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Personal income tax reform in Belgium: The short-, medium- and long-run impact on wages, employment and value added re-examined by LABMOD
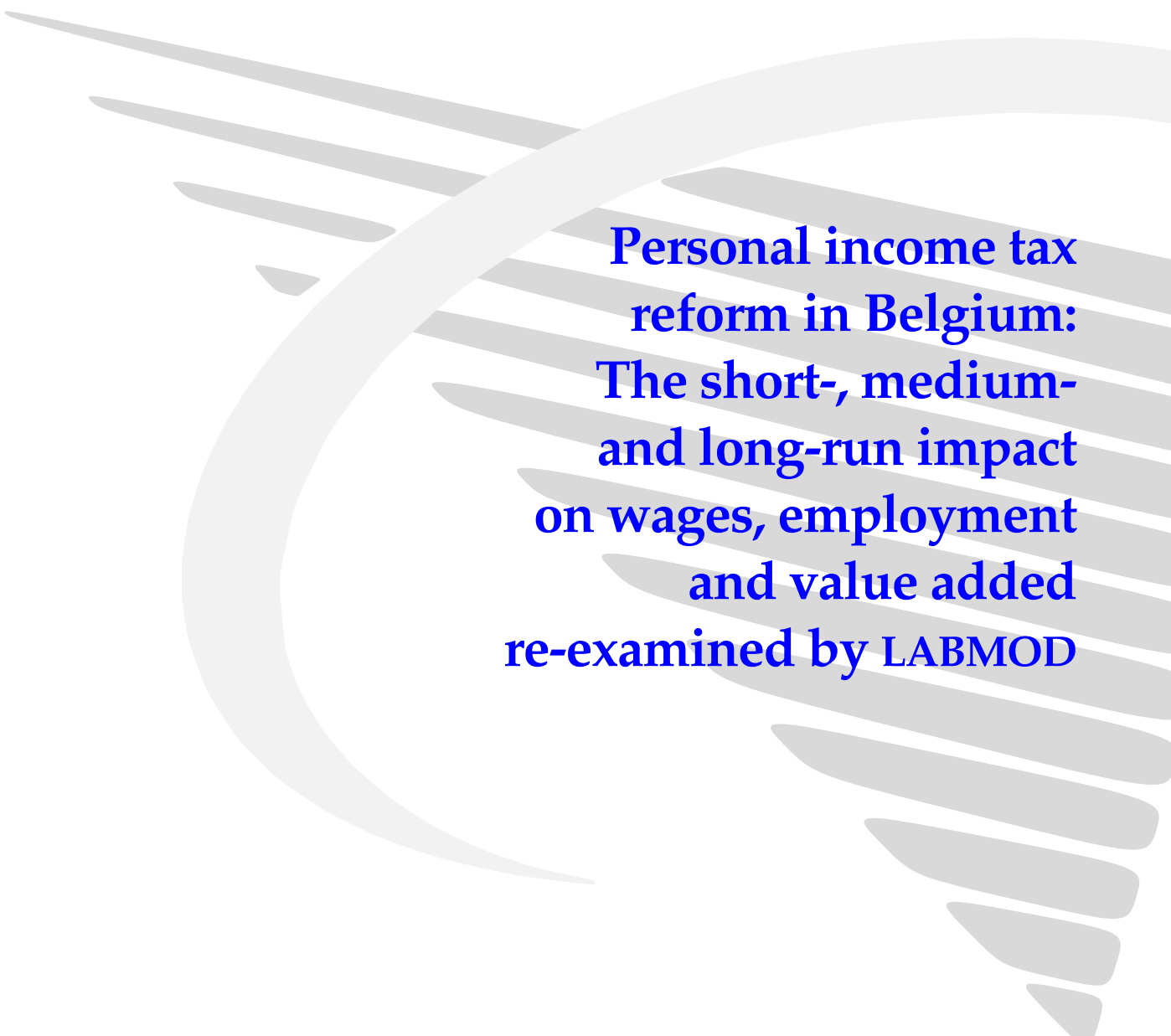
P. Stockman

April 2004

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Federal Planning Bureau

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Abstract

The impact of the current personal income tax reform on wages, value added and production is assessed. When fully implemented and all feedback on the goods and factor markets is accounted for, the 2001 fiscal reform and the removal of the crisis surcharge tax will cut the personal income tax rate by 3.1 percentage points and the market-sector real wage by 1.7%-2.6%.

