

WORKING PAPER

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Simulations with the HERMES II model for Belgium



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Introduction and preliminary remarks

This working paper presents some simulation exercises in order to illustrate the properties of the HERMES II model¹. It is not our purpose to assess concrete economic policy measures announced by the government or to make any policy recommendations. Twelve scenarios are examined. Nine of them are budgetary policy measures.

Regarding public expenditure, we simulate:

- an increase in public investment (with and without wage norm, see *infra*)
- an increase in social transfers to households
- an increase in the public consumption of goods and services

Regarding public revenue, we simulate:

- a reduction of VAT on private consumption (with and without wage norm, see *infra*)
- a reduced VAT rate for some labour-intensive services
- a reduction of the employers' social security contributions (with and without wage norm, see *infra*)
- a reduction of the employees' social security contributions
- a reduction of personal income taxes
- an excise tax increase on petrol and diesel

The other three scenarios focus on an international shock:

- an increase in world trade
- an oil price increase
- an USD appreciation

All simulations covered a five year period. The tables report the most important differences - macroeconomic, by branch and budgetary - between the variant and the baseline. The presentation is limited to the years t (first year) and $t+4$ (considered as the medium-term).

1. The econometric model HERMES II is presented in 'A description of the HERMES II model for Belgium', Working Paper 5-00.

An important remark should be made about *wage determination*. The current model incorporates a wage norm over the whole simulation period, which is in accordance with the 1996 Act on Employment Promotion and on Preventative Safeguard of Competitiveness. This curbs wage and price rises relative to a model version with 'free' wage equations and affects the results on economic activity and unemployment.

It should be noted that this *wage norm is imposed to the gross wages and not to the wage cost* in order to avoid that, for example, the economic impact of a cut in the employers' contributions will be weakened or offset by higher gross wages. We test (only) three scenarios - in order to save space - without any wage norm, i.e. the increase in public investment, the reduction of VAT on private consumption and the reduction of the employers' social security contributions.

Other topics that have been analysed by means of HERMES in the recent past include:

- a general social contribution (see Working Paper 6-99)
- a VAT reduction on housing (see Working Paper 1-00).

All working papers mentioned in this introduction are downloadable from our website.



Main findings

In this chapter we mainly focus on the seven variants with a comparable¹ *ex ante* introduced amount, i.e. 0.5% of baseline GDP throughout the simulation period, in a wage norm context. Table 1 summarizes the main findings. The implications for GDP and its main components, inflation, employment, the current account and the general government's budget are considered.

GDP is positively affected, although the impact multiplier² remains below 1. Adjusting public investment (A) or public consumption (C) has - obviously - the largest impact on GDP, as both are GDP components and directly affect its level. The impact multipliers equal respectively 0.90 and 0.88. The initial impact on GDP is the smallest in the 'employers' contributions' variant (F), as this measure is focused on the reduction of (labour) costs and, thus, on job creation. However, after a few years the GDP increase becomes more prominent due to the beneficial effects of the measure on private consumption and investments, as well as exports. The same holds for medium term GDP in the 'personal taxes' variant (H), which is mainly due to the increase in private consumption (this variant has the largest impact on disposable income). In this way, the variants A, C, F and H have the largest medium-term impact on GDP. The other three variants (B, D, and G) appear to be less beneficial, at least in terms of GDP.

The consumption price level decreases in the two 'price' variants (VAT and the employers' contributions). In the VAT case, consumption prices go down in a direct way, whereas a cut in the employers' contributions is reflected in the consumption prices via the production costs. The other variants in table 1 exert an upward pressure on the consumption prices due to the increased economic activity. Nevertheless, the inflationary impact remains very modest as these variants have been run with a HERMES version which incorporates a wage norm over the whole simulation period (see introduction).

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1. The *ex ante* introduced amounts for the 'social transfers' and the VAT variant are a bit smaller than 0.5% in the medium-term (0.47% and 0.49% respectively) as we adjusted only year t and let the dynamics play in the rest of the simulation period.
 2. i.e. the *ex post* GDP increase in year t relative to the 0.5% *ex ante* increase.

All variants lead to a significant increase in jobs. Cutting down the employers' contributions is obviously the most direct measure in favour of labour as a production factor. The employment results obtained with the VAT measure are interesting. Initially, the gain in employment is about 2,600 units higher in the VAT variant compared to the 'employers' contributions' scenario. In the medium-term, job creation is comparable. It should be noted that this result can be partially explained by the transition from ESA79 to the new system of national accounts (ESA95), which leads to sometimes important statistical revisions¹.

Moreover, *wage determination plays an important role*. The results presented in table 1 have been obtained in a wage norm context (see chapter I). It appears that, in a context without any wage norm (sections A.2, D.2 and F.2), medium-term job creation is considerably more effective if the employers' social contributions are cut instead of the VAT rates (+16,300 units, against +9,200 units). Nevertheless, *job creation is generally less effective in a 'free wages' context compared to a 'wage norm' situation*.

All measures considered here have a negative impact on the balance of current transactions, in the sense that they all decrease the external current surplus. Clearly, some measures seem more 'costly' than others: an increase in public investments or public consumption and a reduction of personal income taxes have a more negative impact on the external balance than other simulations (considering the impulse given to the imports). On the contrary, a VAT reduction and a cut in employers' social security contributions have more limited effects on the external balance. Indeed, these two simulations give an impulse to both imports and exports (the latter thanks to the decrease of internal costs and prices and, consequently, to an improvement of competitiveness).

Finally, regarding public finance, the positive impacts on activity and employment always permit to compensate, at least partially, the *ex ante* public deficit increase implied by the different measures. In the best case (employees' contributions decrease), the medium-term feedback effect attains more than 50%. This feedback effect is limited to 20% in the least favourable case, i.e. the 'personal income taxes' variant, and to 34% in the 'public investments' scenario. For the other measures, the feedback effect is close to 40%.

1. In the new ESA the economic weight of the - labour intensive - market services has been increased considerably (see e.g. Working Paper 5-00).

TABLE 1 - Main results from the '0.5%-of-GDP' variants in a 'wage norm' context
 (% differences from the baseline, unless otherwise specified)

	Public investment increase (section A.1)	Social transfers increase (section B) (*)	Public consumption increase (section C)	VAT reduction (section D.1) (*)	Employers' contributions reduction (section F.1)	Employees' contributions reduction (section G)	Personal taxes reduction (section H)
GDP							
. year t	0.45	0.20	0.44	0.19	0.14	0.15	0.24
. year t+4	0.35	0.22	0.35	0.20	0.30	0.17	0.29
Private consumption							
. year t	0.15	0.54	0.15	0.49	0.15	0.40	0.65
. year t+4	0.14	0.70	0.14	0.61	0.27	0.55	0.93
Gross fixed capital formation							
. year t	2.77	0.20	0.39	0.44	0.05	0.15	0.25
. year t+4	2.53	0.34	0.36	0.25	0.32	0.26	0.44
Exports							
. year t	-0.00	-0.00	-0.00	0.02	0.05	-0.00	-0.00
. year t+4	-0.02	-0.01	-0.02	0.12	0.17	-0.01	-0.02
Imports							
. year t	0.36	0.18	0.26	0.24	0.02	0.13	0.21
. year t+4	0.33	0.23	0.28	0.28	0.11	0.18	0.31
Private consumption price							
. year t	0.05	0.03	0.05	-0.91	-0.23	0.02	0.03
. year t+4	0.08	0.08	0.11	-1.35	-0.45	0.06	0.10
Employment (difference in %)							
. year t	0.30	0.11	0.26	0.35	0.29	0.08	0.14
. year t+4	0.25	0.15	0.23	0.56	0.56	0.12	0.20
(difference in thousands)							
. year t	11.75	4.45	10.22	14.01	11.44	3.35	5.39
. year t+4	10.46	6.28	9.32	23.04	23.11	4.91	8.31
Real disposable income							
. year t	0.17	0.73	0.17	0.54	0.14	0.55	0.89
. year t+4	0.16	0.74	0.16	0.68	0.32	0.58	0.98
Balance of current transactions (difference in billions of BEF)							
. year t	-28.6	-14.3	-20.9	-18.5	-8.5	-10.7	-17.3
. year t+4	-36.3	-24.9	-29.2	-22.9	-11.4	-19.4	-32.9
Net lending (difference in billions of BEF)							
. year t	-26.0	-33.4	-26.0	-25.1	-36.0	-25.2	-39.1
. year t+4	-41.5	-37.4	-40.8	-34.1	-40.2	-30.2	-50.5

(*) indicates variants with an ex ante introduced amount which is, in the medium-term, somewhat smaller than 0.5% of GDP.



The simulations

A. An increase in public investment

Public investment is increased each year by an amount equivalent to 0.5% of the corresponding baseline GDP.

Two versions of this scenario are tested. As explained in chapter I, the current model incorporates a wage norm. We take this as the first version. In the second one, all wage equations are free.

1. Simulation with wage norm

The introduced amount gradually increases from BEF 52.2 billion in the first year up to BEF 62.7 billion in year $t+4$.

Macroeconomic results

The demand effect of the shock is positive, as GDP rises by 0.45% in the first year. In the medium-term real GDP remains 0.35% above its baseline level. This means that the impact multiplier¹ remains below 1 and declines gradually (from 0.90 in the first year to 0.70 in the medium-term), owing to the rise of imports, induced by the increased domestic demand. The resulting job creation (about 11,700 units in the first year and still more than 10,000 jobs in the medium-term, compared to the baseline employment level) positively affects the households' purchasing power and, as a consequence, private consumption. Despite the gain in purchasing power, housing decreases somewhat compared to its baseline level. This can be attributed to a relative price effect: the households' investment price increases relative to the private consumption price (rent).

The impact on the inflation rate remains very limited, as the model incorporates a wage norm. This explains why the export activity remains almost unaffected (no loss in competitiveness). The current account position deteriorates due to the increased import demand.

Results by branch

Looking at the results by branch for the medium-term, it can be seen that the increased economic activity is concentrated in the construction branch. Real value added increases by approximately 2.5%, compared to its baseline level. Employment in the construction branch increases by 2.25%, corresponding to 5,400 units so that, in the medium-term, more than half of the new jobs are created in the construction branch. The other branches, such as the market services, also gain from the increased economic activity.

1. i.e. the *ex post* GDP increase in year t compared to the 0.5% *ex ante* increase.

TABLE 2 - An increase in public investment in a 'wage norm' context: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.15	0.14
- Government consumption	-0.00	0.00
- Gross fixed capital formation	2.77	2.53
. enterprises	0.63	0.44
. government	32.57	30.84
. housing	0.00	-0.16
- Total domestic demand	0.80	0.73
- Exports	-0.00	-0.02
- Imports	0.36	0.33
- GDP	0.45	0.35
<i>Prices and costs</i>		
- Consumption prices	0.05	0.08
- Health index	0.05	0.09
- Investment prices	0.19	0.15
. enterprises	0.13	0.09
. government	0.25	0.20
. housing	0.28	0.23
- Export prices	0.02	0.03
- Import prices	0.01	0.01
- Terms of trade	0.01	0.02
- GDP deflator	0.05	0.10
- Real hourly wage	-0.10	-0.08
- Unit labour cost	-0.10	0.01
<i>Employment</i>		
- Difference level in %	0.30	0.25
- Difference level in thousands	11.75	10.46
- Labour productivity/head	0.10	0.04
<i>Income</i>		
- Households' real disposable income	0.17	0.16
- Households' saving rate (difference level)	0.02	0.01
- Enterprises' gross operating surplus	0.55	0.40
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-28.62	-36.33
- Difference level in % of GDP	-0.30	-0.32

TABLE 3 - An increase in public investment in a 'wage norm' context: main results by branch
 (% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.20	-0.02
- Energy	0.30	0.16
- Intermediate goods	0.13	0.10
- Equipment goods	0.56	0.17
- Consumption goods	0.30	-0.01
- Construction	2.69	2.47
. total industry	0.69	0.51
- Transport and communication	0.35	0.22
- Trade and horeca ^a	0.06	0.08
- Credit and insurance	0.37	0.25
- Health care	0.00	0.02
- Other services to households and enterprises	0.59	0.45
. total market services	0.36	0.28
Total market branches	0.48	0.35
<i>Employment</i>		
- Agriculture	0.01	0.00
- Energy	0.14	0.19
- Intermediate goods	0.03	0.02
- Equipment goods	0.21	0.14
- Consumption goods	0.18	0.00
- Construction	2.43	2.25
. total industry	0.71	0.63
- Transport and communication	0.25	0.18
- Trade and horeca ^a	0.04	0.06
- Credit and insurance	0.05	0.05
- Health care	0.00	0.01
- Other services to households and enterprises	0.48	0.38
. total market services	0.24	0.20
Total market branches	0.37	0.31

a. horeca = hotels, restaurants and public houses.

