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NORTH-HOLLAND

A Negative Income Tax in a Mini-Welfare State: A Simulation Exercise With MIMIC

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This paper traces the effects of a negative income tax on labor supply and economic growth by use of the applied general equilibrium model of the Central Planning Bureau of the Netherlands, named MIMIC. The simulation results show that replacing the social security system by an individualized negative income tax induces a large fall in labor supply, but the employment effect might be neutral. The main explanation is that the introduction of a negative income tax strongly reduces the replacement ratio and makes low-paid jobs much more attractive for workers. This generates wage moderation and leads to a large fall in unemployment. However, since the jobs created have a rather low labor productivity, production growth will be negative.

1. INTRODUCTION

The idea of a negative income tax is not new. On the contrary, it has been under discussion in many appearances for centuries. In 1517, Thomas More already stated that every individual should receive sufficient income to survive. At the end of the 18th century, the enlightened rationalist Thomas Paine shaped this idea by suggesting that every citizen should be entitled to a certain income financed by ground rents. The proposals become less utopian and more economically minded in the 20th century. Although being present in the 1930s and 1950s in the United States and England, respectively, the discussion strongly revives in the 1960s in the United States with the ideas of Theobald, Tobin, and Friedman proposing a negative income tax. In the 1970s, Friedman's idea gets a hearing in the Netherlands. Here, advocates and opponents of the concept of a negative income tax can be found at both sides of the political spectrum. In 1985, the Scientific Council for Government Policies (Wetenschappelijke Raad voor het Regeringsbeleid, 1985) proposes a partial negative income tax of 5000 guilders a year while maintaining the social security system, except for the minimum wage

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regulation. However, the Dutch government judges the proposal negatively by pointing at the extra costs and international risks it is likely to involve. More recently, the publication of the long-term scenario study for the Netherlands by the Central Planning Bureau (1992) breathes new life into the discussion in the summer of 1992. In one of the three scenarios outlined in the report, a negative income tax is introduced as an alternative form of income maintenance. One of the advantages of replacing the current social security system by an individualized negative income tax is that this measure contributes to the process of creating equal rights for men and women without entailing high financial risks for the government, which are present if current social government assistance would be individualized (see Gelauff and Graafland, 1994).

This paper presents an analysis of the economic effects of the introduction of a negative income tax in the Netherlands by using the applied general equilibrium model of the Central Planning Bureau, named MIMIC.¹ In the following section the paper starts with a short overview of the pros and cons of a negative income tax found in the literature. Section 3 and 4 deal with a negative income tax in the context of a mini-welfare state, in which, as in "Nederland in Drievoud" (Central Planning Bureau, 1992) it serves as an alternative for the entire current social security system. Section 5 summarizes the main conclusions.

2. POSSIBLE ADVANTAGES AND DISADVANTAGES OF A NEGATIVE INCOME TAX

Introduction of a negative income tax paid unconditionally to all individuals without means test, work requirement, or marital status is sometimes described in committed literature as the last step in the development of social security from depending on charity or favoritism, via a "clausured right" depending on the willingness to work, to an "unclausured" or civil right (de Beer, 1987). Moreover, a negative income tax is suggested to put the current unequal recognition of various kinds of work to an end. According to these views, voluntary workers and housewives, among others, should have the same right to receive a reasonable income as any other individual working on a paid basis. Although it is beyond the scope of this paper to go further into these matters, it must be realized that an enormous amount of socioculturally as well as politically committed literature exists on the phenomenon of a negative income tax. Here we concentrate on the basic subsidy from an economic point of view.

With respect to the pros and cons of a negative income tax, several advantages can be distinguished. First, the introduction of a negative income tax might improve the operation of the labor market, because it will allow a substantial reduction in the official minimum wage. This would enable employers to create low-productivity jobs for workers with a low-productivity profile, thereby reducing

¹MIMIC stands for Micro Macro model to analyze the Institutional Context. The model has been designed to analyze the interaction between taxation, social security and the labour market. It combines recent labour market theories with a detailed description of the household sector and institutions relevant for labour market performance. For a detailed presentation of the model structure of MIMIC, see Gelauff and Graafland (1994).

the high level of unemployment among this type of workers. Especially small-scale industry is likely to flourish as small businesses will become profitable at an earlier stage. In addition, the number of small businesses may also rise because potential entrepreneurs and their families are assured of income during the introductory and most uncertain period of their businesses (Nooteboom, 1987). This will encourage them to go into business.