The fiscal reform will raise the market sector real take-home wage by 1.5%-2.7%, market sector employment by 2.4%-3.5% and market sector real value added by 1.6%-2.2%. In the long run, the fiscal reform will raise the shares of the take-home wage bill and the net cash-flow before taxes by 0.9 and 0.6 percentage points in one scenario whereas another scenario predicts share increases by 0.7 and 0.9 per-centage points. During transition, the effects will be more modest because of both the delayed impact on wages and the gradual nature of the tax cut. However, by 2004 the successive nominal wage cuts will sum up to a slowdown in wage growth by 2.2%-2.3% over 2001-2004, i.e. 0.5 percentage points each year.

Due to the fiscal reform, employment is expected to be raised by the fiscal reform by 24,000 units in 2004, 34,000-36,000 units in 2007 and by 59,000-86,000 units in the very long run. These figures probably understate the true impact on employment.

I   **The 2001 personal income tax reform**

The 2001 personal income tax reform, to be implemented gradually in the fiscal years 2002-2005 (personal income revenue years 2001-2004), was set up as a multi-tier measure, comprising a tax credit for low labour income earners, the streamlining of the marginal tax rates on medium income tax brackets, additional work-related tax deductible expenses, the removal of marginal tax rates beyond 50%, higher tax exemptions on the income of married double-income earning couples in line with the tax exemptions for unmarried double-income earning couples, additional tax cuts for double replacement-income earners except for unemployment benefits, separate taxation of non-work related income, increases in the tax allowances for dependent children, a more favourable fiscal treatment of environment-friendly investment and some other minor measures. In addition to the personal income tax reform, the surcharge income tax ('crisis levy' / 'bijkomende crisisbijdrage' / 'contribution complémentaire de crise'), introduced in the fiscal year 1994, was to be phased out gradually over 2000-2003. When fully introduced, both initiatives will amount to 1.6% of GDP (Saintrain, 2001)[1]. As a result, the personal income tax rate is expected to be lowered by 3.1 percentage points in 2005 and later, starting with a 0.5 percentage-point cut in 2001 (table 1).

In the federal government's policy manifesto of October 2000, it was argued that the 2001 personal income tax reform was intended to help contain wage increases and to increase the disposable income of the working population. The manifesto stated that the personal income tax cut would moderate wage demands at the central bargaining round that would set wages and other labour market conditions in 2001-2002. Other aspects of the fiscal reform law were explicitly designed to support labour supply, particularly at the lower end of the wage distribution. The upward pressure on domestic prices - in response to the rise in purchasing power and induced labour-market tensions - and hence the adverse effects on international price competitiveness were implicitly assumed to be minor or of limited relevance in view of quantitatively similar tax cutting measures abroad. Importantly, the emphasis on the effects of cutting personal income taxes on wage bargaining - while reductions in social-security contributions (SSCs) were also put in place - reflected the federal government's belief that the choice between a cut in payroll taxes or SSCs matters when it comes to wage formation. This belief is partially corroborated by economic theory and empirical evidence of the non-equivalence between payroll taxes and SSCs in the short run despite the long-run equivalence among labour taxes (e.g. Joyeux et al (2003) for evidence on Belgium).

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1. Saintrain M. (2001), *La réforme de l'impôt des personnes physiques*, Federal Planning Bureau, Working Paper 01-01,

Exogenous tax incidence in a previous analysis: 3 cases

The medium-term impact of the personal income tax reform on macroeconomic performance, wages, and government revenue was previously assessed by Saintrain (2001)[1], using HERMES, the FPB's main vehicle for medium-term macroeconomic and macrosectoral analysis. The fiscal reform was fed ex ante into HERMES by means of a percentage change in the tax rate. By differentiating between three cases, reflecting different assumptions about the tax indicence on employers and employees, the analysis tried to cope with the fiscal reform's uncertain impact on gross wages. Because of technical constraints, wage-level specific knock-on effects were ignored[2].

Case 1: No effect on gross wages

The first case assumed - reflecting the practice of fixing a centrally bargained and government-sanctioned gross wage for 2 years - a zero impact on gross wages and wages, implying that the economic stimulus would have been driven entirely by the rise in households' disposable income and therefore aggregate demand. This case corresponds to a zero tax incidence on employers and a 100% tax incidence on employees.

Case 2: 100% effect on gross wages

The second case imposed a cut in gross wages of the same magnitude as the tax cut, implying a zero effect on take-home wages, a maximum fall in the wage and hence a deceleration of the annual wage growth rate by 0.8 percentage points. Hence, the economic impetus would have come from the rise in demand for labour (either because of the substitution of other production factors for labour or because of the aggregate cut in production costs), the increase in profitability (promoting investment), and the improvement in international price competitiveness (boosting net exports). This case corresponds to a 100% tax incidence on employers and a zero tax incidence on employees.