The impact on public finance

The general government budget deteriorates - obviously - due to the increased capital expenditure. However, the *ex post* increase of the budget deficit is significantly smaller than the amounts introduced *ex ante*. This partial compensation stems from the increased economic activity, which leads to additional current receipts: additional indirect tax revenue is generated by the increased private consumption, while direct tax revenue increases because of higher employment (leading to a higher personal tax revenue) and higher corporate profits. Current expenditure is also increasing, owing to public consumption (invoked by the higher inflation) and, especially, higher interest payments (because of the deficit spending). Only the amount of social security transfers is somewhat smaller (less unemployment).

TABLE 4 - An increase in public investment in a 'wage norm' context: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	25.1	29.1
- Direct taxes	8.2	8.9
. households	5.2	6.5
. corporate	3.0	2.5
- Indirect taxes	11.6	13.6
- Social security contributions	5.0	6.3
- Other current receipts	0.3	0.3
Current expenditure	-1.0	8.0
- Government consumption	1.2	2.3
- Social security transfers	-2.0	-1.1
- Interest payments	-0.2	6.7
- Other current expenditure	0.0	0.1
Balance of current receipts and expenditure	26.1	21.1
Balance of capital receipts and expenditure	-52.1	-62.6
Primary surplus		
. difference level in billions of BEF	-25.8	-48.2
. difference level in % of GDP	-0.22	-0.38
Net lending		
. difference level in billions of BEF	-26.0	-41.5
. difference level in % of GDP	-0.25	-0.35
<i>Ex ante</i> amount introduced in the model	52.2	62.7

2. Simulation with free wages

The introduced amount gradually increases from BEF 52.4 billion in the first year up to BEF 64.2 billion in the medium-term.

Macroeconomic results

Obviously, the same mechanisms are involved as in the 'wage norm' version of this scenario. The most important differences concern prices and wage tensions having consequences for competitiveness (exports) and employment.

The demand shock is more inflationary than in the 'wage norm' situation. The increase in employment exerts an upward pressure on wages. The real hourly wage rate is pushed up (+0.41% in the medium-term). The improved labour productivity (+0.17%) cannot prevent a significantly higher unit labour cost (+0.52%, against +0.01% in the 'wage norm' situation). The consumption price level exceeds its baseline level by 0.25% in the medium-term, against 0.08% in the 'wage norm' situation.

The employment effects remain positive, with 10,500 additional jobs in the first year and about 3,400 in the medium-term. This means that job creation has become considerably less effective than in the 'wage norm' case. In the medium-term, about 7,000 new jobs are 'lost' compared to the 'wage norm' situation. This is caused by the fact that labour has (obviously) become a more expensive production factor. Moreover, the increased labour costs also deteriorate Belgium's competitiveness, so that external demand slightly erodes (-0.08%).

Both versions show an equivalent improvement in domestic demand (+0.8% and +0.7% in t and $t+4$ respectively). The improvement in private consumption is slightly higher in the 'free wages' case due to the positive real wage effect on the households' purchasing power. The inverse holds for corporate investments (lower profitability, lower exports) and households' investments.

Results by branch

Most branches show improved real value added but less prominently than in the 'wage norm' context. Most branches' employment is even slightly below its medium-term baseline level.

TABLE 5 - An increase in public investment in a 'free wages' context: main macroeconomic results
(% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.17	0.17
- Government consumption	-0.01	-0.01
- Gross fixed capital formation	2.76	2.44
. enterprises	0.63	0.37
. government	32.43	30.50
. housing	0.00	-0.28
- Total domestic demand	0.80	0.71
- Exports	-0.01	-0.08
- Imports	0.37	0.33
- GDP	0.44	0.28
<i>Prices and costs</i>		
- Consumption prices	0.07	0.25
- Health index	0.08	0.26
- Investment prices	0.27	0.44
. enterprises	0.21	0.40
. government	0.33	0.49
. housing	0.36	0.51
- Export prices	0.04	0.11
- Import prices	0.01	0.04
- Terms of trade	0.03	0.07
- GDP deflator	0.10	0.35
- Real hourly wage	0.05	0.41
- Unit labour cost	0.05	0.52
<i>Employment</i>		
- Difference level in %	0.26	0.08
- Difference level in thousands	10.49	3.39
- Labour productivity/head	0.13	0.17
<i>Income</i>		
- Households' real disposable income	0.20	0.21
- Households' saving rate (difference level)	0.03	0.04
- Enterprises' gross operating surplus	0.46	0.19
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-28.55	-37.40
- Difference level in % of GDP	-0.30	-0.33

TABLE 6 - An increase in public investment in a 'free wages' context: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.17	-0.14
- Energy	0.31	0.17
- Intermediate goods	0.12	0.04
- Equipment goods	0.54	-0.01
- Consumption goods	0.27	-0.17
- Construction	2.68	2.36
. total industry	0.68	0.40
- Transport and communication	0.34	0.12
- Trade and horeca ^a	0.06	0.04
- Credit and insurance	0.38	0.22
- Health care	-0.01	-0.02
- Other services to households and enterprises	0.59	0.37
. total market services	0.35	0.21
Total market branches	0.47	0.27
<i>Employment</i>		
- Agriculture	0.00	-0.03
- Energy	0.15	0.19
- Intermediate goods	0.03	-0.05
- Equipment goods	0.20	-0.10
- Consumption goods	0.16	-0.20
- Construction	2.29	1.71
. total industry	0.66	0.35
- Transport and communication	0.20	-0.04
- Trade and horeca ^a	0.03	-0.06
- Credit and insurance	0.04	-0.01
- Health care	-0.01	-0.09
- Other services to households and enterprises	0.41	0.08
. total market services	0.20	-0.00
Total market branches	0.33	0.10

a. horeca = hotels, restaurants and public houses.

The impact on public finance

The *ex post* deterioration of the general government's budget balance (36 billion in the medium-term) is smaller than in the 'wage norm' situation (41.5 billion).

Indeed, the current receipts increase by 46 billion in the medium-term, against 29 billion in the 'wage norm' case. Personal tax receipts are considerably higher due to the wage increases. Indirect tax revenue benefits from the inflationary impact and the increase in real private consumption. The positive impact on prices and employment generates social security contributions. Only the additional corporate tax revenue is smaller than in the 'wage norm' case, as higher costs limit profits.

Current expenditure increases by 18 billion in the medium-term, against only 8 billion in the 'wage norm' case. The stronger price effect in the 'free wage' version leads to a stronger increase in public consumption. This effect also explains the higher social security transfers (at least in the medium-term).

TABLE 7 - An increase in public investment in a 'free wages' context: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	28.9	46.2
- Direct taxes	9.6	15.9
. households	7.1	14.8
. corporate	2.6	1.1
- Indirect taxes	12.1	16.1
- Social security contributions	6.8	13.7
- Other current receipts	0.3	0.5
Current expenditure	0.6	18.1
- Government consumption	1.9	6.9
- Social security transfers	-1.2	4.2
- Interest payments	-0.2	6.2
- Other current expenditure	0.1	0.8
Balance of current receipts and expenditure	28.4	28.1
Balance of capital receipts and expenditure	-52.3	-64.1
Primary surplus		
. difference level in billions of BEF	-23.7	-42.2
. difference level in % of GDP	-0.19	-0.33
Net lending		
. difference level in billions of BEF	-23.9	-36.0
. difference level in % of GDP	-0.23	-0.31
<i>Ex ante</i> amount introduced in the model	52.4	64.2

B. An increase in social transfers to households

Social transfers to households are increased by an amount equivalent to 0.5% of the baseline GDP in year t . For the years $t+1$ to $t+4$ the original growth rates of the modified transfer categories (pensions and family allowances) have been kept constant. The *ex ante* additional transfer equals BEF 52.2 billion in the first year and gradually reaches BEF 59.1 billion in $t+4$.

Macroeconomic results

The consequences of this policy are straightforward, as the households' purchasing power is directly affected. As a result, private consumption and the households' investments go up by respectively 0.70% and 0.47% in the medium-term. This stimulates corporate investment (+0.33% in the medium-term). The increased domestic demand is partly reflected in higher imports, so that the GDP gain is limited to 0.22% in the medium-term. The current account surplus deteriorates, as exports remain almost unaffected.

The gain in employment equals 6,300 units in the medium-term. The price effects are limited. A small increase can be noted due to the more intense capacity utilisation.

Results by branch

The measure does not uniformly affect all branches. Looking at the medium-term results, it can be noted that the increase in real value added is modest in the export-oriented manufacturing branches as well as for agriculture. The impact is more important for the market services, as they focus relatively more on domestic demand. The adjustments in employment by branch have a similar profile.

The impact on public finance

Public finance obviously deteriorates as a result of this expansive fiscal policy, although the loss (about 37 billion in the medium-term) is less impressive than the *ex ante* increase in public expenditure due to the positive impact on economic activity.

The increase in expenditure is considerable: social security transfers increase even more than *ex ante* (although there is less unemployment, the price effect prevails). Higher inflation also invokes an increase in government consumption and the deteriorated primary surplus leads to additional interest payments. As a result, current expenditure is 75 billion above its medium-term baseline level. However, current receipts are also affected significantly (+38 billion in $t+4$): tax revenue and social contributions increase as economic activity and inflation are stimulated and unemployment erodes.

TABLE 8 - An increase in social transfers to the households: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.54	0.70
- Government consumption	-0.00	0.01
- Gross fixed capital formation	0.20	0.34
. enterprises	0.27	0.33
. government	0.00	0.11
. housing	0.00	0.47
- Total domestic demand	0.37	0.48
- Exports	-0.00	-0.01
- Imports	0.18	0.23
- GDP	0.20	0.22
<i>Prices and costs</i>		
- Consumption prices	0.03	0.08
- Health index	0.03	0.09
- Investment prices	0.02	0.06
. enterprises	0.03	0.05
. government	0.04	0.08
. housing	0.04	0.08
- Export prices	0.01	0.02
- Import prices	0.01	0.01
- Terms of trade	0.00	0.01
- GDP deflator	0.02	0.09
- Real hourly wage	-0.01	-0.01
- Unit labour cost	-0.06	0.02
<i>Employment</i>		
- Difference level in %	0.11	0.15
- Difference level in thousands	4.45	6.28
- Labour productivity/head	0.07	0.05
<i>Income</i>		
- Households' real disposable income	0.73	0.74
- Households' saving rate (difference level)	0.16	0.02
- Enterprises' gross operating surplus	0.30	0.37
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-14.27	-24.88
- Difference level in % of GDP	-0.15	-0.22

TABLE 9 - An increase in social transfers to the households: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.14	0.04
- Energy	0.28	0.29
- Intermediate goods	0.00	0.02
- Equipment goods	0.22	0.09
- Consumption goods	0.14	-0.00
- Construction	0.22	0.36
. total industry	0.14	0.12
- Transport and communication	0.27	0.24
- Trade and horeca ^a	0.24	0.31
- Credit and insurance	0.71	0.79
- Health care	0.09	0.19
- Other services to households and enterprises	0.23	0.28
. total market services	0.25	0.30
Total market branches	0.21	0.23
<i>Employment</i>		
- Agriculture	0.00	0.00
- Energy	0.13	0.30
- Intermediate goods	0.00	-0.00
- Equipment goods	0.08	0.08
- Consumption goods	0.08	0.00
- Construction	0.20	0.32
. total industry	0.10	0.11
- Transport and communication	0.19	0.19
- Trade and horeca ^a	0.15	0.24
- Credit and insurance	0.10	0.15
- Health care	0.06	0.11
- Other services to households and enterprises	0.19	0.22
. total market services	0.16	0.20
Total market branches	0.13	0.17

a. horeca = hotels, restaurants and public houses.

