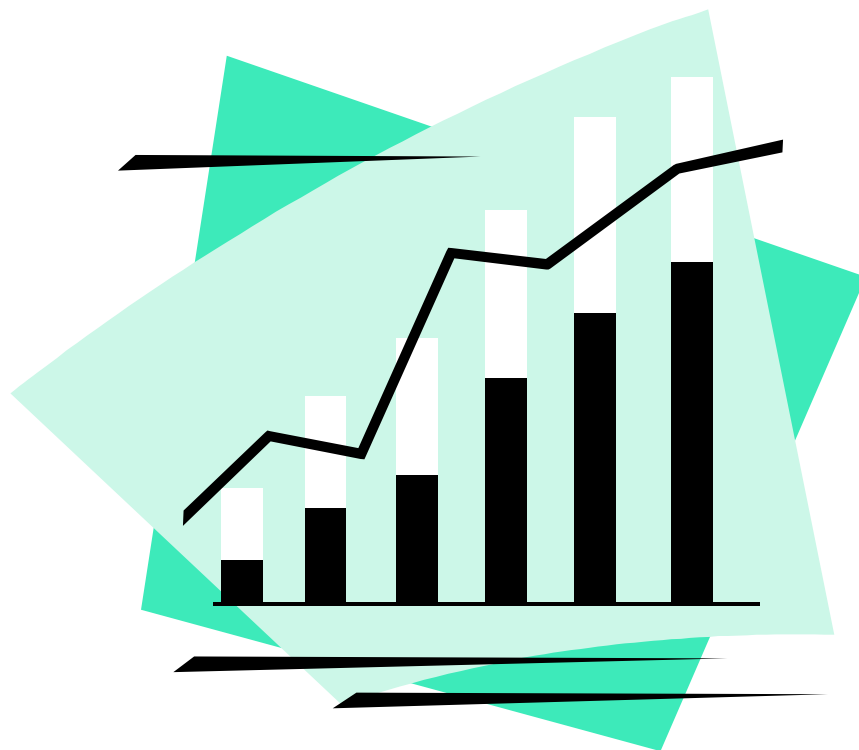




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AN EXPERIMENTAL STUDY OF THE VAN ELSWIJK PLAN

Value added taxation instead of wage taxation as a means to
finance unemployment benefits



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Executive summary

Van Elswijk Plan

Experts believe that unemployment in The Netherlands is partly due to the way in which the social insurance system functions. The present method of financing this system, to a great extent via a tax on labour, is considered to play an important role in this respect. The resulting difference between the labour costs of the employer and the net wage of the employee are thought to be damaging for employment (the “wedge” issue). It is argued that there is a vicious circle between unemployment and higher labour costs.⁷ According to the Minister, plans for an alternative, more employment-friendly fiscal structure, therefore merit serious attention.⁸

The Van Elswijk Plan - named after its deviser - is such an alternative.⁹ In brief, the plan consists of three important parts. *Firstly*, the tax base for social insurance contributions is extended from the wage sum to net value added (against factor costs), by which not only labour but also capital is taxed. *Secondly*, an employment or labour subsidy is introduced as a bonus for the employer for the money saved on not having to pay out an unemployment benefit to a person in employment. As this subsidy is lost if the employee is dismissed, the employer is directly confronted with the financial costs of unemployment to society. This is in contrast to the present method of financing the social insurance system, whereby others also carry these costs via an adjustment in the contributions, through which, in fact, dismissal is subsidised.¹⁰ *Thirdly*, the tax on net value added is differentiated according to production sectors, such that on introduction of the plan, the total social insurance contributions would equal the amount that was paid before the implementation of the plan. This would avoid a shift in the financial burden from labour intensive to capital intensive firms directly after implementation. According to the Van Elswijk Plan, the social insurance contributions are therefore determined as a percentage of the net value added specific to the production sector minus the employment subsidy (the standardised unemployment benefit equivalent) for those employed.