Case 3: Macroconomic feedback on gross wages

The third case assumed a free-wage economy, with real gross wages responding to the fall in labour productivity (downward pressure) and the fall in the unemployment rate (upward pressure), resulting in an acceleration of the annual gross wage growth rate by 0.3 percentage points on aggregate.

Endogenous tax incidence

This paper takes up the same issue again, this time endogenizing the knock-on effects of the fiscal reform on wages. The analytical framework banks on the right-to-manage and the job-search versions of the FPB's new macroeconometric labour market model (LABMOD), documented in Joyeux et al (2003)[3].

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1. Saintrain M. (2001), *La réforme de l'impôt des personnes physiques*, Federal Planning Bureau, Working Paper 01-01, table 3 (p.20).
2. Another complication was that the fiscal reform did not cover the various wage classes in the same way. Hence, knock-on effects on gross wages could have been expected to be different for low-wage, medium-wage and high-wage earners. However, dealing analytically with that diversity in the impact on wages was methodologically impossible due to the macroeconomic nature of HERMES.
3. Joyeux C., Hendrickx K., Masure L., Stockman P. (2003), *Een nieuw macro-econometrisch arbeidsmarktmodel: schatting, basissimulatie en arbeidsmarktbeleidsimulaties,* Federal Planning Bureau, Working Paper 13-03 or Joyeux C., Hendrickx K., Masure L., Stockman P. (2003), *Un nouveau modèle macro-économétrique du marché du travail: estimation, simulation de base et simulations de politiques d'emploi*, Federal Planning Bureau, Working Paper 13-03.

II Methodology and results

A. A three-step procedure

Computing macroeconomic tax rates

The fiscal reform is analysed in three steps. First, the impact of the income tax reform on the three macroeconomic tax rates (employer SSC's, payroll taxes, employee SSC's)[1] was measured by comparing two HERMES simulations[2]: one without the income tax reform, the other incorporating the fiscal reform. Both HERMES simulations assume that future gross wage growth would have been dictated by the government-sanctioned wage benchmark.

Fiscal reform vrs no fiscal reform: level effects

Then, for each set of SSC and income tax rates[3], the corresponding labour market model economy was simulated: a baseline incorporating the fiscal reform and an alternative simulation without the fiscal reform. The impact of the fiscal reform[4] on wages, output and employment *levels*[5] is measured by the percentage differences between the fiscal-reform exclusive simulation and the fiscal-reform inclusive baseline. Since the assessment is based on out-of-sample simulations, starting in 2000, with all exogenous variables except for the tax rates fixed at 2000-levels, it should not be confused with an evaluation a posteriori.

Effect on wage growth

Finally, based on the level effects, observed and future wage-benchmark-dictated nominal wage growth in 2001-2002 and 2003-2004 are compared with the wage growth that would have occurred in 2001-2002 or would occur in 2003-2004 if the personal income tax had not been reformed.

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1. Market-sector-wide SSC rates are - marginally - affected as well by the income tax reform through various channels because fiscal revenue is modelled bottom-up and because of sectoral differences in responsiveness to the income tax shock.
2. The November version of the medium-term projections anno 2000.
3. Imposing HERMES labour tax rates on the labour market model is not without problems because the de facto progressivity of income tax and SSC rates is ignored in the latter - see box.
4. Because of the one-year up to two-year delay in bringing prepayed tax revenue in line with the proper rate, a system involving advance tax levies and tax refunds, the reformed income tax law is assumed to take full effect in 2005 rather than 2004 (Saintrain, 2001, p.17).
5. In both labour market model simulations, starting in 2000, the SSC and income tax rates are kept constant as from 2005 whereas all other exogenous variables are fixed at observed 2000-levels. Because the exogenous variables are in steady-state modus, inflation and real growth are merely responses to gaps between the short-run equilibrium and the steady-state solution. Therefore, discussing the impact on value added *growth* rates or price and wage *inflation* rates would be pointless.