TABLE 10 - An increase in social transfers to the households: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	25.6	37.8
- Direct taxes	17.5	24.4
. households	15.9	22.0
. corporate	1.6	2.3
- Indirect taxes	5.0	7.8
- Social security contributions	3.1	5.4
- Other current receipts	0.1	0.2
Current expenditure	59.0	74.9
- Government consumption	0.5	1.9
- Social security transfers	57.3	64.9
- Interest payments	1.1	7.7
- Other current expenditure	0.1	0.3
Balance of current receipts and expenditure	-33.3	-37.0
Balance of capital receipts and expenditure	-0.0	-0.3
Primary surplus		
. difference level in billions of BEF	-34.4	-45.1
. difference level in % of GDP	-0.32	-0.35
Net lending		
. difference level in billions of BEF	-33.4	-37.4
. difference level in % of GDP	-0.32	-0.31
<i>Ex ante</i> amount introduced in the model	52.2	59.1

C. An increase in the public consumption of goods and services

Government consumption - more specifically the purchases of goods and services - is increased each year by an amount equivalent to 0.5% of the corresponding baseline GDP. The *ex ante* additional consumption equals BEF 52.2 billion in the first year and gradually reaches BEF 62.7 billion in t+4.

Macroeconomic results

The macroeconomic impact of an impulse given to public current expenditures is very similar to the results obtained with the first variant (an increase in public investment): GDP is immediately affected by the shock, gaining 0.44% in year t and 0.35% in year t+4. The activity increase allows net job creation, attaining 10,200 units in the first year and still a bit more than 9,300 after five years.

Despite the rising utilization rate and the falling unemployment rate, the impact on inflation remains rather limited (this version of the model includes the wage norm). Consequently, exports remain almost unaffected by the measure. On the other hand, the increased imports (explained by the rise of internal demand) curb GDP gains in the medium-term and cause a deterioration of the external balance.

Results by branch

The positive impact on activity mainly concerns market services and construction. Export-oriented branches like manufacturing industries are much less affected by the shock. The employment gains are also concentrated in services and construction.

The impact on public finance

The general government's budget deteriorates as a consequence of public expenditure increase. However, the *ex post* public deficit increase is smaller than the *ex ante* rise of public expenditure, thanks to the positive effects on public receipts. In the medium-term, the public deficit is only increased by BEF 41 billion (for an *ex ante* increase in public expenditure equivalent to BEF 62.7 billion in t+4).

Table 13 gives a detailed overview of public finances evolution in the case of this variant. Note that public expenditure increase attains BEF 72 billion in the medium-term. Indeed, the deteriorated primary surplus leads to additional interest payments. However, current receipts are also positively affected by the measure: direct and indirect taxes, as well as social contributions increase as a consequence of stimulation to economic activity and inflation.

TABLE 11 - An increase in the public consumption of goods and services: main macroeconomic results
(% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.15	0.14
- Government consumption	2.61	2.70
- Gross fixed capital formation	0.39	0.36
. enterprises	0.53	0.44
. government	-0.01	0.19
. housing	0.00	0.08
- Total domestic demand	0.69	0.67
- Exports	-0.00	-0.02
- Imports	0.26	0.28
- GDP	0.44	0.35
<i>Prices and costs</i>		
- Consumption prices	0.05	0.11
- Health index	0.05	0.11
- Investment prices	0.08	0.10
. enterprises	0.08	0.10
. government	0.12	0.13
. housing	0.13	0.14
- Export prices	0.02	0.03
- Import prices	0.01	0.01
- Terms of trade	0.01	0.02
- GDP deflator	0.09	0.16
- Real hourly wage	-0.05	-0.03
- Unit labour cost	-0.11	0.02
<i>Employment</i>		
- Difference level in %	0.26	0.23
- Difference level in thousands	10.22	9.32
- Labour productivity/head	0.14	0.07
<i>Income</i>		
- Households' real disposable income	0.17	0.16
- Households' saving rate (difference level)	0.02	0.02
- Enterprises' gross operating surplus	0.74	0.63
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-20.88	-30.45
- Difference level in % of GDP	-0.23	-0.28

TABLE 12 - An increase in the public consumption of goods and services: main results by branch
 (% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.15	-0.02
- Energy	0.27	0.23
- Intermediate goods	0.09	0.04
- Equipment goods	0.25	0.06
- Consumption goods	0.21	-0.01
- Construction	0.89	0.80
. total industry	0.30	0.18
- Transport and communication	0.50	0.35
- Trade and horeca ^a	0.28	0.21
- Credit and insurance	1.27	1.00
- Health care	0.09	0.13
- Other services to households and enterprises	0.76	0.64
. total market services	0.57	0.47
Total market branches	0.46	0.35
<i>Employment</i>		
- Agriculture	0.00	0.00
- Energy	0.13	0.24
- Intermediate goods	0.02	0.00
- Equipment goods	0.10	0.06
- Consumption goods	0.13	0.00
- Construction	0.81	0.73
. total industry	0.27	0.21
- Transport and communication	0.34	0.27
- Trade and horeca ^a	0.18	0.17
- Credit and insurance	0.18	0.21
- Health care	0.06	0.07
- Other services to households and enterprises	0.61	0.51
. total market services	0.36	0.31
Total market branches	0.32	0.28

a. horeca = hotels, restaurants and public houses.

TABLE 13 - An increase in the public consumption of goods and services: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	25.2	31.6
- Direct taxes	8.7	10.5
. households	4.8	6.6
. corporate	3.9	3.9
- Indirect taxes	12.0	14.7
- Social security contributions	4.2	6.1
- Other current receipts	0.3	0.3
Current expenditure	51.2	71.9
- Government consumption	53.0	65.0
- Social security transfers	-1.6	-0.3
- Interest payments	-0.2	7.0
- Other current expenditure	0.1	0.3
Balance of current receipts and expenditure	-26.0	-40.3
Balance of capital receipts and expenditure	-0.0	-0.5
Primary surplus		
. difference level in billions of BEF	-25.9	-47.8
. difference level in % of GDP	-0.22	-0.37
Net lending		
. difference level in billions of BEF	-26.0	-40.8
. difference level in % of GDP	-0.26	-0.34
<i>Ex ante</i> amount introduced in the model	52.2	62.7

D. A reduced VAT on private consumption

In this simulation VAT on private consumption is permanently reduced by an amount equivalent to 0.5% of the baseline GDP in year t . This has been done by decreasing all non-zero implicit VAT rates of the private consumption categories defined in HERMES by 1.6 percentage points. This adjustment is sustained throughout the whole simulation period.

We test this scenario by means of two versions of HERMES. The first one incorporates a wage norm, whereas in the second one all wage equations are free (see also chapter I).

1. Simulation with wage norm

The government's *ex ante* yearly loss of indirect tax income gradually increases from BEF 52.2 billion in year t up to BEF 61.3 billion in the medium-term¹.

Macroeconomic results

The measure leads to a reduction of the consumption price level by 0.9 to 1.3% compared to its baseline level, thereby improving the households' purchasing power.

The reduced price level has a positive effect on private consumption, which exceeds its baseline level by 0.6% in the medium-term. The measure also improves competitiveness, so that exports go up with 0.12% in the medium-term. Both elements induce a rise in business investment (+0.65% in $t+4$). The increased real disposable income is also due to the measure's positive impact on employment. In the first year, 14,000 additional jobs are created. Four years later, the employment gain, compared to the baseline, equals 23,000. Housing is the only internal demand component with a negative sign, despite the gain in purchasing power. This can be attributed to an increase in the real mortgage rate (due to the decreased consumption price level) and the increased price of housing (i.e. the households' investment price) relative to the consumption price. All in all, domestic demand and GDP increase respectively by 0.4% and 0.2% in the medium-term.

Results by branch

The measure is at the benefit of all branches' real value added. Employment is increasing everywhere.

1. Private consumption is less dynamic than global GDP, so that the *ex ante* introduced amount from $t+1$ to $t+4$ is a bit smaller than 0.5% of baseline GDP.

TABLE 14 - A reduced VAT on private consumption in a 'wage norm' context: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.49	0.61
- Government consumption	-0.04	-0.19
- Gross fixed capital formation	0.44	0.25
. enterprises	0.59	0.65
. government	-0.03	0.05
. housing	0.00	-1.50
- Total domestic demand	0.40	0.37
- Exports	0.02	0.12
- Imports	0.24	0.28
- GDP	0.19	0.20
<i>Prices and costs</i>		
- Consumption prices	-0.91	-1.35
- Health index	-0.88	-1.35
- Investment prices	-0.14	-0.45
. enterprises	-0.14	-0.44
. government	-0.11	-0.32
. housing	-0.10	-0.30
- Export prices	-0.06	-0.16
- Import prices	-0.02	-0.07
- Terms of trade	-0.05	-0.09
- GDP deflator	-0.67	-1.08
- Real hourly wage	0.20	-0.01
- Unit labour cost	-0.76	-1.13
<i>Employment</i>		
- Difference level in %	0.35	0.56
- Difference level in thousands	14.01	23.04
- Labour productivity/head	0.05	-0.20
<i>Income</i>		
- Households' real disposable income	0.54	0.68
- Households' saving rate (difference level)	0.03	0.06
- Enterprises' gross operating surplus	0.76	0.33
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-18.47	-22.90
- Difference level in % of GDP	-0.15	-0.12

TABLE 15 - A reduced VAT on private consumption in a 'wage norm' context: main results by branch
 (% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.67	0.58
- Energy	0.50	0.46
- Intermediate goods	0.17	0.24
- Equipment goods	0.40	0.43
- Consumption goods	0.45	0.43
- Construction	0.60	0.36
. total industry	0.39	0.37
- Transport and communication	0.63	0.64
- Trade and horeca ^a	0.42	0.53
- Credit and insurance	1.08	1.07
- Health care	0.39	0.13
- Other services to households and enterprises	0.60	0.62
. total market services	0.56	0.58
Total market branches	0.50	0.51
<i>Employment</i>		
- Agriculture	0.03	0.08
- Energy	0.24	0.66
- Intermediate goods	0.06	0.33
- Equipment goods	0.16	0.48
- Consumption goods	0.29	0.54
- Construction	0.76	0.71
. total industry	0.33	0.53
- Transport and communication	0.64	0.90
- Trade and horeca ^a	0.34	0.74
- Credit and insurance	0.32	0.64
- Health care	0.35	0.33
- Other services to households and enterprises	0.69	0.97
. total market services	0.52	0.80
Total market branches	0.45	0.71

a. horeca = hotels, restaurants and public houses.

The impact on public finance

Looking at the medium-term results, the indirect tax revenue loss remains considerable (almost 67 billion, against 61.3 billion *ex ante*), as the positive quantity effect (real private consumption increases) is dominated by the negative price effect. Direct tax receipts from the households decrease as the tax base shrinks in current prices. This negative nominal effect exceeds the additional labour income generated by the new jobs. The same phenomenon contracts social contributions. Only fiscal revenues from corporate taxation show a net rise due to the increased economic activity.

The negative price effect and the employment growth are advantageous for public expenditure. Public consumption and social security transfers decline. Only interest payments increase owing to the lower primary surplus¹.

As a result, the general government borrowing requirement increases by 25 billion in the first year and exceeds its medium-term baseline level by 34 billion. Compared with the *ex ante* revenue loss in the medium-term (61.3 billion), the VAT measure can be considered as being not budgetary neutral. Nevertheless, 44% of the *ex ante* cost is compensated by the impact of the measure on economic activity.

TABLE 16 - A reduced VAT on private consumption in a 'wage norm' context: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	-58.3	-92.5
- Direct taxes	1.0	-8.3
. households	-2.7	-10.1
. corporate	3.7	1.8
- Indirect taxes	-51.1	-66.8
- Social security contributions	-7.8	-16.5
- Other current receipts	-0.4	-0.9
Current expenditure	-32.5	-57.2
- Government consumption	-13.7	-29.7
- Social security transfers	-17.2	-29.5
- Interest payments	-1.3	4.0
- Other current expenditure	-0.3	-2.0
Balance of current receipts and expenditure	-25.9	-35.3
Balance of capital receipts and expenditure	0.7	1.2
Primary surplus		
. difference level in billions of BEF	-23.8	-38.1
. difference level in % of GDP	-0.26	-0.32
Net lending		
. difference level in billions of BEF	-25.1	-34.1
. difference level in % of GDP	-0.24	-0.24
<i>Ex ante</i> amount introduced in the model	52.2	61.3

1. Initially interest payments decrease as the disinflationary impact on the nominal interest rates dominates the impact of the decreased primary surplus.

2. Simulation with free wages

The introduced amount gradually increases from BEF 52.4 billion in the first year up to BEF 63 billion in the medium-term.