Van Elswijk expects considerable positive economic consequences as a result of his plan, especially in relation to its effects on employment.

Earlier evaluation of the Van Elswijk Plan

In 1995, the Dutch economic advisory institute CPB calculated the macro-economic effects of the Van Elswijk Plan using the so-called FKSEC model, the operational macro-economic model

⁷See, for example, CPB, “Alternatieve financiering van de sociale zekerheid: Plan Van Elswijk”, Werkdocument no. 79, Den Haag, 1995.

⁸Letter from the Minister of Social Affairs and Employment to the Second Chamber, 3 July 1997 (Tweede Kamer, 1996-1997, 25 000 XV, no. 63).

⁹P. van Elswijk, “De markteconomie sociaal ingevuld”, Van Gorcum, 1996. The essence of the plan is given briefly in P. van Elswijk, “Homeostatische financiering van de sociale zekerheid”, ESB, 4-5-1994, pp. 408-411.

¹⁰See R.W. Boadway en D.E. Wildasin, Public Sector Economics, Toronto, 1984, p. 484.

of this research institution.¹¹ According to the CPB, fully implementing this plan would yield a 45% tax rate on value added in order to finance the removal of the social insurance contributions and the labour subsidy (60% of the gross wage after deducting the employee contributions). The model was not considered suitable to calculate such a major operation: “These amounts are so large that they fall far outside the range in which calculations are normally made with the FKSEC model. The FKSEC model is not considered suitable for such major changes, as the equations are predominantly locally valid. Therefore a more modest size of the impulses is chosen (about 10% of the original plan)”.¹² The results of this limited implementation, in which the differentiation of the tax rates according to production sectors was left out (the third part of the Van Elswijk Plan), showed a clearly beneficial effect on employment, even in the long term (8 years), while the effects on production and investments were rather slight. The CPB emphasised that the manner in which wages are adjusted is an important source of uncertainty when determining the effects on employment, regardless of the issues not studied, concerning capital flight and practical feasibility (valuation problems,¹³ sensitivity to fraud, avoidance of tax by international businesses, the technical feasibility of differentiating the tax rate according to production sectors as well as it possibly being in conflict with the principle of equal treatment¹⁴)¹⁵ All things considered, the CPB concluded that the risks of implementing this plan were too large. Incidentally, it is noted that positive effects on employment of the Van Elswijk Plan were also found in an earlier study referred to by the CPB.¹⁶

A problem with these models is that they are based on existing behavioural reactions, that is, behavioural reactions to the present way of financing the system. In this context, one of the two economic experts consulted by the Ministry warned that policy measures can cause such large changes in behavioural reactions that it makes no sense to calculate the effects of the policy measures with models which are based on existing behavioural reactions.¹⁷ General equilibrium models, such as the MIMIC model of the CPB, meet this criticism. According to the CPB study, additional calculations with the MIMIC model support the results of the FKSEC model.¹⁸

The experts previously mentioned also point at the aforementioned implementation problems in their comments, and they indicate the importance of the way in which wages will be adjusted. It is expected that capital flight will take place because of the (implicit) tax on capital in the Van Elswijk Plan. The net (marginal) return on capital will decrease, which may induce Dutch firms to invest more in foreign countries, and foreign firms to invest less in the Netherlands. Moreover, as the more profitable firms within a production sector will be hit relatively the hardest, the competitive position of the Netherlands could be damaged because the incentive to innovate and modernise will be negatively influenced. Entrepreneurship will be rewarded less. It is also expected that the extra taxation of the production factor capital, will have a discouraging effect on the introduction of labour saving technology. This, combined with the labour subsidy (through which the costs of dismissal will increase), will inhibit the functioning of the labour

¹¹See note 7.

¹²Ibid., p.12.

¹³‘Net value added’ is, for example, not a current business economic concept.

