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Incomes Policies and the Norwegian Economy 1973-93

Abstract:
During the second half of the 1970s there was massive government interference in wage and price formation in Norway. Incomes policies changed in the first half of the 1980s - the hey days of "dynamic tax policies" in Norway - and during the second half of the 1980s new direct interventions in wage formation were implemented. These episodes of incomes policies are discussed and their empirical importance is assessed in the econometric price and wage equations of a large scale macroeconometric model of the Norwegian economy. Model simulations show that while price regulations generally led to an expansion of output and loss of cost competitiveness, wage regulation produced both output expansion and gain in competitiveness. The dynamic tax policy implemented in Norway was less successful and led to both higher prices and wages as well as lower output.

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Introduction

In their extensive review of European incomes policies, Flanagan et al. (1983) draw a distinction between nominal and real incomes policies, where the latter is designed to affect say real wages rather than nominal wages. While nominal incomes policies were often used to combat inflation in the 1950s and 1960s, real incomes policies have recently been regarded as more relevant for a strategy to restore competitive-ness and profitability and to reduce unemployment. Those policy measures that are usually associated with incomes policies are wage guidelines, statutory norms, indexation schemes, temporary measures such as wage and price freezes and tax-based incomes policies (TIP). In some sense a TIP is also a fiscal policy instrument and more generally it seems relevant to include certain fiscal policy changes as incomes policies.

Many economists are critical to the efficacy of incomes policies because actual policies often have collapsed for various reasons, cf. Jackman and Layard (1990). In addition, most incomes policy measures interfere with market forces and therefore involve microeconomic costs. Thus, with only short-run macroeconomic benefits at best, traditional incomes policies have generally fallen into disrepute. One of the few recent econometric studies of incomes policies by Pissarides (1991) on Australia, is critical to claims that incomes policies have been good for employment. He estimates a three equation model of the Australian labour market and does not find significant effects of incomes policy dummies in the wage equation of his model. For the UK, Wadhwani (1985) finds significant effects of incomes policy dummies but the study is not concerned with the effects of incomes policies in a more general macroeconomic setting. A study that lends some support to possible benefits of incomes policies is presented by Helpman (1988) and is an attempt to understand the result of Israels stabilisation programme in 1985. He shows how the analysis of price controls differs depending on assumptions on market structure and concludes that with non-competitive markets, price controls may reduce prices and increase output. The study by Helpman is not based on econometric modelling of prices and wages. His results are however, in line with a more general claim made by Malinvaud (1990): «But I believe we can say one thing about the durability of the supposed beneficial effect of a shock coming from a price and incomes policy. It will depend both on the broader policy package, including particular demand management, and on the characteristics of the situation to which it applies.» p.338.

Already by the early 1960s incomes policies were an important part of government policy in Norway. During the second half of the 1970s there was a massive government interference in wage formation, where direct regulations, subsidies and tax reductions were important. By the end of that decade, this policy was considered to have failed, whereas supply-side policies emphasizing incentives in the bargaining situation were given much more attention. Also devaluations in order to improve cost-competitiveness were tried. The period 1973-1993 which is the focus of our study, has seen two periods of direct legislative government intervention in wage formation after serious current account imbalances - 1978/79 and in 1988/89. Our study evaluates successes and failures of incomes policies in Norway, in the light of recent econometric estimates of wage and price equations, where the effects of regulations are explicitly taken into account. In order to undertake a comprehensive analysis of incomes policies, it is important to take into account feedback effects on the economy of the initial effects of incomes policies. To this end we use a macroeconometric model. Our study supports the claim by Malinvaud referred to above in that the effects of wage regulations seem to depend on the labour market conditions in that the results of the regulations in 1978/79 versus 1988/89 are different because unemployment was much higher in the latter period. The tax changes during the first half of the 1980s were not successful in containing wage growth and in improving competitiveness. This is partly due to the different effects of changes in average versus marginal tax rates in models of wage bargaining.

The paper is organized as follows. Section 2 accounts for the econometric equations for wage determination and describes the properties of the price equations included in our macroeconometric model. In section 3 the results from model simulations of incomes policies for 1973-1993 are presented, while section 4 concludes. Appendix A contains a description of incomes policies in Norway during 1973-1993.

Modelling wage and price formation in Norway

Wage formation

Although wage formation in Norway is considered to be characterized by centralized bargaining, local bargaining at the plant level is also important. The character of central bargaining has also varied: usually so-called co-ordinated settlements have been undertaken, where several member unions in the dominant Federation of Trade Unions (LO), have negotiated together. In these co-ordinated settlements one centrally negotiated wage increase has been applied to all LO members only modified by special wage deals for workers with low wages. However, wage settlements where each union within the LO negotiates with their employer counterparts, have sometimes been undertaken. While co-ordinated settlements have tended to compress the wage structure, both individual union bargaining and local bargaining have tended to restore wage differentials, allowing market forces to play a larger role. Formally, the wage contracts are biennial, but the agreements opt for negotiations before the second year of the contract. Often the central wage increases have been larger in the so-called main wage settlements than in the "second-year" settlements.

Close to 60 per cent of all employees in Norway are organized in unions. The degree of unionization is relatively high in the manufacturing sector and in the government sector while it is lower in construction and private service sectors. A number of econometric studies of wage formation in Norway have been carried out during the last decade or so. These have generally relied on a symmetric Nash bargaining model following Nickell and Andrews (1983) and Hoel and Nymoen (1988). The solution to this bargaining problem implies that the wage rate is homogenous of degree one in producer prices, consumer prices and the alternative wage. in addition the replacement ratio is included when defining "outside utility" ie. the utility of a union worker not employed in the industry. The unemployment ratio enters the model through the definition outside utility but is often also seen to affect the parameter representing bargaining power. Income taxes and payroll taxes are included in a restricted way together with the relevant prices.

This modelling framework has been applied to three main sectors of the Norwegian economy, manufacturing, private services including construction, and government. For workers in the government sector the producer price variable is not relevant and only consumer prices and alternative wages have been included. Alternative wages in any sector is defined as $(1-U) \cdot W_0 + U \cdot 0.624 \cdot W_{i-4}/RIP$ where W_0 is the average wage rate in other sectors, U is the unemployment ratio which is used a proxy for the probability of getting a job in another sector while 0.624 is the replacement ratio. Due to the progressivity of the tax system, take home pay is not reduced by the full difference between the wage and the replacement ratio. This is taken account of by the term $(1-t_g)/(1-t_m) = 1/RIP>1$, where RIP is the coefficient of residual income progression. Although the replacement ratio is only 0.624 which is about the European average, progressive taxation actually increases the effective replacement ratio to 0.8 on average over the estimation period. The reason why the wage rate is lagged four quarter is that unemployment benefits depend on the wage in the previous year. Results are given in table 2.1, and a list of variables is presented in appendix B.

The manufacturing wage equation is an error correction model where deviations from "target" real disposable income and "target" wage share in manufacturing both have a coefficient of 0.5. Manufacturing labour productivity enters both error correction terms, as this variable also proxies "target"

consumer real wage growth. Alternative wages have no effect on manufacturing wages. The model contains tax symmetry, in the sense that (1-average tax rate) has the same long run coefficient as consumer prices, while the coefficient for (1+payroll tax rate) has the same coefficient as the product price and productivity variables. Thus the wage equations leave no scope for changing the wage level by switching between direct and indirect taxes. However, manufacturing wages are affected by tax progressivity, as measured by the coefficient of residual income progression (RIP), in accordance with Lockwood and Manning (1993) on UK data, Tyrvainen (1995) for Finland, and Holmlund and Kolm (1995) for Sweden. The implication is that reduced progressivity for a given average tax rate results in higher wages. The theoretical argument underling this result follows from the bargaining model. The union want more employment and higher wages. Higher tax progressivity makes is more difficult or costly in terms of pre-tax wage increases to achieve a certain post-tax wage increase. Thus it becomes more attractive for the union to pursue its employment objective. A more progressive tax system changes the relative price between employment and post-tax wages for the union.

Our analysis of the wage regulations in 1978/79 and 1988/89 depends crucially on the estimated coefficients for the two sets of dummy-variables that are related to these episodes. A number of previously published studies on wage formation in Norway support the existence of these effects. Studies by Calmfors and Nymoen (1990), Rødseth and Holden (1990), Johansen (1995) and Stølen (1995) all include a dummy for the regulations in 1979. However, a number of other studies by Hoel and Nymoen (1988), Nymoen (1989a), Nymoen (1989b) and Nymoen (1991) include dummies for various other periods where there were no regulations and no dummies for the periods where the regulations were in place. These results are supported by standard F-tests. Since all these studies are based on a bargaining framework, it seems odd not to modify the model specification when including periods where there were no bargaining or where the institutional set-up is changed.

The wage freeze in 1978-79 implied that local wage drift was prohibited. The dummy variable in the final equations was found after initial estimations with independent quarterly dummies for each quarter in the freeze period. It turned out that the coefficient were insignificant in the first quarters of the freeze while significantly negative in the later quarters. This is in accordance with the almost unchanged manufacturing wage level in this period, which rendered the difference between actual wages and the long run wage levels implied by the error correction terms, larger. The single dummy variable actually implemented is 1 from 1979Q2 through 1979Q4. Our interpretation of this is that the freeze basically eliminated the wage negotiations that would normally have taken place in 1979Q2.