Macroeconomic results

The same mechanisms as in the 'wage norm' version are involved. However, the obvious impact on private consumption prices is less pronounced. The consumption price level is 1% below its baseline level in the medium-term (whereas the fall attains 1.35% in the 'wage norm' case). This improves the households' purchasing power, so that, in the medium-term, private consumption exceeds its baseline level with 0.7% (against 0.58% in the 'wage norm' case). Real disposable income is 0.82% higher, owing not only to the disinflationary impact of the measure and the job creation (as both determinants are even more affected in the 'wage norm' case), but also to the increase in real wages. This is the first reason why corporate investments still improve, but to a lesser extent (lower profitability).

Both model versions have a comparable impact on total domestic demand. However, unlike the 'wage norm' case, competitiveness does not improve here, as the increased economic activity exerts an upward pressure on wages. The unit labour cost reaches its baseline level in the medium-term and export demand remains unaffected (which is the second reason of the more limited recovery of corporate investment). As a result, both versions have an equivalent impact on real GDP initially, but in the medium-term the positive effect is considerably smaller in the 'free wages' case (+0.08%, against +0.20% in the 'wage norm' situation).

About 9,200 jobs are created in the medium-term, which means that job creation has become considerably less effective. In the medium-term, 13,800 jobs are 'lost' compared to the 'wage norm' situation (23,000 units).

Results by branch

All branches' real value added increases, but mostly to a lesser extent than in the 'wage norm' case. Employment is increasing everywhere, but considerably less than in the 'wage norm' case.

TABLE 17 - A reduced VAT on private consumption in a 'free wages' context: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.53	0.70
- Government consumption	-0.06	-0.22
- Gross fixed capital formation	0.45	0.16
. enterprises	0.60	0.55
. government	-0.03	0.02
. housing	0.00	-1.51
- Total domestic demand	0.42	0.39
- Exports	0.01	-0.01
- Imports	0.26	0.30
- GDP	0.18	0.08
<i>Prices and costs</i>		
- Consumption prices	-0.86	-1.00
- Health index	-0.83	-0.99
- Investment prices	-0.03	0.13
. enterprises	-0.02	0.16
. government	-0.00	0.19
. housing	0.00	0.20
- Export prices	-0.03	0.02
- Import prices	-0.01	-0.01
- Terms of trade	-0.02	0.03
- GDP deflator	-0.58	-0.56
- Real hourly wage	0.48	1.08
- Unit labour cost	-0.48	-0.00
<i>Employment</i>		
- Difference level in %	0.30	0.23
- Difference level in thousands	11.92	9.16
- Labour productivity/head	0.11	0.07
<i>Income</i>		
- Households' real disposable income	0.60	0.82
- Households' saving rate (difference level)	0.06	0.10
- Enterprises' gross operating surplus	0.57	-0.19
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-18.60	-25.08
- Difference level in % of GDP	-0.16	-0.16

TABLE 18 - A reduced VAT on private consumption in a 'free wages' context: main results by branch
 (% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.63	0.32
- Energy	0.53	0.52
- Intermediate goods	0.15	0.10
- Equipment goods	0.38	0.12
- Consumption goods	0.40	0.07
- Construction	0.61	0.25
. total industry	0.37	0.17
- Transport and communication	0.61	0.43
- Trade and horeca ^a	0.42	0.47
- Credit and insurance	1.11	1.07
- Health care	0.33	0.04
- Other services to households and enterprises	0.59	0.48
. total market services	0.55	0.47
Total market branches	0.49	0.36
<i>Employment</i>		
- Agriculture	0.02	0.02
- Energy	0.25	0.60
- Intermediate goods	0.05	0.15
- Equipment goods	0.15	0.10
- Consumption goods	0.25	0.14
- Construction	0.63	0.02
. total industry	0.28	0.12
- Transport and communication	0.51	0.28
- Trade and horeca ^a	0.30	0.50
- Credit and insurance	0.29	0.50
- Health care	0.25	0.09
- Other services to households and enterprises	0.60	0.36
. total market services	0.44	0.36
Total market branches	0.38	0.29

a. horeca = hotels, restaurants and public houses.

The impact on public finance

The indirect tax revenue loss remains considerable (almost 64 billion in the medium-term, against 63 billion *ex ante*), as the positive quantity effect (real private consumption increases) is compensated by the negative price effect. A striking result - compared to the 'wage norm' case - is the increase in direct tax receipts from the households (+7.3 billion, instead of -10.1 billion) and the limited loss of social security contributions (-0.5 billion, instead of -16.5 billion), which is due to the real wage increases. Revenue from corporate taxation goes down (-1.3 billion, instead of +1.8 billion in the 'wage norm' case).

Public expenditure contracts due to the negative price effect and the employment growth, but, as both effects are less important than in the 'wage norm' case, the expenditure cut is less prominent. Public consumption and social security transfers decline with about 21 and 20 billion respectively. Only interest payments increase owing to the lower primary surplus¹.

As a result, the general government borrowing requirement increases by 21.4 billion in the first year and exceeds its medium-term baseline level by 19.5 billion, which makes this measure considerably less expensive in a 'free wage' context compared to a 'wage norm' situation. About 70% of the *ex ante* cost is compensated by the impact of the measure on economic activity.

TABLE 19 - A reduced VAT on private consumption in a 'free wages' context: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	-51.7	-58.7
- Direct taxes	3.6	6.1
. households	0.7	7.3
. corporate	2.8	-1.3
- Indirect taxes	-50.4	-63.8
- Social security contributions	-4.5	-0.5
- Other current receipts	-0.4	-0.5
Current expenditure	-29.6	-38.4
- Government consumption	-12.5	-21.1
- Social security transfers	-15.7	-19.6
- Interest payments	-1.3	2.9
- Other current expenditure	-0.0	-0.5
Balance of current receipts and expenditure	-22.1	-20.3
Balance of capital receipts and expenditure	0.7	0.8
Primary surplus		
. difference level in billions of BEF	-20.1	-22.4
. difference level in % of GDP	-0.21	-0.18
Net lending		
. difference level in billions of BEF	-21.4	-19.5
. difference level in % of GDP	-0.20	-0.13
<i>Ex ante</i> amount introduced in the model	52.4	63.0

1. Initially interest payments decrease as the disinflationary impact on the nominal interest rates dominates the impact of the decreased primary surplus.

E. A reduced VAT rate for some labour-intensive services

In this simulation the VAT rate is permanently reduced from 21% to 6% for a certain number of services, *a priori* considered to be labour-intensive, i.e. reparation activities¹, personal services (hairdressers, beauty-parlours, body care), painting and laundry. The - partially - affected consumption categories in HERMES are: 'furniture and household equipment', 'recreation, education and culture' and 'other goods and services'. The *ex ante* yearly loss of indirect tax income increases gradually from BEF 12.8 billion in year t up to BEF 15.4 billion in the medium-term.

Macroeconomic results

The consumption price level decreases by 0.2 to 0.3% compared to its baseline level, thereby improving the households' purchasing power.

The reduced price level has a positive effect on private consumption, which exceeds its baseline level by 0.13% in the medium-term. Table 22 shows that this improvement is entirely due to the consumption categories with a modified implicit VAT rate. The increased private consumption induces a rise in business investment (+0.19% in t+4). The increased real disposable income is also due to the measure's positive impact on employment. In the first year, about 3,200 additional jobs are created. Four years later, the employment gain, compared to the baseline, equals almost 5,700. Housing is the only internal demand component with a negative sign, despite the gain in purchasing power. This can be attributed to an increase in the real mortgage rate (due to the decreased consumption price level) and the increase in the price of housing (i.e. the households' investment price) relative to the consumption price. In total, domestic demand and GDP increase by 0.09% and 0.05% respectively in the medium-term.

Results by branch

The measure is at the benefit of most branches' real value added. Employment is increasing everywhere. Obviously, the bulk of the employment gain (+5,700 jobs in the medium-term) can be found in 'Other market services' (+1,900 units) and in 'Trade and horeca' (+1,700 units).

1. Except for the repair of shoes, clothing and bicycles, the VAT rate of which has already been cut recently.

TABLE 20 - A reduced VAT rate for some labour-intensive services: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.10	0.13
- Government consumption	-0.01	-0.05
- Gross fixed capital formation	0.10	0.09
. enterprises	0.14	0.19
. government	-0.01	0.01
. housing	0.00	-0.33
- Total domestic demand	0.08	0.09
- Exports	0.00	0.03
- Imports	0.05	0.06
- GDP	0.04	0.05
<i>Prices and costs</i>		
- Consumption prices	-0.19	-0.30
- Health index	-0.20	-0.32
- Investment prices	-0.03	-0.10
. enterprises	-0.03	-0.10
. government	-0.03	-0.07
. housing	-0.02	-0.07
- Export prices	-0.02	-0.04
- Import prices	-0.00	-0.02
- Terms of trade	-0.01	-0.02
- GDP deflator	-0.15	-0.24
- Real hourly wage	0.02	-0.03
- Unit labour cost	-0.17	-0.26
<i>Employment</i>		
- Difference level in %	0.08	0.14
- Difference level in thousands	3.16	5.67
- Labour productivity/head	0.01	-0.05
<i>Income</i>		
- Households' real disposable income	0.10	0.14
- Households' saving rate (difference level)	0.00	0.01
- Enterprises' gross operating surplus	0.18	0.09
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-3.87	-5.33
- Difference level in % of GDP	-0.03	-0.03

TABLE 21 - A reduced VAT rate for some labour-intensive services: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.13	0.10
- Energy	0.07	0.07
- Intermediate goods	0.04	0.06
- Equipment goods	0.09	0.11
- Consumption goods	0.10	0.09
- Construction	0.13	0.10
. total industry	0.08	0.08
- Transport and communication	0.13	0.16
- Trade and horeca ^a	0.17	0.24
- Credit and insurance	0.13	0.02
- Health care	0.01	-0.07
- Other services to households and enterprises	0.12	0.12
. total market services	0.12	0.14
Total market branches	0.11	0.12
<i>Employment</i>		
- Agriculture	0.01	0.02
- Energy	0.04	0.11
- Intermediate goods	0.01	0.08
- Equipment goods	0.03	0.12
- Consumption goods	0.06	0.12
- Construction	0.17	0.18
. total industry	0.07	0.12
- Transport and communication	0.14	0.22
- Trade and horeca ^a	0.12	0.27
- Credit and insurance	0.06	0.10
- Health care	0.03	0.02
- Other services to households and enterprises	0.14	0.21
. total market services	0.12	0.19
Total market branches	0.10	0.17

a. horeca = hotels, restaurants and public houses.

TABLE 22 - A reduced VAT rate for some labour-intensive services: impact on private consumption and (between brackets) prices
(% differences from the baseline)

	t	t+4
- furniture and 'household equipment', 'recreation, education and culture' and 'other goods and services'	0.21 (-0.48)	0.38 (-0.68)
- other consumption categories	0.03 (-0.02)	-0.03 (-0.07)

The impact on public finance

Looking at the medium-term results, the indirect tax revenue loss remains considerable (15 billion, against 15.4 billion *ex ante*), as the positive quantity effect (real private consumption increases) is partially offset by the negative price effect. Direct tax receipts from the households decrease as the tax base shrinks in current prices. This negative nominal effect exceeds the additional labour income generated by the new jobs. The same phenomenon contracts social contributions. Only fiscal revenues from corporate taxation show a net rise due to the increased economic activity.

The negative price effect and the employment growth are advantageous for public expenditure. Public consumption and social security transfers decline. Only interest payments rise due to the lower primary surplus¹.

As a result, the general government borrowing requirement increases by 5.3 billion in the first year and still exceeds its medium-term baseline level with 7.1 billion. Compared with the *ex ante* revenue loss in the medium-term (i.e. 15.4 billion), the VAT measure can be considered as being not budgetary neutral. About 54% of the *ex ante* cost is compensated by the impact of the measure on economic activity.

TABLE 23 - A reduced VAT rate for some labour-intensive services: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	-12.8	-21.0
- Direct taxes	0.2	-1.8
. households	-0.6	-2.3
. corporate	0.9	0.5
- Indirect taxes	-11.1	-15.0
- Social security contributions	-1.9	-3.9
- Other current receipts	-0.1	-0.2
Current expenditure	-7.4	-13.6
- Government consumption	-3.2	-6.9
- Social security transfers	-3.9	-7.0
- Interest payments	-0.3	0.8
- Other current expenditure	-0.1	-0.5
Balance of current receipts and expenditure	-5.4	-7.3
Balance of capital receipts and expenditure	0.2	0.3
Primary surplus		
. difference level in billions of BEF	-5.0	-7.9
. difference level in % of GDP	-0.05	-0.07
Net lending		
. difference level in billions of BEF	-5.3	-7.1
. difference level in % of GDP	-0.05	-0.05
<i>Ex ante</i> amount introduced in the model	12.8	15.4

1. Initially interest payments slightly decrease as the disinflationary impact on the nominal interest rates dominates the impact of the decreased primary surplus.