Box: Macroeconomic payroll tax and SSC rates in LABMOD and HERMES: Some caveats

In real life, the personal income tax schedule is progressive because of the nominal income tax scales; employer SSCs are progressive because employer SSC reductions are per head and not pro rata; so are the employee SSCs because employer SSC reductions are restricted to low-wage earners. A nominal wage increase, whether inflation-induced or real growth-induced, implies higher employer and employee SSC rates; a higher real wage implies a higher income tax rate; and a higher price-induced nominal wage implies a higher income tax rate as well if the income tax brackets are not inflation adjusted. Hence, the tax wedge is increasing in the average wage level. A number of problems arise from this progessivity of the SSC and income tax systems.

The first problem is that HERMES and LABMOD generate different nominal and/or real wages, implying different average income tax rates and SSC rates if the progessivity of the SSC and income tax systems were properly accounted for. HERMES, incorporating a more sophisticated and more bottom-up public finance block, allows some endogeneity of the macroeconomic personal income tax rate (because of the distinction between wage bill growth due to employment or due to gross wages) and the macroeconomic employer SSC rate (because of the differentiation between three labour categories and intersectoral shifts in activity), but not of the employee SSC rate. In contrast, all tax rates are exogenous in LABMOD. Hence, transplanting (semi-) endogenous HERMES tax rates to LABMOD may be erroneous. In practice, wage levels are higher in the HERMES-baseline (simulated out of sample, in a non-zero growth environment) than in the LABMOD baseline (simulated out of sample, in a zero steady-state growth environment), implying that out-of-sample HERMES tax rates overestimate out-of-sample LABMOD tax rates.

The second problem is that policy simulations with LABMOD ignore the macroeconomic feedback of discretionary changes in tax rates on the tax wedge. Typically, a discretionary labour-tax rate cut, such as the fiscal reform starting in 2001, reduces the long-term equilibrium wage and the long-term equilibrium gross wage, both in real and nominal terms, and the price level. However, if properly modelled, the progressivity of income taxes and SSC's should induce an additional fall in labour tax rates - somewhat softened by the price-induced shift in the income tax brackets since the income tax brackets are price-adjusted as from 1999, adding to the initial wage reduction and increasing demand for labour even more. Therefore, there is every reason to believe that LABMOD will understate the downward pressure on gross wages, the impact on employment and value added.

B. The mechanics of the model

Two versions of the labour market model

The analytical framework is the fpb's macroeconometric labour market model of the market sector ('LABMOD'), estimated over 1970-2000 and simulated over 1975-2000. It models value added, the demand for labour and capital, the setting of wages and prices, the matching of supply and demand on the labour market, and the dynamics that tie short-run behaviour to the steady state. The real wage depends on the wage wedge, labour productivity, the replacement rate of unemployment benefits to the take-home wage, and pressures on the labour market. The model exists in two versions. The 'right-to-manage' version links the wage to the unemployment rate; the 'job-search' version ties the wage to the unemployment-vacancy-ratio. Long-run value added is dictated by a constant-returns-to-scale production function, exogenous technological innovation and the employability of capital and labour, given factor prices and aggregate demand. During transition between long-run equilibria, value added is mainly determined by aggregate demand, which responds to households' disposable in-

come, investment demand and international price competitiveness. The difficulty of matching supply and demand on the labour market implies that - for a given number of unemployed - more vacancies will have to be opened than jobs will be satisfied in order to increase employment, a bottle neck that adds to the labour cost. Conversely, a fall in employment would cut the matching cost because of the more than proportional fall in vacancies. The value-added price is derived from a monopolistic-competitive mark-up on top of domestic factor costs and foreign prices; consumer prices and investment good prices are an average of the domestic value-added price and imported goods prices.

Higher wages without the fiscal reform

Labour being homogeneous in LABMOD, the wage-level aspects of the fiscal reform are ignored. In the long run, in absence of the fiscal reform, the higher income tax would raise the wage wedge and the equilibrium real wage and would depress employment, value added and the real take-home wage. The upward pressure on the real wage would be strengthened by the rise in labour productivity and the replacement rate between the average unemployment benefit and the take-home wage[1]. The decrease in labour-market pressures, through either the rise in the unemployment rate (right-to-manage wage setting) or the fall in the vacancies-unemployment-rate (job-search wage setting), would reduce the upward pressure on the real wage to some extent. The total labour cost would rise slightly less than the wage because the relaxing of labour-market tensions would reduce the cost of labour matching.

Long-run differences between the two versions of the labour market model

Theoretical policy simulations (Joyeux et al, 2003) indicate that the long-run economic impetus (in terms of employment and value added) of the labour tax increase would be far greater in the case of the 'job search' model than in the 'right to manage' model. The reason is that the forementioned knock-on effect on the real wage in response to the fall in labour-market tensions - i.e. some downward pressure that alleviates the real-wage increase - would be more accute in the 'right to manage' model (through the unemployment rate) than in the 'job search' model (through the vacancies-unemployment-rate).

