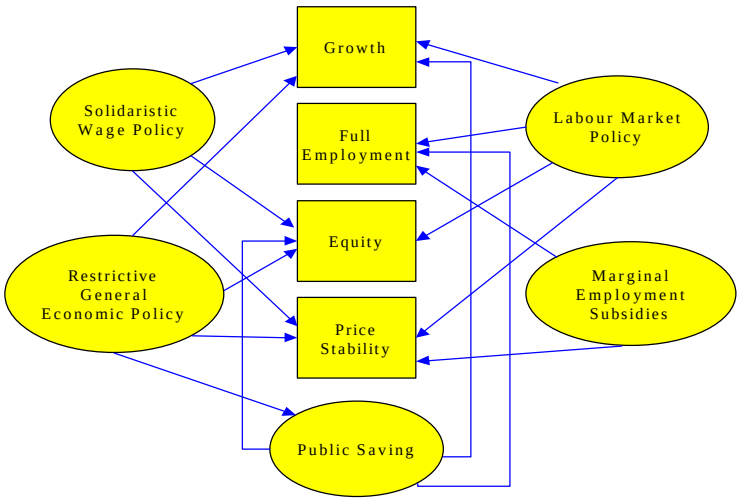
THE 'THIRD WAY' REVISITED

A Revaluation of the Swedish Model in the Light of Modern Economics



Lennart Erixon

Stiftelsen Fackföreningsrörelsens Institut för Ekonomisk Forskning

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Foreword

This essay was mainly written during my visit as guest researcher at the Trade Union Institute for Economic Research (FIEF) in 1999. The work was based on a previous paper 'A Swedish economic policy – a revindication of the Rehn-Meidner model' published by the Swedish Institute for Work Life Research in 1995. The discussion of the relationship between the Rehn-Meidner model and modern economics is more elaborate here. As a consequence, a chapter in the previous paper on the application of the model is excluded. An updated chapter on the Rehn-Meidner model as practiced in Swedish economic policy has been written for a forthcoming anthology about Gösta Rehn (eds. Henry Milner and Eskil Wadensjö).

A lecture at Åbo Centre for Economics in May 1999 was based on an early draft of the essay. Further, my ideas about the validity of the Rehn-Meidner model have been presented in lectures at the Department of Economics, Stockholm University. One of the final versions of my work was discussed on a seminar at the department in March 2000.

Per Lundborg and Johnny Zetterberg at FIEF have made valuable comments on the manuscript. Sten Johansson at FIEF has not only been a constructive reader but also an encouraging supporter of my research project. Mahmood Arai, Martin Dufwenberg and Eva Skult have been the most important discussants at the Department of Economics, Stockholm University. Eleanor Rapier has considerably improved the fluency of my English text. Finally, this work would not have been possible without my close relations to the founders of the Swedish economic and wage policy model, Gösta Rehn and Rudolf Meidner.

Stockholm March 2000

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Introduction

"The aim of argument, or of discussion, should not be victory, but progress."
Joseph Joubert (Pensées)

Since the emergence of Sweden in the mid-1930s as 'the middle way', the Swedish Model has interested both social scientists and politicians. A strong welfare state, a powerful trade union movement, extensive equalisation of pay and incomes, and priority of full employment was seen as an example to follow and later as an extreme expression of European sclerosis. But adherents and critics of the model alike have shared one thing in common—an overriding interest in its practical aspects. Less attention has been paid, especially outside Sweden, to the theories behind or motivations for Swedish economic policies. In fact, it is easier to distinguish a Swedish model in theory than in practice.

At the beginning of the 1950s, two economists at LO (the Swedish TUC), Gösta Rehn and Rudolf Meidner,[1] devised a unique model for economic policy. Their exposition questioned the Keynesian policy of full employment while rejecting the non-interventionism and one-sided emphasis on price stability of the monetarists. What came to be known as the Rehn-Meidner model thus represented a 'third way' in economic policy. Among other things, Rehn and Meidner recommended labour market measures and deflationary fiscal policies to combine full employment with low rates of inflation.

Today, the common view among Swedish politicians and economists alike (also within LO) is that the Rehn-Meidner model is obsolete and the model is seldom mentioned in the economic policy debate. Yet the instruments of the model are still seen as appropriate tools of economic policy.

Labour market policies were practised full scale in Sweden—even by a non-socialist government—when unemployment escalated in the early 1990s. From 1994 to 1998, the social democratic government applied an extreme version of the Rehn-Meidner model, combining an ambitious labour market policy with an exceptionally tight fiscal policy. Again in

1 Rudolf Meidner (1914—) was the head of the LO Economics Research Department and Gösta Rehn (1913—1996) the department's most outstanding economist. Rehn had served as an expert on the committee that formulated the Swedish labour movement's post-war programme in 1944. Both Rehn and Meidner had high academic qualifications and were well acquainted with the contemporary macroeconomic discussion.

1999, the Social Democrats adopted a long-run target for fiscal policy that quite satisfies one of the principles of the model, namely, a surplus of public saving over the business cycle. Inflation targets defined in many OECD countries (including Sweden) since the early 1990s as means of creating stable macroeconomic conditions are clearly in the Rehn-Meidner spirit although mostly associated with a passive employment policy that is quite alien to their model.

In a wider context, the guidelines for employment policy set by the European Union conform to policy recommendations in the Rehn-Meidner model. The Amsterdam Treaty of June 1997 states, like Rehn and Meidner, that an active employment policy must be pursued within a stable macroeconomic policy framework. Proposals for labour market policies at the Luxembourg meeting in November 1997 were clearly inspired by Swedish practice.

However, OECD recommendations of larger wage differentials between sectors to increase employment in countries like Sweden have no support in the Rehn-Meidner model. The model advocates small wage differentials between sectors, mainly on equity grounds but also to promote growth and price stability. The EU idea of a macroeconomic dialogue with social partners at the Cologne meeting in June 1999 with its emphasis on wage restraint to achieve price stability and competitiveness is not compatible with the model.

Erik Lundberg is the economist who has devoted the greatest amount of attention to the Rehn-Meidner model. His attitude was benevolent but critical. Lundberg was impressed by the logic of the model and by its penetrating discussion of the driving forces of inflation and structural change. He used the notion of a 'Rehn-Salter model' to demonstrate that the Rehn-Meidner model, by presuming that overall productivity is stimulated by pressures on profit margins, was a forerunner of neo-classical vintage models (Lundberg, 1972, pp. 470-471). Lundberg's objections to the Rehn-Meidner model were mainly political and ideological. He worried that labour-market policy and major public savings would cause the emergence of a bureaucratic control apparatus that in the long term would pose a threat to democracy. In economic terms, Lundberg's chief objection to the Rehn-Meidner model was that it underestimated the importance of profits—both *ex ante* and *ex post*—for investments and growth (Lundberg, 1952, p. 67, 1972, pp. 480-485, and 1985, p. 19).

Many Swedish economists today share Lundberg's critical view of the Rehn-Meidner model. Labour market policy is regarded as an inefficient measure to combat unemployment and even as inflationary and growth-

dampening (Calmfors, 1993a, Calmfors and Skedinger, 1995, and Lindbeck, 1997). Profit-squeezing policies and solidaristic wage policy, other essential elements of the model, are criticised on similar grounds, but also for having led to higher unemployment (Henrekson, Jonung and Stymne, 1996, and Lindbeck, 1997). Yet Swedish economists are generally more critical of the practice arising from the model than of the model *per se*.[2]

The Rehn-Meidner model is both an economic (and wage) policy programme and a theory of wages, inflation, profits, employment and growth. Which of these two aspects of the model I am discussing at any given point will be obvious from the context. I shall begin by describing the content of the Rehn-Meidner economic policy programme—here seen as synonymous with the Swedish model (section 1). My notion of the Swedish model is therefore more specific than in earlier studies.

I then outline the positive theory behind the Swedish model with particular emphasis on wages, inflation, profits and structural change (section 2). Here, I contrast the Rehn-Meidner model to contemporary Keynesian views. A central theme of this work is that Rehn and Meidner were suspicious of incomes policy because their theory of inflation is fundamentally different from that of most Keynesians. I will also compare the Rehn-Meidner model with the so-called Scandinavian model since the models are sometimes confused in the literature.

My final focal point is on the theoretical validity of the Rehn-Meidner model (section 3) where some of its propositions about the working of labour and product markets and the performance of economic policies are related to later theoretical developments. In addition, I will survey the findings of some studies that have put hypotheses in the model to the test. In most cases, the comparisons show the model in a favourable light.

Let me now point to some limitations in my discussion. I will not trace the theoretical influences of the model, describe the phases of its development or the economic circumstances that shaped it. I will not analyse the division of labour between Rehn and Meidner or the possible influence of others upon the formulation of the model. The discussion between Rehn and Lundberg, which became an early highlight in Sweden's economic policy debate in the post-war period, is not accounted for (see Turvey (ed.), 1952, and Erixon, 1997a).

Public sector growth and the principle of general welfare in policy making are not discussed for the simple reason that the Swedish model is

[2] There are Swedish economists who show a friendly attitude to the Rehn-Meidner model (see Hibbs and Locking, 1995, Edin and Topel, 1997, Agell, 1999, and Johansson, Lundborg, and Zetterberg, 1999).

narrowly defined as the Rehn-Meidner model. Their model makes no reference to the priorities and means of social welfare policies. Further, Meidner's proposal to the 1976 LO Congress concerning wage-earner funds is not treated as part of the Rehn-Meidner model. This is an exclusion based on purely practical considerations. One argument in support of the funds was to appropriate 'excess profits' from solidaristic wage policy. Marginal employment subsidies on the other hand, enthusiastically advocated by Rehn in the 1970s and the 1980s, are considered a component of the model.

There is no discussion of the applications of the Rehn-Meidner model in Sweden. Not only foreign but also Swedish scholars (see Lindbeck, 1997, pp. 1291-1292) have sometimes exaggerated its importance as the rudder of Sweden's economic policy. It is true that labour-market and solidaristic wage policy would hardly have expanded to their current scope if Rehn and Meidner had not placed them in a larger economic and political context (Erixon, 1995, and Erixon, 1997a). But the Rehn-Meidner model was not consciously applied in all respects, even in its 'golden age' from the late 1950s to the mid-1970s. And while the decline in the profit share (of value added) in Swedish manufacturing agrees with the model, this decline was largely an international phenomenon. Besides, the social democratic government was hardly influenced by the model in the 1960s when it refused to counter the fall in profit shares with an accommodating economic policy (Erixon, 1987, pp. 51-54, and Erixon, 1995, p. 36).

Yet the Rehn-Meidner policy model is one of the few innovations in Swedish economics in the post-war period. I would even claim that the model is one of the few coherent visions of economic policy beyond Keynesianism. Hopefully I am able to impart something of its uniqueness and to fairly evaluate its relevance. My ambition is also to show the remarkable mix in the Swedish model between a market-conform economic policy to satisfy national goals on the one hand and measures to mobilise and strengthen the position of labour on the other.

A further aim of the article is to call attention to some misconceptions and misrepresentations of the Swedish model among economists outside Sweden. Even friendly observers of Swedish labour market policies have failed to appreciate the scope of the Rehn-Meidner model where instruments and priorities of economic policy are concerned. Further, they have often placed the model in a trade union or bargaining theoretical context that conceals much of its underlying view of wage formation and inflation.

1. The Content of the Rehn-Meidner Model

I will define a Keynesian policy as a counter-cyclical fiscal and monetary policy (possibly including exchange-rate policies) with a bias toward expansionism to guarantee full employment and *ad hoc* measures to fight inflation. A more narrow definition of Keynesian policy will be avoided, for example one that emphasises the use of fiscal rather than monetary instruments to stabilise the economy in line with Keynes' recommendations in the *General Theory* (Keynes, 1936, p. 375). A similar priority of fiscal rather than monetary measures for stabilisation purposes is also found in the Rehn-Meidner model.

Rehn and Meidner published their criticisms of Keynesianism at the end of the 1940s when expansionary fiscal and monetary policies to achieve low rates of unemployment had led to high inflation in Sweden. They warned of the high costs even to the trade union movement of inflation and 'overemployment', pointing out that inflation has negative effects on resource allocation and growth, and that full employment achieved through excess demand would lead to high absenteeism, excess labour turnover and a greater risk of accidents at work.

A high demand for skilled labour and limited availability is a cause for wage drift, i.e., pay in excess of what has been negotiated in national (central) agreements.[3] Wage drift leads to compensation demands from other groups of employees anxious to maintain their relative wage positions. A Keynesian policy of full employment therefore aggravates the conflict between those wage earners who benefit from market forces and those who do not. The result is inflationary wage-wage spirals where, for example, 'wage drifters' try to preserve their initial wage advantage. Too expansive a general economic policy thus generates tensions between different wage-earner groups that not only threaten cohesion within the labour movement but also lead to higher inflation. Inflation is a threat to distribution policy and Keynesianism has unpredictable and unintentional effects on the distribution of income and wealth.

Moreover, according to Rehn and Meidner, Keynesianism is itself a threat to full employment. An expansionary general economic policy causes inflation and deficits in the current account. These are problems calling for a contractionary policy, which in turn results in

[3] National agreements are reached either for a particular industry or, by a process of co-ordinated negotiations, for all industries.

unemployment. Full employment is also threatened in the long term by price and investment controls introduced to dampen overheating. Rehn and Meid-ner therefore wished to replace a Keynesian stop-go policy with a policy that permanently kept the rate of inflation under control.

Rehn and Meidner also thought that any measures other than a restrictive general economic policy to fight inflation and improve the balance of payments were ineffective or arbitrary. Inflation, they said, cannot be curbed by means of controls on prices and investments as in a Keynesian policy of full employment. Regulations can hardly be comprehensive and from the productivity viewpoint, it is often the 'wrong' companies and sectors that suffer their effects.

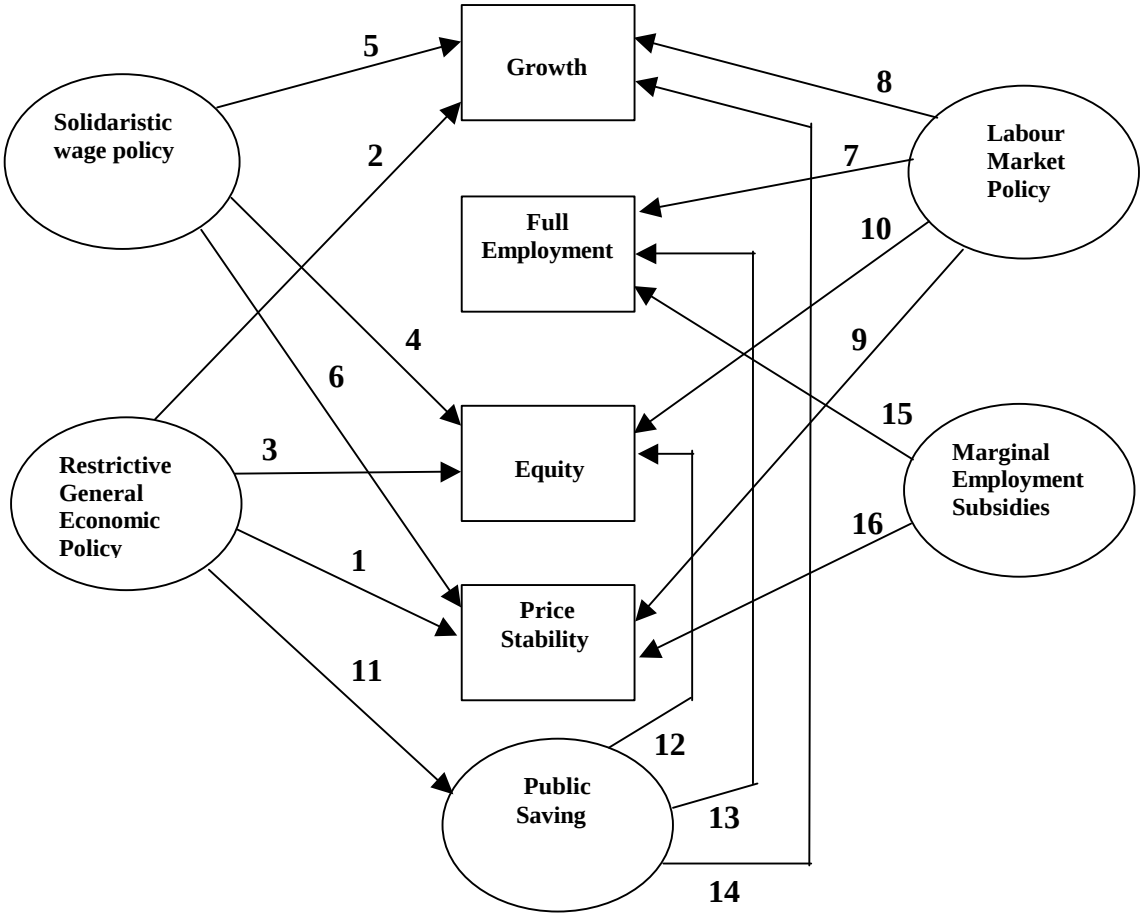
Neither did they hold any great hopes that inflation in an overheated economy could be prevented by incomes policy, even one covering all the employee organisations. Rehn and Meidner came to the conclusion that incomes policy is ineffective in a boom and unnecessary in a recession. In addition, incomes policy is a threat to the redistribution policy of central trade unions. If statutory, it threatens the autonomy of labour market organisations.[4] The combination of high wage drift and 'voluntary' incomes policy also undermined solidarity between trade unions and weakened their legitimacy in the eyes of their members. Clearly, declarations of 'wage restraint' are incompatible with the main task of a trade union, which is to achieve the highest possible pay rises for their members.

The two economists presented their alternative to Keynesianism in a report to the 1951 LO Congress entitled *The Trade Union Movement and Full Employment* (Meidner and Rehn *et al*, 1953). Hereafter I equate the Rehn-Meidner model with this LO report. The subsequent work of Rehn and Meidner did hardly add anything to their original model, with the exceptions of Rehn's recommendation of marginal employment subsidies and Meidner's proposal of wage earner funds.

A major objective of the Rehn-Meidner model is to combine full employment with price stability. The model also considers other economic policy objectives during the early post-war period, namely growth and equity. Means and objectives are shown in *Figure 1*.

[4] In the Swedish case, statutory incomes policy was a threat to the 'Saltsjöbaden spirit'. According to an agreement in Saltsjöbaden in 1938 between LO and SAF (the Swedish Employers' Federation), labour market conflicts should be resolved through negotiated agreements and not by legislation.

Figure 1: **Means and objectives in the Rehn-Meidner economic and wage policy model**



1.1. A restrictive fiscal policy

The model recommends a restrictive general economic policy, especially fiscal restraints, to curb the rate of inflation (arrow 1 in *Figure 1*). The main purpose of this tight fiscal policy—foremost an increase in indirect taxes—is to force down profits and profit margins in the business sector. Rehn and Meidner were convinced that profits are the significant driving force in the process of inflation. High profits lead to a substantial amount of wage drift, in turn triggering demands for corresponding wage increases from groups that have not benefited from the effects of free market forces.

Rehn and Meidner did not exclude policy measures to dampen fluctuations in the business cycle. Nevertheless, their basic idea was that the general economic policy should be predominantly tight over the cycle. This recommendation reflected a profound mistrust of the keynesian

strategy of fine-tuning to obtain both full employment and price stability, particularly with unemployment already low.

In the Rehn-Meidner model, a restrictive general economic policy is expected to encourage rationalisations and structural change (arrow 2 in *Figure 1*). Furthermore, the tight economic policy is to support the equity principles of the trade union movement by leading to smaller wage gaps between 'wage drifters' and other employees (arrow 3). More precisely, the policy reduces the risk of wages reflecting differences in profitability between firms rather than the content of work. Besides, the advocacy of a tight general economic policy over the business cycle is part of a long-run strategy to increase labour's share of value added. To this we return in section 2.

1.2. Solidaristic wage policy

The main task of a central trade union organisation in the Rehn-Meidner model is to pursue a solidaristic wage policy, the common denominator being that wages shall not be determined by company profitability. Identical work must be remunerated with the same rates of pay and wage differentials shall reflect real differences in work content, such as working conditions, difficulty, responsibility, experience and education required.

The solidaristic wage policy presupposes a systematic comparison of jobs by central (co-ordinated) trade unions, possibly in collaboration with central employer organisations, where the job evaluation has two components, the definition of identical jobs and the decision on a fair wage structure.

Thus, the wage policy of solidarity is both a policy of identical rates of pay for the same work and a policy of fair wage differentials. Politicians and economists, even in Sweden, often disregard this latter aspect of solidaristic wage policy (cf. Blanchflower, Jackman and Saint-Paul, 1995, pp. 88-89, and Uddén-Jondal, 1993, p. 4). The Rehn-Meidner model is *not* a recommendation of wage equalisation in general. A clear distinction must be made between the theory and practice of solidaristic wage policy.[5]

Neither should the solidaristic wage policy be confused with trade unions'

[5] Low-paid groups were favoured in co-ordinated negotiations in Sweden from the mid-1960s to the early 1980s. This policy of wage equalisation did not follow directly from the principle of fairness in the Rehn-Meidner model. But LO argued that the policy indirectly satisfied the ideal of solidaristic wage policy—wage differentials were too large to be explained or justified by 'objective' job differences.

strivings for compensation for wage drift because of relative wage preferences. The wage norm of solidarity is set after a comparison of jobs by central bodies in the labour market, not by wage earners in the leading sector.