¹⁴It must be noted, though, that the differentiation is meant to keep the tax burden on implementation equal to the tax burden under the present method of financing.

¹⁵Also see CPB, MEV 1997, p. 107.

¹⁶See CPB, *ibid.*, p. 7. The CPB also presents a summary of other studies into the effects of broadening the tax base of social insurance in the Netherlands. It concludes that: “Macro-calculations by the NEI and SEO showed favourable effects on employment, as did the CPB calculations in work document 11. The effects on production and investments varied from practically none to negative” (*ibid.*, p. 6).

¹⁷See the Minister’s letter of 3 July 1997, p. 5.

¹⁸Ibid., p. 15. In this model, wages are determined on the basis of negotiations between employers and unions.

market. All things considered, these experts predict large adverse effects on the competitive position and welfare of the Netherlands, and they do not consider the Van Elswijk Plan as a solution to the issue of employment.¹⁹

Finally, we would like to mention the evaluation of a field experiment in Rotterdam, in which the Van Elswijk Plan was implemented on a limited scale (twelve firms finally took part) and for a limited experimental period (1996-1997).²⁰ The experiment was particularly designed to investigate implementation problems. The results suggest that the Plan is feasible and can work alongside other existing forms of taxation. Moreover, it will further the creation as well as the maintenance of employment. As far as the latter is concerned, it was concluded that the employers considered the labour subsidy as a sort of investment premium that they could also use for recruiting graduates, for training courses and for accelerating investments (in which case financial barriers and the risks attached to investments seem to play a role).

In economic science, field experiments are generally regarded as a useful instrument for obtaining empirical data about the effects of radical changes in government policy.²¹ However, for a number of reasons, the significance of the results obtained in this case is questionable.²² Firstly, the reliability of the results is doubtful because of the short experimental period and the limited number of firms taking part (initially 7, later 12). Owing to this, chance may have played an important role. For example, one of the firms was responsible for 70% of the increase in the number of labour years. Furthermore, participation was voluntary and the firms were given the guarantee that they would not lose out (“no pay guarantee”), so they could only benefit from the experiment. Moreover, the small scale of the experiment meant that possible influences on the economic structure (such as shifts between labour intensive and capital intensive sectors) could not be observed. For the same reason, it could also not be clearly established in how far the results were determined by other factors (for example, specific regional developments). The small-scale implementation also implied the absence of economic feedback mechanisms, like via wages, and the presence of unclear distortions through the fact that the different ways of financing social insurance occurred simultaneously.

The experimental economic study of the Van Elswijk Plan

Experimental economics

Besides the econometric method, as applied by the CPB, and the survey method, conducting experiments is seen as an important additional method of obtaining empirical data about the economic effects of government policy.²³ A distinction is made between the aforementioned field experiments and laboratory experiments. In particular, the latter are associated with the rapidly developing new research area of experimental economics. As a laboratory experiment is used in this study of the Van Elswijk Plan, this research method will first be briefly explained.

¹⁹R. de Mooij comes to a similar conclusion on the basis of his review of the book by Van Elswijk in ESB, 9-4-1997.

²⁰See NEI, Evaluatie experiment Prohef, Rotterdam, May 1998.

²¹A much cited example concerns the field experiments in the USA looking into the labour supply and other effects of a negative income tax (see, for example, R. Ferber and W.Z. Hirsch, Social experimentation and economic policy: a survey, *Journal of Economic Literature*, 16, 1978, pp. 1379-1414; J.A. Hausman and D.A. Wise, eds., *Social Experimentation*, University of Chicago Press, Chicago, 1985).

²²The majority of the reasons are also given in the letter from the Minister, dated 3 July 1997.

²³See, for example, H.S. Rosen, *Public Finance*, Irwin, Homewood/Boston, 1992, chapter 3.