Effects during transition

During transition to the new long-run equilibrium, the short-run real wage would tend to rise due to the push of the higher long-run equilibrium wage and because of the direct impact of the higher payroll tax rate. The nominal wage and hence the nominal take-home wage would be propped up by the rise in goods prices. Aggregate demand would fall as a consequence of loss of international price competiveness (triggered by the value-added price rise) and the fall in households' real disposable income. The fall in households' real disposable income would be accounted for by the fall in market sector employment and by the drop in market-sector and public-sector real take-home wages.

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1. Because of similar macroeconomic feedback on wages through labour productivity and unemployment, the free-wage version of HERMES bears some superficial resemblance to the FPB labour market model. However, one major mechanism underpinning the wage formation in the labour market model - the direct effect of the wage wedge on wages - is absent from HERMES, precluding endogenous wage moderation through payroll tax cuts.

C. Macroeconomic effects in the short, medium and long run

A mixture of immediate and delayed responses

The results reported in table 1 (right-to-manage wage formation) and table 2 (job-search wage formation) reflect both the immediate impact of the shock in the payroll tax and the delayed response to previous payroll tax shocks. Because of the rapid succession of significant shocks in the income tax rate over 2000-2005, the right-to-manage and the job-search model versions initially produce similar results; only after 2010 do the differences between the two models become apparent. In what will follow, the right-to-manage results will be reported in first instance and confronted with the job-search results, the latter reported between brackets.

Wages and take-home wages

The wage and the take-home wage in real terms gauge the impact on employers and employees[1]. Upon impact, the burden of the income tax rise would fall mainly on the employees and to a lesser extent on the employers. This is particularly true for the shock in 2001, involving an income tax rate rise by 0.5 percentage points, a real take-home wage fall (i.e. after allowing for the consumer price increase) by 0.5% in the right-to-manage economy (or 0.6% in the job-search economy) and a real wage rise (i.e. after allowing for the value-added price increase) by 0.3% (idem). In due time, i.e. if the tax rate change had been in effect long enough, some of the tax burden would be passed on from the employees to the employers in the job-search model but not so in the right-to-manage model. E.g. the shock in 2005 involves a 3.1% percentage point rise in the income tax rate, a 2.4% (idem) drop in the real take-home wage and a 2.1% (idem) rise in the real wage. In 2010, the same 3.1% rise in the income tax rate would have produced a fall in the real take-home wage by 2.3% (or 1.7%) but a rise in the real wage by as much as 2.0% (or 2.5%). In the long run, the real take-home wage would fall by 2.7% (or 1.5%) whereas the real wage would rise by 1.7% (or 2.6%).

The composition of value added

Another gauge of the tax burden is the composition of nominal value added. In 2001, the share of spending on labour (including the cost of matching) would rise by 0.1 (idem) percentage points whereas the share of the net cash-flow before taxes (value added minus spending on labour, gross investment) would drop by 0.1 (idem) percentage points. The government's slice of value added would rise by 0.3 (idem) percentage points, reducing the take-home wage share by 0.2 (idem) percentage points, a loss similar in magnitude as the loss in share for the pre-tax net cash-flow. With the labour taxes set at steady-state rates as from 2005, the importance of labour spending would increase by 0.9 (idem) in 2005 and 0.4 (or 0.7) percentage points in the long run. The share of the pre-tax net cash-flow would be reduced by 0.8 (idem) percentage points in 2005 and by 0.6 (or 0.9) percentage points in the long run. With the government's take in value added rising by 1.6 (idem) percentage points in 2005 and by 1.4 (idem) percentage points in the long run, the portion of value added accruing to the employees would decrease by 0.8 (idem) percentage points in 2005 and by 0.9 (or 0.7) percentage points in the long run. Also note that the long-run decline in the share accruing to the employers (a decrease by 0.6 or 0.9 percentage points) is not only due to increased spending on labour but also due to increased investment spending (a rise by 0.1 or 0.2 percentage points).

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1. The wage and the gross wage are affected in almost identical manner because of the negligible difference between pre-shock and post-shock employer SSC rates. The impact of the fiscal reform, whether direct or through macroeconomic feedback, falls on the nominal wage. Therefore, the impact on the nominal take-home wage is entirely mechanical, given the nominal wage and the payroll tax.