Solidaristic wage policy can be seen as a rather blunt instrument of planning, typical of the early post-war period. It is nevertheless a policy aimed at simulating a long-run equilibrium in competitive labour markets. Here, the same wages are paid to homogenous labour and wage differentials are explained by differences in competence and jobs, *inter alia* their degree of (un)pleasantness. This wage principle, adopted already by LO in the 1930s, is governed by a concern for equity (arrow 4). Rehn's and Meidner's contribution was to show that the principle also has implications for growth and price stability.

Rehn and Meidner considered solidaristic wage policy as a means of stimulating national growth, primarily through structural change (arrow 5). Let us assume that the principle of solidarity means that wages in all firms are adjusted to the median level in a particular sector or in the whole economy. Coupled to a restrictive general economic policy, this wage policy should lead to the obliteration of the least profitable firms and sectors. Lower profits will create the incentives and release the resources for structural change. At the same time, solidaristic wage policy leads to 'excess profits' in the firms and sectors able to pay more than the solidarity wage. These profits will increase the financial prerequisites of expansion and strengthen the motivation to set up new firms and transfer resources to dynamic sectors. Hence, larger profit differences and more closures will speed up the expansion of fast-growing sectors.

This expansion of fast-growing sectors because of solidaristic wage policy will increase national (total factor) productivity growth. Resources will be transferred from low-productivity sectors to high-productivity ones and firms that exhibit low productivity will either be forced into closure or to engage in rationalisations.

The Rehn-Meidner model freed the trade union movement from the straitjacket of incomes policy, particularly in an overheated economy. Government carries the main responsibility for the general level of wages, while the trade union movement is responsible for pay structure. Yet, as indicated above, it would be a simplification to say that the Rehn-Meidner model ignores the effects of stabilisation policy on wage and industrial structure. The model also assumes that the wage structure influences the rate of inflation.

One aim of solidaristic wage policy is to bring down inflation both by weakening the direct influence of free market forces on wage formation

and by countering the demands for compensatory wage increases that have no rational foundation (arrow 6). As already noted, the object of solidaristic wage policy is not to increase the intensity and scope of collective pay increases to preserve or improve a relative wage position. Rather, the aim is to prevent the inception of wage compensation spirals. In the absence of challenging wage differences, compensation demands for other groups' pay rises or higher wages is less intense. Thus, a determination of fair wages should prevent inflationary wage drift and compensatory leapfrogging (Meidner and Rehn *et al*, 1953, p. 96, and Rehn, 1980, pp. 36 and 39-40).[6]

Wage solidarity policy by itself is a poor instrument in the fight for equity and price stability, according to Rehn and Meidner. The incentives for dynamic firms to offer higher wages are not really affected by solidaristic wage policy. In fact, this policy will even increase the room for wage drift, *ceteris paribus*, since it leads to 'excess profits' in the most profitable firms. A solidaristic wage policy can therefore only contribute to lower wage drift if combined with a restrictive general economic policy and a mobility-enhancing labour market policy.

1.3. Labour market policy

A restrictive general economic policy will cause unemployment in some sectors of the economy. Rehn's and Meidner's main recommendation for full employment was therefore labour market policy measures (arrow 7). Labour market policy would also counter the tendency towards 'structural unemployment' that is bound to appear in the wake of a solidaristic wage policy.

The labour market policy measures can be divided into three parts: selective demand policy, supply-oriented measures, and actions to improve the matching process on the labour market. Demand-oriented measures should have the smallest possible effects on aggregate product demand and therefore be directed towards specific employee groups, firms and regions (particularly specific relief work and regional policy). The supply side of the labour market was to be affected by the introduction of relocation and retraining grants and of occupational training. The matching of job applicants to vacancies would be achieved

[6] However, solidaristic wage policy may threaten price stability by forcing marginal companies with mark-up possibilities that have neither the capacity nor the will to rationalise to put up their prices in order to survive (Meidner, 1974).

through public employment service agencies.

The objective of the supply-side and matching measures was to increase or reallocate the availability of labour and to improve the labour market's ability to make adjustments. Thus, labour market policy would stimulate economic growth by facilitating recruitment of labour in dynamic sectors (arrow 8).

Labour market policy is an important weapon in the struggle against inflation. Here, Rehn and Meidner emphasised not only that the alternative employment policy, i.e. an expansionary general economic policy, is inflationary, but also that some labour market policy measures have a direct inflation-dampening effect (arrow 9). Stimulation of labour mobility would moderate the rate of pay increases in sectors with high demand and labour shortage bottlenecks. An aim of labour market policies is also to reduce inflation by squeezing profit margins in the medium and long term (see 2.6).

In addition, labour market policy in the Rehn-Meidner model is a vehicle in the endeavour for equity. The significant wage differentials between sectors that emerge when dynamic firms try to attract labour with higher wages can be offset by measures to improve the mobility of labour from stagnating to expanding sectors (arrow 10). Hence, such government measures facilitate a solidaristic wage policy (Meidner and Rehn *et al* 1953, p. 97, and Meidner, 1969, p. 190).

Rehn and Meidner considered labour market policies, and marginal employment subsidies, as examples of selective employment policies. Conceptually, they did not deny that some selective employment policies are damaging to growth (Rehn, 1982, pp. 11-12), but *ad hoc* measures to support stagnating firms and sectors are peripheral elements of the Rehn-Meidner model. Selective employment policy shall primarily favour dynamic firms, either by direct subsidies or by reductions in their recruitment and training costs.

1.4. Public saving

Rehn and Meidner argue for public saving in the medium and long term. Public saving is an intermediate goal in their model. One of the purposes of a restrictive fiscal policy is to increase public saving over the business cycle (arrow 11 in *Figure 1*). In particular, fiscal policies should increase the public share of total saving at the expense of company saving by reducing profit margins (Rehn, 1952, pp. 52-54).

Rehn and Meidner prefer public saving in terms of income and wealth

distribution (see arrow 12). They also consider it preferable from the viewpoint of achieving certain employment and growth ambitions in the field of industrial and commerce policy (arrows 13 and 14 respectively). Besides, public saving is seen as a financial source of labour market policies and other selective measures.

According to Rehn and Meidner, large public surpluses during a boom will also increase the degree of freedom in stabilisation policy. These surpluses make it possible to avoid significant borrowing when fiscal policy becomes more expansive in a recession.

1.5. Marginal employment subsidies

Through labour market policy, expansive firms are relieved of some of the cost of recruiting and up-grading labour. Wage drift is limited and price increases are counterbalanced in sectors with labour shortage and high product demand. Rehn wanted to combine labour market policies with financial supports to expansive firms to obtain an immediate inflation-dampening effect. He hoped that marginal employment subsidies would increase employment by creating incentives to reduce prices. Thus, the subsidies were considered by Rehn as one stone to kill two birds, unemployment and inflation (arrows 15 and 16 respectively). The proposal assumes that firms act on competitive markets or set their prices on the basis of marginal costs in markets with imperfect competition (see 2.1).

Rehn made no original contribution to the theory of marginal employment subsidies, but he did place the subsidies into a broader stabilisation-policy framework. In fact, marginal employment grants induced Rehn to suggest a modification of the Rehn-Meidner model when unemployment rose in Western Europe in the late 1970s. Here, he recommended the use of marginal employment subsidies together with traditional labour market programmes and measures aimed at *raising* effective demand. This kind of economic policy would have brought the rate of inflation down lower than a purely keynesian strategy for full employment (Rehn, 1982, pp. 3, 8, 18 and 26). Further, Rehn suggested in the 1980s that marginal supports should be offered not only to firms that recruit labour but also to investments and to production increases in general.

The notion of a selective employment policy in the Rehn-Meidner model may give the false impression that this policy is always directed towards specific firms, regions, sectors or wage-earner groups. But marginal employment subsidies can be offered to firms in all regions and sectors and

for all kinds of labour, as recommended in Rehn's final proposal. It is the conditional character of marginal subsidies—since only offered to recruiting firms—that make them selective and therefore distinct from monetary and fiscal policy measures or general reductions in pay-roll taxes.[7]

1.6. The uniqueness of the Rehn-Meidner model

Hopefully I have uncovered the radical elements of the Rehn-Meidner model. At the height of the age of Keynesianism, in a country in the vanguard of the Keynesian revolution, within a social movement (reformist labour) that strongly emphasised full employment, Rehn and Meidner made bold to recommend a restrictive general economic policy and placed the priority of price stability on an equal footing with the priority of full employment. The provocative character of their model is illustrated by its conclusion that employment policies must have the smallest, not the largest, positive effects on aggregate demand.

The conclusion that the Keynesian model is more applicable in a recession and the Rehn-Meidner model in an overheated economy is a fairly obvious one. The fact that the Rehn-Meidner model was formulated during the early post-war boom was an important determinant of its character. Labour market policy, including regional policy, was intended to eliminate the 'islands of unemployment' resulting from a restrictive general economic policy and a solidaristic wage policy.

Rehn and Meidner were not against a traditional Keynesian public deficit policy in periods of deep recession or a counter-cyclical policy in general. But fiscal policy shall be predominantly restrictive in the business cycle, not only to conceive a public saving surplus for distributive (and industrial-policy) reasons but also to set the framework for stabilisation policy. The model's advocacy of a tight fiscal policy goes beyond a qualified Keynesian recommendation that expansionary measures should be cautiously used, or even replaced by fiscal and monetary restraints, near full employment.

Rehn and Meidner also argued that employment policy measures that

[7] A similar condition can justify seeing public employment services as selective policy instruments. The services reduce information and transaction costs for firms recruiting labour.

have inflation-dampening effects must be stressed even in periods of recession. Indeed, the Rehn-Meidner model breathes a profound fear of starting an inflation spiral. But the Rehn-Meidner model is also unique in terms of its comprehensive view of economic policy.

First, one of the model's great advantages is that it embraces all the objectives of post-war economic policy—full employment, price stability, growth and equity. Modern macroeconomic models consider at most two objectives, often price stability and full employment.

Second, the Rehn-Meidner model deviates from most macroeconomic models by allotting at least two tasks to each instrument as illustrated by *Figure 1*. For instance, labour market policy has four objectives, to achieve full employment, to speed up structural change, to hold back price and wage increases caused by labour market bottlenecks or high profit margins, and to facilitate solidaristic wage policy. In the model, labour market policy has a further redistribution task—full employment shall alter functional income distribution in favour of labour by increasing its negotiation strength, both collectively and individually (Rehn, 1952, p. 47).

Third, the instruments of the Rehn-Meidner model are complementary. I have *not* in mind here that some measures must be introduced in the model to alleviate the side effects of other measures. (For example, a restrictive economic policy and a solidaristic wage policy will generate unemployment unless complementary labour market policy measures are introduced.) A partial application of the model is also discouraged by the fact that some measures are effective only when used together with other measures. The trade union movement can only pursue a solidaristic wage policy if labour market policy measures and a restrictive general economic policy are in place to keep wage drift under control. Further, labour market policy might be a necessary condition for a relationship between a solidaristic wage policy and structural change—labour resources are released through solidaristic wage policy, but labour market policy may be needed to transfer resources to expanding firms and sectors. Fair wages through solidaristic wage policy will not significantly restrain inflation unless a restrictive economic policy and a labour market policy are launched simultaneously. Rehn and Meidner also claim that labour market policy can neither fight inflation efficiently nor increase wage earners' share of GDP if not combined with a restrictive general economic policy. This proposition is questioned in subsection 2.6.

Fourth, the Rehn-Meidner model has the advantage of linking together both short- and long-term analysis by assuming that labour market, fiscal

and monetary policies all influence growth. Here, the model avoids the one-sided Keynesian view of a positive relationship between profit and demand on the one hand and productivity growth on the other. Rehn and Meidner did not deny that a restrictive general economic policy might reduce productivity growth if private investments are hampered or if static scale advantages exist (Rehn, 1982, pp. 4-5). But according to their model, a restrictive economic policy may quite simply result in higher productivity growth through rationalisation and structural change.

Rehn's and Meidner's economic policy model is ingenious in its logic and all-embracing character. Indeed, there is no real counterpart in macroeconomics to their consistently holistic view and the model is easily appreciated in its own right, even by people with other political values or with doubts about its relevance.

2. The economic theory of the Swedish Model

The positive theories underlying Rehn's and Meidner's policy model have already been presented. What remains is to give a more detailed description of the theories of wages, inflation and structural change and to adopt a more critical approach. When describing the Rehn-Meidner theory of wages and inflation, I will emphasise the strategic role of companies' competition for labour and of relative wage preferences. The theory explains Rehn's and Meidner's sceptical view of incomes policy as a mean to control wage developments. I will pay a particular interest to the Rehn-Meidner theory of profits since they claim that profits must be squeezed to obtain price stability. Finally, I will highlight the importance of push factors and relative profitability for structural change in the Rehn-Meidner model.

The easiest way to put the Rehn-Meidner theories into perspective is to compare them with other theories, especially those formulated by the economists behind the Scandinavian model and by Keynesian economists. Comparisons are complicated by the fact that the Keynesian theoretical tradition is heterogeneous and by some ambiguities in the Rehn-Meidner theories, but the areas of ambiguity should not be exaggerated. The main weakness in the Rehn-Meidner model is that some of the arguments are implicit or open to various interpretations, not that the analysis is inconsistent or based on questionable assumptions.

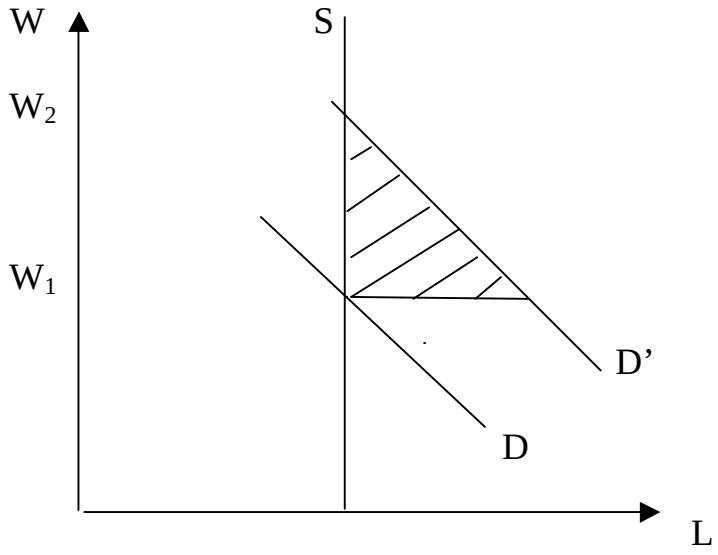
2.1. Profits and wage drift

In the *General Theory* and the post-Keynesian tradition, nominal wages are given or determined by institutional and sociological factors (Keynes, 1936, pp. 13-15, Kaldor, 1957 and 1959, Kalecki, 1965, Harcourt and Kenyon, 1976, and Appelbaum, 1979). A similar assumption of exogenous (and sticky) nominal wages is often made in the (U.S) new-Keynesian theory. There are Keynesian models in which nominal wages are determined by economic circumstances, but mostly the relations are indirect only. For instance, labour's bargaining strength is influenced by the rate of unemployment in some Keynesian models. In the Rehn-Meidner model, wages are basically determined by economic forces, primarily profits and profit margins.

The 1951 LO report does not state why profits are of central importance in wage formation or describe the relation between profits and profit margins. But Rehn explains himself in an article on the causes of wage drift in Swedish manufacturing written together with Bent Hansen in the mid-1950s (Hansen and Rehn, 1956). In that article, changes in nominal wages are profoundly determined by changes in labour demand and supply. In fact, Rehn and Hansen present a marginal productivity theory; wages are determined by the product of prices and physical marginal productivity (marginal value productivity) when labour supply is fixed. The economy is one of perfectly competitive markets or of exogenous (and flexible) prices, but Rehn and Hansen make an adjustment for the degree of monopoly.[8]

[8] The Rehn-Hansen theory of wage drift can be shown by a labour-market model where labour supply is given and firms are using two inputs, variable labour (L) and fixed capital (C). Firms are assumed to maximise profits given the production function $Y= f(L,C)$ where Y is output. The marginal product of labour is assumed to be positive ($f'>0$) and diminishing ($f''<0$). Aggregate wages demanded by firms (W_D) is then $W_D = P f'(L) / (1+\mu (Y_m))$ where P is producer prices, Y_m is output in the sector with imperfect competition and μ the degree of monopoly. (Aggregation problems are ignored here.) The degree of monopoly (μ) is a function of output, but the possibility of an exogenous μ is not excluded. μ is either 0 (in the competitive case) or determined as a Lerner index by the price elasticity of demand η, where $\mu = 1/\eta$. η is negative, hence the demand curve has a negative slope when competition is imperfect. A rise in μ (identical to a reduction in η) will, *ceteris paribus*, reduce product demand, and consequently, labour demand. But labour demand is *raised* by higher actual profits in my interpretation of the Rehn-Meidner model (see above). The possibility is excluded in the benchmark (Rehn-Hansen) model by the assumptions that the capital stock is fixed and that all labour is variable. In an extended model, wages demanded by firms can be seen as a positive function of labour's marginal (value) productivity (Pf') and also of actual profits in relation to

Figure 2: **Labour-demand shifts in a competitive labour market**



The focus is upon marginal profits in the Rehn-Hansen article. Their fundamental theory simply says that wage drift is determined by the anticipated gain from employing more workers at the initial wage. The theory is shown in *Figure 2*.

W is the money wage rate and L the quantity of labour in the figure. Rehn and Hansen assume that physical marginal productivity is diminishing and the degree of monopoly constant; the demand curves in *Figure 2* will then slope downward. They also assume that labour supply is (completely) inelastic.

Higher product demand or an increase in physical marginal productivity will shift the labour-demand curve outward from D to D'

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employment (π/L) with a lag. (The assumption of a lagged relationship between π/L and W_D is reasonable but it also makes it easier to distinguish between the effects of actual and marginal profits.) Actual profits in turn can be determined by μ and P f' in the same period. Thus, labour demand is raised by a higher μ, in spite of the negative product-demand effects, since the greater possibilities for firms to self-finance investments and wage increases for indispensable labour become decisive (see above). Solidaristic and labour market policy arguments can be accounted for by defining a labour supply function with wage-setting elements.

The Rehn-Hansen wage-drift model can easily be extended to a stock-flow model by an assumption that the labour market will never clear because of repetitive macroeconomic shocks or the existence of heterogeneous workers and jobs (cf. Schager, 1988b). A demand component such as the number of announced vacancies (in relation to employment) can be treated as a function of Pf' and π/L. In the stock-flow model, labour market policy will affect the number of job applicants and the individual search intensity of applicants (positively or negatively).

and therefore lead to higher nominal wages.[9] The equilibrium wage level increases from W_1 to W_2. Total marginal profits from hiring more labour at the initial wage rate W_1 is shown by the shadowed area in *Figure 2*.

Erik Lundberg criticised the Rehn-Meidner wage theory for ignoring the decisive role of labour market conditions for nominal wages. Lundberg's view seems to be confirmed by Rehn's theoretical approach in the article he wrote with Hansen. But Rehn and Hansen gave profits an independent position in relation to labour demand at the determination of wage drift. This separation is not explained by the obvious fact that marginal profits are determined by changes in both labour demand and labour supply (which in fact is given in Rehn's and Hansen's article, see *Figure 2*). Neither is the distinction between (expected) profit and (expected) labour-demand determinants in the Rehn-Hansen paper explained by the use of any other theoretical notion of profit than the marginal one. Hence, the separation is not based on a theory that actual profit margins or profits matter for wage drift. Instead, Rehn and Hansen divide total marginal profits from hiring more labour into an excess-profit and an excess-demand effect (Hansen and Rehn, 1956, pp. 93-94).

Rehn's and Hansen's separation between excess-profit and excess-demand effects on wage drift is a doubtful one within the framework of the marginal productivity theory.[10] Moreover, the practical difficulties of distinguishing between the excess-demand and the excess-profit hypotheses are overwhelming.

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[9] A shift downward in aggregate product demand will lead to price reductions even in the case of imperfect competition since it is assumed that the degree of monopoly (and therefore the mark-up) is constant and the marginal product of labour is diminishing.

[10] Rehn and Hansen seem to assume that the slope of the labour demand curve may change due to structural changes in the production function. As a consequence, excess profits and excess demand can even move in opposite directions (Hansen and Rehn, 1956, p. 93). Yet, it is difficult to see how a change in the slope of the labour-demand curve can move excess demand and excess profits in different directions if we still assume that marginal productivity is diminishing. Rehn and Hansen also refer to the more realistic cases of a wage rigidity downward and labour rationing (Hansen and Rehn, 1956, pp. 95-96). In the first case, marginal excess-profit effects on nominal wages are absent while excess-demand effects still exist when the labour demand curve shifts *downward*. In the case of labour rationing the excess-demand effect is absent while the excess-profit effect is positive. However, it seems strange to assume any effects on nominal wages at all in the case of wage rigidity or to eliminate the excess-demand effects in the case of labour rationing.

I will regard the theory that wage drift is determined by expected profits from hiring more labour as the sole Rehn-Meidner theory of marginal productivity. Thus, I emphasise total marginal profits rather than the subset of marginal excess profits as in the Rehn-Hansen article. With this interpretation of the Rehn-Meidner model, it is not legitimate to include measures of both profit (margins) and labour-market conditions in the wage-drift function.[11]

There is much to indicate, however, that both the LO report and the Rehn-Hansen article made another interpretation of the connection between profits and wages than the one in marginal productivity theory. The actual profit margin is not only an approximation of marginal profits, but also an important driving force in and of itself (cf. Meidner and Rehn, 1953 *et al*, pp. 92-93, and Hansen and Rehn, 1956, p. 89). A theory that actual profits matter for wage drift is particularly important for a stabilisation-policy model that includes marginal employment subsidies (see below).