In the regulation period 1988-1989, the overall picture is somewhat blurred. During the first regulation - 1988Q2-1989Q1- a law stated that no local wage increases were allowed. Central bargaining was not restricted, but influenced by the knowledge of the following regulations. The negotiations in the spring of 1989 were uninterrupted by government actions, and might have involved some catch-up effects. At the same time wage-moderating effects may also have been present. The choice of dummy variables in these two years was also determined by initial estimations by quarterly dummies. The results were that significant negative effects on wages were detected in 1988, but not in 1989.

Possible catch-up effects are captured by the error correction variables. After a period of regulation which has rendered the wage level lower than it otherwise would have been, the deviation between the wage level and the long run level implied by the error correction terms is increased. When the regulation is lifted, the result is a stronger growth contribution from the error correction terms. In addition it is possible with further catch-up effects when the wage freeze is lifted. We thus experimented with quarterly variables through 1980 and 1990. In 1980 when the wage freeze was lifted, no separate catch-up effects in manufacturing wages were detected. In 1990, however, a dummy variable in 1990Q3 was highly significant. This reflects the relatively large centrally

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Table 2.1. Wage equations by sector, 1968:3 to 1993:4. Left hand side variable is Δw

	Manufacturing	Private services	Government
$(w+tf-pyf-zql)_{-1}$	-0.07	-	-
	(4.5)		
$(w+tg-pc-zql)_{-1}$	-0.07	-	-
	(*)		
$(w-wa)_{-1}$	-	-0.07	-0.42
		(2.3)	(5.2)
Δpc_{-2}	0.69	-	-
	(4.1)		
Δpc_{-4}	0.43	-	0.27
	(2.9)		(4.3)
$\Delta pyf_{-2}+\Delta pyf_{-5}$	0.15	-	-
	(4.0)		
tf_{-1}	-0.2	-	-
	(*)		
Δh	0.81	-	-
	(7.1)		
Δh_{-1}	-0.19	-	-
	(*)		
Δw_{-1}	-0.21	-0.49	-
	(3.8)	(4.0)	
Δw_{-2}	-0.21	-0.35	-
	(*)	(1.7)	
Δwa	-	0.96	0.61
		(10.1)	(10.2)
Δwa_{-1}	-	0.36	0.12
		(2.5)	(2.1)
Δwa_{-2}	-	0.25	-
		(2.1)	
Δwa_{-5}	-	0.27	-
		(3.3)	
RIP_{-4}	0.07	-	-
	(2.3)		
$1/(1+U_{-1})^2$	0.14	-	-
	(3.4)		
$1/(1+U_{-2})^2$	-	-	0.12
			(2.3)
$1/(1+U_{-4})^2$	-	-	-0.12
			(*)
$(DST79+DST88)\cdot100$	-1.77	-	-8.52
	(3.1)		(1.7)
$DUT90\cdot100$	5.72	-	-
	(4.0)		
$SETTL\cdot100$	1.66	-	-
	(2.9)		
const	0.51	0.17	0.57
	(4.1)	(1.0)	(5.0)
100σ	1.35	1.42	1.22
$F_{AR}(1)$	1.81	2.17	0.02
$F_{AR}(2)$	1.71	1.99	0.56
$F_{AR}(4)$	1.31	1.77	0.54
$F_{AR}(8)$	1.03	1.27	0.59
$F_{AR}(1)$	3.38	0.04	1.57
$F_{AR}(4)$	1.12	1.28	0.67

Notes: Absolute t-values in parenthesis, F_{ARj} are LM-tests for autocorrelation from order 1 ts j, Harvey (1981). F_{ARCHj} are LM-tests for ARCH heteroscedasticity, Engle (1982). Estimates of seasonals are omitted. (*) means parameters is restricted.

negotiated wage increases in the wage settlement in 1990Q2, that were not registered in the wage statistics until the third quarter of 1990. The restriction on the wage freeze dummies in 1979, 1988 and 1989 is in accordance with Johansen (1995).

In the wage equation for private services no additional regulation effects were found other than the effects through the alternative wage. For the government sector, we detected a further reduction in wages as a consequence of the wage regulations in 1979 and 1988.

The unemployment term f(U) in table 2.1 has the form $1/(U+1)^2$ and is inspired by Stølen (1995) but extensive testing by Johansen (1995) also support this functional form. In practice, however, it is not very different from other studies of wage formation in Norway, which have relied on ln U more typical of the wage curve literature. In fact, our results are not far from the -0.1 ln U suggested by Blanchflower and Oswald (1994).

Static and dynamic homogeneity of degree one in prices is imposed and accepted by the data for all wage equations, which prevents long run changes in real wage levels by changes in overall inflation.

However, in spite of the dynamic homogeneity restriction a small inhomogeneity appears though the definition of the alternative wage since unemployment benefits depend on wages lagged one year.

The wage regulations have effects in the short run, but - since all wage equations are error correction models - no direct long run effects. According to the estimated wage equations, manufacturing wages do not depend on wages in other sectors, which supports the view of the manufacturing sector as a wage leader.

Prices

Price formation is important for the macroeconomic analysis of incomes policies. Each commodity has three prices, an import price, export price and domestic price. The price regulations are accounted for by dummies for price control in the domestic price equations only as export prices have not been subject to regulation. The static price equations which is the starting point for estimation are:

$$p = d_0 + d_1 pv + (1 - d_1) pi + d_2 \, CAP + d_3 \, PSTOP + seasonals$$

where (lower case letters implies logs) p is product price (either the export on the domestic price), pv is variable unit costs in the sector (both labour costs and the cost of material inputs), pi is the import price, and CAP is an index for capacity utilization. PSTOP is the combined regulation/catch-up dummy variable with a value of 1 in regulation periods and -1 i catch-up periods, see appendix C. The price stop/catch up variable is mainly significant in the price equations for various services. A detailed presentation of estimation results is found in Bowitz and Cappelen (1994). Static homogeneity is assumed for all equations but not dynamic homogeneity. The estimation results show that the mark-up rates decrease with higher inflation in line with the results in Blanchard and Muet (1993) for France and Benabou (1992) on US-data.

Helpman (1988) shows that at least the partial or individual market effects of price controls depend very much on the role of competition in each market. If there is perfect competition a price regulation that lowers the price from the market equilibrium, will reduce supply. If the market is better charac- terized by firms having some degree of monopoly power, price controls may lower price and increase output. This is simply because the controls act as way of reducing the mark-up or monopoly power and drives the outcome towards the competitive equilibrium. The way most markets are modelled in the KVARTS model, resembles this latter case. Thus we would expect price controls to lower prices and increase output in the short run as long as wages are determined by normal bargaining.

The wage and price sub-models say that wage and price controls have no long run effects on wages and prices. After the end of the regulations, prices and wages tend to return to their "normal" level. To interpret this as if there is no scope for incomes policies may be too hasty, though. First, it is of interest to find out how protracted the regulatory effects are through the wage-wage and wage-price interactions. Furthermore, the interactions via the complete model may also be of importance. Especially incomes policies that affect unemployment have further wage effects, especially if unemployment initially is at a low level.

A full description of KVARTS will not be given here, but can be found e.g. in Biørn et al. (1987) and Hove and Eika (1994) for a recent update and extension. We will limit ourselves to state that KVARTS is a disaggregated (16 sectors) fairly conventional macroeconometric model. Production is largely demand-driven in the short run, while the long run supply effects appear through wage formation and export and import equations which are based on the Armington-approach. Private consumption is determined by household disposable income and net wealth while private investment is determined by production and profitability.

Effects of incomes policies 1973-1993

In this section the effects of policy changes are reported. The reference path is a simulation where these is no policy change compared to the alternative where actual policies are implemented. Thus we study the effects of those policies that were actually pursued over the period compared to a reference path where each policy change was not implemented.

Price regulations 1974-1978

The 1970s were generally a period of many and varying government interventions in the pricemaking of private firms. In this section we analyse the effects of these intervention from 1974 until mid 1978 in before the price and wage freeze that was implemented in September 1978. This latter freeze will be studied in a separate section below. The price regulations are implemented as dummy variables in the price equations, and contain both regulatory effects and catch-up effects. The price equations are based on the assumption that there are no long run effects on the price level. This turned out also to be the case in full model simulations. Some results are shown in table 3.1 below.

Table 3.1. Macroeconomic effects of price regulations 1974-1978. Deviations from reference simulation in per cent unless otherwise stated

	1974	1975	1976	1977	1978	1979	1980	1985
Average hourly wages	-0.1	-0.3	0.0	0.2	0.2	0.3	0.3	0.0
Consumer prices	-0.4	-0.3	0.1	0.1	0.2	0.2	0.2	0.0
Current account/GDP[1]	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.1	-0.1
Government balance/GDP[1]	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0
GDP mainland	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0
Unit labour costs[2]	-0.1	-0.4	0.0	0.2	0.2	0.2	0.2	0.1
Unemployment rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

[1] Per cent-points
[2] Manufacturing

Not surprisingly, the simulated partial effects of the on-off's of price controls, are modest and temporary. Controls reduced consumer prices by 0.3 to 0.4 per cent-points in 1974 and 1975, when the controls were most strict. Wages were also affected through the price effect in the wage equations.