Who will benefit more remains unclear

By implication, the right-to-manage simulation suggests that employees would benefit more than employers from the fiscal reform eventually whereas the job-search simulation suggests the opposite.

TABLE 1 - Effect on the market sector if the fiscal reform had not been implemented (right to manage wage formation)

	2000	2001	2002	2003	2004	2005	2007	2010	long run
Personal income tax rate[a]	0.08%	0.53%	1.19%	2.06%	3.09%	3.12%	3.12%	3.12%	3.12%
Production[b]									
- value added (constant prices)	-0.02%	-0.11%	-0.25%	-0.43%	-0.66%	-0.69%	-0.80%	-0.99%	-1.63%
- capital stock	0.00%	-0.03%	-0.07%	-0.14%	-0.24%	-0.31%	-0.38%	-0.34%	0.01%
- employment	-0.02%	-0.14%	-0.35%	-0.65%	-1.04%	-1.20%	-1.44%	-1.69%	-2.44%
Price and wage levels[c]									
- value-added price deflator	0.00%	0.01%	0.06%	0.18%	0.37%	0.65%	1.11%	1.57%	3.05%
- consumer price index	0.00%	0.00%	0.03%	0.10%	0.22%	0.39%	0.70%	1.07%	2.60%
- nominal labour cost[d]	0.04%	0.29%	0.75%	1.42%	2.29%	2.73%	3.15%	3.49%	4.62%
- nominal wage	0.04%	0.30%	0.77%	1.45%	2.34%	2.78%	3.22%	3.57%	4.75%
- nominal gross wage[e]	0.04%	0.30%	0.77%	1.45%	2.34%	2.78%	3.21%	3.57%	4.75%
- nominal take-home wage	-0.08%	-0.52%	-1.07%	-1.73%	-2.41%	-2.03%	-1.60%	-1.25%	-0.07%
- real wage[f]	0.04%	0.29%	0.71%	1.28%	1.97%	2.13%	2.11%	2.00%	1.71%
- real take-home wage[g]	-0.08%	-0.53%	-1.10%	-1.83%	-2.62%	-2.42%	-2.30%	-2.32%	-2.66%
Labour market									
- unemployment rate[h]	0.01%	0.08%	0.20%	0.37%	0.58%	0.68%	0.81%	0.96%	1.42%
- employment[i]	-502	-3390	-8263	-15321	-24370	-28187	-33888	-40107	-59103
Composition of nominal value added[j]									
- spending on labour	0.02%	0.14%	0.34%	0.58%	0.87%	0.89%	0.80%	0.69%	0.44%
* of which take-home wage bill	-0.02%	-0.15%	-0.32%	-0.53%	-0.78%	-0.76%	-0.76%	-0.78%	-0.91%
* of which taxes on labour	0.04%	0.28%	0.64%	1.09%	1.62%	1.62%	1.54%	1.47%	1.39%
* of which matching cost	0.00%	0.00%	0.01%	0.02%	0.03%	0.03%	0.02%	0.00%	-0.04%
- investment spending	0.00%	-0.02%	-0.06%	-0.10%	-0.14%	-0.12%	-0.04%	0.07%	0.13%
- pre-tax net cash-flow	-0.02%	-0.12%	-0.28%	-0.48%	-0.73%	-0.77%	-0.76%	-0.76%	-0.57%

a. percentage-point difference over baseline; defined w.r.t. gross wage; because of the one-year up to two-year delay in bringing pre-payed tax revenue in line with the proper rate in a system involving prelevies and tax refunds, the reformed income tax law is assumed to take full effect in 2005 rather than 2004.

b. percentage difference over baseline.

c. percentage difference over baseline.

d. the matching technology implies - for a given stock of unemployed - a bigger drop in vacancies than in jobs and therefore a fall in the matching cost, explaining why the total labour cost rises by less than the wage.

e. almost identically affected as the nominal wage because of the near-zero impact on the employer's SSC rate in the HERMES simulations

f. deflated by the value-added price index; discrepancies are due to rounding errors.

g. deflated by the consumer price index; discrepancies are due to rounding errors.

h. percentage-point difference over baseline.

i. absolute difference over baseline in units; because baseline employment is smaller in a model with zero steady-state growth than real-life employment, the same percentage change implies that the absolute impact as reported here underestimates the true impact on employment.

j. percentage-point difference over baseline.