I shall suggest two possible arguments for a relationship between actual profits and wage drift, both of which, in the spirit of the Rehn-Meidner model, have firms—and their managers—as the main actors (cf. Rehn, 1952, p. 77).

In the first line of argument, an increase in firms' *self-financing capacity* will stimulate labour demand. One possible mechanism is that high actual profits lead to more investment and therefore to a stronger demand for labour, since the firms' capital costs will be reduced by self-financing. Similar theories of a relationship between profits, internal saving and investment can be found in the Keynesian literature. But

[11] Rehn and Hansen consider physical labour productivity as a third wage-drift determinant beside profit margins and labour shortage. They presume that wage drift is stimulated by increases in labour productivity irrespective of changes in labour demand, thus by increases in average productivity regardless of changes in marginal productivity. Earnings under piece-work will increase irrespective of labour market conditions at higher intensity of work or at technical improvements which will benefit employees as an 'institutional habit' (Hansen and Rehn, 1956, pp. 89-90 and 96-97). There is difficulty, both in theory and practice, in separating these hypotheses from one that says that wage drift is stimulated by higher average profits or higher actual profit margins (see above). In addition, by the reference to 'institutional habit', the Rehn-Hansen theory becomes similar to the wage bargaining theory, a theory considered to be an alternative to the Rehn-Meidner model in my work.

There is a further argument for a separate labour productivity argument in the wage-drift function if mark-up pricing prevails and prices are based on *average* costs. Product demand will now be stimulated by price reductions due to lower average costs. Subsequently, I will assume that firms set their prices based on marginal costs.

Rehn and Meidner presumably thought of a second mechanism. A stronger financial position would intensify *non-investing* firms' competition for labour. High actual profits improve the financial opportunities of non-investing firms to keep indispensable employees. This allows them to deflect the threat of losing staff to recruiting firms by offering higher wages. Non-investing firms will be particularly anxious to make such offers if their existence literally stands or falls with the loss of valuable employees, i.e. no marginal productivity can be attributed to them (the labour demand curve is inelastic). The contribution to wage drift of static firms will speed up the elimination of dynamic firms' gain from investments and labour recruitment.

The second hypothesis about a positive relationship between profits and nominal wages (beyond the marginal productivity theory) is based on the concept of *X-inefficiency*. The theory makes no assumptions about investment costs or non-investing firms' possibilities of competing for labour with investing firms. According to the X-inefficiency theory, efficiency will decline in firms with high historical profitability. Among other things, management will award themselves and certain employees higher wages than their efforts merit. It is assumed that in good times firms will be more careless with offering higher wages, probably both to 'wage drifters' and to wage earners covered by collective agreements.[12] Further, high profits may raise the financial capacity of firms to pay X-inefficient wages to their employees.

In the X-inefficiency case, average profits are not arguments in a labour demand function as in the first theory. Consequently, both profits and labour market conditions must be included in a wage drift equation representing the Rehn-Meidner model.[13]

A hypothesis that higher profits will create financial resources for investment or for competition with investing firms may be compatible with perfect competition in product markets. An increase in prices or (marginal) productivity will lead to disequilibrium profits before wages

[12] Labour market conditions may influence collective wages, especially at the level of the firm. But I will treat collective wage increases on the company level as wage drift in accordance with the practice of Swedish statistics (cf. Nilsson, 1994, pp. 8-9).

[13] The X-inefficiency interpretation of the Rehn-Meidner model is supported by Rehn's and Hansen's statement that high profits make employers more careless with regard to wage payments. Rehn and Hansen added that high profits make individual employees more eager to exploit the wage-paying capacity of companies (Hansen and Rehn, 1956, p. 89). However, the latter hypothesis breaks with the basic idea in the Rehn-Meidner model that companies are the main actors behind a positive relationship between profits (marginal or actual) and wage drift.

are adjusted (see section 2.5 below). But the theory of X-inefficiencies is irreconcilable with an assumption of a highly competitive economy.

To summarise, both marginal and actual profits seem to matter for wage drift in the Rehn-Meidner model. I have suggested two explanations of why wage drift is influenced by actual profits, both of which remain true to the spirit of the model in their underlying assumption that firms initiate wage increases. One, high profits may tempt firms to offer higher wages without any indication of a higher product demand or a better labour performance (see the X-inefficiency theory). Alternatively, larger financial endowments will increase the capability of firms to make investments or keep indispensable personnel who threaten to quit. The latter explanation is compatible with the theory that labour market conditions are decisive for wage drift.

I am ignoring for the time being the immense practical problems of discriminating between the marginal and average theories of wage drift, especially if the marginal notion is approximated with a measure of actual profits or profit margins. But a hypothesis that actual profits matter for wage drift is not only a possible addition to the marginal productivity theory; it must also be emphasised in the Rehn-Meidner model to avoid the awkward conclusion that marginal employment subsidies are inflationary.

The case for the Rehn-Meidner policy model is weakened if wage drift, in accordance with the Rehn-Hansen article, primarily is determined by marginal profits. A sizeable marginal employment subsidy will lead to a sizeable reduction in marginal costs but to a limited fall only in average costs (at given nominal wages). Significant wage drift will then occur not only in competitive but also in non-competitive product markets. (I assume throughout the analysis that the product-supply curve slopes upward in the short run.) In economies of monopoly competition, a marginal subsidy will stimulate labour demand (and output) if firms, in accordance with profit maximization behaviour, set their prices on the basis of marginal costs.[14] A marginal subsidy will also result in wage drift in oligopolistic markets where subsidised firms are price leaders and decide their prices on marginal costs.[15] The subsidy will also lead to wage drift in exposed

[14] In this economy, producers have a monopoly position in segmented markets but they compete with each other by marketing product substitutes. Positive profits are assumed to be eliminated in the long run by entry.

[15] However, the positive labour-demand effects in markets with imperfect competition may be relatively small if the price elasticity of demand is a negative function of output. (See, for instance, the case of a linear demand curve.) A higher output is then associated with a higher profit margin (mark up) which, *ceteris paribus*, will reduce labour demand (cf. 2.6).

sectors where prices are given for subsidised firms due to intense competition or foreign price leadership.

Let us compare the wage-drift effects of a marginal employment subsidy with those of a general employment subsidy; for instance, a general reduction of pay-roll taxes. The subsidies are supposed to be of the same amount and financed in the same way and by other taxes than on firms and wages.[16]

Marginal costs will then be reduced more by a marginal than by a general subsidy. In consequence, the increase in labour demand will be larger in the marginal-subsidy case. Hence, the wage effect is stronger in this case if wage drift primarily is determined by marginal profitability. It is still assumed that firms set prices as a mark up over marginal costs in markets with imperfect competition.[17]

If supporters of the Rehn-Meidner model accept that marginal profitability is decisive for wage drift, they must combine marginal subsidies with large labour-mobility enhancing programmes or fiscal restraints to avoid overheating in labour markets.[18] The model is shown

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[16] Hence, m ($N_2 - N_0$) = a N_1, where m is the marginal subsidy and a the average subsidy. N_0 is the initial employment level, N_2 the employment level with the marginal subsidy and N_1 the level with the average subsidy. It follows from the equality and the assumptions above that $N_0<N_1<N_2$ (cf. Johnson and Layard, 1986, pp. 946-949).

[17] My analysis is more general than that in Layard (1979) and Layard and Nickell (1980). According to Layard and Nickell, the differences in output and employment between marginal and general subsidies will not appear in a closed economy. The stronger immediate output and employment effects of a marginal subsidy reflect that companies are predominantly price takers in the exposed sector and that monopolistic companies decide their prices on marginal costs to a larger degree in export markets than in home markets (Layard and Nickell, 1980, pp. 57 and 59).

[18] In the early 1980s, Rehn did not exclude the possibility, highlighted by some economists, that marginal employment premiums may lead to high wage drift (Rehn, 1982, pp. 21, 36 and 40). His counter-argument was that other methods of raising employment would lead to higher inflation. Rehn claimed that a reduction in general pay-roll taxes and a marginal subsidy of an equal amount have the same immediate effects on employment, but that the general subsidy will lead to higher profits and therefore to higher inflation. Here, Rehn was strongly influenced by the conclusions for a closed economy in Layard (1979) and Layard and Nickell (1980), but also by other bargaining theories claiming that wage increases are induced by high average profits. Rehn also met the objections that marginal subsidies would result in high wage drift by arguing that the subsidies should be targeted to disadvantaged groups in the labour market. A similar argument cannot be used in the case of those 'general' subsidies to all companies that became Rehn's final proposal. Moreover, such targeted supports have only modest effects on employment and prices both in competitive and monopoly economies.

in a more favourable light if high actual profits rather than high marginal profits primarily cause wage drift. In that case, a marginal employment subsidy would initiate less wage drift than a general subsidy by the same amount. The reduction in average wage cost is more modest with a marginal employment subsidy than with a general subsidy. In consequence, the increase in producer surpluses will be smaller with a marginal subsidy. (In the long run, the surpluses are quite eliminated in competitive markets and in markets of monopolistic competition.)[19] In the case of a marginal subsidy, price reductions by subsidised firms may even lead to a fall in average profits. Firms that (for some reason) do not qualify for the subsidy will experience a profit decline both in competitive markets and in non-competitive markets whether non-subsidised firms are price followers or price makers. In economies of monopoly competition, non-subsidised producers of product substitutes may meet both a downward shift in product demand and an increase in the price elasticity of demand (which flattens the demand curve). Both changes will also reduce the profit *margins* (the mark ups) of non-subsidised firms if the price elasticity of demand is a negative function of output.[20]

Hence, a general employment subsidy will in all result in higher actual profits than a corresponding marginal subsidy. Wage drift will therefore become stronger with a general subsidy if actual profits are more

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[19] I assume here as before that the product supply curves are upward sloping. An important assumption is also that the price elasticity of demand for price-setting firms is approximately the same at the different output levels of marginal and general subsidies; mark ups are theoretically higher in the marginal-subsidy case if the price elasticity of demand is a negative function of output.

[20] The analysis in footnote 8 does not inform the reader that prices are a function of output when product competition is imperfect. I assume—in accordance with profit maximization behaviour—that prices are determined as a mark up over marginal costs as follows: $P(Y) = m(Y_m)W/f'(.)$ where W is nominal wages and m the mark-up ratio P/MC where MC is equal to W/f'(.). The marginal product of labour f' is a function of output (Y) since output varies with employment. m is also a function of Y since it is determined by the degree of monopoly (μ) and therefore by the price elasticity of demand (η), which is a function of Y in the general case.

The possibility of mark-up pricing is not a serious threat to the Rehn-Meidner theory of a positive relationship between independent prices and dependent nominal wages. For instance, a decrease in aggregate product demand still leads to a price reduction with the reasonable assumption that any tendency to higher mark-ups because of a higher degree of monopoly (the price elasticity of demand is here a positive function of aggregate output) is counterbalanced efficiently by a diminishing marginal product of labour.

important determinants than marginal profits. A theory that wage drift is primarily determined by actual profits thus makes it possible to avoid the conclusion that marginal employment subsidies are inflationary.

2.2. The theory of relative wage preferences

The first component of Rehn's and Meidner's inflation theory accords with the theory of wage drift above. Let us focus, for simplicity, on the case where firms are price takers. Increases in prices or in physical (marginal) productivity will lead to nominal wage increases in, for instance, a sector exposed to foreign competition. But the appearance of wage drift will lead to further, centrally negotiated, wage increases. Relative wage preferences may cause higher equilibrium wages than the market-clearing ones.

There are two mechanisms for a positive relation between wage drift and central wages. First, wages are not adjusted instantly to market forces. Central wage increases in a specific period are, at least partially, determined by market forces that were not manifested as wage drift in the preceding period. Labour mobility to dynamic firms and sectors is imperfect and wage increases for employees who threaten to quit static firms and industries are delayed.

Second, a collective catch-up process in the Rehn-Meidner model can be explained by wage earners' care for relative wages, not for real wages. Wage earners who have gained poorly (or not at all) by wage drift will demand similar wage increases to regain their relative income position. Wage earners compare themselves with wage earners in dissimilar occupations, either within the same firm or in other firms. They may also compare themselves with similar others, for instance with people of the same skill, either in the same or in other firms. However, in this case, the wage norm coincides with the wages determined by market forces (cf. Akerlof and Yellen, 1990, pp. 270-271).

The assumption that wage earners are interested in relative wages rather than real wages is fundamental to the *General Theory*, but also to some Keynesian literature on wage-wage spirals (see, for example, Tobin, 1972, and Jackson, Turner and Wilkinson, 1975). However, the Rehn-Meidner account of the attempts of 'wage drifters' and 'collective' wage earners to improve or maintain their relative wages has some original elements.

In the *General Theory*, wage earners will accept an increase in the supply of labour after a rise in aggregate demand precisely because of

relative-wage preferences—that all wage earners' real wages go down when consumer prices go up while relative wages remain unchanged. The Rehn-Meidner model assumes a similar real wage-employment mechanism because of a relative-wage preference, but also that 'wage drifters' will get some nominal wage increases. The *improvement* in the relative pay position of the 'wage drifters' explains why they accept a possible reduction in real wages.

The Rehn-Meidner model assumes that nominal wage increases in the leading sector result in compensation claims from other wage earners due to relative wage preferences. Almost identical wage-wage theories have later been formulated in the Keynesian literature. According to James Tobin, higher labour demand pushes up the wages of scarce personnel and causes a wage-wage spiral when relative wage preferences prevail. Here, it is a strategic group of the *already employed* who set the wage norms for new employees (Tobin, 1972, p. 12). In the Rehn-Meidner model, firms' attempts to keep indispensable employees is only one aspect of an initial wage increase. Wage drift depends ultimately on expansive firms' demand for additional labour. In the Rehn-Meidner model, strategic groups in the labour market are not necessarily insiders as in the Tobin model. In both models, however, a higher labour demand for scarce labour will lead to higher wages, which are spread to other parts of the labour market because of relative wage preferences.

Imitation of wage drift is the basic policy of trade unions in the Rehn-Meidner model. But the possibilities for trade unions to satisfy a relative wage preference depend largely on the power position of labour. This, in turn, is basically determined by the labour market situation. Thus, labour market conditions have a twofold impact on collective wages in the Rehn-Meidner model. They will determine wage drift, which is the guideline of collective wage bargaining, and they will influence the power position of collective labour, which determines ability to accomplish wage imitation.

In the Rehn-Meidner model, the possibilities of wage imitation are also a function of the general position of the trade union movement irrespective of the employment situation. These possibilities are further determined by firms' ability to pass on wage increases to consumers and by their willingness to accept that labour is rewarded in excess of (marginal) productivity (see the X-inefficiency theory).

2.3. The theory of a wage-wage spiral

The idea that wage-wage-price spirals, inflation in a true sense, will emerge after a macroeconomic shock is central in Rehn's and Meidner's work. Thus, wages (and prices) will not converge to a new equilibrium level. It is possible to shed light on the Rehn-Meidner view by giving an account of the 1960s Scandinavian model (the Aukrust model in Norway and the EFO model in Sweden). The Rehn-Meidner model allows scope for wage-wage and wage-price spirals, while the similar Scandinavian model is actually a theory of wages and prices (and profitability) in equilibrium.

In the Scandinavian model, increases in world market prices or productivity generate a short-term upswing in the profit share in the sector exposed to foreign competition (through higher profit margins). This upswing will lead to higher wages in this sector since higher expected profits and higher self-financing capacity will imply higher investments and more demand for labour. Higher profits will also lead to higher wage claims and a weaker resistance to such claims in national wage negotiations (Aukrust, 1977, p. 115). The wage increase in the exposed sector then results in corresponding wage increases in the sheltered sector by virtue of the free market mechanism, relative wage preferences and the solidaristic wage policy—seen here as a phenomenon that reinforces the collective imitation of wage drift. Wage increases in the sheltered sector can be passed on to the consumer through mark-up pricing. The average rise in prices in the whole economy will therefore probably be higher than in the competitive sector because of a lower rate of productivity growth in the sheltered sector (Aukrust, 1977, and Edgren, Faxén and Odhner, 1973).

Similarly, the rate of pay increases will self-adjust downward when the profit share is initially reduced. Lower profit margins make it more difficult for firms to self-finance and also make firms more pessimistic, which in turn leads to fewer investments and less demand for labour.

There are striking similarities between the pictures of the wage process in the Scandinavian and the Rehn-Meidner models. The resemblance becomes even stronger if the Rehn-Meidner model is similarly based on a division into an open and a sheltered sector. The open sector is dominated by wage drift (or by national wage agreements that directly reflect labour market conditions) and the sheltered sector by compensatory, centrally agreed, pay rises. In this perspective, the Rehn-Meidner model must rely on revaluations of the currency rather than on

restrictive fiscal policies to prevent the emergence of high profits.[21]

But there are also clear differences between the models. The most important difference is that wage-wage spirals and wage-price spirals occur in the Rehn-Meidner model but are prevented in the Scandinavian model. The assumption made in the latter is that prices in the exposed sector are exogenous (at a given exchange rate) and that wages in the sector are determined by these prices (at a given productivity development).[22]

The Rehn-Meidner model never deals explicitly with the reasons why an economy, when its equilibrium is disturbed, changes from a condition of wage and price rises to a condition of continued wage rises and inflation. A wage-wage spiral will emerge if employees in the open sector wholly or partly succeed in re-establishing the wage lead they initially gained through wage drift. I will give two possible explanations for this kind of wage development. If these theories are refuted, the Rehn-Meidner model must rely on the economy being exposed to constant disruptions that never allow wages and prices to converge to equilibrium.

A reasonable hypothesis is that mark-up pricing also takes place in the open sector, at least in parts of it. Thus, firms in the exposed sector will accept new wage increases, since they are able to pass them on to customers, assuming that the price elasticity of demand is constant.

An alternative hypothesis is that firms in the exposed sector are forced to accept or will even initiate wage increases that cannot be passed on. In the first case, 'wage drifters' manage to enforce further wage increases that maintain their distance to other groups (the labour supply curve in the leading sector shifts upward). In the second case, the behaviour of firms may reflect a lack of information about market conditions, or that the initial profit increase provides scope for 'unearned' rewards for the

[21] In fact, the Rehn-Meidner model's hypothesis that profitability will fall when domestic demand is curbed is challenged by the assumption that export is stimulated by an accompanying reduction in the rate of price and wage increases. The challenge was accepted early by Rehn (see Rehn, 1952).

[22] The Keynesian theory of 'equilibrium inflation' was inspired by the Scandinavian model, which in turn exhibits similarities with the Rehn-Meidner model (Jackson, Turner and Wilkinson, 1975). But a strategy of 'equilibrium' (or moderate) inflation was already criticised by Rehn and Meidner in the 1951 LO report.

Another difference between the models is that productivity is given in the Scandinavian model but is determined by structural changes and rationalisations in the Rehn-Meidner model.

employees (see the X-inefficiency theory).

It seems, however, that the arguments above offer only a weak case for a sustainable wage-wage-price spiral. The process is easily counterbalanced by monetary restraints unless an accommodating economic policy is pursued. The room for mark-up pricing must also be limited, especially in the open sector. Besides, the firms in the open sector will successively require information about market conditions and refuse to give 'unearned' wages to employees when their profits fall.

The existence of counteracting forces in the wage-wage-price process does not exclude the possibility of such processes, at least for a while, in a country like Sweden. The Rehn-Meidner assumption of destabilising (unless immediately remedied) macroeconomic shocks should not be rejected without a careful empirical test.

2.4. The failure of incomes policy

The Rehn-Meidner model has the advantage of integrating wage theories based on firms' competition for scarce labour, labour strength and relative wage preferences. (I use the notion of labour strength here to cover trade union ability to compensate for wage drift.) Rehn's and Meidner's integrated wage theory is a dynamic one. Wage increases determined by favourable market conditions reproduce themselves in the labour market through employee interest in relative wages and through a strong bargaining position for wage earners covered by collective agreements. Credible explanations are also given for the fact that 'cost crises' often occur during recessions. The rate of pay rises eases in the competitive sector (or in the sector with given prices), while the preceding economic boom continues to have a strong influence on wage formation through 'imitating' central agreements, with subsequent individual claims to retain a wage advantage.

There are similar descriptions of cost crisis in a recession in some Keynesian theories. But the crucial question is why the views on incomes policy differ so greatly between most Keynesians and Rehn-Meidner. Keynesians, with some exceptions (see Tobin, 1972), exhibit a great confidence in incomes policy. In macroeconomic textbooks that integrate Keynesian and neo-classical perspectives, wages are determined by the marginal productivity theory. Here, incomes policy is a *parameter of action*; price increases induced by higher aggregate demand can be counterbalanced efficiently by incomes policy—represented by a downward shift in the aggregate supply curve. In

Keynesian wage-push models (including 'fair wage' models), the extent and performance of incomes policy are a function of wage-earner unity and the degree of wage centralisation. Incomes policy is also possible in an economy with high demand—a strong trade union movement may just as well be party to an incomes policy settlement as to forcing up the level of wages.

A *co-ordination* of trade union policy has ambiguous effects on wages in the Rehn-Meidner model. It will facilitate a wage policy of fairness, which will mitigate wage races between trade unions. But it will also raise the potential of wage earners as a group to increase real wages at the expense of profits. Further, the potential of incomes policies is limited in a boom; it is tempting for trade unions to strive for compensation for wage drift when their bargaining position is strengthened. Hence, individual trade unions may resist participating in incomes policy agreements. In addition, any collective wage moderation leading to higher actual profits may increase both company ability and company willingness to offer higher wages to individuals and to trade unions not covered by incomes policy.