F. A reduction in the employers' social security contributions

The employers' social contributions are reduced by an amount equivalent to 0.5% of the corresponding baseline GDP in year t . Therefore, the (exogenous) implicit contribution rates of the branches have all been decreased by a fixed number of percentage points. This adjustment is sustained throughout the whole simulation period.

We test two versions of this scenario. As explained in chapter I, the current model incorporates a wage norm. We take this as the first version. In the second one, all wage equations are free.

1. Simulation with wage norm

The introduced amount increases from BEF 52.2 billion in the first year up to BEF 63.1 billion in the medium-term, which is still about 0.5% of the corresponding baseline GDP (62.7 billion).

Macroeconomic results

The measure has a direct effect on the employers' cost of labour and leads to a fall in prices. The consumption price level is 0.45% below its baseline level in the medium-term.

The employment effects are positive from the first year onwards, with about 11,400 additional jobs. In the medium-term employment is 23,100 units above its baseline level. These favourable effects are due to the decreased relative cost of labour (compared to the other inputs), which encourages factor substitution in its favour. This substitution effect is reinforced by the so-called induced effects, as global economic activity accelerates. Another interesting observation in this context is the negative impact of this policy on labour productivity, which means that economic growth has become more labour-intensive, as was the purpose.

The improved competitiveness stimulates export demand (+0.17% in the medium-term). Private consumption improves due to the positive effect of higher employment and lower inflation on the households' purchasing power. Corporate investments are encouraged (in spite of the *ex ante* substitution in favour of labour) by the expansion of demand (accelerator mechanism) and by the improved profitability due to cheaper labour. The households' investment demand is positively affected by the increased disposable income and the reduced relative price of housing (compared to the consumption prices).

Although there is a positive contribution of net exports to real GDP the current account surplus worsens somewhat (-10 billion in the medium-term) due to the downturn in the terms of trade.

**TABLE 24 - A reduction of the employers' social security contributions in a 'wage norm' context:
main macroeconomic results**
(% differences from the baseline, unless otherwise noted)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.15	0.27
- Government consumption	0.07	0.06
- Gross fixed capital formation	0.05	0.32
. enterprises	0.07	0.33
. government	-0.00	0.13
. housing	0.00	0.38
- Total domestic demand	0.12	0.24
- Exports	0.05	0.17
- Imports	0.02	0.11
- GDP	0.14	0.30
<i>Prices and costs</i>		
- Consumption price	-0.23	-0.45
- Health index	-0.24	-0.47
- Investment price	-0.41	-0.61
. enterprises	-0.41	-0.65
. government	-0.40	-0.51
. housing	-0.40	-0.49
- Export price	-0.16	-0.23
- Import price	-0.02	-0.08
- Terms of trade	-0.13	-0.15
- GDP deflator	-0.39	-0.63
- Real hourly wage	0.03	-0.03
- Unit labour cost	-1.30	-1.41
<i>Employment</i>		
- Difference level in %	0.29	0.56
- Difference level in thousands	11.44	23.11
- Labour productivity/head	-0.19	-0.36
<i>Income</i>		
- Households' real disposable income	0.14	0.32
- Households' saving rate (difference level)	-0.01	0.04
- Enterprises' gross operating surplus	1.09	0.74
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-8.50	-10.36
- Difference level in % of GDP	-0.07	-0.06

Results by branch

The measure has a positive impact on all branches' real value added, i.e. on the (relatively more export oriented) manufacturing branches as well as on the (relatively more domestic demand oriented) market services. The highest percentage increases in employment can be found in the (labour-intensive) construction and service branches. They represent about 19,200 out of the 23,100 new jobs.

TABLE 25 - A reduction of the employers' social security contributions in a 'wage norm' context: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.26	0.38
- Energy	0.03	0.09
- Intermediary goods	0.08	0.23
- Equipment goods	0.19	0.40
- Consumption goods	0.29	0.50
- Construction	0.10	0.38
. p.m. total industry	0.15	0.33
- Transport and communication	0.24	0.43
- Trade and horeca ^a	0.13	0.27
- Credit and insurance	0.29	0.46
- Health care	0.26	0.30
- Other services to households and enterprises	0.17	0.35
. p.m. total market services	0.18	0.34
Total market branches	0.17	0.34
<i>Employment</i>		
- Agriculture	0.03	0.08
- Energy	0.03	0.29
- Intermediary goods	0.05	0.44
- Equipment goods	0.09	0.54
- Consumption goods	0.20	0.69
- Construction	0.52	0.81
. p.m. total industry	0.22	0.63
- Transport and communication	0.59	0.83
- Trade and horeca ^a	0.23	0.65
- Credit and insurance	0.39	0.61
- Health care	0.36	0.50
- Other services to households and enterprises	0.57	0.90
. p.m. total market services	0.44	0.75
Total market branches	0.36	0.70

a. horeca = hotels, restaurants and public houses.

The impact on public finance

Regarding public finance, it can be seen from table 26 that the *ex ante* budgetary cost of the operation (from 52.2 billion in year t to 63.1 billion in year t+4) is partially offset by the economic recovery. The corresponding *ex post* budgetary cost equals 36 billion in year t and about 40 billion in year t+4. This means that, in the medium-term, the general government wins back 36% of its tax cut.

Only a minor part of the compensation is obtained from the social security contributions, as they remain more than 62 billion below their medium-term baseline level. Indirect tax revenue falls, as the increase in real private consumption is not sufficient to compensate the negative price effect. Only direct tax revenues increase thanks to improved employment and higher corporate profits. Compensations on the expenditure side can be found in government consumption (negative price effect) and social security transfers (less unemployment). Interest payments increase, as the measure is debt-financed.

The budgetary cost of a new job equals BEF 1.7 million in the medium-term, against 3.1 million in the first year. This contrast shows that this kind of measure needs some time in order to be effective.

TABLE 26 - A reduction of the employers' social security contributions in a 'wage norm' context: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise noted)

	t	t+4
Current receipts	-47.9	-60.0
- Direct taxes	5.3	5.9
. households	0.3	1.4
. corporate	5.0	4.5
- Indirect taxes	-1.4	-2.8
- Social security contributions	-51.7	-62.7
- Other current receipts	-0.2	-0.4
Current expenditure	-11.7	-19.5
- Government consumption	-4.9	-12.0
- Social security transfers	-6.4	-13.9
- Interest payments	0.5	8.3
- Other current expenditure	-0.9	-1.9
Balance of current receipts and expenditure	-36.2	-40.5
Balance of capital receipts and expenditure	0.2	0.3
Primary surplus		
. difference level in billions of BEF	-36.5	-48.4
. difference level in % of GDP	-0.36	-0.39
Net lending		
. difference level in billions of BEF	-36.0	-40.2
. difference level in % of GDP	-0.34	-0.31
<i>Ex ante</i> amount introduced in the model	52.2	63.1

2. Simulation with free wages

The introduced nominal amounts gradually increase from BEF 52.4 billion in the first year up to BEF 66.7 billion in the medium-term.

Macroeconomic results

Obviously, the same mechanisms as in the 'wage norm' version are involved. The most important differences are in the field of prices and wage tensions with consequences on competitiveness and employment.

The decreased labour cost leads to a fall in prices, but less pronounced than in the 'wage norm' situation. The consumption price level is 0.29% below its baseline level in the medium-term (whereas the fall attains 0.45% in the 'wage norm' case).

The employment effects remain positive, with more than 10,000 additional jobs in the first year and more than 16,000 units in the medium-term. This means that employment creation has become less effective (factor substitution in favour of labour is more limited due to wage increases). In the medium-term, 6,800 new jobs are 'lost' compared to the wage norm situation (+23,100 units). The improvement in competitiveness is less pronounced, as the real hourly wage rate increases (+0.46%) and the unit labour cost is less depressed (-0.92%).

Initially, both versions have an equivalent impact on real GDP, but in the medium-term the positive effect is somewhat smaller in the 'free wages' case. The difference is entirely due to net exports. Export demand goes up by only 0.12% in the medium-term, whereas import demand is slightly stronger (+0.14%). The latter can be attributed to the improvement in the private consumption, which is slightly higher thanks to the positive real wage effect on the households' purchasing power. The impact on corporate and households' investments is in line with the 'wage norm' situation.

Results by branch

Most branches show improved real value added and employment, but less prominent than in the 'wage norm' context.

The impact on public finance

Compared to the 'wage norm' case, the deterioration of the general government's budget balance is smaller in the 'free wages' situation. The revenue loss (more than 46 billion in the medium-term) is smaller than in the 'wage norm' case. Personal tax receipts are considerably higher due to the wage increases, whereas the loss of social security contributions is smaller (price effects are less negative). The additional corporate tax revenue is smaller as costs limit profits.

Both versions also show considerable differences regarding the public expenditure loss. The smaller negative price effect in the 'free wages' version limits the decline in public consumption and in transfers to households. The latter is also influenced by the smaller decline in unemployment.

The *ex post* budgetary cost equals 36 billion in year t+4. This means that, given the corresponding *ex ante* amount of 66.7 billion, the general government wins back 46% of its tax cut in the medium-term. However, the new jobs are more expensive than in the wage norm case: the 'unit' budgetary cost equals 3.3 million in the first year and lowers to 2.2 million in the medium-term.

**TABLE 27 - A reduction of the employers' social security contributions in a 'free wages' context:
main macroeconomic results**
(% differences from the baseline, unless otherwise noted)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.16	0.32
- Government consumption	0.06	0.05
- Gross fixed capital formation	0.06	0.29
. enterprises	0.07	0.28
. government	-0.00	0.11
. housing	0.00	0.42
- Total domestic demand	0.12	0.27
- Exports	0.05	0.12
- Imports	0.03	0.14
- GDP	0.14	0.25
<i>Prices and costs</i>		
- Consumption price	-0.20	-0.29
- Health index	-0.21	-0.30
- Investment price	-0.34	-0.29
. enterprises	-0.34	-0.30
. government	-0.35	-0.29
. housing	-0.35	-0.29
- Export price	-0.14	-0.16
- Import price	-0.02	-0.04
- Terms of trade	-0.12	-0.11
- GDP deflator	-0.34	-0.40
- Real hourly wage	0.16	0.46
- Unit labour cost	-1.16	-0.92
<i>Employment</i>		
- Difference level in %	0.26	0.40
- Difference level in thousands	10.32	16.27
- Labour productivity/head	-0.17	-0.22
<i>Income</i>		
- Households' real disposable income	0.17	0.38
- Households' saving rate (difference level)	0.00	0.05
- Enterprises' gross operating surplus	1.01	0.60
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-8.62	-13.85
- Difference level in % of GDP	-0.07	-0.10

**TABLE 28 - A reduction of the employers' social security contributions in a 'free wages' context:
main results by branch**
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.24	0.28
- Energy	0.04	0.10
- Intermediary goods	0.07	0.19
- Equipment goods	0.17	0.20
- Consumption goods	0.26	0.37
- Construction	0.10	0.34
. p.m. total industry	0.14	0.25
- Transport and communication	0.23	0.37
- Trade and horeca ^a	0.13	0.24
- Credit and insurance	0.30	0.47
- Health care	0.24	0.31
- Other services to households and enterprises	0.16	0.29
. p.m. total market services	0.17	0.30
Total market branches	0.16	0.28
<i>Employment</i>		
- Agriculture	0.03	0.03
- Energy	0.03	0.35
- Intermediary goods	0.05	0.41
- Equipment goods	0.08	0.25
- Consumption goods	0.18	0.53
- Construction	0.44	0.51
. p.m. total industry	0.19	0.44
- Transport and communication	0.55	0.72
- Trade and horeca ^a	0.21	0.48
- Credit and insurance	0.37	0.54
- Health care	0.32	0.43
- Other services to households and enterprises	0.51	0.57
. p.m. total market services	0.40	0.54
Total market branches	0.33	0.50

a. horeca = hotels, restaurants and public houses.