A second advantage of the introduction of a negative income tax concerns possible improvements in the social security system. The system will become more transparent and more easily manageable because a considerable part of the present social benefits and bureaucracy will be made idle. At the same time, all constraints and obligations imposed on people receiving social assistance will be abrogated so that less inspection is required. Moreover, a negative income tax is thought to diminish competition on an unfair basis by entrepreneurs in the informal sector who engage people receiving social assistance to lower the labor costs bill, because every individual is free to work while maintaining social assistance. This might make jobs in the informal sector less attractive.

Additionally, women could benefit from the acquired right because they become economically independent from their partners. Especially women who are willing to work but discouraged to do so under the current social security and tax system will likely benefit from it, like partners of unemployed who presently face a 100-percent marginal tariff, because their earnings are deducted from the benefits of their spouses. A negative income tax might therefore be advocated on emancipatory grounds (Paulus, 1991). However, this argument is subject to criticism, as can be seen below.

Furthermore, it is found in literature (Werkplaats Basisinkomen, 1989) that a negative income tax might stimulate part-time working by diminishing the financial necessity to work a full working week. This might alleviate the unemployment problem as employment may be spread over more people.

Finally, advocates indicate the likeliness of positive effects on the international competitiveness of domestic enterprises as a consequence of more favorable price fixing through a reduction of wages. When a negative income tax is introduced, the level of gross wages and social assistance benefits can be lower, which decreases labor costs and limits the increase in the collective burden. For these reasons, it can be expected that prices decline and labor demand rises, especially in labor-intensive enterprises (Emmerij, 1985).

The argument most commonly put forward by opponents of a negative income tax regards the operation of the labor market. They argue that a (partial) disconnection between labor and earnings will reduce the financial incentive to engage in paid regular work. This is argued to affect labor supply negatively in a number of ways. Firstly, according to the opponents, labor participation of women will stay behind, thereby consolidating the existing role patterns between men and women. They argue that a negative income tax will function as a "domestic wage" that women will be satisfied with. The opponents therefore contradict the emancipatory argument mentioned above. Secondly, the financing of a negative income tax will probably increase taxes, which reduces the net wage rate. This could result

in a reduction of hours supplied by the individuals working for pay at present. Moreover, the increase in the marginal tax rate might lead to a flourishing informal sector. In the third place, adolescents might not be induced to strive for good education, which will cause them to be trapped in a dead-end situation at a later stage. Finally, the negative income tax will cause the effort of searching for legally paid work by unemployed to diminish. According to some opponents, this alternative system of income maintenance could therefore entail the danger of leaving a considerable part of low-paid, unattractive jobs vacant.

3. A NEGATIVE INCOME TAX IN A MINI-WELFARE STATE

This section investigates what economic effects may be expected if a negative income tax is considered together with certain elements of a mini-welfare state. The characteristics of the concept of the mini-welfare state with negative income tax we have in mind are fivefold:

- All people (except children and students) benefit from an individualized negative income tax equal to 50 percent of the net minimum wage in the base projection;
- The wage-related social benefits of the social security funds for disability and unemployment are abolished;
- Similarly, social assistance from the government for disabled and unemployed people is done away with;
- Social assistance of aged people is reduced in such a way that the rise in net income from the negative income tax is just offset, so that their net income does not change. In a similar way the gross official minimum wage is adapted;
- In order to finance the negative income tax, the basic allowance in the current income tax system is abolished (because all workers receive a negative income tax now). Because the negative income tax is granted on an individual scale, this implicitly implies that the transferability of the basic allowance is also abolished. In addition, instead of raising the tax rates of the current three tax brackets, a flat tax rate is introduced in order to prevent very high marginal tax rates for high-income groups. The value of the flat tax rate is set in such a way that budgetary neutrality is obtained for the government.

Based on Central Planning Bureau (1993), it is assumed that a 1-percent decrease in disability benefits leads to a 2-percent decrease in the number of disabled people and that the productivity of disabled people is half that of other employees. The most important assumption concerns the reactions of unions to the reduction in disability and unemployment insurance. Current experiences in efforts to bring down the net disability benefit show that the loss in benefit is reinsured for almost 75 percent by unions and employers' organizations. Hence the effective reduction in disability benefits will only amount to 25 percent of the loss in benefit without reinsurance. In order to illustrate the relevance of this assumption, an alternative simulation is also presented in which the degree of reinsurance of disability risks equals 50 percent instead of 75 percent. Reductions in unemployment insurance benefits are assumed to be reinsured for only 10 percent.