The primary effect of price controls is to reduce profit margins and increase real wages. Since the marginal propensity to spend is higher for wage income than for profits, price controls increase demand

and output as suggested by Helpman (1988). This reduces the current account surplus. Compared to the actual levels of wage and price inflation in 1974 and 1975 (average wages increased by 15 per cent in 1974, 17 per cent in 1975 and 16 per cent in 1976), the reductions in wage and price growth are minute. It is interesting to note the phazing-out problem illustrated by the model. When the price-freeze is lifted in 1976 prices increase to baseline levels but in addition, the expansionary effects of the freeze increase prices and wages further for some time before these effects eventually disappear.

Effects of subsidies and payroll taxes 1973-1980

Incomes policies in this period consisted of combinations of price freezes and increased subsidies. Taxes and some transfers (especially family allowance) were changed in conjunction with the central wage settlements. Also changes in food subsidies, transport subsidies and two reductions in payroll taxes in 1976 and 1977 are regarded as part of incomes policies. We choose only these instrument and not other parts of fiscal policy, since the use of the chosen instruments have been largely limited to this period and because the use of these instruments were said by the government to be an explicit part of incomes policies. We thus exclude changes in direct taxes and transfers. For direct taxes, considerations of possible direct effects on wage formation have been present at many occasions, as can be seen from the budget proposals, but the overall impression is that the demand regulating effects of tax policy has been the dominant motivation behind the use of tax policy, at least until the late 1980s where efficiency arguments motivated general tax reforms.

We thus analyse the effects of increasing food and transport subsidies in the 1970s, and of reducing payroll taxes in 1976 and 1977, compared to a reference simulation where these variables retain their 1973-level during the whole period. The subsidies were quickly dismantled in the early 1980s, but in our reference simulation we continue the high level of subsidies after 1980. In this way we may detect possible long run effects of the increased subsidies until 1980, and do not mix these effects with the effects of the policy reversal of the early 1980s. The details of these variables were shown in figures A.1, A.3 and A.4 in appendix A. The results from the simulation are shown in table 3.2.

Table 3.2. Macroeconomic effects of increased subsidies and reduced payroll tax rates, compared to 1973 level. Deviations from reference simulation in per cent unless otherwise stated

	1974	1975	1976	1977	1978	1979	1980	1985
Average hourly wages	0.0	-0.1	-0.1	0.3	0.7	1.0	1.4	1.8
Consumer prices	-0.7	-1.1	-1.4	-1.6	-1.5	-1.4	-1.2	-0.7
Current account/GDP[1]	-0.2	-0.2	-0.5	-0.6	-0.5	-0.5	-0.5	-0.7
Government balance/GDP[1]	-0.9	-0.7	-0.7	-1.0	-0.4	-0.4	-0.4	-0.4
GDP mainland	0.2	0.8	1.1	1.4	1.6	1.5	1.5	1.4
Unit labour costs[2]	-0.3	-1.2	-1.2	-1.4	-1.1	-1.0	-1.1	-1.8
Unemployment rate	0.0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.0

[1] Per cent-points
[2] Manufacturing

As subsidies increased each year until 1978, consumer prices are reduced compared to the reference simulation where these policies are not implemented. Nominal wages are much less reduced, and much less than what is implied by the wage and price equations themselves. The idea was that lower consumer prices as a consequence of increased subsidies, should lower wages and prevent losses in competitiveness while reductions in the payroll tax should reduce the costs of the firms. Real wages increased in all years and from 1978, even though unit labour costs declined somewhat. From 1978 even nominal wages are higher than without this policy. This result appears of two reasons. First, increased subsidies is an expansionary fiscal policy measure, which lowers unemployment through traditional demand effects. The effects on wages from lower unemployment are strongly non-linear. A reduction in unemployment will increase wages much more when unemployment initially is low - as was the case in the 1970s - than when it is high. Increased subsidies thus seems to have produced

higher, not lower, wages after some years. Second, lower payroll taxes motivated higher wage increases, according to the model, due to higher profitability. Still hourly wage costs is lower than in the reference simulation. Third part of the wage increases is also a result of higher productivity due to the effects of increased activity combined with the existence of economies of scale in the model.

From 1981 and onwards, the policy impulse is the same as in 1980. The changes in the macro-economic effects from 1980 to 1985, when there are no new policy changes, are delayed adjustments to policy changes until 1980, as well as interest rate effects on the current account and government balance. Crowding out effects seem to continue after 1980 since unemployment is below reference levels during the whole period.

Our conclusion is that due to low unemployment during most of the 1970s, the demand effects on wages were clearly stronger than the direct wage-moderating effects of increased subsidies. Thus the price reducing effect of higher subsidies was counteracted by higher wages. Improvements in cost competitiveness were due to lower payroll taxes. Thus incomes policies resulted in higher output and lower prices, but also a larger current account deficit because the demand effects on imports were more important than the effects of changes in cost competitiveness.

Effects of wage and price freezes 1978-79

From 1975, countercyclical policies were conducted in Norway, attempting to keep domestic demand high and unemployment low in a cyclical downturn among Norway's trading partners, after OPEC I. The prospects for future oil revenues from the recent discoveries of petroleum, was a premise for this policy and the current account was allowed to show large deficits. However, by late 1977 the current account deficit was considered unsustainable, and a change of policy was necessary. In late 1977, monetary policy was tightened. The currency was devalued in early 1978, from when price controls were legislated. From September 1978, a full wage and price freeze was implemented, which implied that no increases in wages and incomes were allowed, except price increases due to higher import prices. This period of very tight regulations were in effect through 1979. Temporary price controls were again implemented during 1981, in order to limit catch-up effects after the period of regulation.

We analyse the partial effects of these regulations, given the development of other factors such as exchange rates and fiscal policy. Dummy variables in the wage and price equations capture the direct effects. In the policy simulation, we remove the wage and price freeze of 1978 and 1979 as well as the price controls in 1981. Table 3.3 and figure 3.1 and 3.2 show the main macroeconomic effects.

According to the wage equations, the wage freeze did not affect wages until 1979Q2, while prices were affected from the beginning of the freeze (1978Q3). Our interpretation of this result is that the wage freeze eliminated the wage negotiations in 1979Q2 and that the reduction in wage inflation from 1978Q3 follows from the effect of lower price inflation on wages included in the wage equations. Thus, consumer prices are lowered already in 1978, while wages are only reduced from 1979. In 1979, the total reduction in average hourly wages is estimated to 2.8 per cent due to the regulations. However, the effect on real wages was less than 1 per cent in 1979 since consumer prices were also lower.

In 1980, regulations were abandoned. Estimated catch-up effects are strongest in the price equations, and this helps explain the development of prices in 1980. According to the model, wages are strongly influenced by previous consumer prices, which explains why wages are even lower compared to the reference simulation in 1980 - after the lifting of controls - than in 1979. Consumer prices are back at historical or reference levels already in 1981, while the wage-moderating effects of the regulations seem more persistent; they are substantial even in 1981. From 1982 and onwards, the effects on both wages and prices are minor.

Table 3.3. Macroeconomic effects of the 1978/79 wage/price freeze and the 1981 price controls. Deviations from reference simulation in per cent unless otherwise stated

	1978	1979	1980	1981	1982	1983
Average hourly wages	-0.0	-2.8	-4.2	-1.9	-0.4	0.0
Consumer prices	-0.3	-2.2	-1.6	0.0	0.1	0.0
Current account/GDP[1]	0.0	0.0	0.6	0.2	-0.2	0.0
Government balance/GDP[1]	0.0	0.1	0.2	0.4	0.6	0.3
GDP mainland	0.0	0.1	0.0	0.8	0.9	0.4
Unit labour costs[2]	0.0	-2.9	-4.0	-0.9	0.1	-0.2
Unemployment rate	0.0	0.0	-0.2	-0.3	-0.2	-0.1

[1] Per cent-points
[2] Manufacturing

The GDP and unemployment effects are even more persistent. Private consumption is reduced in 1979 and 1980 due to income effects. However, increased investment due to increased profitability and especially higher exports as a consequence of the reduction in domestic costs, lead to an increase in overall activity. The figures show some interesting dynamics. After three years of increased investment, this effect disappears as the desired increase in capacity in the private sector is reached. Export effects are persistent, and as employment increases and real wages return to reference levels, a strong expansion of private consumption takes place.

Unemployment is reduced following the regulations. The maximum effect is a reduction of 0.3 per cent-points in 1981, but gradually disappears. The employment effects are twice the effects on unemployment, since changes in employment induce partly offsetting changes in labour supply due to «discouraged worker» effects in the labour supply equations.

Since current account imbalances were the major motivation behind the freeze, it is of interest to note that improvements on the current account/GDP-ratio are modest. The strongest effects are in 1980, *after* the regulations were lifted. In 1980, the improvement is 0.5 per cent-points of GDP, which is rather small compared to the actual levels in the period. Although exports are stimulated, lower export prices than in the reference simulation partly offset this. In the analysis, import prices are assumed exogenous. There exist studies indicating that lower domestic costs exert a negative impact on import prices, e.g. the analysis in Naug and Nymoen (1996). Such mechanisms are not included in the KVARTS model. The results might therefore underestimate the positive short run effects on the current account as well as on inflation and wages. However, the long run result of small effects should not be much affected.