In an economic laboratory experiment, economic issues are studied using subjects in a controlled environment (a laboratory). In the laboratory, the subjects are faced with an economic situation in which they have to make decisions that have financial consequences for them. The great strength of this method lies in the possibility of systematically investigating changes in an economic situation, such as a change in the taxation system (*controllability of the circumstances*). Behavioural reactions can be closely observed. Moreover, this method enables the experiment to be accurately repeated (*possibility of replication*). Other research methods that empirically analyse behavioural reactions are not able to control the economic circumstances in such a way, so that all sorts of noise can occur. Furthermore, in an experiment, the research can be concentrated on that aspect of a theory, hypothesis or claim (such as in relation to the supposed effects of the Van Elswijk Plan) considered the most important. The economic situation can be simplified as much as possible. Assuming that the claim or theory should also hold true in such simple circumstances, the tenability of the claim or theory is highly implausible if the result is negative, whereas with a positive result, the burden of proof is shifted on to those who contest the result.²⁴ They will then have to indicate where the experiment has failed, which could lead to further research. For these reasons, laboratory experiments are particularly suitable for investigating the effects of institutional changes, such as policy innovations. In this way, information can be obtained about the possible effects, without the financial or other risks that would occur if the policy innovation was actually carried out.

Nowadays, laboratory experiments are conducted in practically all areas of economic science. Much is published on this topic in eminent economic journals and various textbooks have been written.²⁵ An important area of research is related to the performance of markets for products and production factors (labour and capital). Policy-oriented research, in which aspects characteristic of certain markets are implemented in laboratory experiments to investigate the effects of government regulations, increasingly fall under this category.²⁶ Studies have also appeared which investigate the effects of taxation and international trade using complete systems of markets for products and production factors (economies).²⁷ These were used when designing the experimental research into the Van Elswijk Plan.

²⁴See J.H. Kagel and A.E. Roth (eds.), *The Handbook of Experimental Economics*, Princeton University Press, Princeton, 1995, p. 58.

²⁵See for example D.D. Davis and C.A. Holt, *Experimental Economics*, Princeton University Press, Princeton, 1993; J.H. Kagel and A.E. Roth, *The Handbook of Experimental Economics*, Princeton University Press, Princeton, 1995. There is also a journal *Experimental Economics*, published by Kluwer.

²⁶See Kagel and Roth, *ibid.*, pp. 55-58. Other policy-directed experiments that have taken place include, for example, markets for tradable emission rights and the auction of radio frequencies. CREED has, for example, done research for the flower auction in Aalsmeer (VBA) and the Ministry of Transport and Public Works (auctioning of radio frequencies and privatisation of the railways). For indications that policymakers take these studies into consideration see, for example, D.M. Grether, and C. Plott, The effects of market practices in oligopolistic markets: an experimental examination of the ethyl case, *Economic Inquiry*, 22, 1984, pp. 479-507, C. Plott, Laboratory experiments in economics: the implications of posted-price institutions, *Science*, 232, pp. 732-738, M. Bycovsky, M. Olson, and A. Schram, Veiling van etherfrequenties, *ESB*, 1-3-1995, pp. 201-205, J.O. Ledyard, C. Noussair, and D. Porter, The allocation of a shared resource within an organisation, *Economic Design*, 2, 1996, pp. 163-192, and C. Plott, Laboratory experimental testbeds: application to the PCS auction, *Journal of Economics and Management Strategy*, 6, 1997, pp. 605-638.

²⁷See, for example, H.C. Quirnbach, C.W. Swenson and C.C. Vines, An experimental examination of general equilibrium tax incidence, *Journal of Public Economics*, 61, 1996, pp. 337-358; C.N. Noussair, C.R. Plott and R.G. Riezman, An experimental investigation of the patterns of international trade, *American Economic Review*, 85, 1995, pp. 462-491.