Thus, incomes policy, whether statutory or co-ordinated by central trade unions, will be undermined by relative wage preferences. These are easier to satisfy when unemployment is low and actual profits are high. But the fundamental reason why the potential for incomes policy is limited in the Rehn-Meidner model is the idea that wage increases are initiated by firms' competition for labour. Central trade union organisation attempts to introduce wage restraint are effectively counteracted by free market forces and by the unions' demand for compensation for wage drift.

2.5. The short-run theory of profits

My account of the Rehn-Meidner theories of profits and the functional distribution of income assumes that there are two inputs only, capital and labour. In the short run, the capital stock is constant and neither substitution between capital and labour nor technological progress and structural changes are allowed for.

In the Rehn-Meidner model, the profit share is pro-cyclical. The pro-cyclical pattern reflects that real wages—or more correctly, product wages—are counter-cyclical. Thus, the Rehn-Meidner model rules out the possibility that both profit shares and real wages are pro-cyclical, a possibility that would have been realised in an economy with mark-up

pricing in which productivity is more pro-cyclical than mark ups. (Pro-cyclical productivity may reflect pro-cyclical marginal productivity or labour hoarding.) There is some scope for mark-up pricing in the Rehn-Meidner model, but Rehn and Meidner do not presume that productivity is exceptionally pro-cyclical in relation to mark ups.

Real wages and profit shares may move in the same direction if factor substitution is possible. Higher (lower) real wages may be met by more (less) capital-intensive production methods, thus counteracting the tendency to a decline (increase) in the profit share. But since I have assumed that production technologies are fixed in the short run, there is no chance that both profit shares and real wages are pro-cyclical in the Rehn-Meidner model.

Pro-cyclical profit shares in the Rehn-Meidner model reflect that prices are more flexible than nominal wages. Consequently, disequilibrium profits and losses will appear in the recovery and recession phases respectively of the business cycle. Higher product demand will lead to immediate price increases in a competitive economy or an open economy where prices are given (through foreign price leadership). Prices may also react relatively fast to increases in product demand in economies where they are set by individual firms.

Price increases due to higher product demand will result in positive marginal profits and higher labour demand. But a gradual increase in nominal wages will successively eliminate disequilibrium profits and possibly restore the initial levels of average profits (see next subsection).

Hence, wages react slower than prices to changes in demand in the Rehn-Meidner model. The counter-cyclical pattern of real wages is strengthened at the turning points of the business cycle, especially in an open economy. An international recession period with falling world prices may still be characterised by nominal wage increases reflecting earlier overheated conditions. Analogously, an international recovery with rising world prices may still be distinguished by modest nominal wage increases determined by low labour demand in the preceding recession.

The central question is why nominal wages are less flexible than prices in the Rehn-Meidner model. The reason is *not* that wage earners with real-wage targets are misinformed. Governed as they are by relative wage preferences, people accept reductions of real wages upon a rise in aggregate demand.

Unemployment is one possible reason why wages lag behind prices in the Rehn-Meidner model. Nominal wage increases will be delayed after a rise in aggregate demand since labour scarcity will not yet have appeared. Further wage claims by trade unions and collective agreements in force

reflect high unemployment levels in preceding periods. However, this explanation is more in line with the Rehn- Meidner view of a 'free' labour market than with their normative model where full employment is assured by selective-policy instruments.

Labour hoarding is another possible reason why prices are more flexible than nominal wages in the Rehn-Meidner model. Unused labour resources make it possible to increase output without having to raise nominal wages to recruit labour or bring about over-time work. A further possible reason for a slow wage adjustment to prices in the Rehn-Meidner model is that it takes time for the firms to look for, choose applicants, and negotiate wages.

The Rehn-Meidner assumptions of pro-cyclical profit shares and counter-cyclical real wages are not original. Similar assumptions are made, for instance, in the *General Theory* and in the post-Keynesian tradition. However, in the latter tradition, theories of pro-cyclical profit shares do not necessarily assume counter-cyclical real wages. It is often assumed that real wages are inflexible in the short run and that profit shares move pro-cyclically because of labour hoarding or scale advantages (Kaldor, 1955-6, Eichner and Kregel, 1975, and Erixon, 1987, pp. 69-72). In the *General Theory*, counter-cyclical real wages are not associated with pro-cyclical profit shares. Here, lower aggregate demand will raise real wages because of diminishing returns to labour in an economy that can get stuck in a position below full employment. Mark ups are constant in the *General Theory* (reflecting a given degree of monopoly) and labour is paid in accordance with its marginal productivity. The profit share is then unaffected by changes in aggregate demand if the relation between marginal and average productivity is constant. In the Rehn-Meidner model, counter-cyclical real wages and pro-cyclical profit shares are explained by the simple fact that nominal wages lag behind producer prices for some time (given developments in productivity), especially in open countries where swings in the business cycle are induced by changes in export prices.[23]

Rehn and Meidner did not presuppose any *absolute* wage rigidity in their theory of short-run profits. (An exception here is Hansen and Rehn, 1956, p. 95.) The absence of absolute wage rigidity in the Rehn-Meidner model may come as a surprise to some observers. Rehn and Meidner

[23] An alternative explanation is that mark ups are more pro-cyclical than productivity. I have not excluded the possibility that mark ups are pro-cyclical in my interpretation of the Rehn-Meidner model (see the discussion of a possible negative relationship between (world) demand growth and the degree of (international) competition in footnote 28). But there is no hint of an assumption that mark ups are more pro-cyclical than productivity in the works of Rehn and Meidner.

could have argued for a nominal wage rigidity downward by referring to the prevalence of relative wage preferences. Also, nominal wage rigidity downward is basic to their theory of profits in the medium and long term.

But Rehn and Meidner reproduced a dynamic and inflationary economy where short run changes in the profit share are determined by the pace of nominal wage *increases* rather than by any change in nominal wage levels. Wage changes may be positive because of price and productivity increases or a steady state of excess labour demand due to repetitive positive macroeconomic shocks. Further, in the Rehn-Meidner model the rigidity of the pace of wage increases is only downward and it is caused by labour market policy, not by relative wage preferences. Thus, the consistent pattern of pro-cyclical profit shares in a 'free' labour market is not explained by absolute wage rigidity.

2.6. Profits in the medium and long term

Rehn and Meidner wanted to force down profit shares in the medium term (over the entire business cycle) and also in the long term. The aim was to increase the importance of collective saving as a source of private investments at the expense of self-financing. A positive public saving will appear with a fiscal policy that is predominantly restrictive over the business cycle. Rehn and Meidner also argued that a stable reduction in profit shares would facilitate price stabilisation as inflation could then be conquered from a more favourable position. A further argument for a long-run decline in profit shares was to change the functional distribution in favour of labour. The question is how a decline in the profit share would be obtained in the Rehn-Meidner model.

I will first consider the medium term. Both prices and wages are now fully flexible in the absence of state interventionism, along with some other variables treated as given and constant in the short run—production capacity and factor intensities. But I still assume technological progress and structural change through capital and company mobility to be impossible. For convenience, I also assume that all labour is variable. The number of firms is fixed in the medium term—an assumption that precludes structural changes by exits from and entries to the economy under discussion. Finally, demographic shifts in labour supply are excluded.

When analysing profit shares in the medium term, the Scandinavian model can be used as a benchmark model. Here, the profit share in equilibrium is constant. Any rise in the profit share in the open sector

after an exogenous increase in prices or productivity is only temporary; wage drift and centrally agreed pay increases will return the profit share to its original value. Similarly, the profit share will recover fully after having been initially reduced.

The Scandinavian model actually contains no explanation of why changes in the profit share are fully offset by wage adjustments. Full employment reigns, which means that the profit share cannot return to its earlier level through changes in unemployment. The Scandinavian model also rules out the possibility of adjustments of labour supply through real-wage targets. (This mechanism is probably prevented by an assumption of relative wage preferences.) Finally, any likelihood of the profit share returning to its initial value through changes in the exchange rates is likewise excluded (cf. the Bretton Woods system of fixed exchange rates at the time the model was developed). The model's conclusion of a constant profit share in the medium term seems to be based on the assumption of a perfectly inelastic labour supply, i.e. a labour supply completely insensitive to changes in real wages. There is some scope for incomes policy in the Scandinavian model but the model is basically one of wage determination in an open economy without any reference to co-ordinated bargaining.

The Scandinavian model gives no room for a permanent shift in the profit share. There is no place, for instance, for a theory that the profit share will decrease with a transition from an economy with unemployment to an economy with strong political ambitions to achieve full employment. In the Rehn-Meidner theory of a decline in profit shares on the other hand, the transition to full employment is central.

Rehn and Meidner recognised that a restrictive fiscal policy is an unreliable measure *per se* for reducing the profit share. Price decreases—or better, a lower rate of price increases—will lead to nominal wage adjustments because of lower labour demand. The adjustments are particularly strong if the bargaining position of organised labour is weakened by higher unemployment or if labour supply is inelastic.

To avoid wage adjustments, Rehn and Meidner wanted to combine a restrictive fiscal policy with a selective policy for full employment. Labour market policy would prevent wage adjustments downwards for two reasons. First, excess labour supply and unemployment at the initial wage rates because of the restrictive fiscal policy would not be manifested. The pace of wage increases in competitive labour markets is kept up by the fact that potentially unemployed people are placed in various labour market programmes. Second, trade unions are in a better negotiating position if open unemployment is kept low.

It is true that nominal wage increases through labour market policies are counterbalanced by improvements in the flexibility of the labour market. But the Rehn-Meidner model assumes that the wage rate will be kept up during a recession by labour market policies. In bad times, therefore, the rigidity mechanism is stronger than the flexibility mechanism. However, in a boom, the flexibility aspect of labour market policy is decisive i.e., the wage rate will be reduced.

Rehn and Meidner seem to assume for the medium term that labour market policy will keep wages up in spite of the stimulus of labour mobility. A restrictive general economic policy will lead to price reductions but not to corresponding wage decreases when there is full employment. Already in the LO report, Rehn and Meidner maintained that a restrictive economic policy may lead to a decline in the profit share in a situation where full employment is sustained by labour market policy measures (Meidner and Rehn *et al*, 1953, pp. 92-94 and 99, and Rehn, 1977, p. 212).

There are some question marks in Rehn's and Meidner's explanation of a decline in the profit share in the medium term. Their profit theory for the short run was certainly compatible with an assumption of competitive product markets. In fact, the Rehn-Meidner theory of wage drift is primarily formulated for a competitive economy, but competitive markets cannot be assumed in their theory for the medium term. It is true that both labour market policy and tight general economic policies will depress real wages in a competitive economy if the marginal productivity of labour is diminishing.[24] However, higher real wages have no impact on profit shares if labour is rewarded in accordance with its marginal productivity and the relation between marginal and average productivities remains the same.

Rehn's and Meidner's basic idea was that the combination of a restrictive general economic policy and a labour market policy to achieve full employment would squeeze profit margins. Price reductions due to a tight general economic policy would lead to lower profit margins (mark ups) since labour market policy prevents falling prices from being fully matched by wage decreases. Rehn and Meidner also considered a converse relationship, where nominal wage increases caused by labour market policy cannot completely be passed on to consumers due to a restrictive general economic policy.

The Rehn-Meidner profit theory can easily be analysed within a model

[24] I still assume that labour market policy will lead to higher wages in the medium term. I also presuppose, true to the essence of the Rehn-Meidner model, that the output effects of a tight general economic policy will not be offset (completely) by lower wage claims due to real-wage targets.

of monopolistic competition. Here, demand is a negative function of prices *inter alia* because of product competition. A restrictive fiscal and monetary policy will generally reduce prices in accordance with the Rehn-Meidner theory.[25] Rehn and Meidner are also correct in claiming that profit margins can hardly be depressed by a restrictive fiscal policy alone. It is true that the degree of monopoly—defined as a Lerner index determined by the price elasticity of demand—may fall after a decrease in output. This will happen if the price elasticity of demand is a negative function of output. However, the fall in the degree of monopoly will be insignificant if demand is relatively insensitive to price changes. And more important, the decrease in output through a tight fiscal policy is counterbalanced by gradual adjustments of nominal wages. The following recovery of output will then coincide with a recovery of profit margins.

But it is not obvious why a cost-push policy established through labour market policy measures must be complemented with a tight general economic policy. There are clear limitations on the possibilities to mark up cost increases in models of imperfect competition when the price elasticity of demand is a negative function of output. A shift upward of the marginal cost curve will reduce mark ups, for instance in the case of a linear demand curve, since demand becomes more elastic at lower output levels.[26] The relationship probably characterises an open economy with some scope for independent price policies by domestic firms. Here, profit margins are likely to be reduced by unilateral labour market policy measures to achieve full employment, since foreign competition prevents all wage increases from being passed on to prices.

Hence, a restrictive general economic policy can be abandoned upon any attempts to reduce the profit share. Labour market policy alone will guarantee a profit margin decline in the medium term. On the other hand, profit margins can hardly be reduced by a restrictive general economic policy alone, as correctly emphasised by Rehn and Meidner.

The Rehn-Meidner theory of profit shares is almost identical to the profit-squeeze theories in Glyn and Sutcliffe (1972, pp. 58-64) and Erixon (1987, pp. 59-60).[27] They all claim that profit margins in a single

[25] The price reduction will be modest or even non-existent if marginal cost curves are relatively flat and marginal revenue curves are relatively steep. The latter curvature excludes that mark ups are strongly counter-cyclical, for instance, through extensive collusion between producers in a recession.

[26] Mark ups are only constant at a constant price elasticity of demand, see the assumption for the sheltered sector in the Scandinavian model.

[27] The Rehn-Meidner theory of functional income distribution is also similar to Michal Kalecki's. Kalecki refers to the 'degree of monopoly' determined by market-

country will be reduced by an economic policy to maintain full employment. The policy leads to wage increases which are impossible to fully mark up because of foreign competition. It will also prevent wage adjustments after a reduction in aggregate product demand. The main difference between the theories is that in Glyn and Sutcliffe (1972) and Erixon (1987), harder international competition, rather than a tighter general economic policy as in the Rehn-Meidner model, is what induces the decline in demand.[28]

The structural shift from an economy with unemployment to an economy where full employment is always maintained by selective measures will depress the profit share, according to Rehn and Meidner. They realised, however, that their general profit-squeeze policy could be too effective. Private investments may be seriously hampered even if marginal profits emerge, *ceteris paribus*, through mobility-enhancing labour market policy measures (or marginal employment premiums). Further, the Rehn-Meidner model recognises other kinds of inflation than demand inflation. Full employment can speed up a wage-wage spiral by increasing the possibilities to fulfil relative wage preferences and perhaps even by strengthening such preferences *per se*. In the end, the creators of the Rehn-Meidner model were open for incomes policy. They emphasised the possibility and desirability of having a central union organisation to dampen the general rate of wage increases by means of 'voluntary' incomes policy, at least in normal phases of the business cycle (see, for example, Meidner and Rehn, *et al*, 1953, pp. 90-91, and Rehn, 1982).

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structure conditions, 'tacit' agreements between producers, and the power of trade unions. Strong trade unions will push for high nominal wages that are difficult to mark up due to restraints from competition in commodity markets (Kalecki, 1965, pp. 17-18). The main difference between the theories is that nominal wages are a function of labour demand and supply in the Rehn-Meidner model, not exogenous as in the Kaleckian model.

[28] The difference between the theories is reduced if the Rehn-Meidner model assumes that international competition is intensified by a downward shift in aggregate product demand. A reduction of output is associated with a lower degree of monopoly in models in which price elasticity of demand is a negative function of output, and it is legitimate to equate intensity of global competition with degree of monopoly in an open model. According to this reading of the Rehn-Meidner model, fiercer global competition is induced by a reduction in aggregate demand. However, a harder competitive struggle on the international scene is hardly caused by a restrictive economic policy in a small country. One—though rather far-fetched—interpretation of the Rehn-Meidner model is that global competition is intensified when world demand (growth) contracts.

There is a clear ambiguity between trade union mobilisation and the acceptance of 'social responsibility' expressed both in the LO report and in later publications by Rehn and Meidner (cf., for example, Rehn, 1982 p. 8 and p. 26). The ambiguity reflects a latent dilemma for a reformist labour movement. The LO report avoids the dilemma by declaring that central trade unions have only an *indirect* responsibility for average wage developments. Wage races between trade unions can be prevented by a solidaristic wage policy, including a policy for fair wage differentials. Furthermore, the LO report avoids the labour reformist dilemma by stating that the trade union movement must *first* force down the profit share and *then* ensure that nominal wages increase in pace with productivity growth. In the first stage, the arguments for income redistribution go hand in hand with the ambition to create favourable conditions for stabilisation policy. In the second stage, the labour movement must take social responsibility to prevent inflationary wage claims and further decreases in the profit share.

Two critical remarks can be made on a theory that profit margins (and profit shares) will inevitably fall in the medium and long term because of (selective) measures to sustain full employment.

First, Rehn and Meidner did not weigh the possibility that in the long run, a profit fall in the analysed sector is counteracted by company exits. They may have assumed that entry barriers would prevent company flight to other sectors, or other countries.[29]

Second, Rehn and Meidner did probably not consider that the tendency to lower profit shares can be offset by more capital-intensive production methods in the medium term. They seem to take it for granted that the increase in real wages is decisive for profit share developments. This view excludes, for instance, the existence of a Cobb-Douglas production function. Here, changes in relative factor prices are fully offset by changes in quantities demanded, leaving income distribution between labour and capital unaltered.

In the long run, the change in factor prices to the advantage of labour may even turn to its opposite, as industries with capital-intensive production methods will expand relatively fast (cf. Flam, 1987). It is also possible that employment policies to create labour scarcity will be neutralised by demographic increases in labour supply.

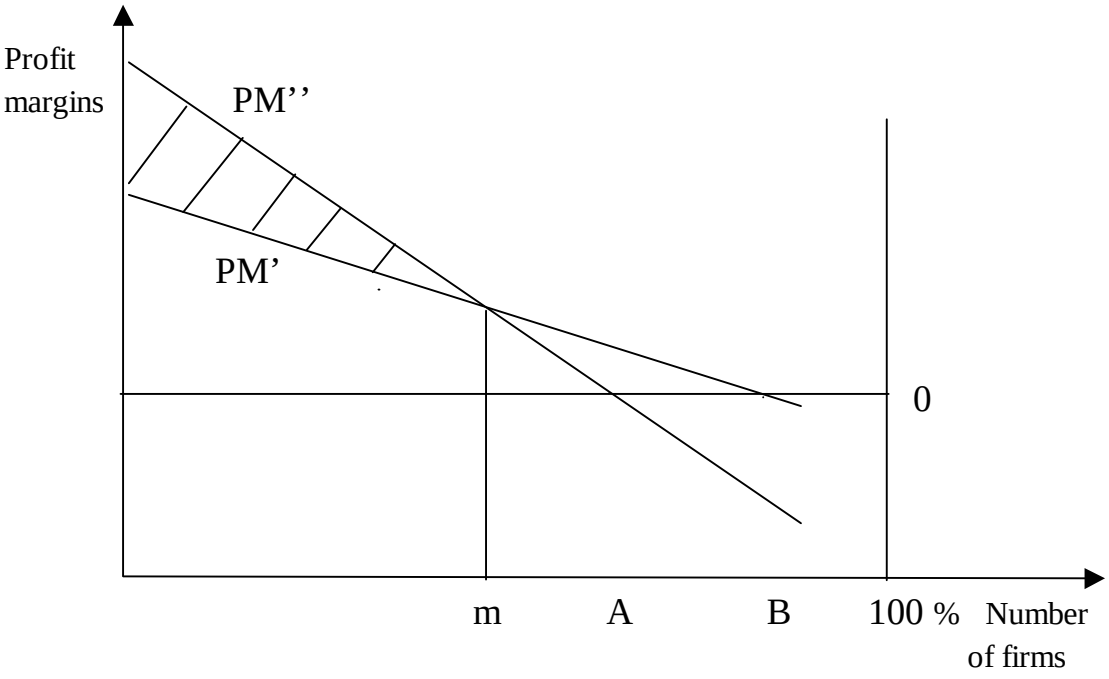
[29] Entry barriers can also explain why profit margins in the sector under discussion are positive in the long run. Thus, in the Rehn-Meidner model, producers may be challenged by price and product competition, but their profits will not be eliminated in the long run by entries of domestic or foreign competitors.

Rehn's and Meidner's endogenous growth theory, whereby cost pressures on firms and industries stimulate productivity growth, can meet some of the objections above. A possible switch to capital-intensive techniques and industries is a desirable by-product of a full employment (and solidaristic wage) policy, not an annoying limitation in their model. The substitution of capital for labour will increase the long-run capacity of the economy to sustain high real wage growth by stimulating the development and use of labour-saving technologies (see 3.6).

2.7. The theory of structural change

The cost pressure from solidaristic wage policy and a restrictive economic policy on marginal firms in an industry is illustrated in *Figure 3*. The firms in the industry are listed by their profit margins, i.e. the ratio between sales values and wage bills. I assume that there are no other inputs than homogenous labour and that prices are given and the same for all firms. I further assume, in accordance with the Rehn-Meidner model, that firms have different productivity levels. The number of firms is assumed to be constant.