Figures 3.1 and 3.2 show the actual and no incomes policy simulations for consumer price inflation and wage inflation. Wage inflation was already reduced from around 15 per cent in the mid-1970s. Lower productivity growth and increased unemployment in 1978 accounted for parts of the reduction in wage inflation these years. Without the wage and price freeze, inflation would have been higher in 1978 and 1979 but lower from 1980 to 1982. A surge in inflation in 1980 would still have taken place, since import prices soared after the second international oil price hike of OPEC II and net indirect taxes were raised from 1981. Effects on consumer price inflation are less persistent than the effects on wage inflation. The inflation rate is back at the level in the reference simulation from the beginning of 1982.

The gains in competitiveness during the period of regulations were largely eliminated after four years according to our simulations, though minor longer term improvements might be detected. The fiscal balance is quite significantly improved even in the medium term since private sector activity has been stimulated with no initial budgetary cost, resulting in higher tax revenues. An overall assessment may be that the regulations in 1978/79, had some positive effects in a medium term perspective in that output

was higher, unemployment lower and fiscal balances were improved. But it is worth noticing the transitory nature of most changes. The potential negative effects due to misallocation of labour and smaller incentives are not an explicit part of the analysis, and the assessment of these is beyond this analysis. As is apparent from figures 3.1 and 3.2, wage and price inflation were significantly affected during 1979-1981 and without the freeze, inflation rates would have been much more stable.

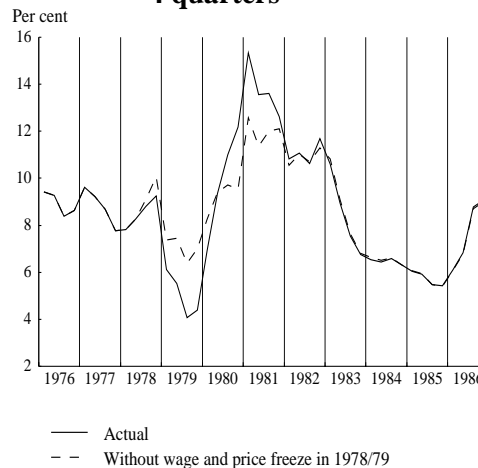**Figure 3.1. Wage growth over 4 quarters**

Per cent

— Actual
- - - Without wage and price freeze in 1978/79
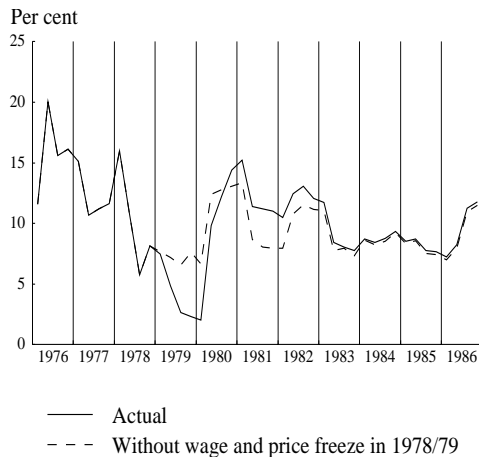
Figure 3.2. Consumer price growth over 4 quarters

Per cent

— Actual
- - Without wage and price freeze in 1978/79

Shift to indirect taxation and reduced progressivity 1981-1985

In the early 1980s, political attitudes were turning in more market-friendly directions. In 1981, a major decline in direct taxation and increases in several indirect taxes were made by the labour government in its last year in power. The conservative government continued the policy of reducing direct taxes and at the same time increasing indirect taxes and reducing subsidies from 1982 and onwards. Direct taxes were reduced more than the increase in indirect taxes, whereas government consumption growth was slower than before. This policy came to a halt in 1985, when the boom and the following current account crisis made tax increases necessary. Since we are interested only in the part of fiscal policy that can be considered motivated by incomes policies, we will limit the analysis to the partial effects of the change from direct to indirect taxes. We will thus not analyse the effects of the net tax reduction (direct and indirect taxes) that actually was undertaken in this period. From 1981 to 1985, both marginal and average taxes were reduced. However, the progressivity coefficient - the elasticity of after tax income with respect to pre-tax income - increased slightly during this period, which means that progressivity was reduced. This was a break with the continuous increase in progressivity in the 1970s. According to our wage model, an increase in indirect taxes and an offsetting decrease in direct taxes have no long-run effect on wages. Also, reduced progressivity for a given average tax rate, raises wages. In this period, it seems that according to the government's view, both reduced marginal taxes and reduced average taxes were considered to moderate wage demands. In our analysis, we look at these effects separately. First we study the effects of the reduction of direct taxes that actually were made, at the same time as an increase in indirect taxes of equal magnitude. Then we analyse the partial effects of the reduction of progressivity that took place during 1981-1985, while leaving the average direct tax level and indirect taxes unchanged.

In order not to mix long run effects of policy between 1981 and 1985 with short run effects of policy changes after 1985, we construct a hypothetical reference simulation where taxes were continued at

their 1984 levels until 1990. This enables us to trace effects of the pre-1985 policy changes after 1985[1]. The main results are shown in table 3.4.

Table 3.4. Macroeconomic effects of the direct tax reductions 1981-1984 and corresponding increase in indirect taxes of equal magnitude. No tax progressivity effect in wage equations Deviations from reference simulation in per cent unless otherwise stated

	1981	1982	1983	1984	1985	1990
Hourly wages	0.4	1.4	1.4	1.6	1.3	-2.1
Consumer prices	2.3	3.1	4.4	5.3	5.4	4.1
Current account/GDP[1]	-0.2	-0.4	-0.3	-0.4	-0.5	-0.1
Government balance/GDP[1]	0.2	0.0	-0.3	-0.3	-0.2	-0.4
GDP mainland	0.2	0.2	-0.2	-0.2	-0.3	-0.4
Unit labour costs[2]	0.5	1.5	1.5	1.6	1.4	-0.3
Unemployment rate	0.0	0.1	0.1	0.2	0.1	-0.1

[1] Per cent-points
[2] Manufacturing

Higher indirect taxes are by assumption immediately passed on to market prices, while reductions in direct taxes take time to affect wage rates and the firms' pricing decisions, according to the model. The net effect of this is higher prices. Nominal wages increase despite lower direct taxes because of strong short-run effects of consumer prices in the wage equations. Private consumption increases in the short run due to lower real interest rate. However, as wages increase, competitiveness is reduced, exports decrease and import shares increase. This is the main factor behind the negative GDP effects from 1983. The current account and the government budget balance deteriorates during the first five years as a consequence of worsened competitiveness and lower economic activity. Higher unemployment moderates the wage increases. In the long run, wages tend to decline below the reference simulation level, and the initial weakening in competitiveness is reduced. In 1990, the final simulation year, unemployment is actually lower than in the reference simulation, while both the current account and the government balance is virtually unchanged compared to the reference simulation. The reason is mainly factor substitution due to a decrease in real wages which increase employment in spite of lower GDP. This reduces also labour productivity and real wages even further.

However, evidence, including our wage equations, supports the hypothesis that increased progressivity

Table 3.5. Macroeconomic effects of the direct tax reductions 1981-1984 and corresponding increase in indirect taxes of equal magnitude, combined with effects of reduced progressivity on wages. Deviations from reference simulation in per cent unless otherwise stated

	1981	1982	1983	1984	1985	1990
Hourly wages	0.3	1.6	1.9	2.5	2.7	0.1
Consumer prices	2.3	3.1	4.5	5.6	5.8	5.2
Current account/GDP[1]	-0.2	-0.4	-0.4	-0.6	-0.7	-0.6
Government balance/GDP[1]	0.2	0.1	-0.3	-0.3	-0.2	-0.7
GDP mainland	0.2	0.2	-0.2	-0.2	-0.3	-0.7
Unit labour costs[2]	0.5	1.8	2.1	2.7	3.0	2.6
Unemployment rate	0.0	0.1	0.2	0.2	0.2	0.1

[1] Per cent-points
[2] Manufacturing

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[1] This would obviously have produced a different trajectory for all endogenous variables than in the simulation where policy was equal to the actual development. In particular a different trajectory for unemployment can have a significant effect on model multipliers. In order not to introduce assumptions wrt. unemployment that some would find arbitrary, we just assume that in our reference simulation for this policy shift, all endogenous variables are equal to the actual development. The policy shift is made as if taxes were kept unchanged at their 1984 level.

results in lower wages, cet. par. In the next simulation, we have undertaken the same policy shift as above and added the change in the progressivity variable (RIP) from 1980 to 1985. The main results are shown in table 3.5.
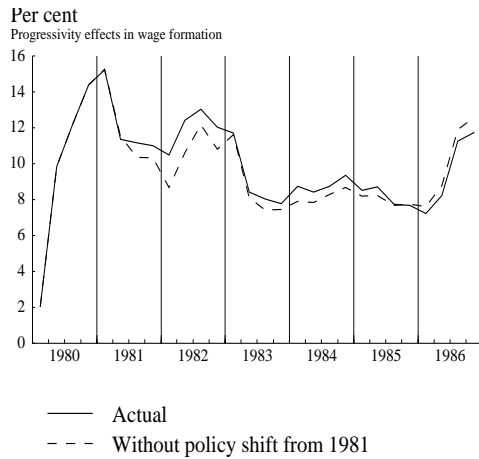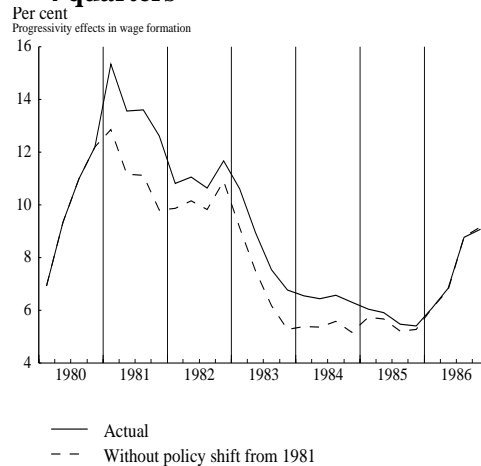
Figure 3. 3. Wage growth over 4 quarters