Strengths and limitations of the research

The most important goal of the experimental research into the Van Elswijk Plan is to gain insight into the behavioural reactions to a change in the method of financing social insurance and the economic effects of this change. Employment plays a central role, but effects on production structure, wages, capital flight and welfare are also taken into consideration. The hypotheses formulated by the Supervisory Committee and Van Elswijk concerning these effects are tested in the study. As mentioned above, a laboratory experiment has the relative advantages, in comparison to econometric and field experiments, that these effects and the hypotheses formulated can be systematically investigated under controlled circumstances and can be replicated. As all the essential elements of the Van Elswijk Plan are realistically incorporated in the experiment, *both qualitative and quantitative data are obtained for the first time on the effects of a complete implementation of this plan in an actual operating international economy in which the country with the Van Elswijk system approximates a small open economy with important characteristics of the Dutch economy.*

Technical and institutional aspects of the Dutch economy are taken into account in the design of the experiment. Data are used from the applied general equilibrium model, MIMIC, of the CPB.²⁸ As mentioned, the CPB made additional calculations with this model regarding the economic effects of the Van Elswijk Plan. In contrast to the econometric FKSEC model, in which the effects are determined under the assumption that the behavioural reactions are the same as with the present way of financing social insurance, in a general equilibrium model, the behaviour of economic agents can adjust to the policy innovation (the new way of financing social insurance). However, in comparison to a laboratory experiment, this type of model has the disadvantage that certain behavioural assumptions still need to be made based on micro-economic theories (for example, utility maximisation). In an experiment, behaviour is free to change within the given institutions. Moreover, general equilibrium models usually have a number of solutions (equilibria), which means that it is unclear in which direction the economic effects will occur. In contrast, in an experiment, the direction in which the economy develops can be observed. The results of the research will demonstrate the advantage of this.

The research also has limitations. Firstly, it should be noted that the research assigned to CREED is limited to the first two parts of the project proposal. Therefore, no attention is paid in this study to dynamic factors such as capital accumulation, technological development and economic growth. Secondly, it should be realised that, as with all economic models, certain economic aspects have to be omitted from this study for reasons of manageability and tractability of the effects.²⁹ Thus, no attention is paid to implementation problems, for example.

Furthermore, there is the issue of the external validity of the experimental results. To what extent can it be expected that the observed effects will also take place in a natural environment (in practice)? We would like to make the following remarks. It has already been stated that

²⁸A possibly important difference with the MIMIC model concerns the design of the labour market, which shows a fully decentralised determination of wages, instead of negotiations between unions and employers. Even though technical considerations played a role here, this choice can be justified by the fact that wage negotiations are strongly decentralised nowadays and that they do not occur at the level of the sectors differentiated in the study (the exposed and sheltered sector). Furthermore wages are not only determined by negotiations, but also by the incidental wage component, or “wage drift”. Finally, there is no consensus on modelling the labour market, among economists.

Other possibly important differences with the MIMIC model are the fact that the heterogeneity of labour is ignored and that attention is focussed on voluntary unemployment.

²⁹If one is not satisfied with such a procedure, information can only be obtained by actually carrying out the policy innovation.

when no support is found for a theory or claim in a relatively simple environment, it is unlikely that this support will exist in a complex real life situation. If support is found, the burden of proof can be shifted onto the critics, who should then indicate where the experiment has failed, which could lead to altering the design of the experiment. Furthermore, it has been found that experimental markets appear to be able to reproduce phenomena that are observed on actual markets.³⁰ In addition, there is the general finding that competitive markets can be created and studied in the laboratory. Confidence in the practical significance of this research method is also suggested by the aforementioned fact that governmental institutions as well as private institutions are increasingly relying on experimental research to obtain information about the possible effects of important policy changes and are found to adjust policy in accordance with this information.³¹ Just as with, for example, the testing of prototypes of new aeroplanes in a wind tunnel or testing the design of dams in a hydrology laboratory, policy-oriented laboratory experiments derive their strength from the systematic and controlled investigation of an issue within a simplified environment, in which the focus is on those mechanisms considered essential (the “wind tunnel” function of an experiment). Finally, we would like to refer to the following statement from a leading economist in the field of experimental economy: “While laboratory processes are simple in comparison to naturally occurring processes, they are real processes in the sense that real people participate for real and substantial profits and follow real rules in doing so.”³²