TABLE 2 - **Effect on the market sector if the fiscal reform had not been implemented (job search wage formation)**

	2000	2001	2002	2003	2004	2005	2007	2010	long run
Personal income tax rate[a]	0.08%	0.53%	1.19%	2.06%	3.09%	3.12%	3.12%	3.12%	3.12%
Production[b]									
- value added (constant prices)	-0.02%	-0.11%	-0.25%	-0.44%	-0.66%	-0.68%	-0.78%	-1.01%	-2.24%
- capital stock	0.00%	-0.03%	-0.07%	-0.14%	-0.24%	-0.31%	-0.38%	-0.33%	0.29%
- employment	-0.02%	-0.14%	-0.34%	-0.64%	-1.03%	-1.21%	-1.54%	-1.92%	-3.52%
Price and wage levels[c]									
- value-added price deflator	0.00%	0.01%	0.05%	0.16%	0.34%	0.62%	1.13%	1.76%	4.74%
- consumer price index	0.00%	0.00%	0.03%	0.09%	0.20%	0.36%	0.70%	1.19%	4.01%
- nominal labour cost[d]	0.04%	0.26%	0.69%	1.33%	2.20%	2.73%	3.49%	4.23%	7.24%
- nominal wage	0.04%	0.26%	0.70%	1.35%	2.23%	2.76%	3.53%	4.28%	7.36%
- nominal gross wage[e]	0.04%	0.26%	0.69%	1.35%	2.23%	2.76%	3.53%	4.27%	7.35%
- nominal take-home wage	-0.09%	-0.55%	-1.14%	-1.83%	-2.52%	-2.06%	-1.29%	-0.54%	2.54%
- real wage[f]	0.04%	0.26%	0.64%	1.19%	1.89%	2.14%	2.40%	2.51%	2.62%
- real take-home wage[g]	-0.09%	-0.56%	-1.17%	-1.92%	-2.72%	-2.42%	-1.99%	-1.73%	-1.48%
Labour market									
- unemployment rate[h]	0.01%	0.08%	0.19%	0.36%	0.57%	0.68%	0.86%	1.09%	2.06%
- employment[i]	-484	-3249	-7945	-14884	-23931	-28206	-35971	-45391	-86191
Composition of nominal value added[j]									
- spending on labour	0.02%	0.13%	0.31%	0.55%	0.84%	0.89%	0.91%	0.87%	0.70%
* of which take-home wage bill	-0.02%	-0.15%	-0.33%	-0.55%	-0.81%	-0.77%	-0.72%	-0.69%	-0.72%
* of which taxes on labour	0.04%	0.28%	0.62%	1.08%	1.61%	1.63%	1.59%	1.54%	1.44%
* of which matching cost	0.00%	0.00%	0.01%	0.02%	0.03%	0.03%	0.03%	0.02%	-0.02%
- investment spending	0.00%	-0.03%	-0.06%	-0.10%	-0.14%	-0.12%	-0.04%	0.08%	0.20%
- pre-tax net cash-flow	-0.02%	-0.10%	-0.25%	-0.45%	-0.70%	-0.77%	-0.87%	-0.95%	-0.90%

a. percentage-point difference over baseline; defined w.r.t. gross wage; because of the one-year up to two-year delay in bringing pre-payed tax revenue in line with the proper rate in a system involving prelevies and tax refunds, the reformed income tax law is assumed to take full effect in 2005 rather than 2004.

b. percentage difference over baseline.

c. percentage difference over baseline.

d. the matching technology implies - for a given stock of unemployed - a bigger drop in vacancies than in jobs and therefore a fall in the matching cost, explaining why the total labour cost rises by less than the wage.

e. almost identically affected as the nominal wage because of the near-zero impact on the employer's SSC rate in the HERMES simulations

f. deflated by the value-added price index; discrepancies are due to rounding errors.

g. deflated by the consumer price index; discrepancies are due to rounding errors.

h. percentage-point difference over baseline.

i. absolute difference over baseline in units; because baseline employment is smaller in a model with zero steady-state growth than real-life employment, the same percentage change implies that the absolute impact as reported here underestimates the true impact on employment.

j. percentage-point difference over baseline.

Overall economic activity Initially, the negative employment and value added effects would remain modest - a decrease by 0.1% and 0.1% in 2001 according to the two model versions - but would become increasingly significant, from a fall by 1.2% (idem) and 0.7% (idem) in 2005 to a drop by 1.7% (or 2.0%) and 1% (idem) in 2010 and finally by 2.4% (or 3.5%) and 1.6% (or 2.2%) in the long run. Obviously, real economic activity would suffer more in the job-search economy than in the right-to-manage economy, mirroring the smaller real-wage increase in the latter.