In the simulation we abstract from more qualitative effects of a mini-welfare state on the inflow into disability schemes. For example, if reinsurance takes place in the private sector and examination procedures are privately organized, this might induce a differentiation of premium rates across different sectors according to the risk of invalidity. As a consequence, large firms might opt for reinsuring the disability risks for their employees by themselves. This will encourage companies to prevent invalidation of workers by providing more intensive social and medical support and offering alternative jobs more suited for potentially disabled workers. Central Planning Bureau (1993) tentatively estimates that this might reduce the inflow into disability schemes by 10 percent. Furthermore, privatization of the examination might lead to more stringent conditions required for entering the disability scheme. For example, disability because of psychological symptoms may be more effectively monitored.

4. SIMULATION RESULTS

The long-term simulation results are presented in Table 1 and Table 2. The economic effects of this drastic institutional reform are ambiguous. Introducing a negative income tax decreases labor supply measured in persons as well as in labor years. Evidently, the negative income tax entails an income effect that accounts for the fall in labor supply. Moreover, the marginal return of working an additional hour is relatively lower as a consequence of taxes due, so that the income effect is reinforced by a negative substitution effect. The fall in labor supply generated by the negative income tax is, however, diminished by two opposing developments. Firstly, labor supply of partners of unemployed breadwinners receiving social assistance is stimulated. For this group the 100-percent marginal tariff caused by the means test vanishes because the negative income tax is granted on an individual basis. Secondly, replacement of the wage-related disability benefits by the negative income tax of 50 percent of the net minimum wage is found to induce an *ex ante* decrease in income for disabled people by 32 percent. With 75-percent reinsurance, the fall in net income for disabled people equals about 8 percent, inducing a reduction in the inflow in disability schemes by 16 percent. Hence, from the former 1.0 million people participating in disability schemes according to the base run, 160,000 people will now recoil from this participation by either preventing to enter the disability schemes or, if already disabled, being more prepared to accept a (less attractive) job for which they are still qualified.

Although labor supply shows a substantial fall, the fall in employment is more moderate, leading to a substantial decrease in unemployment. This can be explained by the fact that the replacement of social assistance benefits by the negative income tax and the partial reinsurance of the social insurance benefit leads to an enormous fall in the replacement ratio of unemployed workers, both because of a nominator and denominator effect. The nominator effect stems from the fact that the *ex ante* income of unemployed is reduced. The denominator effect stems from the fact that the negative income tax is independent of other income and therefore not reduced if wage income is received, in contrast to the current unemployment insurance and social assistance benefit. The strong fall in the replacement

Table 1: Simulation Results of Introduction of Negative Income Tax and Mini-Welfare State

Collective reinsurance	75%	50%
Flat tax rate	53.0	51.5
Prices	Percentage changes*	
Wage rate	1.5	-2.7
Low skilled	-8.1	-12.1
Medium skilled	0.1	-4.2
High skilled	3.9	-0.3
Production price	8.4	6.4
Consumption price	5.8	4.6
Volumes		
Private consumption	1.8	2.2
Investment	-4.5	-4.1
Exports	-3.5	-2.7
Imports	-1.4	-1.6
Private production	-5.7	-4.6
Private employment	-2.9	-0.1
Low skilled	16.3	21.9
Medium skilled	3.1	8.2
High skilled	-6.4	-4.5
Labor supply persons	-6.4	-4.4
Labor supply hours	-6.1	-3.9
Ratios	Absolute changes*	
Unemployment rate	-3.6	-3.7
Low skilled	-16.8	-16.9
Medium skilled	-7.1	-7.2
High skilled	-1.4	-1.4
Inactivity ratio	-4.7	-9.6
Replacement ratio	-26.3	-26.4
Average tax rate†	-7.5	-9.9
Marginal tax rate	2.9	1.4
Total taxes‡	3.9	3.6
Social sec. premiums‡	-9.8	-11.2
Public expenditures‡	-5.7	-7.4
Public deficit‡	0.0	0.0
Current account‡	0.3	0.3

* Cumulated effects as difference between simulation and base projection after 25 periods.

† The average tax rate is defined as (collective burden-basic income)/labor income.