Figure 3: **Solidaristic wage policy, profit margins, and the number of firms**



The scope of the solidaristic wage policy is represented by the angle of the profit-margin lines in *Figure 3*. Two profit-margin structures are presented. In the interests of simplicity I assume that the profit-margin structure in the industry can be described in linear terms. The flatter PM' line shows profit margins in an initial state where wages are more in accordance with firms' ability to pay, which is determined by their productivity levels. There are thus relatively weak tendencies to solidaristic wage policy or to uniform wages through labour mobility between firms in the initial state.[30]

The steeper PM'' line shows profit margins at wages that follow the principle of equal pay for comparable work more closely. I have defined the level of solidaristic wages as wages paid by the medium firm (m) in the initial state.

The dotted lines in *Figure 3* show the number of firms above the point of break-even (O) where prices are equal to unit wage costs. A smaller number of firms will survive at solidaristic wage policy than at wages that are more adjusted to productivity differences between firms (compare A and B in the figure). But firms with higher productivity levels than the medium ones have larger profit margins if the industry pays solidaristic wages (see the shadowed area in *Figure 3*).

Figure 3 can also be used to show that economic policy matters for growth in the Rehn-Meidner model. Stabilisation policy shifts the profit-margin line upward or downward if it leads to uniform price changes in the industry under discussion. A downward shift in the profit-margin line will place more firms below the O line, the point of break-even, unless they increase productivity. A solidaristic wage policy may speed up rationalisations and closures but only together with a restrictive general economic policy.[31]

The Rehn-Meidner model offers an alternative to a neo-classical, Marshallian, model of structural change. This is not to say that there are no similarities between the models. In both models, relative profitability is the driving force behind structural change. The description of wage formation in a 'free' labour market is also identical—higher pay in expanding sectors attracts labour from other sectors. But the incentives to mobility differ between the models.

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[30] I have not considered the extreme case of a horizontal PM line where productivity differences are completely matched by wage differences. If the number of firms is large, the profit-margin line will be identical to the 0 line in *Figure 3*.

[31] However, small 'excess profits' for firms with high productivity may delay 'internal' structural change in the Rehn-Meidner model if investments in new technologies, products and organisations are seriously hurt by —see section 3.6.

In the neo-classical theory, a change in relative demand causes sector-based wage differentials to emerge. This induces wage earners to change workplaces. Wage equalisation is a result of this process of adjustment, since wage earners with the same marginal productivity receive the same pay in the new equilibrium.

When a solidaristic wage policy is in effect, there can be no transfer of labour because of wage differences. Instead, Rehn and Meidner rely upon a rationing mechanism. The solidaristic wage policy increases the inflow of job applicants and vacancies (all else being equal) which tends to counterbalance the negative effects on mobility caused by weaker pay incentives. However, a sluggish labour market may hamper structural change; labour market policy measures must therefore be used to oil the mechanism of rationing.

It has often been claimed by Rehn and others that the solidaristic wage policy simulates perfect market equilibrium for wage earners with the same marginal productivity. But in contrast to the Marshallian model, a solidaristic wage policy limits the chances of bringing about a transfer of labour through the wage mechanism. Other motives are needed to create mobility in the labour market.

Rehn's and Meidner's preference for solidaristic wage policy is based on a conviction that wage differentials must grow large in order to create a significant labour mobility because of inertia in the labour market (Rehn, 1952, pp. 44-45). Large wage differentials, according to Rehn and Meidner, are inflationary, as well as being unacceptable from an equity point of view. Besides, solidaristic wage policy will not only free the resources and create the conditions for structural change by hastening company closures, it will also increase *the companies'* and *the capital market's* incentives to facilitate a transfer of resources between sectors by increasing differences in profitability. The differences may become so great that any entry barriers and other rigidities (such as sluggish capital markets) that prevent structural change can be overcome. Profit differentials will increase, not only through solidaristic wage policy but also through labour market policy to facilitate dynamic firms' recruitment of labour.

Thus, the Rehn-Meidner model exchanges large wage differentials, and high general profits, for large profit differentials (between plants, firms and industries) as an incentive to economic growth. In addition, the possible growth-dampening effects of low gross profits are counteracted by the access to public capital funds at low interest rates. A tacit assumption in the model is also that profit squeezes through high company taxes are counterbalanced by a monetary policy of permanently low rates of interest.

3. The Validity of the Rehn-Meidner Model

Foreign economists appreciate Swedish labour market policies for having prevented large cyclical swings and protracted spells of unemployment up until the 1990s (Blanchflower, Jackman and Saint-Paul, 1995). Other foreign economists have shown a positive attitude to the solidaristic wage policy. Lawrence Summers claims that small inter-firm differences in wages of equally skilled labour, for institutional or other reasons, will lead to low transitional unemployment; workers who lose attractive high-wage jobs are less reluctant to accept other jobs if pay differentials are relatively small (Summers, 1986, pp. 370-380).[32]

British economists referred to Rehn in the 1980s and the early 1990s when recommending marginal employment subsidies to counter unemployment (Layard, Nickell and Jackman, 1991, pp. 490-492). Swedish scholars agree with Rehn that marginal subsidies are less inflationary than other measures and that they should be large, permanent and general, that is, not payable only in particular regions and sectors or to specific groups (Johansson, Lundborg and Zetterberg, 1999).

Vital parts of the Swedish growth, inflation and wage models have been confirmed by theoretical developments in recent decades. The Rehn-Meidner hypothesis of a negative relationship between profit margins and productivity is basic in the literature on X-inefficiencies. The development of a general theory of transformation pressure in Sweden in the 1990s was clearly inspired by the theory of X-inefficiency, but also by the Rehn-Meidner model (Erixon, 1991 and 1998).

Further, Rehn and Meidner can be looked upon as pioneering opponents of Keynesian fine-tuning. They had despaired of the possibilities of controlling inflation and maintaining high employment levels under an expansive general economic policy. Macro economists today, especially those in the classical tradition, consider supply-side and

[32] A similar theory was suggested in Erixon (1985) to explain why the contraction of high-wage industries in the crises of the 1970s and the early 1980s (mainly mining, steel and shipbuilding) led to lesser unemployment in Sweden than in other OECD countries. The compressed wage differences in Sweden due to solidaristic wage policy made it easier for wage earners to accept employment in other industries (Erixon, 1985, p. 27).

matching measures such as labour market policies the only reliable means of reducing unemployment in the long run (see the notion of a natural rate of unemployment). The Rehn-Meidner model certainly assumes a trade-off between unemployment and inflation, but its unique policy recommendations are not really punched out by the breakdown of the Phillips curve.

The modern theory of 'fair wages' stresses that relative wage preferences are important for nominal wage rigidities downward and for the appearance of wage-wage spirals. Egalitarian wage policy is also often seen as an instrument to internalise (reciprocal) negative externalities from relative wage preferences (see e.g. Solow, 1980, Summers, 1988, Agell and Lommerud, 1992, and Agell, 1999).[33] Some modern theories even assume that wage earners care for a fair distribution between capital and labour (Akerlof and Yellen, 1990). The similarities between the theory of fair wages and the Rehn-Meidner model are striking, although the model was not directly concerned with the question of absolute wage rigidity and its solidaristic wage policy is not a recommendation of equal wages for unequal work.

Yet, the status of the Swedish model in modern economics is ambiguous. Swedish labour-market policy programmes were criticised by both foreign and Swedish economists for being insufficient and ineffective when aggregate-demand conditions became exceptionally poor in the 1990s (see, for instance, Forslund and Krueger, 1997). It can be argued that the founders of the model were not against other active measures than labour market policy in a situation with high unemployment and that the criticism struck at the application rather than the principles of the Swedish model. But the recommendations in the mid-1990s that the scope and purpose of labour market policy should be limited to helping the long-term unemployed to get regular jobs (cf. Blanchflower, Jackman and Saint-Paul, 1995) are definitely out of line with the Swedish model.

A growing scepticism towards solidaristic wage policy could be discerned among economists in the 1980s and the 1990s. The policy was accused of having weakened wage incentives to education and increased unemployment among youth and low-skilled labour. However, Swedish scholars were aware of the distinction between a policy of wage equality in general and a policy of wage solidarity as in the Swedish model (cf. Flam, 1987, and Hibbs and Locking, 1995).

[33] Swedish economists have also defended an egalitarian wage policy by referring to its social insurance aspects and its positive effects as an incentive for low-skilled labour to acquire schooling and on-the-job-training (Agell, 1999).

In most macroeconomic models, wage earners still care for real, not relative, wages (or functional income distribution) as in the Swedish model. The emphasis on real wage flexibility to engender macroeconomic balance in both new-Keynesian and (neo-)classical theories has no counterpart in the model. Here, Rehn and Meidner made no theoretical contribution. But their view is compatible with post-Keynesian and 'orthodox' Keynesian ideas of greater wage flexibility as an ineffective or even a self-destructive means of achieving macroeconomic balance (Rotheim, 1998, Greenwald and Stiglitz, 1993, and Tobin, 1993). In fact, Rehn and Meidner exclude the possibility of underbidding in labour markets by their recommendation of a selective policy for full employment.[34]
The Rehn-Meidner model of a profit-margin squeeze in the medium term can easily be integrated into the new-Keynesian theory of mark-up pricing (Romer, 1996, pp. 221-222).[35] Further, profit shares are substantially pro-cyclical in a country like Sweden, as assumed in the model (Erixon, 1987, pp. 45-49 and 72). But its assumption that real wages move counter-cyclically is not supported by all empirical studies, not even of Sweden (cf. Sumner and Silver, 1989, and Mocan and Topyan, 1993 with Schor, 1985, Solon, Barsky and Parker, 1994, Romer, 1996, p. 216, and Erixon, 1987, pp. 104-106, 199 and 248).[36]

The main challenges to the Swedish model can be found in the modern wage literature. Bargaining, trade union and efficiency-wage theories are quite distinct from those underpinning the model. In fact,

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[34] The Mundell-Fleming model of perfect capital mobility and floating exchange rates (which is a good approximation of Sweden since autumn 1992) supports the Rehn-Meidner critique of an expansive fiscal policy for being ineffective. But the Mundell-Fleming model also limits the validity of the Rehn-Meidner theory that inflation is dampened by a restrictive fiscal policy.

[35] Actual changes in profitability and profit shares cannot easily be explained in terms of the Swedish model; its theory of the medium and long term gives room for different interpretations and there are difficulties in distinguishing between permanent and temporary influences on profits in practice. It might be possible to claim, however, that the decline in profit shares in Sweden in the 1960s and 1970s, and the strong recovery in the 1990s, was expected from a model in which full employment is a necessary condition for a profit squeeze (cf. Erixon, 1995, p. 51).

[36] Pro-cyclical profit shares are compatible with pro-cyclical real wages if productivity is more pro-cyclical than mark ups. Pro-cyclical mark ups are not excluded by my interpretation of the Rehn-Meidner model (see footnotes 23 and 28), but the existence of pro-cyclical marks ups has been questioned on empirical grounds, at least for major OECD countries (Romer, 1996, p. 219, Galeotti and Schiantarelli, 1998, and Martins and Scarpetta, 1999. See, however, Haskel, Martin and Small, 1995).

Rehn and Meidner (and Bent Hansen) saw their wage model of competitive markets as an alternative to bargaining and game theories of the time. Analogously, modern bargaining theories are seen as challenges to wage models in which market forces occupy a central position (Blanchflower, Oswald and Sanfey, 1996, pp. 227-228). Bargaining and trade union theories are easier to reconcile with the post-Keynesian and new-Keynesian approaches than with the Rehn-Meidner model.

I will make some brief comments in this section on the relation between the Rehn-Meidner, trade-union, bargaining and efficiency-wage models. Their different views of profits are analysed in detail in subsection 3.1.1.

Relative wage preferences matter in both trade union and bargaining models. Further, co-ordinated negotiations will, *ceteris paribus*, lead to wage restraint when relative wage preferences prevail, both in these models and in the Swedish model. But their explanations differ. Most trade union theorists stress that negative wage externalities can be internalised by co-ordination *per se*. (See also the theories of fair wages above.) In the Rehn-Meidner model, a similar internalisation will occur, but the importance of wage co-ordination is indirect only—it is now possible to establish and realise a consensus on fair wages.

In some bargaining theories, relative wage preferences go hand in hand with wage restraint at the central level since a unified trade union movement (or key groups in the labour market) consider that their wage claims will influence other wages and therefore consumer prices. High central pay awards cause substantial wage drift and thus large price increases for consumers (Moene, Wallerstein and Hoel, 1993, pp. 76-80, and Calmfors, 1993b, pp. 15-16). A similar mechanism is excluded in the Rehn-Meidner model, in which wage drift is a prime driving force, *inter alia* through guiding central agreements, and central wage restraint makes room for further wage drift. In addition, the assumption that wage earners are concerned about relative wages (and functional income distribution) given the productivity development is fundamental to the Rehn-Meidner model. Thus, the (expectations of) real wages (after tax) has no impact on central wage claims in the model.

A common conclusion in both the Rehn-Meidner and the trade union models is that co-ordinated wage bargaining will not necessarily lead to wage restraint. In trade union models, the larger possibilities of internalising relative-wage preferences can be counterbalanced by the mitigation of wage competition between workers who are substitutes in production (Calmfors and Forslund, 1990, and Uddén-Jondal, 1993). A similar wage pressure will, *ceteris paribus*, develop in the Rehn-Meidner

model when trade unions co-operate. But where modern trade union theorists emphasise that positive externalities can be internalised when wage claims are co-ordinated, the model assumes (like bargaining models) that unity makes the labour movement stronger.

The efficiency wage theory and the Rehn-Meidner model share the idea that wage increases are initiated by employers. Another common characteristic, taking the X-inefficiency version of the Rehn-Meidner model into account, is that wages may rise above the competitive equilibrium level (see Yellen, 1984). Yet the differences between the theories are evident. There is no analogy in the Rehn-Meidner model to the efficiency wage hypothesis that higher wages will spur employee efforts and improve the average quality of job applicants (adverse selection). In the X-inefficiency version of the Rehn-Meidner model higher wages are consequences of an inefficient behaviour on the part of employers; they are not a stimulus to more efficient performance.

Comparisons between the efficiency-wage theory and the Swedish model are complicated by the fact that the former theory is sometimes integrated with the theory of fair wages. Thus, some efficiency-wage models are based on relative-wage rather than real-wage targets (Summers, 1988, Akerlof and Yellen, 1990, and Agell, 1999). The integration is not always obvious. The Swedish model illustrates that relative wage preferences can be analysed without taking notice of a positive relationship between wages—relative or real—and efforts. This is one of the reasons why the model's view of wage equality is different. In the fair wage-effort theory, a compression of wages for skilled and unskilled labour may coincide with the interests of individual firms (with profit maximization) as employee efforts depend on the wage received by other employees in the same firm (Akerlof and Yellen, 1990, pp. 272-276). In the Swedish model, similar wage compression is not advocated by profit-maximizing firms and not even by co-operating trade unions unless existing wage structures are perceived as too distorted by customs or short-run market conditions. In fact, attempts to realise a relative wage preference are a threat to a fair wage policy in the Swedish model.

In the following, I will relate some of the propositions in the Rehn-Meidner model to predominant views in modern economics. To substantiate this examination, I will also relate them to the results of empirical studies that have been carried out, particularly in the 1980s and 1990s (not all of which, however, refer directly to the Rehn-Meidner model). My focus is on studies of Sweden, where the empirical literature is voluminous. The aim is to illustrate whether or not the Rehn-Meidner model has been confirmed. The results of this assessment should not be

taken too literally, however. At most they can give a rough indication of the relevance of the model.

It is beyond the scope of this work to relate all of the model's propositions to modern economics. At the risk of presenting an incomplete picture, I have opted to limit my presentation to a small number of central hypotheses that are regarded as controversial in the modern economic literature. The choice of propositions is also governed by my own professional interests.

My evaluation of the Rehn-Meidner model is thus based on six propositions concerning the functioning of labour and product markets and the outcomes of economic and wage policies. Three of these (nos. 3, 5 and 6) although often associated with the Swedish model have a dubious place in it. They have therefore been modified to give a more representative picture of the model.

3.1. The relationship between profits and wages

Proposition 1: Actual profits or profit margins are strategic variables in wage formation as they are both indicators of the expected profitability of recruiting labour and basic determinants per se of companies' ability and willingness to offer higher wages.

Proposition 1 expresses the central position of profits in the Rehn-Meidner model. Wage drift is boosted by high expected profits and by high actual profits. Actual profits are not in fact determinants of expected profits in the model. Instead, they are in themselves central driving forces behind wage drift as well as approximations of the expected profits from hiring labour.

The hypothesis of a positive relationship between profits and wages is basically formulated for a competitive labour market in the Rehn-Meidner model. Higher prices and marginal productivities lead to positive marginal profits at the initial wage rate which in turn will stimulate labour demand. This marginal productivity theory can be extended to take account of the degree of monopoly in *product* markets and also of a possible positive relationship between average profits and firms' competition for labour (see subsection 2.1). Wages (and employment) are then determined at the intersection of labour demand and labour supply.

The use of the notion 'competitive' to characterise the Rehn-Meidner wage model shall not hide that there are some 'wage-setting' elements

and departures from profit maximisation in the model. Wages can be higher than the market-clearing ones due to relative wage preferences, labour market policy and X-inefficiencies. In the latter case, companies may initiate wage increases that are not induced by higher labour demand. Employees will be rewarded in excess of their (marginal) value productivity when profits are high. Further, central agreements and the balance of power between organised labour and employers are important wage determinants in the Rehn-Meidner model (regardless of being conditional for solidaristic wage policy).

But these phenomena do not challenge the fundamental competitive nature of the Rehn-Meidner wage model. Relative wage preferences are primarily of interest in the phase where (competitive) wage drift is imitated by collective wage increases. Hence, central wage negotiations are elements in a catch-up process rather than driving forces *per se* in the Rehn-Meidner model (see 3.2 below). In fact, trade-union strength primarily determines the possibilities for 'collective' wage earners to get the same wage increases as wage earners in competitive labour markets.
Labour market policy is a policy parameter, not a fundamental part of the Rehn-Meidner wage model. The policy will be applied in a recession when labour demand, by some reason, falls short of labour supply. The policy will be practised in a recovery as well but here, the wage-setting aspects are not decisive according to the model (see 2.6).

The X-inefficiency theory is, in spite of all, not a basic element of the Rehn-Meidner model. In the first place, profits are arguments in a labour-demand function whether the effects of marginal or average profits are emphasised. However, I have attributed to the model an assumption that relative wage preferences are easier to satisfy if firms are X-inefficient.

Wages can be influenced by solidaristic wage policy in the Rehn-Meidner model. In fact, proposition 1 is even rejected in the case of solidaristic wage policy. But the model assumes that market forces are powerful even in economies with central wage negotiations. The incentives for dynamic industries or firms to offer higher wages are not weakened by solidaristic wage policy. The policy will even raise their financial ability to pay higher wages (see subsection 1.2). Besides, market rigidities can explain a short-run relation between labour demand and wages in countries with wage solidarity.

3.1.1. Profits in the Rehn-Meidner and in other wage theories

In bargaining theories, competitive labour markets are mostly ignored or seen as secondary features of the economy (Layard and Nickell, 1990, p.

778). The focus is on trade unions or on wage earners with an insider status in labour markets. Wages in the firms are often determined in a so-called Nash equilibrium by profits, outside income opportunities and by the bargaining power of labour in institutional or social terms.[37] Outside income opportunities is determined in turn by the rate of unemployment, the going wage in other sectors of the economy and by unemployment benefits; labour market policy is added or substituted for unemployment benefits in some bargaining models. Outside wages are often omitted since they are identical to wages in individual firms in a state of general equilibrium (Mac Donald and Suen, 1992, Christofides and Oswald, 1992, Lindbeck, 1993, and Blanchflower, Oswald and Sanfey, 1996).

The wage determination in the bargaining theory is shown in *Figure 4*. W is the nominal wage rate and L the employment level. D is labour demand of identical firms determined positively by (marginal) value productivity and negatively by the degree of monopoly. (The demand curve slopes downward since a decreasing physical marginal productivity is not supposed to be fully counterbalanced by counter-cyclical mark ups.) L^S is labour supply which is assumed to be given (completely inelastic). W(L) is the wage-setting curve. Wages is assumed to be a positive function of employment when labour supply is given, thus a negative function of the rate of unemployment. Wage claims will be raised if unemployment benefits or profits become higher.

If firms alone make decisions on employment, L is determined by the labour demand curve given the bargaining wage rate. In equilibrium, nominal wages and employment are equal to W* and L* respectively and the rate of unemployment is equal to u*.

The main difference between bargaining models and the Rehn-Meidner model concerns their views of profits in wage formation. Wages can be stimulated by marginal profits in both models (see the labour-demand function in *Figure 4*). Further, in bargaining models, exactly as in the Rehn-Meidner model, high average profits result in high wages. But in bargaining models, a positive relationship between average profits (actual or expected) and wages reflects some form of rent-sharing.[38]

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[37] In a Nash equilibrium, the choices of all actors are optimal given the choice of other actors.

In one bargaining model a positive relationship between profits and wages is explained by the fact that the position of trade unions is strengthened (weakened) by high (low) profits (see Christofides and Oswald, 1992, p. 988).