Per cent
Progressivity effects in wage formation

——— Actual
- - - Without policy shift from 1981

Figure 3. 4. Consumer price growth over 4 quarters

Per cent
Progressivity effects in wage formation

——— Actual
- - Without policy shift from 1981

The results are strikingly different. The wage level is clearly higher in this simulation. The effects on unemployment, current account and the government balance are also more negative when the wage effects of reduced progressivity are taken into account. It is of special interest to note that relative unit labour costs seem to stabilize at 3 per cent above the level in the reference simulation. Clearly this policy was not successful in improving competitiveness and reducing inflation. A glance at figure 3.4 reveals that the very high inflation rate in 1981 and to some extent also in the following three years, were partly the result of domestic policy changes and not only an OPEC-II effect. Also, higher real wages, which were the result of lower tax progressivity led to somewhat higher unemployment and lower output. Thus, this kind of "dynamic tax policy" can hardly be regarded as successful according to our simulations.

Exchange-rate based incomes policies 1982 and 1984

The 1970s had seen a continuous increase in relative unit labour costs. The conservative government in power from September 1981 at one occasion undertook two exchange rate adjustments (the first by technical adjustments of the foreign currency weights in the currency basket) in August and September 1982. There was no exchange rate crisis previous to these devaluations; due to the previous oil price hike and increased oil production, the government balance and the current accounts were in solid surpluses. This change was explicitly motivated by the goal of improving cost-competitiveness[2]. The effective devaluation in 1982Q3 was 6 per cent, according to the National Budget of 1983. In 1984, the currency was devaluated twice again, each time by 2 per cent.

In this section, we simulate the partial effects of these currency depreciations, by assuming a gradual increase in import prices during the following 4 quarters, in order to emulate pricing-to-market behaviour for imports, not embedded in the model, cf. Naug and Nymoen (1996). As all price equations are homogenous of degree one in competitors' prices and variable unit costs, and the wage equations are homogenous of degree one in prices, one should expect a full pass-through of the depreciation and no medium to long run effects on competitiveness. The macroeconomic results are shown in table 3.6.

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[2] In the National Budget of 1983, it was stated (own translation) that "By the exchange rate changes implemented this fall, the government has made possible significant changes [in competitiveness] already next year".

13

Table 3.6. Macroeconomic effects of the currency depreciation of 6 per cent during August and September 1982, 2 per cent in July 1984 and 2 per cent in September 1984. Deviations from reference simulation in per cent unless otherwise stated

	1982	1983	1984	1985	1990	1993
Average hourly wages	0.0	0.6	2.3	4.7	11.4	11.8
Consumer prices	0.3	1.4	2.9	5.0	9.3	10.0
Current account/GDP[1]	-0.1	-0.5	0.0	-0.1	-0.1	0.0
Government balance/GDP[1]	0.1	0.4	1.0	1.5	0.3	-0.1
GDP mainland	0.1	0.3	0.9	1.5	0.6	0.1
Unit labour costs[2]	-4.0	-5.7	-5.3	-5.8	-0.8	-0.5
Unemployment rate	0.0	-0.2	-0.3	-0.5	0.0	0.3

[1] Per cent-points
[2] Manufacturing, adjusted for changes in the exchange rate.

The devaluation rapidly increases import prices and feed into consumer prices. The effect on wages is somewhat delayed. Thus real wages are reduced in the short run and competitiveness is improved significantly. The major output effects do not occur until 1984-1986, 2-4 years after the devaluation. Export volumes increase, which trigger increases in investment. Falling real wages initially depress private consumption, but GDP effects are positive already from 1983 due to favourable net export effects. Lower real wages and increased GDP in the medium term raises employment and reduces unemployment, but by 1990, employment is back on the reference path. Both wage and consumer price inflation are above reference levels for more than 5 years, cf. fig. 3.5 and 3.6. Although they approach reference simulation levels at the end of the simulation period, both private consumption and investment are higher than reference levels.

The investment boom in the exposed sectors induces higher productivity which also feeds into wages. In the long run the average hourly wage rate is increased by nearly 12 per cent, as a consequence of the 10 per cent devaluation. Still, competitiveness is improved because increased productivity in sheltered sectors which affects consumer prices as well. The positive effect on the government balance is mainly due to increased tax revenues following higher activity. The effects on the current account are small. We see few signs of J-curve effects, because of the large current account surpluses in the reference scenario.

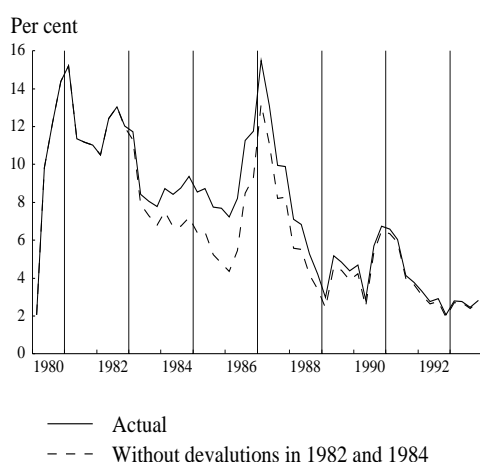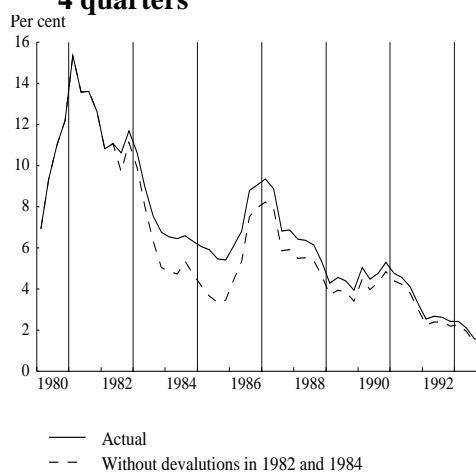**Figure 3.5. Wage growth over 4 quarters**

Figure 3.6. Consumer price growth over 4 quarters

According to our analysis, the devaluations had quite persistent effects. They even affected employment positively in the booming years 1985 – 1987, while unemployment was low. A hitherto

unnoticed effect of the 1982 and 1984 devaluations, may thus have been to expand activity and increase the pressure in the labour market three to five years after the devaluation.

Direct wage regulations 1988-89

A large current account deficit appeared after the fall in oil prices in 1986, and the need to restore competitiveness and current account balance was urgent. After a business cycle peak in 1987, the economy went into a recession. However, a negotiated reduction of normal working time came in effect from 1. January 1987, preventing the downturn to feed into increased unemployment until 1988. The krone was devalued by 10 per cent effectively in May 1986. However, according to the government, the cost-problems of the Norwegian economy could not be solved by devaluations. The government committed itself to a fixed exchange rate policy after the devaluation. In order to improve competitiveness direct interventions in wage formation was introduced again, 10 years after the wage and price freeze in the late 1970s. In the wage settlement in 1987, it was agreed that no central wage increases should be given. However, normal bargaining took place at the plant level. In spring 1988, after talks with the dominant trade union, LO, a law prohibiting wage increases above a specific limit was enacted, and the law prohibited wage negotiations at the plant level. This law was in effect through 1989Q1. From then on a second law was enacted, which was considered less restrictive in limiting the negotiation between employers' associations and unions. Also, normal central wage bargaining between LO and the employers' organisation (NHO), took place. According to the second wage law, no wage-earners should have larger wage increases than agreed upon in the central wage negotiations between LO and NHO. However, it was left to the negotiating parties to arrive at an acceptable average wage increase.

The effects of the two income regulating laws in 1988 and 1989 have been analysed using a previous version of KVARTS, cf. Eika and Johansen (1991). Their conclusion was that the first law, where the authorities declared limits on wage inflation, was effective. However, no further effects were detected from the second law, except perhaps a delayed catch-up effect. As the model now contains estimated effects in the wage equations of the first wage regulation law (while the second law came out insignificant), we will report results from a model simulation where the dummy variables for the wage controls in 1988 are set to zero. The conclusions of Eika and Johansen (1991) are very much in line with our results. The main effects are summarized in table 3.7.