**TABLE 29 - A reduction of the employers' social security contributions in a 'free wages' context:
main budgetary results**
(*difference levels in billions of BEF from the baseline, unless otherwise noted*)

	t	t+4
Current receipts	-44.9	-46.4
- Direct taxes	6.6	13.3
. households	1.9	9.7
. corporate	4.7	3.6
- Indirect taxes	-1.0	-0.4
- Social security contributions	-50.3	-59.2
- Other current receipts	-0.2	-0.2
Current expenditure	-10.3	-10.3
- Government consumption	-4.3	-8.1
- Social security transfers	-5.7	-9.1
- Interest payments	0.5	8.2
- Other current expenditure	-0.8	-1.2
Balance of current receipts and expenditure	-34.6	-36.1
Balance of capital receipts and expenditure	0.2	0.1
Primary surplus		
. difference level in billions of BEF	-35.0	-44.2
. difference level in % of GDP	-0.35	-0.34
Net lending		
. difference level in billions of BEF	-34.4	-36.0
. difference level in % of GDP	-0.33	-0.27
<i>Ex ante</i> amount introduced in the model	52.4	66.7

G. A reduction of the employees' social security contributions

The employees' social contributions are reduced by an amount equivalent to 0.5% of the corresponding baseline GDP. The *ex ante* reduction relative to the baseline is sustained throughout the whole simulation period. The introduced amount increases from BEF 52.2 billion in the first year up to BEF 62.9 billion¹ in the medium-term.

Macroeconomic results

The main effect of this kind of measure is to increase the households' purchasing power. Therefore, the impulse on the economic activity goes through a rise of private consumption and of investments in dwellings. On the other hand, firms' investments and exports are very little concerned by the measure. The increased domestic demand is partly reflected in higher imports, so that the expansion of GDP is limited to 0.15% in year t and to 0.17% in year t+4.

The impact on employment is slightly positive. Total employment is increased by about 3,300 units in t and by 4,900 units in t+4. Note that employment creations are much more limited than in the particular case the employers' social contributions are reduced.

The impact on consumer prices is rather limited. Domestic prices are only slightly increased, as a consequence of more utilized capacities (the wage norm prevents an acceleration of real wage increases). The imports' increase provokes a (limited) deterioration of the external balance.

Results by branch

The activity increase mainly concerns services, construction and the energy branch. Similarly, employment creations are concentrated in services and construction.

The impact on public finance

This kind of measure is one of the 'less expensive' for the public finances, at least if we compare it with the other '0.5% of GDP variants'. Although the *ex ante* budgetary cost equals BEF 62.9 billion in t+4, the budget balance deteriorates with only BEF 30 billion *ex post*. Indeed, the reduction of employees' contributions is largely compensated by an increase in direct taxes paid by households. Therefore, the reduction of current receipts only attains BEF 21 billion in the medium-term. On the other hand, public expenditures are increased, but this rise mainly concerns interest payments.

1. We adjusted only year t and let the dynamics play in the rest of the simulation period. The difference with BEF 62.7 billion (0.5% of baseline GDP in t+4) is negligible.

TABLE 30 - A reduction in the employees' social security contributions: main macroeconomic results
(% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.40	0.55
- Government consumption	-0.00	0.01
- Gross fixed capital formation	0.15	0.26
. enterprises	0.20	0.26
. government	0.00	0.09
. housing	0.00	0.37
- Total domestic demand	0.28	0.38
- Exports	-0.00	-0.01
- Imports	0.13	0.18
- GDP	0.15	0.17
<i>Prices and costs</i>		
- Consumption prices	0.02	0.06
- Health index	0.02	0.07
- Investment prices	0.02	0.05
. enterprises	0.02	0.04
. government	0.03	0.06
. housing	0.03	0.06
- Export prices	0.01	0.02
- Import prices	0.00	0.01
- Terms of trade	0.00	0.01
- GDP deflator	0.02	0.07
- Real hourly wage	-0.01	-0.01
- Unit labour cost	-0.04	0.02
<i>Employment</i>		
- Difference level in %	0.08	0.12
- Difference level in thousands	3.35	4.91
- Labour productivity/head	0.06	0.04
<i>Income</i>		
- Households' real disposable income	0.55	0.58
- Households' saving rate (difference level)	0.12	0.02
- Enterprises' gross operating surplus	0.23	0.29
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-10.72	-19.42
- Difference level in % of GDP	-0.11	-0.17

TABLE 31 - A reduction in the employees' social security contributions: main results by branch
 (% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.10	0.03
- Energy	0.21	0.23
- Intermediate goods	0.00	0.02
- Equipment goods	0.17	0.08
- Consumption goods	0.10	-0.00
- Construction	0.16	0.28
. total industry	0.11	0.09
- Transport and communication	0.21	0.19
- Trade and horeca ^a	0.18	0.24
- Credit and insurance	0.53	0.62
- Health care	0.07	0.15
- Other services to households and enterprises	0.18	0.22
. total market services	0.19	0.23
Total market branches	0.16	0.18
<i>Employment</i>		
- Agriculture	0.00	0.00
- Energy	0.10	0.24
- Intermediate goods	0.00	-0.00
- Equipment goods	0.06	0.06
- Consumption goods	0.06	0.00
- Construction	0.15	0.25
. total industry	0.07	0.09
- Transport and communication	0.14	0.15
- Trade and horeca ^a	0.12	0.19
- Credit and insurance	0.07	0.12
- Health care	0.05	0.09
- Other services to households and enterprises	0.14	0.17
. total market services	0.12	0.16
Total market branches	0.10	0.14

a. horeca = hotels, restaurants and public houses.

TABLE 32 - A reduction in the employees' social security contributions: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	-24.2	-21.5
- Direct taxes	22.8	32.2
. households	21.6	30.3
. corporate	1.2	1.8
- Indirect taxes	3.7	6.1
- Social security contributions	-50.8	-60.0
- Other current receipts	0.1	0.2
Current expenditure	0.9	8.4
- Government consumption	0.4	1.5
- Social security transfers	-0.5	-0.0
- Interest payments	0.9	6.8
- Other current expenditure	0.1	0.2
Balance of current receipts and expenditure	-25.1	-30.0
Balance of capital receipts and expenditure	-0.0	-0.3
Primary surplus		
. difference level in billions of BEF	-26.1	-37.0
. difference level in % of GDP	-0.24	-0.29
Net lending		
. difference level in billions of BEF	-25.2	-30.2
. difference level in % of GDP	-0.24	-0.25
<i>Ex ante</i> amount introduced in the model	52.2	62.9

H. A reduction of personal income taxes

The taxes on income of individuals are reduced by an amount equivalent to 0.5% of the corresponding baseline GDP. The introduced tax cut increases from BEF 52.2 billion in the first year up to BEF 62.7 billion in the medium-term.

Macroeconomic results

The tax cut directly affects the households' disposable income. As a result, private consumption and investments in dwellings go up by respectively 0.93% and 0.62% in the medium-term. The improved households' demand also stimulates corporate investment, so that total domestic demand increases with 0.64%. The medium-term impact on GDP is limited to 0.29% due to the higher import needs. The current account balance deteriorates, as exports remain almost unaffected.

Employment increases with about 8,300 units in the medium-term. The price effects remain limited due to the wage norm. Nevertheless, a small increase can be noted due to the more intense capacity utilization.

Results by branch

The measure does not uniformly affect all branches. Looking at the medium-term results, it can be noted that the increase in real value added is modest in the export-oriented manufacturing branches as well as for agriculture. The impact is more important for the market services, as they focus relatively more on domestic demand. The adjustments in employment by branch have a similar profile.

The impact on public finance

The fiscal balance deteriorates considerably a result of this expansive fiscal policy. Although the measure has a positive impact on economic activity, the budgetary loss (50 billion in the medium-term) is still 80% of the introduced amount, which makes it the most 'expensive' 0.5%-of-GDP variant considered in this working paper (see also table 1).

Current receipts decrease with almost 38 billion. The *ex post* loss of personal tax income (about 57 billion in the medium-term) is smaller than the *ex ante* introduced amount. Moreover, the increased economic activity (domestic demand, inflation and employment) leads to additional indirect tax receipts and social security contributions. Current expenditure increases with more than 12 billion, which is due to government consumption (higher inflation) and - mainly - to additional interest payments, resulting from the deteriorated primary surplus.

TABLE 33 - A reduction of personal income taxes: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.65	0.93
- Government consumption	-0.00	0.01
- Gross fixed capital formation	0.25	0.44
. enterprises	0.33	0.43
. government	0.00	0.14
. housing	0.00	0.62
- Total domestic demand	0.45	0.64
- Exports	-0.00	-0.02
- Imports	0.21	0.31
- GDP	0.24	0.29
<i>Prices and costs</i>		
- Consumption prices	0.03	0.10
- Health index	0.04	0.11
- Investment prices	0.03	0.08
. enterprises	0.03	0.06
. government	0.05	0.10
. housing	0.05	0.11
- Export prices	0.01	0.03
- Import prices	0.01	0.01
- Terms of trade	0.00	0.02
- GDP deflator	0.03	0.11
- Real hourly wage	-0.02	-0.01
- Unit labour cost	-0.07	0.02
<i>Employment</i>		
- Difference level in %	0.14	0.20
- Difference level in thousands	5.39	8.31
- Labour productivity/head	0.09	0.07
<i>Income</i>		
- Households' real disposable income	0.89	0.98
- Households' saving rate (difference level)	0.19	0.03
- Enterprises' gross operating surplus		
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-17.28	-32.92
- Difference level in % of GDP	-0.18	-0.29

TABLE 34 - A reduction of personal income taxes: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.17	0.06
- Energy	0.34	0.39
- Intermediate goods	0.00	0.03
- Equipment goods	0.27	0.13
- Consumption goods	0.16	0.00
- Construction	0.27	0.47
. total industry	0.17	0.15
- Transport and communication	0.33	0.32
- Trade and horeca ^a	0.29	0.41
- Credit and insurance	0.86	1.06
- Health care	0.11	0.24
- Other services to households and enterprises	0.28	0.37
. total market services	0.31	0.40
Total market branches	0.25	0.30
<i>Employment</i>		
- Agriculture	0.01	0.00
- Energy	0.16	0.40
- Intermediate goods	0.00	-0.00
- Equipment goods	0.10	0.10
- Consumption goods	0.10	0.01
- Construction	0.24	0.43
. total industry	0.12	0.15
- Transport and communication	0.22	0.25
- Trade and horeca ^a	0.19	0.32
- Credit and insurance	0.12	0.20
- Health care	0.07	0.15
- Other services to households and enterprises	0.23	0.29
. total market services	0.19	0.27
Total market branches	0.16	0.23

a. horeca = hotels, restaurants and public houses.

TABLE 35 - A reduction of personal income taxes: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	-39.1	-37.8
- Direct taxes	-47.7	-53.9
. households	-49.6	-56.9
. corporate	1.9	3.1
- Indirect taxes	6.0	10.4
- Social security contributions	2.4	5.4
- Other current receipts	0.1	0.3
Current expenditure	-0.1	12.3
- Government consumption	0.6	2.4
- Social security transfers	-0.8	-0.1
- Interest payments	-0.1	9.5
- Other current expenditure	0.1	0.4
Balance of current receipts and expenditure	-39.0	-50.1
Balance of capital receipts and expenditure	-0.0	-0.4
Primary surplus		
. difference level in billions of BEF	-38.9	-60.0
. difference level in % of GDP	-0.36	-0.47
Net lending		
. difference level in billions of BEF	-39.1	-50.5
. difference level in % of GDP	-0.38	-0.42
<i>Ex ante</i> amount introduced in the model	52.2	62.7

I. An excise tax increase on petrol and diesel

This simulation analyses the effects of an excise (i.e. an indirect) tax increase on petrol and diesel by 1 Belgian franc per litre. The variant can be viewed in the context of influencing energy demand in order to reduce air pollution (energy-related CO₂ emissions) and road congestion.

Imposing an additional 1 franc excise tax generates an *ex ante* amount of BEF 10.2 billion in the first year and BEF 11 billion in the medium-term in comparison with the baseline. The *ex ante* amount paid by firms equals BEF 5.3 and 5.7 billion in the years t and t+4 respectively. The rest, i.e. *ex ante* BEF 4.9 and 5.3 billion in t and t+4 respectively, is paid by the households (including about 0.8 billion of additional VAT revenue on these products).

Macroeconomic results

The excise tax component of the measure has obvious effects on the consumer price index. The consumption price level increases by 0.11% in the medium-term. The health index does not include petrol and diesel prices but is slightly affected in an indirect way (+0.03% in the medium-term) via the effect of the higher energy prices on the firm's production costs, especially in the energy and the transport branch.