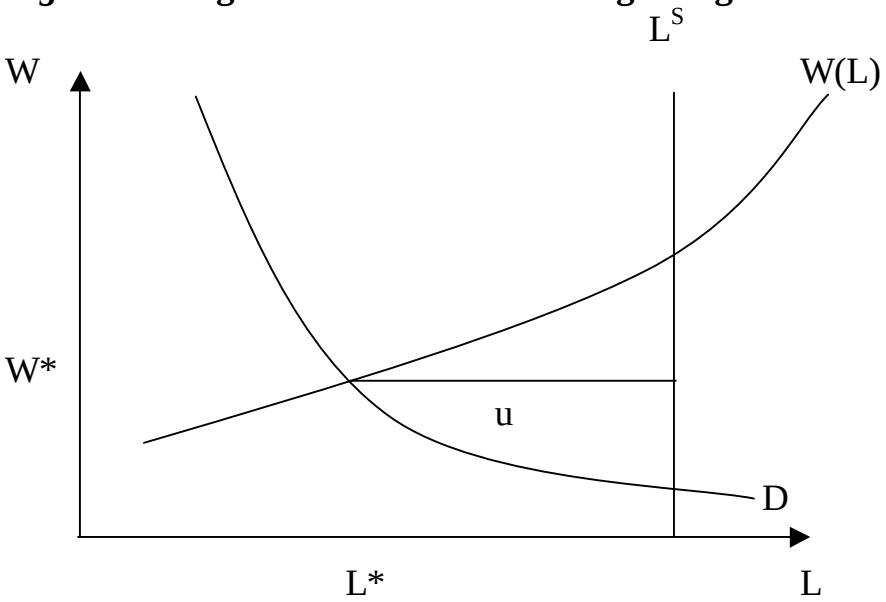
[38] In some versions of the bargaining theory the relation emerges through the prevalence of risk-sharing. Profits and wages are positively correlated since both workers and firms are risk averse; the two parties share the gains in good times and

Higher average profits lead to a shift upward in the wage-setting function.

In the Rehn-Meidner model, firms are the only active agents behind a relationship between average profits and wages. High profits result in frivolous wage offers but also in greater possibilities of self-financing investments and of preventing indispensable labour from being attracted away by higher wage offers from expanding firms. These phenomena are not represented by a shift upward in the wage-setting curve. A stable relationship between profits and wages is possible in the Rehn-Meidner model, see the X-inefficiency mechanism. However, wage increases are initiated here by companies, they are not the result of a contractual arrangement between employers and employees. Hence, the bargaining theory does not satisfy the second part of proposition 1.

George Akerlof and Janet Yellen assume in their efficiency wage theory that wages are permanently higher in firms with higher profits. But the explanation differs from those in the Rehn-Meidner and bargaining models. According to Akerlof and Yellen, higher profits accruing to the firms' owners will provoke higher wage claims. These claims can also be satisfied, as employers are afraid that workers otherwise will punish them by putting in less effort (Akerlof and Yellen, 1990, pp. 268-269).

Figure 4: **Wage determination in a bargaining model**



the losses in bad times (Blanchflower, Oswald and Sanfey, 1996, pp. 229-230).

The efficiency wage theory above is incompatible with the Rehn-Meidner model as the theory assumes that higher profits will result in higher wage claims—firms are the only actors behind a relationship between independent profits and dependent wages according to proposition 1. The difficulty is of course in discriminating between the efficiency wage, bargaining and Rehn-Meidner theories when such a relationship has been discovered.[39]

But the positive relation between profits and wages is not a one-way causality in the efficiency wage theory—higher wages will also result in higher (expected) profits as long as the (expected) positive productivity effects are larger than the negative cost effects. In the Rehn-Meidner model on the other hand, higher wages due to higher labour demand will eliminate positive marginal profits and reduce average profitability, possibly to its initial rate.

The interrelationships between profits and wages can in principle be settled by a time series analysis. An observation that profits (and labour's productivity) are stimulated by high wages might be seen as support for the efficiency wage theory at the expense of the Rehn-Meidner model (and the rent-sharing theory).

But a positive relationship between independent wages (real or relative) and dependent profitability may reflect other mechanisms than the one in the efficiency wage theory. For instance, high real wages may speed up the introduction of labour-saving techniques. This possibility is emphasised in the long-run version of the Rehn-Meidner model. Moreover, an observation that long-run profits are stimulated by high wages may confirm the theory of 'transformation pressure', a crucial element of the Rehn-Meidner model. Higher nominal wages will certainly lead to a profit decline in the short run. But the decline may increase firms' incentives (and also capabilities) to raise total factor productivity and profits in the long run (see proposition 6 below).

3.1.2. Aggregate time series analysis of Swedish wage formation

The role of profits has been focused upon in many wage studies of Sweden in the post-war period. Most studies of wage drift or total wage increases up to the 1990s were based on aggregate time series data. The theoretical framework was eclectic or defined by the bargaining theory,

[39] A complicating circumstance is that in some of their work Rehn and Meidner support a theory that high profits and dividends will induce wage claims on equity grounds, cf. footnote 13.

the closely related trade union theory, the marginal productivity theory, or the theory of real-wage targets (legitimising the inclusion of price or income-tax variables in the wage function).

These studies, including Rehn's in co-operation with Bent Hansen, have generally emphasised the importance of labour market conditions and diluted the importance of profits and profit margins or (value) productivity in the short run (see for instance Schager, 1981, pp. 396-402, Öhman, 1982, pp. 52-54, Bosworth and Lawrence, 1987, pp. 22-54, and Flanagan, 1990, p. 408). The relation between profits and wage increases is not even significant in all studies. In some comparative studies of wage developments in the OECD countries (including Sweden) from the early 1960s to the late 1980s, profit variables were simply ignored (Johnson and Layard, 1986, pp. 980-985, and Poret, 1990).

However, the Rehn-Meidner model is not really challenged by empirical studies showing that labour market conditions, not profits, are decisive for wage development. Proposition 1 says that the profit situation may indicate the current state of labour demand (given the level of wage claims). In this perspective, it would be legitimate to simply measure labour demand by a profit variable. In a study of wage drift in Swedish manufacturing between 1964 and 1986, Nils Henrik Schager measured labour shortage as a product of the profit margin and the number of residual vacancies, where the actual profit margin approximated the additional return of taking on a new employee. The resulting variable explains almost all the wage drift in Swedish manufacturing (Schager, 1988a, and 1988b).[40]

Schager did not clarify whether actual profit margins are in themselves determinants of labour demand (and therefore of wage drift) rather than proxies of the return on hiring more labour. But a possible conclusion that actual profits are strategic determinants of wage drift in Swedish manufacturing is not critical for the Rehn-Meidner model. Wages are a positive function of actual profits or profit margins *per se* according to the second part of proposition 1. In fact, the credibility of the Swedish policy model will increase if actual profits are decisive for wage drift (cf. 2.1).

[40] Schager's study is similar to (Hansen and Rehn, 1956) by its inclusion of both profit margins and labour-market indicators in the wage-drift function. In my interpretation of the Rehn-Meidner model, profit margins represent the total marginal profits from hiring more labour. In this perspective, the explanations of wage drift in terms of profit margins and residual vacancies overlap—marginal profits reflect labour demand while the number of residual vacant jobs is a function of both demand and supply conditions.

The poor explanatory power of profits in most aggregate wage studies of Sweden is not a strong argument against a theory that actual profits matter. High actual profits may lead to high nominal wage increases by stimulating labour demand. The relationship is probably underestimated in studies where wages are seen as determined by labour market conditions. The statistical difficulties of discriminating between the theories that wage increases are caused by expected and actual profits are monumental.

In any case, the proposition that profits are important for wages in countries like Sweden has not yet been rejected convincingly by aggregate time series studies. In fact, the emphasis on labour market conditions in many studies supports the Rehn-Meidner theory rather than its rivals in the modern wage literature. But it is too early to declare the survival of the Rehn-Meidner wage model. The model's view of the wage formation process has been questioned not only on theoretical but also on empirical grounds in the 1990s.

3.1.3. Wage differentials between industries

The relationship between profits and wages has predominantly been analysed in the 1990s using trade union and bargaining models, and empiri-cal conclusions have mostly been based on industry comparisons rather than on aggregate time series analysis.

Numerous regression studies of wage differentials between firms and industries have addressed the question of whether or not labour markets are competitive. Most empirical work from the post-war period reject the hypothesis of competitive labour markets. They often refer to a positive correlation or a direct causality between employers' ability to pay (firm performance) and wages. The empirical findings in the 1990s have primarily been seen as a confirmation of the rent-sharing hypothesis (see for instance Cristofides and Oswald, 1992, and Blanchflower, Oswald and Sanfey, 1996). Employers' ability to pay is commonly indicated by average value productivity, the rate of return on equity or the ratio of profits to employment in selected industries. Most studies make adjustments for personal and industrial characteristics. For instance, wage differentials between firms and industries are compatible with competitive labour markets if labour is heterogeneous.

However, the existence of a positive correlation between profitability and wages is not a strong argument against a competitive labour market model. On the contrary, profits play the main role in wage formation according to proposition 1. A *long-run* correlation is what might shed doubts on a competitive model (Blanchflower *et al*, 1996, pp. 228-229, and Holmlund

and Zetterberg, 1991, p. 1011). [41] Wage gaps between firms and sectors because of differences in profitability are eliminated by labour mobility in competitive labour markets.

For U.S. manufacturing in 1964-1985, Blanchflower *et al* discovered a strong positive (delayed) relationship in steady state between profit-per-employee in industries (on the two-digit level) and wages. The study covered both unionised and non-unionised industries (Blanchflower *et al*, 1996, pp. 230-238). The long-run relationship between profits and wages in U.S. manufacturing was distinguished by the inclusion of a lagged dependent variable and also of a set of current and lagged employment variables (see also Holmlund and Zetterberg, 1991, pp. 1020-1026). Blanchflower *et al* draw the conclusion that the persistent relationship between profits and wages is hardly compatible with a competitive model.

Hence, rent-sharing models seem to have won the day over competitive wage models, at least in the United States. But the empirical results may reflect the difficulties of adjusting wage differentials for personal and industrial characteristics, profit shocks, and slow adaptation processes in labour markets. Further, a stable relationship between profits and wages may reflect other mechanisms than rent sharing, for example that high profits result in easy-going wage offers as in the Rehn-Meidner model.

Both the Rehn-Meidner model and the bargaining model expect a positive relationship between profits and wages even if their explanations differ and the Rehn-Meidner model leaves small room for a stable relation (see the X-inefficiency theory). Both models also expect profits to have a weak impact on wages in countries with centrally determined wage norms such as solidaristic wage policy.

Bertil Holmlund and Johnny Zetterberg have analysed wage differences among 28 manufacturing industries in Sweden, Norway, Finland, Germany and the United States from the early 1960s to the mid-1980s. In Sweden, real labour productivity and (relative) prices had a significantly positive effect on industrial real wages (after tax). However, the long-run effect was weak (and even insignificant where prices are

[41] Another objection in Blanchflower *et al* (1996) to earlier studies concerns their focus on unionised sectors; it is hardly illuminating to show that non-market forces determine wages in organised sectors. The objection is not obvious—wage drift may be important even in unionised sectors and even with centralised bargaining. A more serious criticism of the wage studies above can be formulated. A positive correlation between profits and wages in unionised sectors may not confirm the rent-sharing theory, but may reflect, as in the Rehn-Meidner model, that high profits lead to high wage drift, which in turn induces collective wage increases. Further, high profits may increase collective wage imitation *per se* as they make it easier to satisfy a relative-wage preference (see further above).

concerned), particularly compared with the United States (Holmlund and Zetterberg, 1991). An analogous study of Sweden in the 1984-1988 period by Anders Forslund showed similar results. In fact, Forslund had difficulties in distinguishing any significant relation at all between nominal productivity and (real) wages (Forslund, 1994a. See also Forslund, 1994b, which unveils a significant, although weak, relation between nominal productivity and wages in the Swedish business sector).[42]

Holmlund and Zetterberg draw the conclusion that wage policies in countries with centralised bargaining have been effective—"Centralization in the Nordic countries does not seem to be just an institutional façade" (Holmlund and Zetterberg, 1991, p. 1028). The Holmlund-Zetterberg and Forslund studies confirm the assumption in the Rehn-Meidner model that solidaristic wage policy will reinforce or reproduce the tendency towards a weak relation between profits and wages in competitive labour markets. The role of central bargaining and wage policies for the sharp reduction in wage spread in Sweden in the 1960s and the 1970s is stressed in empirical research. Smaller wage differentials manifested not only the principle of equal pay for equal work in different industries and plants as in the Rehn-Meidner model, but also a policy of wage equalisation in general (Johansson and Siven, 1984, Erixon, 1984, Pissarides and Moghadam, 1990, Hibbs and Locking, 1991, Nilsson, 1993, Arai, 1994, Hibbs and Locking, 1995, and Edin and Topel, 1997).

Holmlund's updated and extended version of the Holmlund-Zetterberg study confirms the picture of a weak relationship between firm performance and wages in Sweden. However, the relation has been strengthened somewhat since 1983, when wage bargaining in Sweden became more decentralised. Besides, profit margins had a positive and sizeable effect on wages for white-collar workers in 1993 and 1994 according to Holmlund's study of 90 industries in mining and manufacturing (Holmlund, 1997).

The assertion that central norms have been decisive for the wage structure in Sweden may seem inconsistent with a model that pronounces competitive forces decisive. But labour mobility is conditional for solidaristic wage policy in the Rehn-Meidner model. Labour market flexibility was relatively high in Sweden in the years of solidaristic wage policy, even if the importance of labour market policy should not be

[42] The Swedish National Industrial Board (SIND) has shown that there was no correlation between wages and firms' average value productivity or profitability in the Swedish business sector from the late 1960s to the early 1980s (see Faxén, Odhner and Spånt, 1988, pp. 50-51 and 216-218).

exaggerated (Edin and Topel, 1997, pp. 164-167). Further, Swedish wage policy may have been backed up by specific labour-supply conditions. Wage increases in dynamic firms and industries in Sweden in the 1960s and the 1970s were moderated by extensive immigration and higher female work participation. No systematic empirical work has yet been done on the importance of labour market policies and labour supply conditions for the compressed wage structure in Sweden.

The observations, in spite of all, of a short-run relationship between the ability to pay and wages in Sweden (see the Holmberg-Zetterberg study in particular) seem to reject the Rehn-Meidner model, where profit-induced wage differentials are prevented by solidaristic wage policy. But the model emphasises the importance of market forces even in countries with central wage bargaining, particularly in the short run.

There is a risk that the importance of profit and (value) productivity variables, and therefore of competitive (and risk-sharing) models, has been underestimated in the Swedish studies above. The role of profits may be underestimated in studies that ignore wage bargaining at local levels.
A study of hourly wage differences in the Swedish private business sector by Mahmood Arai, based on a unique set of firm data and panel data for workers, shows a long-run positive relationship between profits (in relation to employment) and hourly wages around 1990. The relation was stronger than in Holmlund's study, although weaker than shown by analogous studies of the United States. Arai's study indicates that approximately 80 per cent of the rents appeared within industries, also that the profit-wage relation is not restricted to white-collar workers (Arai, 1999).

The Rehn-Meidner model seems seriously hurt by Arai's study, since the role of both competitive forces and solidaristic wage policy is toned down. But his empirical results are compatible with Holmlund's conclusion that the importance of central wage norms has been weakened in Sweden. Further, Arai's study does not convincingly exclude the possibility that wage differentials between firms reflect transitory rather than permanent profit differentials.[43] Neither does the study (and the similar foreign studies) automatically confirm the rent-sharing theory rather than other theories of a long-run relationship

[43] The study is based on estimations of average annual profits 1987-1991. The period was one of extreme overheating in some Swedish industries, thus profit differentials hardly reflect any long-run relations. Arai made an adjustment for short-run frictions by the account of changes in employment in the firms (Arai, 1999, pp. 14-15, see also Blanchflower *et al*, 1996). The relationship between profits and wages was not altered at all by the adjustment. However, employment is a crude indicator of labour demand in comparison to, for instance, the number of vacancies.

between profits and wages.

In the following I will summarise the empirical studies of wage differentials between industries and firms and their relation to the Rehn-Meidner model. The empirical results are ambiguous but so is the Rehn-Meidner model. The model emphasises the effects of firm performance but also of 'policy interventions' such as solidaristic wage policy and of deviations from profit maximization in the form of X-inefficiencies.

The Rehn-Meidner model is confirmed by the fact that central norms seem to have been important for wage differentials in Sweden in the post-war period. Further, from the angle of the Rehn-Meidner model it was expected that profits would have a stronger influence on wage differences from the mid-1980s when the bargaining process became more decentralised. The Rehn-Meidner model is also verified by the observation of a short-run relationship between profitability and wages in Sweden and in other countries, as market-driving forces are fundamental to the model. But indications of a long-run relationship, even in Sweden, restrict the validity of the model, which at bottom is a competitive model or a model of solidaristic wages. A possible defence of the Swedish model is that wage offers can be X-inefficient. A stable relationship between profitability and wages does not necessarily mean support for the rent-sharing theory.

Research has not yet succeeded in giving a full explanation of the convergence of wages in Sweden from the early 1960s to the early 1980s or the divergence of wages since then. Swedish economists tend to emphasise the occurrence of a structural shift when wage bargaining became more decentralised in the mid-1980s. But it remains to compare this explanation with one that stresses the effects of larger profit differentials *per se*. Wage relations may have widened through the combined effect of macroeconomic shocks (*inter alia* devaluations and depreciations of the SEK) and growing difficulties for wage earners to compensate for wage drift (primarily through higher unemployment). The explanation accords with the Rehn-Meidner description of the wage process in a 'free' market system.

3.1.4. The relevance of the efficiency-wage theory

The indications of a stable positive relationship between independent profits and dependent wages (see above) may confirm the efficiency-wage theory rather than the rent-sharing and Rehn-Meidner (X-inefficiency) theories. But the rent-sharing interpretation is favoured in the empirical literature. Further, no time series analysis have yet been made to test the

efficiency-wage hypothesis about a reciprocal positive relationship between profits and wages.

On the other hand, the efficiency wage theory has been verified by field studies and experiments (see Bewley, 1998, Agell, 1999, F144-F147, Agell and Lundborg, 1999, Fehr and Falk, 1998, and Fehr, Kirchsteiger and Riedl, 1993). The studies are primarily concerned with the question of downward wage rigidity, where firms avoid absolute wage reductions for fear that wage cuts will induce unproductive behaviour. Besides, the empirical results are often seen as a confirmation of the fair wage-effort hypothesis. Hence, there is seldom any discussion of the wage effects of relative-wage preferences *per se*, i.e. without any reference to work morale,[44] or of the possibility that employers' acceptance of such preferences might reflect an inefficient behaviour.

More elaborate interviews and experiments are needed to discriminate between competitive and non-competitive wage theories, but also between the efficiency wage and X-inefficiency theories. A field study may show that firms' willingness and ability to pay 'fair wages' are raised by high actual profits. The observation is compatible with the efficiency wage theory but also with the X-inefficiency theory. The difficulty is to decide which theory is the most relevant one. A complication here is that higher rewards to employees aimed at establishing more harmonious labour relations can be viewed as measures to raise productivity but also as an indication of production slack. In any event, the declaration that the efficiency wage theory is more valid than other wage theories would be too hasty.

3.2. The relation between wage drift and collective wage increases

Proposition 2: Collective wage formation is secondary to competitive wage formation even in countries with strong trade unions.

Central wage increases are a positive function of wage drift in the Rehn-Meidner model. Wage drift in turn is determined by labour market conditions. The model does not exclude a converse relationship between wage drift and collective agreements that may be either positive or negative. Collective wage increases may contribute to a wage-wage spiral if relative wage preferences prevail or lead to lower wage drift if

[44] (Agell and Lundborg, 1999) is an exception here.

the reduction in actual profits is decisive. However, the positive effect of wage drift on centrally negotiated wages is the predominant one in the Rehn-Meidner model.

Bargaining theorists often neglect competitive forces in wage formation. But they seem to be important, even in 'corporate' countries such as Sweden. Wage drift accounts for about half the total post-war increases in blue-collar workers' wages in Swedish manufacturing (Calmfors and Forslund, 1990, pp. 91-92, Holmlund and Zetterberg, 1991, p. 1012, and Nilsson, 1994, p. 9).

There are bargaining (and trade union) theories that take wage drift into account. A basic assumption here is that the relationship between central wage agreements and wage drift is negative. One explanation is that high (anticipated) wage drift is deducted in central wage negotiations. Another explanation is that wage drift is the market's correction of central agreements. Significant central wage increases will, at least partially, be compensated by lower wage drift since excess demand situations become less likely. However, the interest in relative wages will tend to act as a counterweight. High central wage increases will, all else being equal, result in greater wage drift. The assumption must be made that wage drift and collective wage increases are distributed unevenly among wage earners with different skills or workplaces (Holmlund and Skedinger, 1990, and Calmfors, 1993a, pp. 64-65).