Table 3.7. Macroeconomic effects of the wage regulation laws in 1988 and 1989. Deviations from reference simulation in per cent unless otherwise stated

	1988	1989	1990	1991	1992	1993
Average hourly wages	-2.2	-3.7	-2.4	-1.2	-0.7	-0.3
Consumer prices	-0.3	-0.9	-0.9	-0.9	-0.7	-0.5
Current account/GDP[1]	0.1	0.6	0.7	0.2	0.1	0.2
Government balance/GDP[1]	0.0	0.0	0.2	0.3	0.3	0.2
GDP mainland	-0.1	-0.3	-0.1	0.3	0.4	0.2
Unit labour costs[2]	-2.0	-2.9	-1.1	-0.9	-0.9	-0.8
Unemployment rate	0.0	-0.2	-0.2	-0.1	-0.2	-0.1

[1] Percentage points
[2] Manufacturing

The wage laws resulted in significant reductions in nominal wages on an annual basis both in 1988 and 1989. The main effect came through manufacturing wages that spread to wages in private services and the government sector. As consumer price inflation has a large short-run effect on wages in the whole economy, lower consumer prices through lower wages in the sheltered sectors, reinforced the wage-moderating effects. Thus average hourly wages was growth lower in 1989 than in 1988, even though the regulation dummies are only present in 1988Q2-1989Q1. The catch-up effect in the wage equation is only present after the second wage law was lifted, in 1990Q2. The effect of the second

wage law was thus to delay the catch-up effect and to prolong the regulation effects according to our analysis. By late 1993, the wage level is back at the reference simulation level. Figure 3.7 shows the 4 quarter wage inflation in both simulations. After the very high wage inflation of 1986/87 partly as a result of shorter working hours, wage inflation was rapidly falling. According to our analysis, wage inflation would have been 7-8 per cent during 1988, when unemployment was still low, and would only have started to decline during 1989 when unemployment was rising rapidly to unprecedented levels. The effect of the wage laws was thus to speed up the adjustment of wages to a new equilibrium level generated by the new and higher unemployment. The figure also highlights that the surge in wage inflation during 1990 was mainly a catch-up effect after the abolition of the wage laws.

Real wages were also temporarily reduced, but are back on reference levels by 1991-92. From 1988 to 1992 lower real wages reduced private consumption. Through lower unit labour costs, net exports increased. The net effect on GDP was slightly negative in 1988-90, but positive from 1991. Lower real wages induced lower unemployment, mainly through factor substitution. According to the labour demand functions of the model, lower wages relative to prices on intermediate inputs and lower capital stock, raises the labour intensity of the economy. Increased employment raises tax revenues, which is the main factor behind the positive effect on the government balance. The current account improves less in the short run due to reduced financial saving in the private sector. This partly reflects the reactions of the household sector, where it takes time before real income reductions feed into reductions in consumption implying reduced saving.
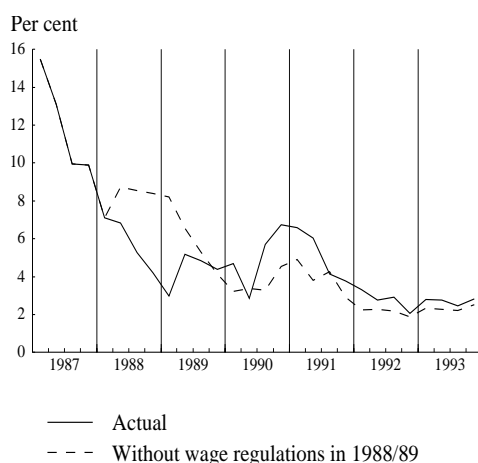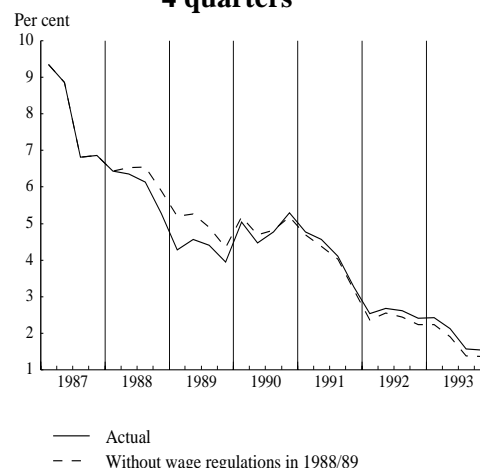
Figure 3.7. Wage growth over 4 quarters

Per cent

———— Actual

– – – Without wage regulations in 1988/89

Figure 3.8. Consumer price growth over 4 quarters

Per cent

———— Actual

– – – Without wage regulations in 1988/89

What is noticeable with the results in table 3.7 is that there are some quite persistent effects of these two wage-laws. This persistency was not visible as a result of the wage and prize freeze a decade earlier. Why this difference? First of all, the policy was different in that there was no price freeze that accompanied the wages laws. Thus the shock to real wages was larger in 1988/89 than in 1978/79. Second, the wage laws in 1988/89 were introduced when unemployment was increasing to unprecedented high levels (from 2 per cent in 1987 to 5 per cent in 1990) while unemployment was roughly constant around 2 per cent a decade earlier. Thus when the wage laws were lifted the labour market was in a very different state compared to when the laws were introduced.

Conclusions

The conduct of incomes policies in Norway has been facilitated by high union density and centralized wage bargains as well as an even more centralized organization on the side of employers. Close links

between the most powerful trade union (LO) and the Labour Party have also been important, although incomes policies have been conducted by other governments as well. Incomes policies in Norway have consisted of numerous elements, of which only a few can be captured in a macroeconomic analysis like ours. Legislation regarding wage settlements including arbitration, union organisation, timing of negotiations, guidelines, establishment of expert groups and for a for exchange of information etc. may all be seen as part of incomes policies. Our analysis is confined to the use of policy instruments such as wage and price regulations and some instruments of fiscal and monetary policy which directly interfere with the formation of wages and prices. To include some fiscal policy variables as part of incomes policies may seem strange but this is really no different from say discussions of tax-based incomes policies (TIP) which include tax variables.

Some conclusions can be drawn from our model exercise.

1. Both periods of direct regulation of wages, in 1978/89 and 1988/89 had effects that probably were more persistent than many had expected. Both regulations were undertaken in periods of external imbalance and helped the economy approach equilibrium values for wages and prices. Although domestic demand was reduced through this policy, the analysis shows that unemployment were lowered, due to gain in market shares and factor substitution. In particular, the effects of the 1988/89 wage laws are more protracted which may be due to the fact that these laws were phazed out at a time when wage pressures were decreasing due to rapidly increasing unemployment. This echoes the view of Malinvaud sited in the introduction that "..the characteristics of the situation to which it applies" is important for the eventual success of incomes policies. This view is of course only valid if there are important non-linearities in the economy, and the wage curve is one example of this.

2. The price-regulations as well as the tax- and subsidy-based incomes policies of the 1970s resulted in higher domestic demand. The main reason seems to be that this policy implied an expansionary demand impulse in a situation where the direct wage-increasing effects of a further reduction of unemployment, were very strong.

3. The policy shift from direct to indirect taxation in the early 1980s, increased consumer prices and unemployment. In addition the current account worsened. Viewed as a "supply-side" policy it cannot be considered successful as costs increased and mainland GDP were reduced, at least in the medium term. These results are due to the different effects to tax changes depending on the weight that is put on reducing tax progressivity. Within a bargaining framework for wage formation, lower tax progressivity may not be as "productive" in terms of output as is often contemplated in models where the effect on labour supply is the main factor in shaping the results.

4. The devaluation policy of 1982 and 1984, had expansionary effects, and helped lowering unemployment in Norway in the boom years of the middle 1980s, but at the expence of higher inflation. Thus, the positive short and medium term effects on cost competitiveness were eroded. This result were later acknowledged by Norwegian policy makers and has led to the conclusion that devaluations are not seen as the way to improve competitiveness in the long run. Instead, incomes policies are regarded by the present government as well as the employers and trade unions as important for competitiveness. Since 1993, a policy package called "the solidarity alternative" has been operating indicating at least at the "verbal" level, incomes policies in Norway are alive.

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Incomes policies 1973-93

The importance of incomes policy considerations for the government policy mix in Norway has varied over time. In some cases, exchange rate policy was used explicitly to influence cost-competitiveness such as devaluations in 1982 and 1984 while devaluations must be seen more as forced upon the authorities after the fall in oil prices in 1986. In some situations incomes policy considerations have been important for tax policy, whereas demand management or efficiency arguments have been decisive for tax policy in other cases. Thus, any definition of incomes policy will be subject to dispute. However, especially in the 1970s, certain incomes policy instruments can be identified. Both in the 1970s and in the 1980s incomes policy considerations were important for the use of certain fiscal policy instruments.

The period 1973-1981

In the 1970s, incomes policies were used in order to reduce wage inflation and loss of cost competitiveness in a situation with historically very low unemployment in Norway. Average unemployment between 1970 and 1979 was 1.7 per cent which was lower than during the 1960s. Low unemployment was partly based on current and expected future growth in export earnings from the newly discovered petroleum resources, which allowed high growth in domestic demand, despite slow growth for Norway's trading partners. Policy-makers looked for new instruments in order to reconcile historically very low unemployment, the phazing-in of oil revenues while at the same time preventing high inflation and loss in competitiveness. A government with these objectives surely needed potent policy instruments and incomes policies were believed to be one answer.

Table A1. Price freezes and profit regulations 1973-1981

22. Feb. 1974- 30. May 1975	Mark-up freeze. Liberalisation 20. Sept. 1974.
1. Sept. 1975- 31. Dec. 1975	Price freeze on all goods and services.
13. Sept. 1976- 31. Dec. 1976	Price freeze for the 300 largest firms. Profit freeze for textile and clothing industries.
26. Apr. 1977- 10. Feb. 1978	Restrictive price regulations; can be interpreted as profit freeze.
From 10. Feb.1978	Price freeze. Liberalisation from 7. April. Followed in 23. June by restrictive price regulations.
12. Sept. 1978- 31. Dec. 1979	Price freeze.
1. Jan. 1980- 31. Dec. 1980	Price and profit regulations. Liberalisation from 18. July.
3. Aug. 1981- 31. Dec. 1981	Price- and profit freeze.