It should be emphasised that experimental economics is not regarded as a substitute for other forms of empirical research in which, for example, an attempt is made to approach the complexity of reality as far as possible (such as in the macro-economic policy models of the CPB) or for theoretical research. It is a complementary research method with relative advantages and disadvantages compared to other methods.

Macro-economic experiments are on the increase and have already achieved interesting results. In general, there is already ample experience with the experimental investigation of market systems.³³ However, the application of this research method is new concerning the policy-oriented study of the economic effects of macro-economic policy innovations. Also for this reason, a caveat holds for this study. Finally, due to the abstractions necessary in any theoretical and empirical research, “common sense” remains an important resource when making definitive policy decisions.

Summary of the research results

The most important conclusions that can be drawn from this experimental study into the Van Elswijk Plan are summarised below. First, there is a comparison of the economic effects observed

³⁰An example is the phenomenon of the “winner’s curse” (see Kagel and Roth, *ibid.* p. 60). This phenomenon concerns the claim - first expressed concerning the auction of rights to extract oil- that the actual yield (value) of the object attained is often disappointing in some auctions. Experiments have affirmed the idea that this is due to the fact that the winning bidder tends to be the one with the highest expectation on the value of the object being auctioned and that this bidder does not sufficiently keep in mind that his or her expectation may be too optimistic.

³¹See note 26.

³²C.R. Plott, Industrial organisation theory and experimental economics, *Journal of Economic Literature*, 20, 1982, p. 1486.

³³See note 27, and, in addition, J. Davis and C. Swenson, Experimental evidence on tax incentives and demand for capital investments, *The Accounting Review*, 3, 1993, p. 482-514; J. Goodfellow and C. Plott, An experimental examination of the simultaneous determination of input prices and output prices, *Southern Economic Journal*, 1990, pp. 969-983.

in the experiment of the present wage tax system with the alternative Van Elswijk system as means of financing unemployment costs. In addition, some conclusions are presented of a theoretical general equilibrium analysis concerning the economic model at the basis of the small open economy implemented in the experiment. Finally, a number of additional observations regarding the study will be made.

Summary

The most important experimental results concern the testing of the hypotheses regarding capital flight, employment, net wages, the relative size of the labour intensive (sheltered) sector and welfare. The results of these tests are favourable for the Van Elswijk system. In comparison to the wage tax system, under the Van Elswijk system there is no capital flight and employment does not decrease. Ultimately, a substantial capital import and increase in employment are observed. The greater production leading from this does not appear to be more labour intensive. In this regard, the internationally operating (exposed) sector is not displaced. When tax rates are adjusted to the budget deficit, there are also positive effects on net wages and on the various welfare indicators. Few negative effects (decreases), in the net wages and in one of the four welfare indicators, only occur if tax rates are not adjusted to the budget deficit, that is, if they are kept constant. However, this is coupled with a substantial budget deficit for the wage tax system and a substantial budget surplus for the Van Elswijk system.

Furthermore, it appears that with the wage tax system, the (domestic) wage tax rate always has a negative effect on the variables that are central to the hypotheses and this effect is usually significant. With the Van Elswijk system the effect of the product tax rate is in the same direction, but it is always less negative and usually not significant.