Thus, in the bargaining theory, wage drift is not a stimulus to central wage increases as in the Rehn-Meidner model. On the contrary, wage drift has a negative impact on central wages. The relationship may even be the converse in bargaining models, that wage drift is determined by collective wage agreements. The Rehn-Meidner model does not exclude such a converse relationship. Besides, the models share in common that the effects of central wage increases on wage drift are ambiguous and that the positive effects are explained by relative wage preferences. The suggested mechanisms behind a negative relationship are different, however. In the bargaining theory, central wage increases are considered in individual negotiations. In the Rehn-Meidner model, high central wages will reduce the financial possibilities for firms to compete for labour or their willingness to offer undeserved wage increases to individuals.[45]

The theoretical differences between the Rehn-Meidner model and

[45] However, the theory that wage drift is a market adjustment to the results of central negotiations is compatible with the Swedish model. The model emphasises that dynamic firms have incentives to circumvent a policy of fair wages (see 1.2).

modern bargaining theory can be used as a reference point for a survey of empirical studies on wage formation in Sweden. Schager's econometric study of wage formation in Swedish manufacturing shows that the wage increases set out in central agreements are determined by the previous year's wage drift (Schager, 1988a and 1988b). The study thus confirms the Rehn-Meidner model's dynamic description of the Swedish labour market.[46]

Other studies have produced different conclusions. According to a study by Robert J. Flanagan, wage drift had no effect at all on central agreements in Sweden in 1964-1983 (Flanagan, 1990). A study very similar to Flanagan's carried out by Douglas A. Hibbs and Håkan Locking even uncovered a negative relationship in 1972-1982. Negotiated wage increases in the area covered by LO-SAF agreements were one per cent higher when wage drift fell by one per cent. This relationship was stronger than all other relationships in the central wage equation (Hibbs and Locking, 1991).

The Flanagan and Hibbs-Locking studies are not based on a dynamic model like Schager's. The simultaneous occurrence of a low level of wage drift and large central wage increases may reflect that the latter is caused by high wage drift in an earlier period. Besides, the absence of a positive relationship between independent wage drift and dependent central wage increases in the Flanagan and Hibbs-Locking studies can be explained by the inclusion of different labour market indicators in the central wage equations (Flanagan, 1990, pp. 405-407, and Hibbs and Locking, 1991, table 1a). According to the Rehn-Meidner model, the most important cause of wage drift is the labour market situation.

Bertil Holmlund's and Per Skedinger's study of regional wage drift in the Swedish wood industry shows that high negotiated wage increases are compensated by moderate wage drift (Holmlund and Skedinger, 1990).[47] These results were confirmed by Hibbs' and Locking's aggregate study of wage drift in the LO-SAF area (Hibbs and Locking, 1991, table 1b).

The Rehn-Meidner model does not preclude that high collective wage increases may reduce the pace of wage drift.[48] But it remains to be

[46] In Schager's study, there was not even a significant effect of centrally negotiated wage increases on wage drift or of profit margins on central wage increases in the same period (quarter) (Schager, 1988b, pp. 22 and 27-28). Such relationships are possible, although not fundamental, in the Rehn-Meidner model.

[47] Relative wage preferences were considered in Holmlund's and Skedinger's study. Wage drift in the Swedish wood industry was a positive function of wages in the sector or alternatively, in the industry as a whole in the region (real wages after tax).

[48] But the model is not confirmed by the conclusion in the Hibbs-Locking study that

investigated whether the underlying mechanism is the one in the model or the one in the bargaining theory.

The econometric studies presented above illustrate the difficulties of discriminating between the bargaining-theory and Rehn-Meidner views of wage formation. The difficulties arise from the fact that labour market conditions are important determinants of central wages in bargaining models but of both wage drift, which sets the framework for central wage negotiations, and of collective labour strength in the Rehn-Meidner model. Such difficulties can only be reduced by the use of a dynamic regression model. Schager's study is probably based on less reliable data compared with later studies. But my preliminary assessment is that his model is the most reasonable one for Sweden and that empirical studies therefore have supported the Rehn-Meidner model.[49]

3.3. Is labour market policy inflationary?

Proposition 3: Labour market policy is less inflationary than an expansive economic policy to achieve full employment.

In the early 1990s, there was a heated debate among Sweden's economists about the effects of labour market policy on (real or product) wages and prices (see e.g. Calmfors and Holmlund, 1991, and Bergström and Löfgren, 1991). Most studies of Sweden indicate that wage increases are higher in a situation where a fall in labour demand is countered by measures introduced by the Labour Market Board (AMS) than one where there is an increase in open unemployment. (Holmlund, 1990, Calmfors and Forslund, 1990, and Calmfors, 1993a).

The critics of labour market policy emphasised that the programmes, considered as near substitutes to regular employment, would raise wage claims by individuals or trade unions—participators in labour market programmes may gain higher economic compensation (and intangible benefits) than unemployed persons. Participation in a programme rather

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collective wage increases have a stronger effect on wage drift than labour market conditions. However, the impact of labour market conditions on wage drift is probably underestimated in the Hibbs-Locking study by their inclusion of a central-wage variable. Besides, the study may have captured a correlation rather than a causality (see the comments on the central-wage functions above.)

[49] Studies showing that the competitive sector, not the sheltered one (including the public sector), is the wage leader in Sweden offers an indirect support to proposition 2 (Holmlund, 1990, and Warginger, 1992).

than being unemployed may also reduce the intensity of job search. In bargaining and trade union models, the reduction in welfare losses from being laid off and the weakening of search efforts will lead to upward shifts in the wage-setting curve.[50]

Economists who maintain that labour market policy is inflationary have been criticised for their failure to regard the considerable variation between different measures and between different groups in the labour market; relief work (and passive assistance) is indeed inflationary unless accompanied by temporal and spatial limitations. But measures targeting *marginal* groups (women, older people, young people and people with occupational handicaps) and the long-term unemployed appear to have an insignificant effect (or no effect at all) on the rate of inflation (SOU, 1993:43, Ch. 7).

In fact, the critics of labour market policies admit, on both theoretical and empirical grounds, that the wage-raising effects from some labour market programmes, for example retraining and targeting measures, may be weak or even negative (Forslund, 1994b, Calmfors and Skedinger, 1995, and Calmfors, 1995). They have presented labour market policy models showing that the effects on both labour-demand and wage-setting functions are ambiguous (Calmfors and Skedinger, 1995, pp. 94-97). In Sweden, the economic compensation for retraining schemes is equal to unemployment compensation for trade union members. In consequence, welfare losses of being laid off are not avoided by participating in training programmes, which will maintain the incentives for wage moderation. However, the critics maintain on empirical grounds that labour market policy as a whole serves to push up wages, although with the reservation that all studies of Sweden have not shown a significant relationship (Calmfors and Forslund, 1993 and Forslund, 1994a).[51] The critics' view is supported by a study of (product) wages in the 1965-1998 period, particularly if the total number of participators in labour market

[50] From a search-model perspective, labour-market programmes will alleviate wage competition by reducing the number of job applicants or the intensity of job search (cf. Schager, 1988b).

[51] A pooled cross-section and time series analysis of wage drift for blue-collar workers in Swedish engineering industry did not show a positive relationship between relief work and wages. Moreover, labour market training programmes have led to a significant *decrease* in wage drift (Edin, Holmlund and Östros, 1994). No definite answer was given to the question of why the study gave another empirical picture than other studies. Moreover, the suggested explanations as to why wage pressure is moderated by manpower training programmes are hardly convincing (see Edin *et al.,* 1994, pp. 22-24). The skill-enhancing effects of labour market training were not estimated in the study.

programmes is related to the number of persons in the labour force without regular jobs (Johansson, Lundborg and Zetterberg, 1999, pp. 54-62).

The Rehn-Meidner model does not dispute that labour market policy results in higher wages when compared with an open unemployment situation. The policy creates a labour shortage and therefore counteracts its own tendency to limit the rate of wage increase through greater mobility in the labour market. In fact, the dominance of the labour shortage effect on wages is a necessary condition to keep the profit share down in the medium term.

A possible defence of the Swedish model is that selective measures are less inflationary than general measures to raise aggregate demand (see proposition 3). Labour market policy may be inflationary in itself but it results in lower pay rises and inflation than does a Keynesian policy aimed at achieving full employment.

Studies of (product) wages in Sweden have actually been carried out on the effects of labour market policy compared with regular employment. In one of the studies it was assumed that labour market policy creates higher wage increases than an increase in regular employment (for instance through an increase in aggregate demand). Labour market policy measures result in an immediate fall in open unemployment while a rapid change from unemployment to regular employment is prevented by the lack of mobility and information in the labour market. Higher frictional unemployment because of an increase in aggregate employment has a decisive effect on wage development, unlike the stimuli of labour market flexibility related to labour market policy. The study shows that open unemployment has a strongly negative effect and labour market policy a strongly positive effect on wages (Calmfors and Forslund, 1991).

The explanation above as to why labour market policy programmes are more inflationary than regular employment is a bit strained. Further, tests of wage equations with open unemployment and labour market policy as independent variables are beset by a series of problems due to reciprocal relationships between the variables. (Labour market policy measures may reduce unemployment but are also induced by unemployment.) Some of the problems could have been avoided in the study above if indicators of aggregate demand had been included in the wage equation. This kind of study would probably have demonstrated a positive relationship between aggregate employment and wages and a weaker positive relationship between labour market policy and wages (cf. Erixon, 1987, pp. 199 and 248).

But more important, the Rehn-Meidner model is not really challenged by studies that reject proposition 3. Rehn and Meidner did not deny that labour market policy could be at least as inflationary as an expansive general economic policy to obtain full employment. Their recommendation was to combine labour market policy with a restrictive fiscal policy. The central question is whether this policy mixture to attain full employment without inflation is more effective than a strategy where an expansive economic policy is combined with price controls and incomes policy measures. The qualification of proposition 3 below unveils the real core of the Rehn-Meidner inflation theory.

Proposition 3': The combination of labour market policy and a restrictive general economic policy will result in a better trade-off between employment and inflation than the combination of an expansive general economic policy and incomes policy.

Proposition 3' is a reasonable one from the viewpoint of modern economics. However, no systematic attempts have been made to test this hypothesis. Sweden would have been a good test case since the country has experienced radical switches between the two policy strategies in the post-war period.

The Swedish experience in the light of proposition 3' is discussed in Erixon (2000). My cautious conclusion here is that the Swedish case has not refuted the Rehn-Meidner view that the combination of labour market policy measures and a restrictive general economic policy result in a better trade-off between inflation and unemployment than the strategy of expansive general economic policy together with incomes policy. But proposition 3' must be tested more rigorously. For instance, both aggregate demand and the character and size of labour market programmes must be considered, together with dummy income-policy variables, when wages and employment are determined in quantitative studies.

3.4. Wage equality and the emergence of wage-wage spirals

Proposition 4: Wage-wage spirals tend to be mitigated by solidaristic wage policies in the long run.

Rehn and Meidner did discuss the possibility that solidaristic wage policy could speed up a wage-wage spiral (Rehn, 1952, pp. 31-42). But their main hypothesis was that 'fair wages', by softening the preferences

of relative wages, would weaken the wage-wage race both between trade unions and between 'wage drifters' and other wage earners. The proposition that inflationary wage races will slow down because of a centrally determined and generally accepted policy of fair wages is one of the most controversial elements in the Rehn-Meidner theory.

Swedish empirical studies have not been based on a hypothesis that wage drift is curbed by solidaristic wage policy. Instead, there are several arguments for a positive relationship between solidaristic wage policy and wage drift. One argument is that central agreements of 'fair wages' are disavowed *per se* by groups that will suffer losses in terms of relative wages. Any political compression of the wage structure will therefore be neutralised by compensatory wage drift. Another argument is that wage drift will restore the market-determined wage relations that have been disturbed by solidaristic wage policy. (The last argument can, in fact, be found in the Swedish model itself, see section 1.2.) A similar argument is that co-ordinated trade unions will permit (and anticipate) some departures from solidaristic wage policy in terms of wage drift. Wage earners in demand (skilled labour in particular) will then receive a higher welfare level, which will strengthen their incentives to stay in the union (Uddén-Jondal, 1993, ch. 5).[52]

A number of studies of Sweden have analysed whether or not wage equalisation has a positive effect on wage drift. The effect has varied from insignificant (Flanagan, 1990, p. 408-411) to small (Tson-Söderström and Uddén-Jondal, 1985, p. 565) to sizeable (Hibbs and Locking, 1991, table 1b) to large (Nilsson, 1994, which only deals with the paper and pulp sector.) The last two studies are perhaps the most reliable ones since they are based on micro-data.[53] Thus, it would seem that solidaristic wage policy in Sweden has in fact been inflationary.

But the 'hostile' hypotheses and the empirical studies above are not definite blows to proposition 4. The Rehn-Meidner model does not advocate any reduction of wage differentials between workers with

[52] 'The last two arguments are not based on any assumption of real-wage preferences. Such preferences will in fact prevent both a market and a bargaining equilibrium. Wage earners who benefit from solidaristic wage policy will experience a welfare loss if some offsetting wage drift occurs and they are driven by relative-wage considerations. In consequence, wage drift will lead to compensatory wage claims from non-drifters'.

[53] In Nilsson (1994), compensatory wage drift was estimated to one fifth of the total wage increase in the Swedish paper and pulp industry in 1971-1989 (Nilsson, 1994, pp. 17 and 28). However, central wage increases, not wage equalisation *per se*, are the indicators of solidaristic wage policy in the study. Such wage increases are determined by co-ordinated wage policy measures and by wage compression in general, but also by other factors (cf. Hibbs and Locking, 1991).

different (physical) marginal productivities or between jobs that are experienced by workers as different (*ceteris paribus*). Smaller wage gaps between wage earners in different sectors, firms and plants (and between the sexes) in Sweden largely reflected a policy of equal pay for unequal rather than for equal work (cf. Arai, 1994); it is only the first notion of solidaristic wage policy that is covered by the Rehn-Meidner model.

One practical difficulty in the studies above is to distinguish between the effects of a relative-wage preference and the effects of a wage-equalisation policy on wage distribution. Wage compensation due to relative wage preferences may lead to central wage increases as well as to more equal wages in the short run, just as with solidaristic wage policy.

Another difficulty in empirical studies is to separate short-run from long-run effects of solidaristic policy. The Rehn-Meidner model does not exclude that the policy will lead to higher wage drift in the short run. Wage drift may increase as the policy creates excess demand for 'wage drifters' and a 'wage premium' for firms that could have paid more (cf. section 1.2). But in the Rehn-Meidner model, in the end fair wages will weaken wage races caused by relative wage preferences.

It is possible to study the long-run effects of solidaristic wage policy in Sweden, since it has been applied during a run of two decades (the 1960s and 1970s). The case of the Rehn-Meidner model is strengthened if the positive relationship between wage equalisation and wage drift in the studies above is weakened or even becomes negative in the period under study. But structural analysis of the regression coefficients has, where carried out, failed to demonstrate such a development (Tson-Söderström and Uddén-Jondal, 1985, pp. 565-566).

Proposition 4 is probably one of the weakest links in the Rehn-Meidner model. My main argument is not that individuals and trade unions are always unable to produce a consensus about fair wage differentials. In fact, recent experimental labour-market studies suggest that people are not striving for maximum pecuniary benefits, since they expect that they will be harmed, directly or indirectly, by other people's reactions (see Dufwenberg and Kirchsteiger, 1998, Fehr and Schmidt, 2000, and Bolton and Ockenfels, 2000). But proposition 4 has weak empirical support from Swedish regression studies and it can be challenged by plausible theories about human behaviour when market forces set the rules. The proposition can perhaps be rescued by a qualification, anchored in the Rehn-Meidner model, saying that solidaristic wage policy is only inflation-dampening if combined with restrictive economic policy and labour market policy measures. I have not, however, formulated a revised version of proposition 4.

3.5. Solidaristic wage policy and structural change

Proposition 5: Structural change will be speeded up by solidaristic wage policy.

Pay equalisation between plants and industries was more far-reaching in Sweden than in other OECD countries, including the Nordic ones, in the 1960s and the 1970s (Ohlsson, 1980, Hedström, 1982, and Hibbs and Locking, 1995). Market forces alone cannot explain this radical reduction of industrial wage gaps in Sweden. Hence, the bargaining system and wage policy must have been important (see 3.1).

A proposition 5 that the pace of structural change has accelerated through solidaristic wage policy in Sweden relies on at least one of three mechanisms in the Rehn-Meidner model. First, solidaristic wage policy will release resources for dynamic plants, firms and sectors, primarily by hastening closures (with the exception of acquisitions) of unprofitable firms and inefficient production units.[54] Second, the policy will increase the incentives to structural change by widening the differences in profitability between plants, firms and sectors and by giving high-wage plants, firms and sectors a 'wage premium'. Third, solidaristic wage policy will increase the number of job applicants due to dismissals and the higher risks of unemployment in stagnating sectors.

A study of closures in the textile and garment, paper and pulp, and engineering industries in Sweden from 1972 to 1982 showed a wide spread of profitability among the plants that were closed down. Hence, the correlation between profitability and closures seems to have been weak (see the first mechanism above). A weak correlation does not exclude a causal relation, however. The closure of units with poor profitability may simply have been delayed by, among other things, a good financial position and government subsidies (Stålhammar, 1987, chapter 2). But it remains to investigate whether profit squeezes in the analysed industries were caused by solidaristic wage policy (see below).

[54] In both the Rehn-Meidner model and the neo-classical vintage models of Salter (1960) and Solow (1964), average productivity is raised by the fact that the oldest plants go to the wall when prices no longer cover their variable costs. One difference between the models is that the pressure on marginal units arises from price competition by new plants in vintage models, not from wage pushes and stabilisation policy as in the Rehn-Meidner model. Another difference is that the pressure on marginal units will induce (as in the X-inefficiency theory) rationalisations in individual plants and firms in the Rehn-Meidner model. Such units are doomed to die in vintage models where factor substitution is impossible *ex post*.

The second mechanism is rejected by the fact that differences in profitability between industries of Swedish manufacturing became smaller in 1953-1976—in a period, thus, of radical solidaristic wage policy (Englund, 1979, p. 175). It is true that the smaller differences in profitability may reflect an actual hastening of structural change, not the absence of a relationship between solidaristic wage policy, relative profitability and structural change. In fact, the importance of relative profitability for structural change in manufacturing (see the definition below) was emphasised in a study of the period 1964 to 1996; changes in the dispersion of profit margins were the main explanation behind (inter-industrial) structural change. Yet, this change was in turn explained by shifts among industries in international competitiveness, determined by the relation between technological progress in domestic and foreign firms. The impact of solidaristic wage policy was not analysed in the study (Andersson, Gustafsson, and Lundberg, 1998).

Finally, the lay-off rates seem to have been be relatively low in the Swedish labour market in the post-war period (see the third mechanism above). The job separation rates have not been higher in Sweden than in other OECD countries as would have been expected from solidaristic wage policy (Blanchflower, Jackman and Saint-Paul, 1995).[55]

Hence, the three mechanisms behind a positive relationship between solidaristic wage policy and structural change in Sweden were not detected in any of the studies above. But neither have they really refuted a hypothesis that the mechanisms did work in Sweden in the heyday of solidaristic wage policy.

The case for proposition 5 is strengthened if structural change is shown to have been rapid in Sweden in the period of solidaristic wage policy and also more rapid in this period than in other countries. But the picture of industrial transformation in Sweden during the post-war period is split and difficult to interpret in causal terms. Inter-industrial change in Swedish manufacturing was speeded up in the latter part of the 1960s and the early 1970s. Swedish structural change was also fast in these periods by OECD standards. The extent of structural change is calculated here as an index of movements in employment between industries (Holmlund, 1981, pp. 69-73, Fries, 1983, pp. 143-147, Nilsson and Zetterberg, 1987, pp. 17-19, and Andersson *et al*, 1998, pp. 3-4 and 9-10).

However, structural change in Swedish manufacturing in the 1960s and early 1970s was not impressive compared with other small

[55] Job separation rates are determined not only by the rate of lay-off but also by the rate of quittance.

Western European countries including the Nordic ones. Besides, in the 1970s, structural change in Sweden slowed down and became even less rapid than in large OECD countries such as West-Germany and the United States.

The studies above do not reject a hypothesis that structural change is hastened by solidaristic wage policy. However, structural change was not exceptionally strong in Sweden in the golden era of solidaristic wage policy particularly not in comparison with other countries in the Nordic area.[56]

It is difficult to give a clear picture of Swedish structural change in the 1980s and also to relate it to solidaristic wage policy. From 1978 to 1988, structural change in manufacturing became more rapid in Sweden than in other OECD countries, including the Nordic ones but excluding Canada and the United States (Hansson and Lundberg, 1995, pp. 146-148).[57] At the same time there are indications of a slower transformation of resources to R&D and human-capital intensive industries in Sweden compared with other OECD countries in the 1980s (Edquist, 1991, and Hansson and Lundberg, 1995, pp. 79-82). In addition, there are difficulties in deciding whether these indications of a relatively slow structural change in Sweden in the 1980s are arguments for or against proposition 5. In fact, they can be seen as support for the proposition since wage differentials became larger and wage bargaining more decentralised during the decade. But the tendency to larger wage gaps was still weak and the relation between changes in wage spread and structural change are hardly immediate. Besides, it seems that the allocation of resources to R&D and human-capital intensive industries accelerated in Sweden in the 1990s, thus during a decade when wage differentials in Sweden returned to the state of the mid-1970s (Hibbs and Locking, 1995, pp. 1-4).

One cross-section study of wage and employment developments in Sweden has given strong support to proposition 5. The study covers all two-digit sectors of the economy, including the public sector, from the early 1960s to the mid-1980s (Edin and Topel, 1997). Employment in an industry rose more in a certain period the higher the initial wage rate and the lower the wage increase in the same period. In manufacturing, both the

[56] The share of finished goods in total exports increased more in Sweden than in other OECD countries in the 1960s and the 1970s but not in comparison with other Nordic countries and Canada (Horwitz, 1979, p. 43).