Source: Bowitz and Cappelen (1994).

The 1970s represent an innovation in term of incomes policies compared to the 1960s by its heavy reliance on price and partly also wage controls. The government participated in the central wage bargains more directly (the so-called "Combined income settlements") by promising certain tax reductions and/or subsidy and transfer increases against a promise from the trade union LO to limit

wage demands. Temporary price controls were used extensively to prevent the consumer price index (CPI) to exceed levels that were anticipated in previous wage settlements. In this way wage increases could be prevented or at least modified. Table 1 shows the price freezes and regulations during 1973-1981. After 1981, no similar regulations have been implemented.

According to the annual National Budgets, certain changes in fiscal variables were considered mainly to be part of incomes policies. Direct taxes, food and transport subsidies as well as certain transfers (especially the so-called family allowance) were considered by the government to affect the results of the wage bargains. Also, in various National Budgets it was stated that planned price increases on transport (which was both heavily regulated and subsidized) were delayed due to incomes policy considerations. Similar arguments were also used for changes in personal taxes. However, many other tax and subsidy changes were undertaken in this period, without anyone saying that *these* changes should be considered part of incomes policies. This applies both to direct taxes, indirect taxes and subsidies as well as family allowances. A number of excise taxes were in some years subject to changes (indexation to the overall price level as well as larger nominal increases). Table A2 summarizes the use of fiscal instruments mentioned in the National Budgets as part of incomes policies.

Table A2. Fiscal incomes policy measures and some major incomes policy regulations

1974	Increased food subsidies by 250 mill. NOK on a yearly basis. Delaying price increases on domestic transport by increased subsidies. Some other subsidies increased as well.
1975	Overall unchanged level of subsidies. Reduction in direct taxes by 0.2 per cent-points as part of government participation in central wage settlements.
1976	Government participation in income settlements containing: Further tax reduction of 0.2 per cent-points as part of wage settlements. Family allowance increased by 13 per cent from 1. Nov. 1975. Reduced payroll tax rate by 0.5 per cent-points.
1977	Government participation in income settlements containing: Reduction in direct taxes. Temporary reduction of payroll tax rates by 0.5-points in second half of the year. Certain further increases in food subsidies. Prices of public transport were increased less than what would otherwise have been (subsidies).
1978	Government participation in wage settlements, but no use of fiscal instruments in the settlement. Wage freeze from 13. September 1978.
1979	Wage and price freeze during the entire year.
1980	Direct taxes reduced 0.5 per cent-points. Family allowance increase.

It is very difficult to reach an universally acceptable distinction between tax changes that were part of incomes policies and tax changes that were «purely» fiscal. Below we show that some instruments (e.g. average direct taxes) have varied much more than described in the National Budgets as motivated by incomes policies. Still, some fiscal policy instruments have solely or at least mainly been motivated by incomes policy considerations, and should not be excluded from our analysis.

Consumer food subsidies are shown in figure A1. These subsidies were the main fiscal instruments used as a part of incomes policies in the 1970s. Subsidies were increased significantly for the first time in 1974, remained unchanged in 1975 and increased significantly again in 1976 and 1977. The subsidy level in real terms was roughly unchanged until 1980, but from then on these subsidies were gradually removed as a part of the regime change in incomes policies. After 1980 the reliance on government participation in the income settlements and the use of subsidies to limit wage increases, were reduced. The reduction of the subsidies took place throughout 1980s, though the bulk of the reduction was

undertaken from 1980 to 1981, when the Labour Party was still in government. The reduction in subsidies in 1987 was combined with lower income taxes that year.

The family allowance per child 0-15 years is shown in figure A2. The changes in the 1970s seem modest compared to the large increases since 1980. However, in the 1980s, government documents indicate that these increases were considered as part of welfare policies not as incomes policies. One may question the presumption behind the National Budgets in the 1970s that one particular transfer - the family allowance - should have a particular wage-moderating effect, while other transfers should not. And even if this was the case in the central wage settlements, wage drift may have eliminated such effects[3].
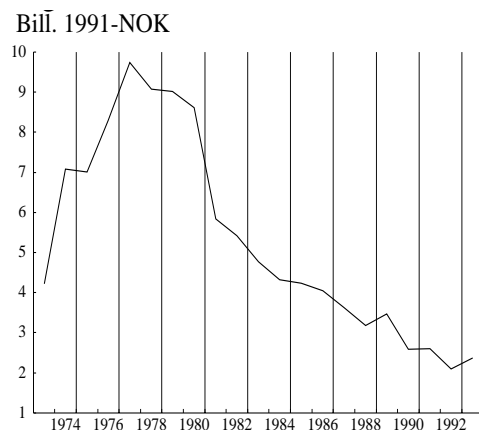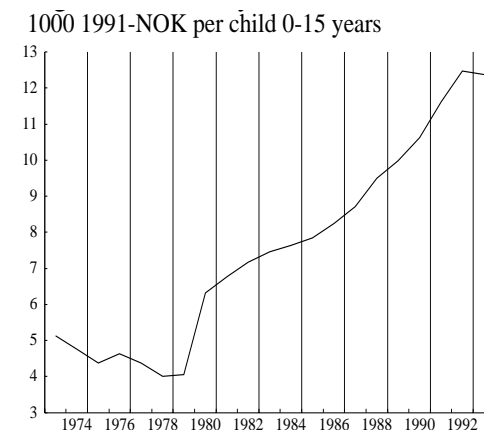
Figure A1. Consumer subsidies

Bill. 1991-NOK

Figure A2. Family allowance

1000 1991-NOK per child 0-15 years

Transport subsidies have been used to prevent price increases on several occasions, and statements supporting this view are found in the National Budgets. While net sectoral taxes (taxes minus subsidies) in the Domestic transport sector were approximately zero in the early 1970s, subsidies from then on increased rapidly so that net sectoral taxes as a part of value added in the transport sector were -5 per cent by 1975. From 1981, declining subsidies lead to an increase in net sectoral taxes in the Domestic transport sector until it reached the level of the early 1970s again in 1987. After 1987, net taxes have been reduced. For a separate analysis of the 1970s, it might be tempting to consider the net tax reduction in 1974 and 1975 as part of incomes policies and the development from 1981 to 1985 as the reversal of this policy. This series has a pattern that resembles that of consumer subsidies. Transport subsidies are shown in figure A3.

As foreign demand plummeted after OPEC I, the Norwegian government pursued a "bridging" countercyclical policy under the assumption of a temporary foreign cyclical downturn. However, the Norwegian economy went into a current account crisis accompanied by severe deterioration in com- petitiveness, as measured by relative unit labour costs in manufacturing. In order to curb domestic demand and restore cost-competitiveness, a currency devaluation of 8 per cent was undertaken in February 1978. A price freeze was enacted, but the central wage bargain in 1978Q2 took place without government participation. After the result from the settlement was clear, a law prohibiting further nominal income increases until the end of 1979, was enacted with consent from the major trade union (LO). This prevented further wage drift at the plant level, it prevented other sectors than manufacturing to obtain higher wage increases and it was also aimed at regulating the incomes of self-

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[3] For long it had been suspected that wage drift undermined centrally negotiated wage settlements. This was the basis for a government commitee from 1973 (NOU1973:36) that advocated corporatist solutions. However, they were never enacted. Similar views can be found 10 years later in a government expert report on income generation in Norway (NOU 1988:24), where it is argued that local wage drift had been underestimated in the central wage settlements.

employed and regulating capital income. The devaluation in 1978 seemed forced upon the government by the existing situation. We analyse the effects of the wage and price freeze, while we consider the currency devaluation not to be a part of incomes policies.
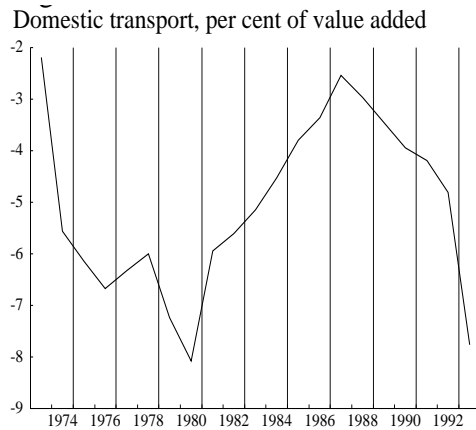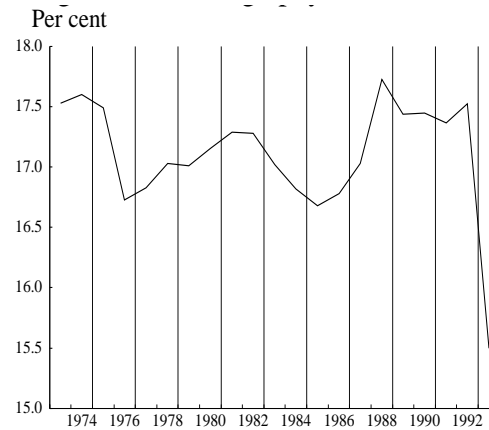
Figure A3. Net sectoral taxes

Domestic transport, per cent of value added

Figure A4. Average payroll tax rate

Per cent

We define the following policy changes during the 1970s as being part of incomes policies:
- Temporary price controls during the 1970s.
- Increased food and transport subsidies and lower payroll taxes from 1974 to 1975.
- The wage freeze in 1978-79 which was accompanied by a price freeze.