The households' purchasing power is affected, so that global private consumption erodes. The energy price increase leads to a smaller fuel consumption in volume (see table 38), although the effect is rather small due to the low price elasticity of energy demand. The households' investments go up 0.13% in the medium-term due to the relative price decrease of investments w.r.t. private consumption (and, thus, of rent). Corporate investment decreases. About 1,300 jobs are lost in the medium-term.

Results by branch

The economic activity of all branches is negatively affected by the measure. The most hit branch appears to be energy. Transport seems to perform relatively well due to the increased consumers' demand switch in favour of purchased transport (see table 38).

Environmental and energy results

Table 39 shows that the final domestic demand for energy is 0.17% below its baseline level in the medium-term. This reduces the CO₂ emissions by 0.4%.

The impact on public finance

On the revenue side, it can be noticed that the *ex post* additional indirect tax revenue (7.8 billion) is smaller than its *ex ante* amount (10 to 11 billion), as the demand for petrol and diesel is affected as well as global private consumption. The impact on the other revenue categories is rather limited. The current revenue gain equals 7.3 billion in the medium-term.

On the expenditure side, the inflationary effect increases both government consumption and social security transfers by about 1 billion. The resulting improvement of the primary balance invokes lower interest payments. The general government budget goes up by almost 6 billion.

TABLE 36 - An excise tax increase on petrol and diesel: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	-0.09	-0.10
- Government consumption	0.00	0.02
- Gross fixed capital formation	-0.07	-0.04
. enterprises	-0.09	-0.08
. government	0.00	-0.01
. housing	0.00	0.13
- Total domestic demand	-0.07	-0.06
- Exports	-0.01	-0.01
- Imports	-0.05	-0.05
- GDP	-0.03	-0.02
<i>Prices and costs</i>		
- Consumption prices	0.10	0.11
- Health index	0.01	0.03
- Investment prices	0.01	0.03
. enterprises	0.00	0.03
. government	0.00	0.02
. housing	0.00	0.01
- Export prices	0.00	0.01
- Import prices	0.00	0.00
- Terms of trade	0.00	0.01
- GDP deflator	0.06	0.07
- Real hourly wage	-0.09	-0.09
- Unit labour cost	0.04	0.04
<i>Employment</i>		
- Difference level in %	-0.04	-0.03
- Difference level in thousands	-1.41	-1.34
- Labour productivity/head	-0.03	-0.02
<i>Income</i>		
- Households' real disposable income	-0.11	-0.11
- Households' saving rate (difference level)	-0.02	-0.01
- Enterprises' gross operating surplus	-0.08	-0.01
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	3.99	4.99
- Difference level in % of GDP	0.04	0.04

TABLE 37 - An excise tax increase on petrol and diesel: main results by branch
 (% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	-0.07	-0.04
- Energy	-0.26	-0.23
- Intermediate goods	-0.02	-0.03
- Equipment goods	-0.08	-0.07
- Consumption goods	-0.04	-0.02
- Construction	-0.09	-0.05
. total industry	-0.08	-0.06
- Transport and communication	-0.04	-0.02
- Trade and horeca ^a	-0.06	-0.06
- Credit and insurance	-0.14	-0.07
- Health care	-0.03	0.00
- Other services to households and enterprises	-0.09	-0.07
. total market services	-0.07	-0.05
Total market branches	-0.07	-0.06
<i>Employment</i>		
- Agriculture	-0.00	-0.00
- Energy	-0.13	-0.30
- Intermediate goods	-0.01	-0.01
- Equipment goods	-0.03	-0.05
- Consumption goods	-0.02	-0.02
- Construction	-0.08	-0.05
. total industry	-0.04	-0.04
- Transport and communication	-0.03	-0.02
- Trade and horeca ^a	-0.04	-0.05
- Credit and insurance	-0.02	-0.02
- Health care	-0.02	0.00
- Other services to households and enterprises	-0.07	-0.05
. total market services	-0.05	-0.04
Total market branches	-0.04	-0.04

a. horeca = hotels, restaurants and public houses.

TABLE 38 - An excise tax increase on petrol and diesel: impact on petrol and diesel consumption and (between brackets) prices
(% differences from the baseline)

	t	t+4
- Petrol	-1.15 (3.12)	-0.71 (3.08)
- Diesel	-0.96 (4.28)	-2.23 (4.16)
- Purchased transport	0.62 (0.04)	0.75 (0.06)

TABLE 39 - An excise tax increase on petrol and diesel: impact on energy and environment
(% differences from the baseline)

	t	t+4
- Final domestic consumption of energy ^a	-0.16	-0.17
of which: transports	-0.38	-0.48
- CO ₂ emissions ^b	-0.29	-0.44

a. million of tons of oil equivalents

b. million of tons

TABLE 40 - An excise tax increase on petrol and diesel: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	6.5	7.3
- Direct taxes	-0.9	-0.3
. households	-0.5	-0.2
. corporate	-0.4	-0.0
- Indirect taxes	7.7	7.8
- Social security contributions	-0.3	-0.2
- Other current receipts	0.0	0.1
Current expenditure	1.3	1.3
- Government consumption	0.2	1.0
- Social security transfers	0.6	0.9
- Interest payments	0.2	-1.0
- Other current expenditure	0.3	0.4
Balance of current receipts and expenditure	5.2	6.0
Balance of capital receipts and expenditure	-0.1	-0.1
Primary surplus		
. difference level in billions of BEF	5.0	6.9
. difference level in % of GDP	0.0	0.1
Net lending		
. difference level in billions of BEF	5.2	5.9
. difference level in % of GDP	0.0	0.0
<i>Ex ante</i> amount introduced in the model	10.2	11.0

J. An increase in world trade

For the purpose of this simulation, it is assumed that Belgium's export market indicator grows by an additional 1% in the first year. The indicator's baseline growth profile is maintained during the rest of the simulation period.

Macroeconomic results

The scenario has a direct impact on export demand, which increases by 0.9% in the first year. This improvement appears to be permanent. Domestic demand is also increasing (+0.20% in the medium-term). Private consumption and the households' investments are stimulated by the higher disposable income, which on its turn stems from the additional employment (8,500 additional jobs in the medium-term). The improved (external and - to a lesser extent - domestic) demand possibilities fuel corporate investment. All this requires considerably more imports (+0.75% in year t and +0.86% in year t+4), so that real GDP rises by only 0.3% in the medium-term.

It can be noted that there is a modest acceleration in the inflation rate. In the medium-term the consumption price level exceeds its baseline level by 0.13%, owing to the increased economic activity (in spite of the increased labour productivity, there is a rise of the unit labour cost).

The current account position improves. Both quantities and - to a lesser extent - prices contribute to this result. In the medium-term export prices increase by 0.04% relative to their baseline level. This illustrates at the same time the high degree of pricetakership of the Belgian exporters, given the 0.13% domestic price increase.

Results by branch

The improved world economy has a positive impact on all branches' value added and employment, as both domestic and export demands improve. The impact is rather uniform, except for health care, which is a non-exporting activity with a relatively low income elasticity of consumption demand.

The impact on public finance

The government's budgetary position improves. On the revenue side, all categories go up as a result of the higher economic activity (direct and indirect taxes) and employment (social security contributions). Additional revenue equals about 22 billion in the medium-term. On the expenditure side, public consumption increases as a result of the positive price effect. Social security transfers decline in the short run due to the job creation, whereas in the medium-term the positive price effect dominates the impact of the fall in unemployment. The medium-term increase in both expenditure categories is offset by the fall in interest payments, as the primary surplus is largely positive.

TABLE 41 - An increase in world trade: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.16	0.15
- Government consumption	-0.01	0.00
- Gross fixed capital formation	0.50	0.43
. enterprises	0.67	0.53
. government	0.00	0.17
. housing	0.00	0.07
- Total domestic demand	0.27	0.20
- Exports	0.91	0.94
- Imports	0.75	0.86
- GDP	0.43	0.31
<i>Prices and costs</i>		
- Consumption prices	0.07	0.13
- Health index	0.07	0.14
- Investment prices	0.14	0.15
. enterprises	0.17	0.16
. government	0.12	0.17
. housing	0.11	0.17
- Export prices	0.02	0.04
- Import prices	0.00	0.01
- Terms of trade	0.01	0.03
- GDP deflator	0.03	0.15
- Real hourly wage	-0.05	-0.02
- Unit labour cost	-0.15	0.03
<i>Employment</i>		
- Difference level in %	0.23	0.21
- Difference level in thousands	9.17	8.49
- Labour productivity/head	0.22	0.11
<i>Income</i>		
- Households' real disposable income	0.20	0.19
- Households' saving rate (difference level)	0.03	0.03
- Enterprises' gross operating surplus	0.76	0.66
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	18.24	18.44
- Difference level in % of GDP	0.15	0.11

TABLE 42 - An increase in world trade: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	0.81	0.35
- Energy	0.44	0.26
- Intermediate goods	0.50	0.40
- Equipment goods	0.95	0.38
- Consumption goods	0.82	0.17
- Construction	0.46	0.40
. total industry	0.64	0.33
- Transport and communication	0.73	0.59
- Trade and horeca ^a	0.26	0.35
- Credit and insurance	0.50	0.42
- Health care	0.05	0.08
- Other services to households and enterprises	0.47	0.37
. total market services	0.42	0.38
Total market branches	0.51	0.36
<i>Employment</i>		
- Agriculture	0.02	0.02
- Energy	0.21	0.31
- Intermediate goods	0.12	0.10
- Equipment goods	0.36	0.31
- Consumption goods	0.50	0.16
- Construction	0.43	0.39
. total industry	0.36	0.24
- Transport and communication	0.49	0.44
- Trade and horeca ^a	0.17	0.27
- Credit and insurance	0.06	0.07
- Health care	0.03	0.05
- Other services to households and enterprises	0.37	0.30
. total market services	0.26	0.26
Total market branches	0.29	0.25

a. horeca = hotels, restaurants and public houses.

TABLE 43 - An increase in world trade: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	17.7	22.5
- Direct taxes	9.2	11.1
. households	5.3	7.1
. corporate	4.0	4.0
- Indirect taxes	3.5	4.5
- Social security contributions	4.7	6.6
- Other current receipts	0.3	0.3
Current expenditure	0.8	0.7
- Government consumption	1.3	3.3
- Social security transfers	-1.1	0.3
- Interest payments	0.0	-3.7
- Other current expenditure	0.5	0.8
Balance of current receipts and expenditure	16.9	21.8
Balance of capital receipts and expenditure	-0.1	-0.5
Primary surplus		
. difference level in billions of BEF	16.8	25.0
. difference level in % of GDP	0.19	0.2
Net lending		
. difference level in billions of BEF	16.8	21.3
. difference level in % of GDP	0.16	0.2

K. An oil price shock

A preliminary remark regarding the oil price shock simulation concerns its technical character, as only the oil price indicator is adjusted. The average oil price increases by 20% in the first year compared to its baseline level. The baseline's growth profile of this price is maintained during the rest of the simulation period. It should be noticed that other international price and volume indicators (world trade, foreign prices, exchange rates, ...) have not been modified, which would have been more plausible, but not required to test the model's coherence.

Macroeconomic results

From the supply side's point of view energy is, compared to the other inputs, a production factor facing a price increase. This invokes factor substitution in favour of labour demand, whereas investments are negatively affected. Nevertheless, global labour demand declines as well as investments due to the impact of the price shock on the demand side. In the medium-term 7,500 jobs disappear.

The inflationary effect of the import price increase erodes the households' purchasing power. This leads to a downward adjustment of private consumption of 0.45% in the medium-term. Export demand falls as well (due to a deteriorated competitiveness, as Belgium's export prices increase), but the magnitude (-0.26% in the medium-term) has to be interpreted with care. On the one hand, the other international prices have not been adjusted upwardly (i.e. the impact of the oil price shock on the trading partners' inflation rates), so that the loss of Belgian competitiveness is somewhat overestimated. On the other hand, the export market growth indicator has also not been modified, although the economic activity in the other oil-importing economies will also be negatively affected. Corporate investment is confronted with decreasing demand perspectives and a fall in profitability due to the rise of the factor prices (labour has also become more expensive in nominal terms via the wage indexation mechanism, which leads to an increased unit labour cost). Only the households' investment activity appears to progress, in spite of the loss of purchasing power. However, the accelerated inflation has an advantageous impact on the other determinants of housing, as it squeezes the real mortgage rate as well as the relative price of housing (compared to rent). As domestic demand shrinks, the import needs are also smaller (-0.39%), so that the medium-term impact on real GDP is limited to -0.35%.