[57] Norway had the fastest structural change but the measure is 'distorted' by the expansion of the oil sector in the country.

correlations were stronger in 1963-1975 than in 1975-1985. Industries in manufacturing with high wage growth experienced low employment growth in 1963-1975 in the United States as well, but the correlation was stronger in Sweden. Besides, in the United States, there was no evidence at all of a positive relation between initial wages and employment growth. The conclusion drawn is that solidaristic wage policy has led to Swedish restructuring (Edin and Topel, 1997, pp. 175-184 and 197).

But a similar study of the Nordic countries gave solidaristic wage policy a more modest role as a cause of changes in industrial composition and plant closures in manufacturing. The decline in relative production and the number of production units in industries with initially lower wages than the average (textile and garment, wood products) was not stronger in Sweden than in other Nordic countries in 1960-1973. The study also questions the contention that wage pressure on 'marginal' plants and stagnating sectors was brought about by wage policy and not by free market forces (thus by wage and job opportunities in other plants and sectors), possibly in conjunction with relative wage preferences. The cost pressure on stagnating industries was not systematically higher in countries with more solidaristic wage policy (Erixon, 1984, pp. 27-37). The study confirms the conclusions of other studies that the extent of solidaristic wage policy has not been decisive for differences in structural changes and wage developments between the Nordic countries (see above, and Holmlund and Zetterberg, 1992, pp. 1023-1025).

On the other hand, proposition 5 has been directly confirmed by a production-function based study of the effects of wage dispersion on output and productivity in the Swedish private business sector. The contention is that solidaristic wage policy led to a significant increase in aggregate output and blue-collar labour productivity by having speeded up the transformation of resources between plants and industries (Hibbs and Locking, 1995). But the limitations of the stylised theoretical approach are admitted in the study, one obvious weakness being that the effects of wage distribution are not related to other factors such as international competition and macroeconomic policies.

My tentative conclusion is that proposition 5 has not been refuted by empirical studies, although there are few indications that wage structure is a major explanation of structural change in Sweden. For instance, differences in structural change between the Nordic countries in the post-war period are probably better explained by differences in macroeconomic policies, international competitiveness (including product composition), and in plant structure (size, number and age of plants).

Proposition 5': Structural change may be achieved without major wage differences between industries.

A proposition that structural change has been speeded up by solidaristic wage policy is not rejected above. But the proposition is too strong in relation to the Rehn-Meidner model. The model simply says that structural change is possible with solidaristic wage policy and that other adjustment mechanisms are less preferable from the viewpoint of income distribution and price stability. However, to obtain the same transformation of resources as in a 'free' labour market, the solidaristic wage policy requires the support of labour market policy.

I will therefore define a weaker proposition 5' saying that structural change is possible without large wage differences between sectors and industries. This proposition assumes that the wage structure is unimportant for structural change or that wage equalisation is at least as efficient as large wage differentials for generating a transformation of resources between sectors.

Proposition 5' gets stronger support from the empirical studies above than proposition 5. I will directly confront proposition 5' with some Swedish studies that explicitly emphasise the negative structural effects of solidaristic wage policy. But to begin with let me repeat that the Rehn-Meidner model is not hit by the criticism that Swedish growth has been hampered by the convergence of wages between individuals with different competencies and educational levels.

A study based on panel data (for 1984 and 1986) concludes in opposition to the Rehn-Meidner model that wage incentives are important for labour mobility (Björklund and Holmlund, 1989). Most people who voluntarily leave a company go to better-paid jobs. The model is not valid in this respect since it says that wage differentials are a blunt instrument for bringing about mobility in the labour market

The Swedish study does not answer the question of whether people had to get higher wages in order to change jobs. All that is demonstrated is a link between change of workplace and a higher wage. But more important, the Rehn-Meidner model does not deny that labour mobility can be achieved by large wage differentials. It does reject this kind of adjustment mechanism, however, maintaining that it is unfair and inflationary. It must also be remembered that solidaristic wage policy will result in stronger incentives to structural change by reinforcing profit differentials between sectors.

Labour market mobility in Sweden did not fall in the 1970s despite

radical wage equalisation. (External labour mobility varied with the business cycle in the 1970s and the 1980s.) Any tendency towards lower labour mobility through smaller wage differences or other factors (double-income households etc.) appear to have been counteracted, *inter alia*, by labour-market and educational policy. Flexibility in the labour market is not lower in Sweden compared with other industrialised countries, even though Sweden has a more even wage structure (cf. Nilsson and Zetterberg, 1987, and Faxén, Odhner and Spånt, 1988, pp. 248-251). Regional mobility seems to have been higher in the United States than in Western European countries, including Sweden, in the 1970s. But the higher degree of regional mobility in the United State is explained by greater job opportunities, not by the larger wage differentials (Nilsson and Zetterberg, 1987, pp. 35-52).

Besides, the Beveridge curve, i.e. the product between the number of vacancies and the number of unemployed (in relation to the labour force) was more favourable for Sweden than for all other OECD countries in the 1970s and the 1980s. The Beveridge curve did actually shift inward in Sweden during those decades, which was not the case in most other OECD countries. The Swedish shift has been attributed to labour market policy and centralised wage bargaining (Jackman, Pissarides and Savori, 1990, pp. 477-483).

An influential argument in the Swedish debate is that solidaristic wage policy has prevented a renewal of Swedish industry. Dynamic new firms have died at an early age because of solidaristic wage policy, without having reached their potential profit levels. Further, solidaristic wage policy is said to have favoured large, established firms that could have paid more than the wages of solidarity. In total, solidaristic wage policy has been accused of having preserved an outdated industrial structure with negative consequences for Sweden's growth performance (Davis and Henrekson, 1997, pp. 354 and 376-377).

The argument that solidaristic wage policy has made Swedish industry obsolete seems reasonable. In the mid-1970s, non-agricultural self-employment as a proportion of total civilian employment in Sweden fell below the level of all other OECD countries. Swedish export and manufacturing (production) were, and still are, dominated by large, established firms, even by international standards (Erixon, 1997b, pp. 17 and 83).

No systematic study has yet been made of the relationship between solidaristic wage policy and entrepreunership in Sweden. It seems, however, that the 'mature' industrial structure of Sweden was formed already in the inter-war period, thus before the age of solidaristic

wage policy (Erixon, 1997b, pp. 25-28). The policy may have reinforced the large-firm character of Swedish industry in the 1960s and the 1970s. But the strong concentration of firms in Sweden in the post-war years is probably better explained by the openness of the economy, the character of risk-capital markets, profit taxes, and by public sector growth.

To summarise, a hypothesis that structural change is possible without large wage differentials has not been convincingly challenged by the empirical literature. However, I cannot decide with certainty whether solidaristic wage policy has speeded up structural change (see proposition 5), whether the policy's positive and negative effects on structural change have cancelled each other out, or whether in fact wage equalisation has had no significant effect at all on sector and company composition in Sweden.

3.6. Transformation pressure and growth

Proposition 6: Economic growth is stimulated by low profitability levels.

The theory of solidaristic wage policy is a partial theory of transformation pressure. 'Marginal' firms (and plants) are forced to rationalise in order to survive. A general theory of transformation pressure is equally rooted in the Rehn-Meidner growth model although the model is primarily concerned with production and productivity levels rather than with growth. Solidaristic policy actually lessens transformation pressure on firms with high historical levels of profitability. This threatens to preserve the structure of industry and disrupt the process of change within the profitable firms themselves.

Low profitability on average may reflect that aggregate demand is low, that unit costs are high or that competition is intense. Profits are squeezed in all sectors in the Rehn-Meidner model by a tight general economic policy in the short run and by a selective policy of full employment in the medium and long term. A possible hypothesis in the model is that structural change and measures to lift up productivity in individual production units, firms and industries will be speeded up by low profits in general (see proposition 6).

In the 'structural' case, a reduction in overall profits will eliminate firms (and vintages) with low productivity levels. Average productivity will increase both *per se* and by the allocation of resources to firms and industries with higher productivity. In the 'individual' case, a profit

decrease in an industry may lead to mergers to exploit scale advantages. Further, low profits may speed up firms' own rationalisations.

The existence of production slacks in firms is emphasised in the theory of X-inefficiencies. The Rehn-Meidner model and the theory of X-inefficiencies can both be extended to consider other sources of productivity increases in firms than rationalisations. A stronger external pressure on firms may stimulate the development of new products, technologies and work organisations (cf. Leibenstein, 1980, chapter 3).

The Rehn-Meidner growth model implicitly assumes (as Keynesian growth theories) that macroeconomic imbalances, caused for instance by separate stabilisation policy measures, can be lengthy. Here, Rehn and Meidner can refer to rigidities in labour markets but also to relative wage preferences, which will delay (or even prevent) a full adjustment of nominal wages to changes in aggregate demand. The assumption of lengthy imbalances therefore seems reasonable. For instance, it took almost a decade before the profits from devaluation policies in Sweden in the early 1980s were eliminated by nominal wage increases (Lindbeck, 1993, pp. 81-82. See also Bosworth and Lawrence, 1987, pp. 52-53).

There is no scope in Keynesian growth theories for such a notion as transformation pressure. Keynesian economists in general deny a negative relationship between profits and economic growth (Erixon, 1987, pp. 25-27, and Erixon, 1991, pp. 247-249). They claim that investment and production growth are stimulated by high profits and high aggregate demand through the importance of self-finance and the 'accelerator mechanism' where investments are a positive function of capacity utilisation (or production growth). Productivity will be stimulated as well if static economies of scale prevail or if the accelerator is associated with new techniques (dynamic economies of scale). Proposition 6 has been rejected by many time-series and cross-country studies showing—in accordance with the Keynesian view—that high demand and profits have a positive effect on investments as well as on productivity growth, at least on aggregate levels (Michl, 1985, Maddison, 1987, Erixon, 1987, pp. 202-210, and Erixon, 1994, pp. 42-52).

But the low productivity growth in most OECD countries during the boom of the 1980s cannot be explained in terms of low demand and profits. In fact, there was no significant positive relationship between profit shares and productivity growth in Swedish manufacturing as a whole during the boom (Erixon, 1991, pp. 364-369). Further, growth studies are often too aggregate, hiding that some industries may rather confirm the theory of transformation pressure. Besides, a positive

(Keynesian) relationship between profits and demand on the one hand and growth on the other is often overestimated in time series analyses because of simultaneity problems—high growth may result in high profits and activity levels. The theory of transformation pressure is also disfavoured by the fact that a negative relationship is probably more delayed than a positive relationship and therefore more difficult to catch in quantitative terms.

But there is empirical support for a hypothesis that Swedish growth has been stimulated by transformation pressure. High productivity growth in manufacturing in the 1960s is explained largely by mergers and, in raw materials industries, by the fact that plants with low productivity growth were eliminated (Rydén, 1971, and Wohlin, 1970). These mergers and closures in raw materials industries were primarily caused by harder international competition and recessions. The potential for mergers and the differences in productivity between marginal and best plants were large in the 1960s due to a weak transformation pressure in the preceding decade (cf. Rydén, 1971, pp. 198-206, and Wohlin, 1970, p. 109).

The importance of economic policy (and solidaristic wage policy) for transformation pressure was toned down in the Swedish studies above. Yet, explaining the country's relatively low productivity growth in the 1980s in terms of a weak transformation pressure, some Swedish economists focused on economic policy. Devaluation policies were accused of having delayed structural change, rationalisations and the introduction of new organisations and products in manufacturing (Erixon, 1991, and Produktivitetsdelegationen, 1992). The conclusions were based on some approximate evidence, but also on the results of time series analysis. Profit variables were here included as determinants (together with other variables) of labour productivity in Swedish manufacturing in 1957-1987. It was possible to demonstrate for manufacturing as a whole that profits had a (delayed) negative effect on labour productivity in accordance with the theory of transformation pressure. Several industries on the two- and three-digit levels, particularly the machine, pulp and paper industries, showed a similar negative relationship between profits and productivity (Erixon, 1991, pp. 349-356).

The theory of transformation pressure is partly confirmed by productivity developments in Swedish manufacturing in the 1990s. Only Finland had a higher labour productivity growth than Sweden among the OECD countries. The exceptional productivity growth in Sweden in the first half of the 1990s is largely explained by rationalisations, although often in conjunction with the introduction of new work organisations,

and—although to a lesser degree—by the elimination of 'marginal' production units (Kvarnström, 1995). Rationalisations in manufacturing were induced by the deep Swedish recession in the early 1990s and due to the weak transformation pressure in the 1980s, much room was also provided for productivity gains.

However, the high productivity growth in Sweden in the 1990s cannot fully explained by the theory of transformation pressure. Fiscal policy was mainly tight but there was a strong depreciation of the SEK and therefore, a dramatic increase in the profit share in Swedish manufacturing in the first half of the decade.

Empirical studies offer no general support to a hypothesis that economic growth is promoted by profit squeezes. But the categorical proposition 6 gives no representative picture of the Rehn-Meidner model. Rehn and Meidner realised that pressure on profitability could seriously curb private investments, particularly by restricting the possibilities of self-finance. I shall therefore formulate a proposition 6' that takes account of the Rehn-Meidner view that economic growth can be hampered by a hard transformation pressure.

Proposition 6': Profit levels have an ambiguous effect on economic growth.

Proposition 6' accords better with the empirical literature than the stronger proposition 6. A hypothesis that growth is stimulated by a harder transformation pressure is not valid for all industries and periods. There are counter-balancing forces at work in individual industries. Further, the aggregate relation between profits and growth can change over time because of shifts in technology and in industry and investment composition.

A relative theory of transformation pressure is also supported by industrial economics where the relationship between market-structure conditions and innovations (or R&D expenditures) are focused upon. Competition is only innovative up to a certain level in some industries, *inter alia* due to scale advantages in R&D activities and the financial importance of past profits for R&D investments (Erixon, 1998). My conclusion is that the mild version of the Rehn-Meidner growth theory has been confirmed by the modern economic literature.

4. The Core and Future of the Rehn-Meidner Model

The Swedish model, synonymous here with the Rehn-Meidner model, represents a unique policy in combining full employment and equity with growth and price stability. The combination is achieved by a wage policy of solidarity and the use of selective instruments—primarily labour market policies and marginal employment premiums—within the framework of a restrictive general economic policy.

I referred in the introduction to the common view in Sweden today that the Rehn-Meidner model is obsolete. The main argument is that internationalisation has narrowed the scope for an economic policy that aims to keep down the general level of profits. The Rehn-Meidner model was conceived for an economy with small movements of capital over national borders. Furthermore, overseas production by companies was less extensive and less interchangeable with domestic production than is the case today. Internationalisation is also said to have narrowed the scope for solidaristic wage policy. Wage earners in high demand who are hit by the fair-wage principle have greater opportunities today of moving to other countries. The argument assumes that the road is long to co-ordinated wage policy actions on an international level.

Internationalisation has undeniably limited the possibilities of any single country to apply the Rehn-Meidner model. But it is too early to pronounce the model dead. The Swedish model of economic policy has silently sneaked in by the back door in the 1990s, both in Sweden and in the EU. A model where full employment can only be achieved by selective interventionism and supply-oriented measures in labour and product markets is relevant in a situation where the EMU (and internationalisation) has reduced the room for expansive general economic policies in single countries. Further, the EU choice in the mid-1990s of placing employment higher on the political agenda without giving up the restriction of price stability is definitely in line with the Rehn-Meidner model.

Marginal employment premiums (or similar subsidies) will increase the incentives for dynamic companies to locate expansion within their own countries. Non-subsidised companies will suffer a profit loss, particularly if the premiums are financed by increases in average pay-roll taxes. But these companies are hardly the ones that give large contributions to a country's economic growth.

The Swedish model does not rule out wage differences between individuals even if the aim is to achieve fair wages rather than high employment and growth. But employees in high demand will

undoubtedly receive higher wages abroad than in a country with solidaristic wage policy. The policy must therefore be combined with other policy measures to avoid the emigration of scarce labour and also the demise in their infancy of innovative firms that are not yet able to pay solidaristic wages.

But the focus of this work is not on the relevancy of the Swedish model in terms of institutional change or new priorities and means in economic policy. My ambition is to show the compound and unique character of the Swedish model of economic policy and to relate its underlying economic theory to modern economics.

Theoretical developments in macroeconomics since the 1970s have confirmed basic assumptions of the Rehn-Meidner model. The scepticism to Keynesian fine-tuning in the model and its reliance on supply-side and adjustment measures in labour and goods markets to obtain high employment levels and price stability are shared by influential economists today. These similarities may seem paradoxical to people who, correctly, have noticed the importance of the art of social engineering and the strategic role of trade unions in the Swedish model.

Yet, the Swedish model refutes salient elements of modern macroeconomics. The model does not advocate real-wage flexibility to obtain macroeconomic balance. The designers of the model had doubts about the possibilities of avoiding imbalances through real wage flexibility but they emphasised the negative effects on inflation, income distribution and growth.

The Rehn-Meidner model gives two valuable contributions to positive economics; the first one concerns the analysis of wage formation in a country like Sweden. Rehn and Meidner laid strong emphasis on relative-wage preferences long before the birth of the modern theory of fair wages. But more important, their dynamic and comprehensive description of the (Swedish) wage process is richer than that found in most wage models today. In the Rehn-Meidner model, wages are determined by both competitive forces, X-inefficient firms, and by wage-setting phenomena such as labour market policy, solidaristic wage policy and relative wage preferences. Bargaining and trade union theorists in particular tend to underestimate the role of competitive labour markets both *per se* and as guidelines for collective wage negotiations.

The second contribution of the Rehn-Meidner model to positive economics is in the field of growth economics. The model was not only a forerunner of X-inefficiency and vintage theories by assuming that productivity is stimulated by profit-margin squeezes. It has also paved the way for a general theory of transformation pressure by defining the

pressure in terms of wage and stabilisation policy.

My essay ends with a test of six propositions that are often connected with the Swedish model. The propositions, concerning the performance of economic and wage policy and the driving forces behind wages, inflation and growth, have been related to modern economic theories. Further, their validity has been evaluated by a survey of the empirical literature with an eye on Sweden in particular. Three of the six propositions have been modified to give a more representative picture of the Rehn-Meidner model.

The Rehn-Meidner hypothesis of a positive relation between profitability and wages (no. 1) has not been overthrown by the empirical literature. It is true that the relationship is weak in Sweden but this confirms the Swedish theoretical view that wage policy matters.

The proposition that collective wage increases are basically determined by wage drift and not the other way around (no. 2) has not been verified by all studies. But I have opted to give precedence to Swedish studies that support the proposition.

The Rehn-Meidner model does not deny that labour market programmes can be inflationary, and not even that the programmes may be more inflationary than an expansionary general economic policy. A correct interpretation of the model is the proposition that the combination of a lax fiscal policy and incomes policy is more inflationary than a tight fiscal policy in combination with labour market policy measures (no. 3'). The hypothesis has not yet attracted the interest of applied economics.

The Swedish model does not claim that structural change is speeded up by solidaristic wage policy, only that structural change is possible with the policy (no. 5'). This reformulated, weaker proposition is confirmed by most Swedish studies.

A proposition that profits and profit margins have an uncertain effect on economic growth (no. 6') gives a more representative picture of the Swedish model than a straight one saying that growth is always stimulated by a profit squeeze. The milder proposition is supported by the empirical literature.

A proposition that solidaristic wage policy will mitigate inflation (no. 4) has been rejected by Swedish studies. The underlying theory is one of the weakest links in the Swedish model. The model can perhaps be defended by reference to the fact that a policy of fair wage differentials has not been applied in Sweden. A possible reply is that it is hardly possible to reproduce a long-run equilibrium in labour markets or to create a general acceptance of a schema for fair wage differentials, even

in a ‘corporate’ country like Sweden.

The tests of propositions in the Swedish model show the model in a relatively favourable light. But they have also raised some fundamental objections to the model’s underpinning economic theory. It may seem inconsistent to give market forces a decisive role in wage formation that, for example, makes incomes policy impossible, and to expect at the same time that wages can be regulated by solidaristic wage policy. From the angle of the Swedish model, it seems difficult to control market forces by such regulations even if they have the aim of simulating a competitive labour market in equilibrium.

There is definitely some truth in these objections. But again, it is necessary to emphasise the coherent nature of the model. It is impossible to lift out some parts of the model and keep the rest. A solidaristic wage policy cannot be applied without a restrictive general economic policy and a mobility-enhancing labour market policy. The Swedish model is still a possible lodestar for economic policy, particularly on international levels. But the model will fall like a house of cards if only partially applied.

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Lennart Erixon (born 1947) is associate professor at the Department of Economics, Stockholm University. Erixon's main research is in the fields of growth economics and stabilisation policy. He has paid a particular interest to the growth effects of Swedish economic policy. Erixon was guest researcher at the Trade Union Institute for Economic Research (FIEF) January-July 1999.

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The macroeconomic principles behind the Swedish model were developed by two trade union economists, Gösta Rehn and Rudolf Meidner, shortly after World War II. The model's economic and wage policy represents a unique third way between keynesianism and monetarism in its approach to combine full employment and growth with price stability and equity. This essay describes the content and economic foundation of the Rehn-Meidner model and evaluates its relevancy in the light of later theoretical and empirical work. The model is unique in terms of its comprehensive view of economic policy – the means proposed have more than one goal, and also the aim of making other instruments in the model more effective. With some exceptions, the economic theory of the model remains valid by being in harmony with modern thinking about employment, inflation and growth or by offering a vital alternative to the prevailing views. The model's main contribution to economics is its dynamic description of wage formation, giving room for both competitive forces, labour market policy, inefficient firms and preferences for 'fair wages'. The model also makes a valuable contribution to modern growth economics by incorporating the idea that structural change and company productivity can be promoted by profit squeezes induced by wage and economic policy.

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