Employment Non-implemenation of the fiscal reform would reduce employment by 24,000 units in 2004, 34,000-36,000 units in 2007 and by 59,000-86,000 units in the very long run. Because of the zero steady-state growth set-up of the model, these figures probably understate the true impact on employment.

Composition of aggregate demand The mixture of aggregate demand would evolve differently in the long run as well. On the one hand, consumer demand would fall more in the job-search economy because of the bigger drop in the real take-home wage bill (the net result of the smaller fall in the real take-home wage and more numerous job losses). The bigger rise in the value-added price would imply a bigger fall in net exports in the job-search economy as well. On the other hand, the more vigorous rise in the capital stock would push up investment demand more in the job-search economy than in the right-to-manage economy.

D. The implications for the wage benchmarks 2001-2002 and 2003-2004

Observed rate of increase in wages The combined effect of the wage benchmark 2001-2002, unexpected price inflation, and the wage drift (in response to labour market pressures, non-negligible according to López-Novella, 2002[1]) amounted to observed nominal-wage growth rates equal to 3.4% in 2001 and 4% in 2002 (Table 3). Under the wage benchmark 2003-2004, which was negotiated when the details of the fiscal reform were known and hence should have internalized the tax cut, the nominal wage was expected to grow at 2.3% in 2003 and 2.8% in 2004[2].

Central bargaining and wage drift Non-implementation of the fiscal reform would have had implications for wage growth in 2001-2002 and 2003-2004. Assuming that the fiscal reform was discounted at the time when the wage benchmark was centrally negotiated, the negotiated wage growth for 2003-2004 would have had to be higher in absence of the fiscal reform to satisfy employees. As for the wage growth seen in 2001-2002, wages would have been higher through either the effect on central wage bargaining (if the fiscal reform had been anticipated) or the wage drift (if the fiscal reform had not been fully anticipated).

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1. López-Novella M.(2002) *Salaires conventionnels et effectifs en Belgique : une analyse empirique et macroéconomique des écarts*, Federal Planning Bureau, Working Paper 01-02.
2. Based on the October version of the FPB's medium-term projections anno 2003 (HERMES vintage 'hnov182003').

In absence of the fiscal reform, applied to the HERMES database, the level effects on the nominal wage (tables 1 and 2) would translate into wage growth rates equal to 3.7% (or 3.6%) in 2001, 4.5% (or 4.4%) in 2002, 3% (or 2.9%) in 2003 and 3.7% (or 3.6%) in 2004. The cumulated additional wage increase over 2001-2004 would have been 2.3 (or 2.2) percentage points, i.e. about a 0.5-percentage-point rise each year on average[1]. These estimates capture the gradual nature of the fiscal reform and the delayed responsiveness in the goods and production factor markets. Whether the outcome of the central wage bargaining without the fiscal reform would have met the requirement that the wage growth rate not exceed wage growth abroad - the essence of Belgium's federal government's wage policy - and hence would have had the federal government's blessing, is uncertain.

TABLE 3 -   Effect on market sector wage growth if the fiscal reform had not been implemented (2001-2004)

	Year-on-year nominal-wage growth rate[a]			Cumulated nominal-wage growth			Cumulated nominal-wage growth over HERMES baseline	
	Fiscal reform	No fiscal reform		Fiscal reform	No fiscal reform		No fiscal reform	
	HERMES baseline[b]	Right to manage[c]	Job search[d]	HERMES baseline	Right to manage	Job search	Right to manage	Job search
2001	3.42%	3.67%	3.64%	3.42%	3.67%	3.64%	0.25%	0.23%
2002	3.98%	4.45%	4.41%	7.39%	8.12%	8.05%	0.73%	0.66%
2003	2.27%	2.96%	2.92%	9.66%	11.08%	10.98%	1.41%	1.31%
2004	2.76%	3.65%	3.64%	12.43%	14.73%	14.62%	2.30%	2.19%

a.   growth rates are defined as first difference logs.

b.   hnov182003; 2001-2002 data are observed - preliminary series, 2003-2004 are estimates or forecasts.

c.   the real wage depends on the unemployment rate.

d.   the real wage depends on the vacancies-unemployed rate.

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1.   If the tax incidence fell completely on the employers and wages had to rise by the full amount of the tax increase, than a 0.8-percentage-point increase in the rate of increase in wages would be required on average in the HERMES model version with exogenous wages - see Saintrain M. (2001), *La réforme de l'impôt des personnes physiques*, Federal Planning Bureau, Working Paper 01-01, table 5 (p.24).

III References

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