These economic effects of the Van Elswijk system can be explained by two factors. In the first place, the assumed presence of some immobile capital leads to a shift in the tax burden from labour to capital under this tax system, in which not only labour but also capital is taxed (implicitly). This makes possible an increase in efficiency (a well-known result of the theory of optimal taxation). In the second place, it appears that the shift in the moment of taxation plays an important role. With the wage tax system, the producer is already confronted with taxation at the moment of acquiring production factors (labour). At this moment, it is still uncertain to what extent the production costs that are incurred will lead to profits. On the contrary, with the Van Elswijk system, the costs of the production factor labour are no longer taxed but are in fact subsidised. Moreover, taxation takes place at a later stage and is in proportion to the price development on the product markets. In contrast to the wage tax system, with this system the government therefore shares the sales risk of the producer. The relatively better performance of the Van Elswijk system can be explained by also taking into account these uncertainty effects.

The additional theoretical analysis, in which these uncertainty effects are ignored, shows that the Van Elswijk system can lead to better economic performances than the wage tax system due to the mere possibility of shifting the tax burden to capital. We say, “can lead” because besides a “favourable” equilibrium for this taxation system in comparison to the wage tax system, an “unfavourable” equilibrium is also found. In the “favourable” equilibrium, there is a considerable increase in employment with some capital flight. However, in the “unfavourable” equilibrium there is a considerable decrease in employment and substantial capital flight. The “favourable” equilibrium, which receives the most empirical support in the experiment, does not disappear when a sensitivity analysis is conducted, involving changes in the unemployment benefit level or a decrease in the labour subsidy. The theoretically favourable effects of this taxation system

also appear to have less to do with the labour subsidy than with the increase in efficiency which occurs through the implicit taxation of the fixed factor (immobile capital). This is because of the higher tax rates accompanying a subsidy. However, even if this fixed factor is considerably reduced, the levels of employment and welfare in the “favourable” equilibrium are still clearly higher than with the wage tax system. The same holds for when the ratio of the unemployment benefit rate and wage rate is held constant instead of there being a fixed benefit.

Additional remarks

All things considered, the results of this experimental study demonstrate noticeable positive effects for the Van Elswijk system compared with the present wage tax system. From an experimental point of view, there appears to be no reason to doubt the reliability of the results. If the experiment were repeated, it is expected that the results would be replicated. The theoretical analysis performed in addition to the study further supports the findings.

Given that the Dutch situation was taken into account as much as possible when designing the experiment, it seems justified to conclude that the economic effects of the Van Elswijk system on the Dutch economy could be substantial and positive. An increase in employment of more than 10% could be possible. For the first time, there are now indications for this based on an actual working economy in which the Van Elswijk system has been fully implemented. At the very least, no indications have been found that run contrary to this conclusion. With a view to the desirability of a possible debate at the European level, we would like to point out that the theoretical analysis demonstrated that it would be more favourable for the Van Elswijk system to be introduced simultaneously at home and abroad. However, this possibility has not been investigated experimentally. Therefore, given the fact that the experimental results differ from the theoretical results, empirically nothing can be said about this issue at this stage.

Although it is expected on the basis of the strength and the systematic nature of the observed effects that replicating the experiment would produce similar results for the Van Elswijk system, it should be emphasised that the number of experimental sessions in this study were the minimum number considered necessary. If the Van Elswijk Plan is to be considered further, it is important from an experimental economic point of view that the robustness of the results is studied by replicating the experiment. An important reason for this is the theoretical finding that there is also a (very) unfavourable equilibrium for the Van Elswijk system. The economic process in the experimental economy does not appear to be attracted by this equilibrium. Repeating the experiment can determine whether this is a robust result. Furthermore, a sensitivity analysis could then be carried out. The possibility of investigating the effect of substituting the fixed unemployment benefit with a benefit adjusted to the wage level (a constant replacement rate) is important in this regard. Another important option would be to analyse the effect of the size of the fixed factor (immobile capital).

In our opinion, this study demonstrates that laboratory experiments can be a useful means of studying the effects of macro-economic policy innovations. From a broader perspective, there is the valuable prospect of linking up experiments, through which empirical information can be obtained regarding presumably important behavioural reactions to policy innovations, and traditional macro-economic policy models.