‡ As a percentage of net national income.

ratio reduces the reservation wage of the unemployed and raises their search intensity, resulting in lower incidental wages and lower search costs for employees, especially for low-skilled labor. Table 1 shows the substitution between low-skilled and high-skilled labor to result in a fall in high-skilled employment and a substantial increase of employment of low-skilled people. In addition, the fall in the

Table 2: Negative Income Tax and Mini-Welfare State: Effects on Replacement Ratio, Net Real Income and Labor Supply*

Collective reinsurance	75%	50%
Replacement ratio	Percentage changes	
Unemployment insurance		
Single persons	- 55.7	- 55.5
Single parents	- 53.7	- 53.5
Breadwinners	- 60.9	- 60.7
Partners	- 37.5	- 37.9
Social assistance		
Single persons	- 38.3	- 37.9
Single parents	- 53.7	- 53.5
Breadwinners	- 55.8	- 55.6
Partners	0.0	0.0
Net real income	Percentage changes	
Breadwinners†		
Employed	29.1	30.0
Unemployment insurance	- 22.0	- 21.3
Social assistance	- 8.2	- 7.3
Disability benefit	30.4	21.1
Single persons		
Employed	8.1	8.8
Unemployment insurance	- 50.9	- 50.4
Social assistance	- 32.7	- 31.9
Disability benefit	- 12.4	- 21.7
Aged persons	- 11.9	- 12.0
Labor supply (hours)	Absolute changes*	
Single persons	1.9	3.9
Single parents	3.4	6.7
Breadwinners	2.6	5.2
Partners	- 41.8	- 40.2

* Cumulated effects as difference between simulation and base projection after 25 periods.

† Including negative income tax ascribed to partners of breadwinners.

replacement ratio generates a downward pressure on collective wages by weakening the threat-point position of employees in wage bargaining.

The flat income tax rate required to finance the negative income tax equals 53 percent. The average tax and premium rate falls, however, because collective outlays substantially decline. This is explained by the fall in benefits granted to disabled and unemployed people and the number of benefit recipients. As a result, the average burden of income taxes and social premiums minus negative income tax falls by 7.5 percentage points.

From Table 2 it can further be seen that the fall in the collective burden leads to an improvement in the net real income of employed breadwinners and single people, but that the net real incomes of unemployed breadwinners and single people and aged people are deprived. The net income of disabled single people

also falls, but less than for unemployed single people, because the loss in disability benefit is reinsured for 75 percent whereas the loss in unemployment insurance is only reinsured for 10 percent. The net income of disabled breadwinners even rises, because the reduction in breadwinners' income is compensated by the negative income tax ascribed to their partners.

If the loss in social insurance benefit is reinsured for 50 percent instead of 75 percent, the economic effects appear to be more favorable, as can be seen from the second column in Table 1 and Table 2. The main reason is that the lower degree of reinsurance causes a larger decrease in net income of disabled people. As a result, the inflow in disability schemes is further reduced so that the number of disabled people falls by another 160,000 persons. The fall in labor supply is therefore diminished from 6.1 percent to 3.9 percent, and this generates additional wage moderation. In this case employment remains unchanged compared to the base projection. However, the production effect is still negative, because the labor productivity falls as high-skilled jobs are substituted by low-skilled jobs.

5. CONCLUSIONS

The economic effects of replacing the current social security system by an individualized mini-welfare state with a negative income tax seem ambiguous. On the one hand, it will initiate a strong reduction in unemployment by stimulating the willingness to accept jobs. Especially the employment perspectives of low-skilled people will improve. To this positive quantitative economic effect can be added qualitative effects, as mentioned in Section 2, such as improvement in practicability of the social security system.

On the other hand, the introduction of the negative income tax causes a large fall in labor supply. The fall in labor supply exceeds the fall in unemployment, hence employment is also reduced. Because the labor productivity of the working population decreases along with the increased inflow of relatively unproductive people into the production process, private production shows an even larger fall than employment. Note, however, that the negative effects on labor supply and economic growth will diminish if privatization of the disability arrangements causes a further reduction in the inflow in disability schemes.

Furthermore, this kind of radical reform will also have some negative social consequences by causing a strong financial loss for people who remain completely dependent on a benefit income. This is especially relevant for single persons, whose fall in income is not compensated by a negative income tax of a partner. As the income of employed single people improves, the income distribution for this group will become more dispersed. On the other hand, the reduction in unemployment and disability implies that the number of people dependent on a benefit income is substantially smaller. Hence, there is a substantial number of former benefit recipients whose income will improve, just because they find a job.

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