The effect on the external surplus is negative. Real net exports are increasing (as real imports are more affected than real exports), but the effect of the terms of trade deterioration is predominant.

Results by branch

The oil price shock has a negative impact on almost all branches' value added. The impact on employment is less uniform, as employment appears to increase in the putty-clay branches of intermediate and consumption goods. This finding can be explained by the fact that the export market indicator has not been adjusted downwards, so that both branches' export performance can be overestimated, and by the fact that they have a stronger factor substitution in favour of labour (due to an rise in energy prices) than the other putty-clay branches.

TABLE 44 - An oil price increase: main macroeconomic results
 (% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	-0.28	-0.45
- Government consumption	-0.02	0.06
- Gross fixed capital formation	-0.21	-0.95
. enterprises	-0.29	-1.33
. government	0.01	-0.12
. housing	0.00	0.45
- Total domestic demand	-0.23	-0.49
- Exports	-0.07	-0.26
- Imports	-0.14	-0.39
- GDP	-0.16	-0.35
<i>Prices and costs</i>		
- Consumption prices	0.43	0.92
- Health index	0.33	0.84
- Investment prices	0.22	0.67
. enterprises	0.21	0.67
. government	0.22	0.55
. housing	0.22	0.53
- Export prices	0.51	0.69
- Import prices	1.04	1.17
- Terms of trade	-0.52	-0.48
- GDP deflator	-0.03	0.42
- Real hourly wage	-0.17	-0.08
- Unit labour cost	0.30	0.92
<i>Employment</i>		
- Difference level in %	-0.08	-0.18
- Difference level in thousands	-3.21	-7.48
- Labour productivity/head	-0.05	-0.12
<i>Income</i>		
- Households' real disposable income	-0.34	-0.55
- Households' saving rate (difference level)	-0.05	-0.09
- Enterprises' gross operating surplus	-0.94	-0.97
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	-33.62	-33.20
- Difference level in % of GDP	-0.31	-0.27

TABLE 45 - An oil price increase: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	-0.17	-0.44
- Energy	-0.47	-0.72
- Intermediate goods	-0.04	-0.17
- Equipment goods	-0.28	-0.68
- Consumption goods	-0.19	-0.47
- Construction	-0.14	-0.36
. total industry	-0.18	-0.42
- Transport and communication	-0.11	-0.28
- Trade and horeca ^a	-0.09	-0.27
- Credit and insurance	-0.39	-0.76
- Health care	0.03	0.16
- Other services to households and enterprises	-0.16	-0.35
. total market services	-0.13	-0.30
Total market branches	-0.15	-0.35
<i>Employment</i>		
- Agriculture	-0.00	-0.02
- Energy	-0.22	-0.53
- Intermediate goods	0.03	0.57
- Equipment goods	-0.09	-0.38
- Consumption goods	-0.08	0.11
- Construction	-0.13	-0.41
. total industry	-0.07	-0.05
- Transport and communication	-0.09	-0.35
- Trade and horeca ^a	-0.10	-0.34
- Credit and insurance	-0.11	-0.35
- Health care	-0.03	0.02
- Other services to households and enterprises	-0.17	-0.35
. total market services	-0.12	-0.30
Total market branches	-0.10	-0.23

a. horeca = hotels, restaurants and public houses.

TABLE 46 - An oil price increase: private consumption results
(% differences from the baseline)

	t	t+4
Mainly affected consumption categories at constant prices (prices between brackets):		
- Fuel for heating	-1.38 (5.65)	-2.61 (10.70)
- Petrol	-0.86 (3.98)	-0.61 (4.15)
- Diesel	-0.96 (5.45)	-0.22 (6.25)
- Purchased transport	0.35 (0.40)	0.93 (0.80)

The impact on public finance

The price shock turns out to have negative budgetary consequences, as the increase in expenditure exceeds the additional amount of receipts. Personal and indirect tax revenue as well as social contributions rise because of the price effect (even if economic activity is slowing down). Corporate taxation revenue erodes owing to the decreased demand possibilities and the loss in profitability. Global current receipts increase by BEF 16 billion in the medium-term. However, this price effect also affects expenditure: public consumption and social security transfers increase (the latter also bears the effect of the rise in unemployment). Interest payments also go up because of the decreasing primary surplus and the rise in interest rates (inflation effect). As a result, the budgetary cost equals about BEF 30 billion in the medium-term.

TABLE 47 - An oil price increase: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	-1.2	16.2
- Direct taxes	-4.2	0.6
. households	0.5	6.8
. corporate	-4.7	-6.2
- Indirect taxes	-0.7	2.6
- Social security contributions	3.7	12.7
- Other current receipts	0.0	0.3
Current expenditure	13.4	46.0
- Government consumption	5.8	20.1
- Social security transfers	6.0	16.8
- Interest payments	0.6	6.1
- Other current expenditure	1.0	3.0
Balance of current receipts and expenditure	-14.6	-29.8
Balance of capital receipts and expenditure	-0.4	-0.8
Primary surplus		
. difference level in billions of BEF	-15.5	-36.6
. difference level in % of GDP	-0.16	-0.29
Net lending		
. difference level in billions of BEF	-14.9	-30.5
. difference level in % of GDP	-0.14	-0.25

L. An us dollar appreciation

The current simulation analyses the impact of an appreciation of the USD/euro exchange rate by 10% compared to its baseline level throughout the whole simulation period. A two-step methodology has been followed. First, use has been made of simulation results by the FPB's HERMES-LINK model as well as by the OECD in order to take into account the impact of the more expensive dollar on the other trade partners, which is also important for the Belgian economy. This allows for a more complete revision of the international context, instead of only adapting the exchange rate (adjustment of the export market indicator and of the international prices). The second step consists of using these findings as inputs for the adjustment of the international indicators in HERMES-Belgium.

An important remark has to be made about the treatment of the interest rates, which is important for the determination of investments, the households' non-labour disposable income and the public sector's interest payments. The EMU countries' real interest rates are supposed to remain unaffected, which is only a technical assumption inspired by the Fisher proposition. In this way, the nominal interest rates fully reflect the inflationary consequences of this external shock.

Macroeconomic results

The depreciation of the euro and - automatically - of the Belgian currency against the USD stimulates economic growth but has also inflationary consequences. The latter effect is obvious, as the exchange rate adjustment leads to higher international prices in BEF. Compared to their baseline level, the import prices in BEF increase by 1.9% in the first year and by 2.2% in the medium-term. This leads to a persistent increase in inflation (production prices affect consumption prices) throughout the whole projection period. Production price tensions are - in the medium-term - also due to the increased economic activity (see *infra*). However, the main impact on inflation is observed in the first year, when consumption prices accelerate with 0.6 point. In the year t+4, the consumption price level is 1.4% above its baseline level, so that, on average, inflation still accelerates with 0.2 point after the first year.

The euro depreciation has a positive effect on export demand, which increases by 0.9% in the first year. The effect is more pronounced in t+1 (not shown in the table), when real exports are 1.35% above their baseline level. This gain erodes slightly to 1.16% in the medium-term as increasing domestic costs affect the external competitiveness of the Belgian economy. The increased purchasing power stimulates private consumption as well as the households' investments. The latter also benefits from the relative price effect: investment prices are less affected than rental prices, which are linked to the consumption prices. The (mainly external) demand improvement stimulates corporate investment, which increases by 0.20% in t+4.

The improved economic activity leads to 11,800 additional jobs in the first year and to 15,000 new jobs in the medium-term.

The current account surplus improves. The effect is rather limited in the first year as the increased net exports in constant prices are partially compensated by the deterioration of the terms of trade. The latter effect dampens from year t+1 onwards, so that the current account balance improves by BEF 44 billion in the medium-term.

TABLE 48 - An USD appreciation: main macroeconomic results
(% differences from the baseline, unless otherwise specified)

	t	t+4
<i>GDP and its components</i>		
- Private consumption	0.13	0.08
- Government consumption	-0.06	0.06
- Gross fixed capital formation	0.52	0.22
. enterprises	0.69	0.20
. government	0.01	0.32
. housing	0.00	0.24
- Total domestic demand	0.24	0.11
- Exports	0.89	1.16
- Imports	0.62	0.89
- GDP	0.50	0.43
<i>Prices and costs</i>		
- Consumption prices	0.59	1.37
- Health index	0.56	1.36
- Investment prices	0.82	1.10
. enterprises	0.87	1.06
. government	0.77	1.18
. housing	0.75	1.21
- Export prices	1.58	2.08
- Import prices	1.93	2.17
- Terms of trade	-0.34	-0.09
- GDP deflator	0.35	1.23
- Real hourly wage	-0.22	-0.10
- Unit labour cost	0.20	1.21
<i>Employment</i>		
- Difference level in %	0.30	0.37
- Difference level in thousands	11.80	15.03
- Labour productivity/head	0.24	0.09
<i>Income</i>		
- Households' real disposable income	0.27	0.23
- Households' saving rate (difference level)	0.12	0.13
- Enterprises' gross operating surplus	0.95	1.63
<i>Balance of current transactions with the rest of the world</i>		
- Difference level in billions of BEF	5.67	43.96
- Difference level in % of GDP	0.01	0.23

Results by branch

Manufacturing and ‘transport and communications’ benefit the most in terms of value added. The employment growth (in %) is the strongest in the industrial branches, but in absolute terms more jobs are created in services (8,700 units against 6,300 additional industrial jobs in the medium-term).

TABLE 49 - An USD appreciation: main results by branch
(% differences from the baseline)

	t	t+4
<i>Value added</i>		
- Agriculture	1.31	0.68
- Energy	0.24	0.00
- Intermediate goods	0.46	0.60
- Equipment goods	1.01	0.47
- Consumption goods	1.28	0.61
- Construction	0.50	0.52
. total industry	0.73	0.50
- Transport and communication	1.03	0.91
- Trade and horeca ^a	0.31	0.46
- Credit and insurance	0.53	0.34
- Health care	-0.03	0.38
- Other services to households and enterprises	0.52	0.51
. total market services	0.49	0.53
Total market branches	0.60	0.53
<i>Employment</i>		
- Agriculture	0.05	0.06
- Energy	0.12	0.27
- Intermediate goods	0.16	0.82
- Equipment goods	0.40	0.51
- Consumption goods	0.81	0.90
- Construction	0.70	0.51
. total industry	0.54	0.68
- Transport and communication	0.79	0.72
- Trade and horeca ^a	0.19	0.31
- Credit and insurance	0.04	-0.04
- Health care	-0.05	0.13
- Other services to households and enterprises	0.39	0.38
. total market services	0.30	0.34
Total market branches	0.37	0.43

a. horeca = hotels, restaurants and public houses.

The impact on public finance

A dollar appreciation appears to have positive effects on the government budget. On the revenue side, direct tax revenue increases as nominal disposable income, employment and corporate profits go up. The improved economic activity and inflationary context generate additional revenues from indirect taxation and from social security contributions. On the expenditure side, all components are on the rise as well owing to the accelerated inflation, i.e. public consumption, social security transfers (although unemployment contracts) and even the interest payments. The additional interest payments are induced by the technical assumption of unaffected real interest rates, so that the nominal interest rates rise by the rate of inflation. This nominal interest rate effect is stronger than the effect of the improved budget balance. The general government budget improves by BEF 29 billion in the medium-term (i.e. almost 0.2% of GDP).

TABLE 50 - An usd appreciation: main budgetary results
(difference levels in billions of BEF from the baseline, unless otherwise specified)

	t	t+4
Current receipts	38.8	95.3
- Direct taxes	17.2	41.0
. households	12.1	30.9
. corporate	5.1	10.0
- Indirect taxes	8.1	19.2
- Social security contributions	12.8	33.8
- Other current receipts	0.6	1.4
Current expenditure	24.1	64.3
- Government consumption	10.5	32.2
- Social security transfers	6.0	20.4
- Interest payments	5.4	5.7
- Other current expenditure	2.3	5.9
Balance of current receipts and expenditure	14.7	31.1
Balance of capital receipts and expenditure	-0.5	-2.3
Primary surplus		
. difference level in billions of BEF	8.8	23.2
. difference level in % of GDP	0.13	0.20
Net lending		
. difference level in billions of BEF	14.2	28.8
. difference level in % of GDP	0.13	0.17