Tax Reforms and Intertemporal Shifting of Wage Income: Evidence from Danish Monthly Payroll Records

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Results

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Intertemporal shifting of wage income:
An example
Intertemporal shifting of wage income: Research questions and approach

Research questions
How important is intertemporal shifting of "normal" wage income?
How much of the ETI can be attributed to intertemporal shifting behavior?
Importance of economic incentives, information/awareness and employer cooperation for shifting behavior?

Research approach
New monthly payroll records for all Danish Employees + Identifying variation from a large tax reform that reduced MT rates significantly for the 1/3 of the employees with the highest incomes

Intertemporal shifting of wage income: Why interesting?
Tax-motivated intertemporal shifting of income ⇒ efficiency loss ⇒ If tax payers shift income because of taxation then it has policy implications:

Tax reforms
- Tax changes generate incentives for intertemporal shifting
- Only temporary effect, which is small compared to permanent effect, but quantitatively important if tax changes only last a few years (6 tax reforms in Denmark during the last 25 years)
- May take measures to avoid intertemporal shifting

Tax structure
- EMT changes over the life for various reasons (retirement, marriage ...) which create incentives to shift income
Intertemporal shifting of wage income:
Why interesting?

The elasticity of taxable income (ETI) is a sufficient statistic to measure the distortionary effect of the tax system (Feldstein, 1999)

The ETI is typically estimated using diff-in-diff types of methodologies using tax reforms as exogenous variation

Saez, Slemrod and Giertz (2012): ETI ≈ 0.25

Kleven and Schultz, 2012; Danish Economic Council, 2011: ETI ≈ 0.1 overall and ETI ≈ 0.2 for high-wage earners

Interested in long run, structural elasticity of ETI **BUT** estimates may be upward biased due to income shifting (Saez et al, 2012)

In Denmark, high-wage earners face an EMT of 66%, which is beyond the Laffer rate if ETI > 0.15 ⇒ Highest EMT in Denmark is close to or beyond the Laffer rate ... **BUT** not if, say, half of the estimate is driven by income shifting

The 2010 DK tax reform and the scope for income shifting:
Background

Aim of the 2010 reform: Increase labor supply by reducing the highest effective marginal tax rates on labor

MT from 63% to 56% for the 1/3 of the full time employees with the highest incomes ⇒ 1-τ reduced by 20%

Revenue-neutral reform (base broadening)

Introduced by the former government on March 1st 2009, passed in the Danish parliament on May 28th, and signed into law with effect from January 1st 2010.

Distance between announcement date and actual implementation ⇒ half a year to plan shifting of income from tax year 2009 to 2010
The 2010 DK tax reform and the scope for income shifting: Incentive to shift one month’s salary from 2009 to 2010

The 2010 DK tax reform and the scope for income shifting: Limits to engage in shifting behavior

The employer reports individual earnings to the tax authorities ⇒ need employer cooperation

Legal rules: firms have to withhold taxes on the labor income of its employees, but no sooner than when the income is paid out to the employees. The company is obligated to withhold taxes no later than 6 months after the income is earned.

Legal to shift income but not the intention of the law ⇒ tax avoidance (but not evasion)

⇒ no shifting activity among government employees

⇒ social norms and public reputation may prevent certain firms from engaging in shifting
Data: Background

New administrative records on monthly wages and salaries for the universe of Danish tax payers (the eIncome register)

All firms have to report on a monthly basis all information printed on a typical Danish payslip to the Danish tax agency (SKAT)

Decided by law in May 2006 and fully effective from January 1st 2008 and onwards

The monthly frequency of the data makes it possible to convincingly detect shifting behavior, which is expected to take place around New Year

Data is transferred to Statistics Denmark where it is merged with comprehensive social demographic background information of the employees as well as detailed information about firms

Empirical results:
Average monthly wage of T-group and C-group
Empirical results:
Change in monthly wage of T-group relative to C-group

![Graph showing change in monthly wage](image)

