioural responses of both firms and individuals to NICs. In particular, we use difference-in-differences analysis of major reforms and a panel analysis exploiting all variation affecting 35 years of data. The rich data and policy variation available allow us to compare short and longer-run behavioural responses and incidence, to compare the effects of changes in employee and employer NICs, and to compare the effects of NICs with the effects of income tax. Each of these comparisons sheds new light on questions of both academic and policy interest.

Major reforms in 1985, 1989, and 1998 transformed NICs from a system in which there was a large notch at the lower earnings threshold to one in which there were a series of smaller notches and, finally, no notches (see Figure 1).[1] In addition, there were a number of smaller changes to the rates and thresholds at which NICs were levied. Employee and employer contributions were changed differently, allowing for the separate identification of the incidence and behavioural effects of each.

[1] A companion paper examines the changing local ("bunching") responses to these notches and kinks, as well as other kinks in the UK income tax schedule (Adam, Browne, Phillips and Roantree (2015)).

Figure 1. NICs schedule (employee + employer), April 1984, 1986 and 2011 (2014 prices)



We use data on earnings, hours and basic employer and employee characteristics from a random 1% panel sample of UK employees, spanning the years 1975 to 2013. This compulsory employer survey, the New Earnings Survey Panel Dataset (NESPD), is an under-utilised resource and contains a far larger sample, and more accurate measures of wages and hours, than the household surveys typically employed in analyses of labour supply and taxation.

The incidence of a labour tax like NICs depends on the relative elasticities of labour supply and demand. Incidence and behavioural responses by employees and employers cannot be separately identified from observations of earnings and hours of work without additional assumptions. In this paper we derive estimates under alternative sets of assumptions.

Our first approach assumes that behavioural responses take the form of changes in hours of work, whilst any changes in gross hourly wages reflect the incidence of NICs. In effect, this means ruling out the effort-per-hour margin that, in part, motivated the New Tax Responsiveness literature (Saez, Slemrod and Giertz (2012). Under this assumption we estimate the incidence of employer and employee NICs reforms (separately) by looking at their effects on gross hourly wages, and we estimate behavioural elasticities by looking the effect on hours of work.

Our second approach uses information on weekly earnings only and allows for NICs to affect hourly effort and therefore wages directly via behaviour (rather than 'indirectly'

via shifting incidence). Responses of weekly earnings to changes in marginal tax rates reflect substitution effects. Responses of weekly earnings to changes in average tax rates can be interpreted as income effects (if the incidence of the tax is assumed) or else as reflecting the incidence of NICs (if we assume no income effects).This approach builds on the work of Lehmann et al (2013), who examine the short-term incidence and behavioural effects of income tax and employer social security contributions in France using reforms during the early 2000s.

In both approaches, the use of lagged changes in NICs rates as regressors allows for the examination of longer-run behavioural and incidence effects, extending earlier work which focuses on short-run responses. Endogeneity of changes in net-of-tax rates is addressed using the approaches set out in Kopczuk (2005) and Weber (2014).

The paper also examines responses to other changes in incentives as a result of NICs reforms. For example, prior to 1985, employer and employee contributions were capped in cash terms. When combined with the assessment of NICs liabilities on a pay-period basis, this provided employers with an incentive to pay a large subset of workers in a 'lumpy' fashion (e.g. via bonuses), to take advantage of NICs-free remuneration above the cap. From October 1985, however, employer contributions were uncapped, reducing this incentive (but not removing it entirely, as employee contributions remained capped). We show how remuneration patterns responded to these changing incentives.

The analysis is of both academic and policy relevance. Much of the literature on labour supply and taxable income elasticities implicitly assumes that the incidence of labour taxes – whether levied on employees or employers – is fully on employees. There is much academic and political debate about whether the incentive effects of social security contributions and income taxes are different because of the link between social security contributions and benefit entitlements – perhaps particularly interesting to examine in the UK, where the perceived link between contributions and entitlements is much stronger than the actual link. European policymakers have shown particular interest in the incidence and efficiency effects of employer social security contributions, with concern that by raising labour costs, they may adversely affect competitiveness and increase structural unemployment (European Commission, 2013, 2015). In the UK, meanwhile, integration of income tax and NICs is widely discussed (Mirrlees et al., 2011; Office of Tax Simplification, 2015). This paper contributes to understanding of all of those issues.

References

Adam, S., J. Browne, D. Phillips and B. Roantree (2015), "Adjustment costs and labour supply: evidence from bunching at tax thresholds in the UK", Mimeo

European Commission (2013), "Study on the Impacts of Fiscal Devaluation", Working Paper No. 36–2013

European Commission (2015), "Study on the effects and incidence of labour taxation", Working Paper No. 56–2015

Kopczuk, W. (2005), 'Tax bases, tax rates and the elasticity of reported income', *Journal of Public Economics,* Vol. 89, No. 11-12, pp. 2093–2119

Lehmann, E., F. Marical, and L. Rioux (2013), 'Labor income responds differently to income-tax and payroll-tax reforms', Journal of Public Economics, Vol. 99, pp. 66 – 84

Mirrlees, J. et al (2011), "The Mirrlees Review: Tax by Design", Oxford University Press

Office of Tax Simplification (2015), 'Alignment of Income Tax and National Insurance: Terms of Reference', https://www.gov.uk/government/publications/ots-review-of-income-tax-and-national-insurance-tor.

Saez, E., J. Slemrod and S. Giertz (2012), "The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review", Journal of Economic Literature, Vol. 50, No. 1, pp. 3–50

Weber, C. (2014), 'Towards a consistent estimate of the elasticity of taxable income', Journal of Public Economics. Vol. 117, pp. 90–103