Empirical results:
Elasticity of taxable income decomposition

Simple Feldstein type estimate of ETI:

\[
ETI = \frac{1}{2} \sum_{i=1}^{T} \frac{T_{i10} - T_{i08}}{T_{i08}} - \frac{1}{2} \sum_{i=1}^{T} \frac{T_{i10} - T_{i08}}{T_{i10}} \\
= \frac{1.35 + 0.28}{18.3 - 2.2} = 0.101^{***}, \text{95% conf.:}[0.08,0.122]
\]

ETI due to shifting responses:

\[
ETI_{\text{Shift}} = \frac{0.28 \cdot 2}{18.3 - 2.2} = 0.035^{**}, \text{95% conf.:}[0.007,0.0001]
\]
Empirical results:
Monthly wage growth of at least 50% in month ‘m’ and less than -50% in month ‘m’-1 for T-group relative to C-group:
A. Residual: Agriculture, forestry and fishing & Public administration, education and health & Arts, entertainment and other services & Activity not stated

B. Manufacturing, mining and quarrying, and utility services

C. Construction

D. Trade and transport etc.

E. Information and communication

F. Financial and insurance

G. Real estate

H. Other business services
Employer cooperation: Monthly wage growth of at least 50% in month 'm' and less than -50% in month 'm'-1, T-group relative to C-group for government (left) & other public employees (right)

Knowledge: Survey evidence

Q1: would be most beneficial for you, from a tax point of view, to obtain a little more extra wage income:
1. Just before the New Year 2010
2. Just after the New Year 2010
3. Equally beneficial

Q2: Is 'legal' or 'illegal' for an employee to make an agreement together with the employer about postponing the payout of some of the earned income in 2009 to 2010.

Timing / Tax law | Postponing is: legal | Postponing is: illegal |
-----------------|---------------------|-----------------------|
Before New Year '10 | 33                  | 36                    |
After New Year '10 | **T-group = 123**  | 162                   |
Equally beneficial | 157                 | 264                   |

T-group is defined as taxpayers who answer ‘after new year 2010’ to the timing question and ‘legal’ to the question on the tax law. C-group is the remaining. Both T-group and C-group have average monthly 2008 wages of at least 32.000 DKK.
Knowledge: Survey evidence

Conclusions:

How important is intertemporal shifting of wage income?

- Large intertemporal shifting responses in wage income (around 5% of monthly income was shifted from 09 to 10 in the T-group)
- Only few individuals shift income but they shift large amounts

Economic incentives

- More shifting at higher income levels

Information/Awareness

- Only one out of fifteen is well informed about shifting opportunities and legality
- For the survey sample opportunity awareness and tax law knowledge correlates with shifting responses.
Conclusions:

Employer cooperation on tax avoidance

- Shifting in private firms but not for government employees
- More shifting for top wage earners

How much of the ETI can be attributed to intertemporal shifting behavior?

- Income shifting may account for up to 1/3 of the overall ETI
- ETI is increasing in income as documented by many other studies but seem to be driven by income shifting

Extra slides
Data:
Distribution of average monthly wage in 2008

Intertemporal shifting of wage income:
Previous literature

Limited knowledge on the extent of intertemporal shifting of wage income

Evidence of shifting between tax bases (Auerbach & Slemrod 1997)

Timing of capital gains realizations appears to react strongly to changes in capital gains tax rates (Auerbach, 1988)

Significant part of the decrease in taxable income of executives is due to timing in the realization of stock options (Goolsbee, 2000)

Much more difficult to change the timing of regular labor income than the timing of capital income and stock-options:

- Higher transaction costs
- Need corporation with your employer
- Likely to become credit constrained if not receiving labor income
LPM Regression results: Dependent variable 'shift' is a dummy indicator for a monthly wage growth of at least 50 % in Jan'10 and less than -50 % in Dec'09

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Observations 279.425 49.834

Also controlled for age dummies and included dummies for missing variables. 'B' indicates the variable is used as baseline.

Knowledge, earnings and employer cooperation:

Accountants