In 1980, after the international price hike after OPEC II and the phazing out of the wage-price freeze in Norway, inflation soared. For this reason many concluded that the interventionist incomes policies of the 1970s had failed. They had not prevented a price and wage-explosion and the real wage increased significantly leading to loss of cost competitiveness.

After the general election in September 1981, the new Conservative the government declared that it would not interfere directly in wage negotiations; wages were to be decided by the bargaining parties. Instead, lower direct taxes were suggested as a more promising instrument of incomes policies. The government clearly saw this as a means to reduce wage claims since this would necessitate smaller pre-tax wage rises to obtain a given after tax wage target. The major incomes policy instruments were changes in indirect and direct taxes. Indicators of these variables are shown in figures A5 - A7.

Figure A5. Average personal tax rate,   **Figure A6. Coeff. of residual income**

Table A3. Exchange rate changes 1973-1993

23.05.72	Norway joins the European exchange rate agreement (the "snake")
16.11.73	The Norwegian krone (NOK) is revalued by 5 per cent after a "run" on the NOK
18.10.76	NOK is devaled by 1 per cent within the snake (realignment)
04.04.77	NOK is devalyed by 3 per cent within the snake (realignment)
29.08.77	NOK is devalued by 5 per cent within the snake. Sweden left the snake
13.02.78	NOK is devalued by 8 per cent within the snake. Unilateral Norwegian change
16.10.78	NOK effectively depreciated within the snake (realignment)
12.12.78	NOK leaves the snake. A currency basket is established
02.08.82	NOK depreciates by close to 3,5 per cent due to changes of weights in the basket
06.09.82	NOK is devalued by 3 per cent
02.07.84	Change of basket (geometric method). NOK depreciates by 2 per cent
22.09.84	NOK depreciated by 2 per cent
11.05.86	NOK is devalued by 12 per cent and effectively deprecrates by 2 per cent
22.10.90	NOK is linked to ECU
10.12.92	NOK floates after a European currency turmoil and depreciated by 4 per cent

Source: Norske finansmarkeder, norsk penge- og valutapolitikk. Norges Banks skriftserie nr. 23, Oslo 1995.
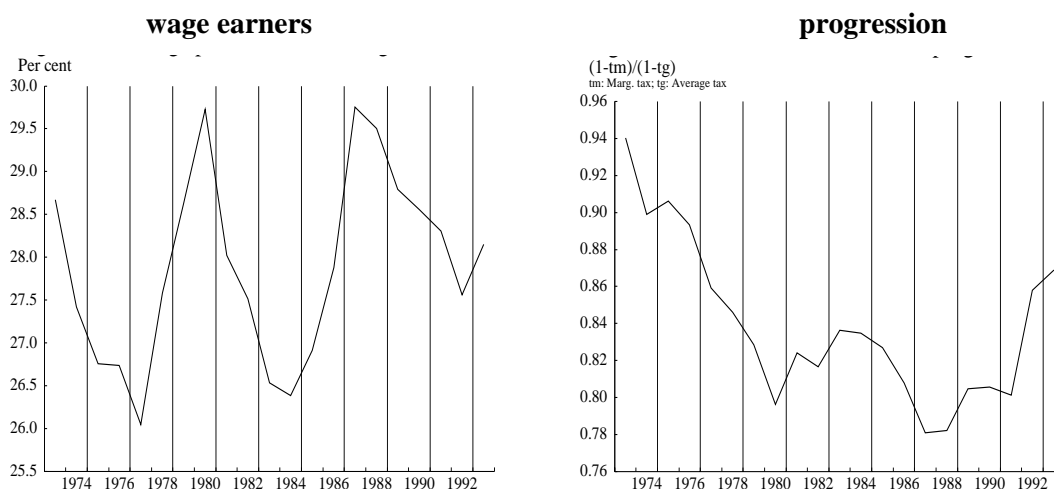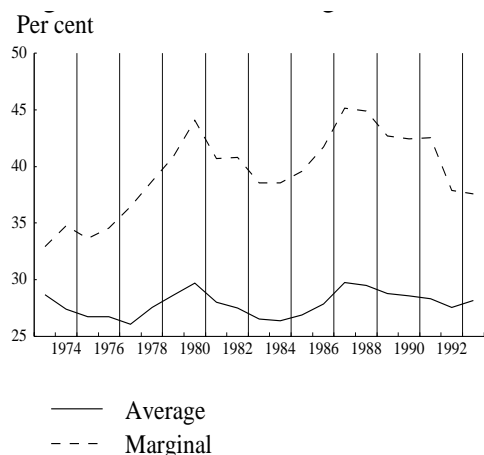
23

wage earners

Per cent

progression

(1-tm)/(1-tg)
tm: Marg. tax; tg: Average tax

Figure A7. Income tax rates, wage earners

Per cent

——— Average
- - - Marginal

Unemployment was still low in the early 1980s and fuelled by rising oil revenues both the current account and the government budget showed large surpluses. In 1982 two relatively small currency devaluations were undertaken in order to restore competitiveness. But a general view that the main long run effect of this was increased domestic inflation, gradually emerged. We regard this devaluation as motivated by incomes policies consideration, as the current account was in surplus at the time. A short overview of exchange rate changes during 1973-98 is given in table A3

In the mid-1980s, the Norwegian economy went into an unprecedented boom, initiated internationally by the Reagan-boom in the US economy, and domestic ally by huge increases in oil investments and deregulations of the financial and housing markets. Partly because of the high level of domestic demand but mainly by the fall in world oil prices in 1986, a current account crisis once again emerged. This resulted in a devaluation by 10 per cent in May 1986.

From then on, exchange rates were unchanged until December 1992, the krone was allowed to float for some time which led to a deprecation of around 4 per cent

In 1988 and 1989 direct wage regulations were implemented again. A temporary law effective from April 1988 through March 1989, limiting all wage increases to a growth specified in the law, was enacted. The wage settlements in 1989Q2 were undertaken without direct government intervention but a law stated that the wage increase negotiated by LO and the employers' organisation, NHO, should apply to all sectors of the economy. The second law was effective from 1989Q2 through 1990Q1. This law was considered less restrictive than the first law.

The incomes policies we analyse in this period, are the following:
• Shift from direct to indirect taxation and reduced progressivity 1981-85.
• Exchange rate-based incomes policies in 1982 and 1984 (devaluations).
• Direct wage regulations 1988-89 (two wage laws).

Data sources and definitions

W_i	Wage rate per hour in three sectors
PC	Consumer price index
PYF	Factor price deflator in manufactuirng
ZQL	Value added per hour worked
TF	Pay-roll tax rate in manufacturing, tf = ln (1+TF)
TG	Average invome tax rate for households, tg = ln (1+ TG)
TM	Marginal income tax rate for households
U	Unemployment rate in per cent
WA_i	Alternative wage rate per hour
RIP	Coefficient of residual income progression
H	Averagenormal working time (hours per quarter)
DST79	Dummy variable for the wage freeze in 1978/79. Equals 1 in 1979:2-1979:4
DST88	Dummy variable for the wage freeze in 1988/89. Equals 1 in 1988:2-1989:1
DUT90	Dummy variable for catch-up. Equals 1 in 1990:2
SETTL	Dummy variable for catch-up. Equals 0.5 in quarters of the first year of central settlements and -0.5 in quarters belonging to the sceond year.
RIP	(1-TM) / (1-TG)

$$WA_i = (1\text{-}U)\, W_0 + U\cdot 0.624\cdot W_{i\text{-}4}\, / \,RIP$$

Scources: Most data are from the quarterly national accounts of Statistics Norway (SN). Unemployment and labour market data are from the Labour Force Surveys of SN. TG and TM is estimated using a microeconomic tax model that based on detailed individual information on tax payers calculates income tax rates in KVARTS for three groups of households: wage earners, self-employed and pensioners.

The dummy variable in price equations for price regulations and catch-up effects

The price equation in section 3.2 includes a dummy variable PSTOP. It is defined as PSTOPIN plus PSTOPUT which are given in the table below. PSTOPIN has a value of one if there is a price-regulation that prohibits price increases. It is less than one if the regulation is in effect only during a part of a quarter or if the regulation is less strict. A regulation of the nominal mark-up and not price is "guesstimated" to have half the effect on the price compared to a full price regulation. PSTOPUT is an estimate of the phazing out of a regulation. Notice that $\sum_t$ (PSTOPIN + PSTOPUT) = 0

Table C1.

	PSTOPIN	PSTOPUT		PSTOPIN	PSTOPUT
1962:1-			1976:1	0	-1
1969:3	0	0	1976:2	0	0
1969:4	0.5	0	1976:3	0.2	0
1970:1	0	-0.5	1976:4	0.3	0
1970:2	0	0	1977:1	0	-0.5
1970:3	0	0	1977:2	0.1	0
1970:4	0	0	1977:3	0.2	0
1971:1	1	0	1977:4	0.2	0
1971:2	1	0	1978:1	0.5	-0.5
1971:3	0.5	0	1978:2	0	-0.5
1971:4	0	0	1978:3	0.5	0
1972:1	0	-1.5	1978:4	1	0
1972:2	0	-1	1979:1	1	0
1972:3	0	0	1979:2	1	0
1972:4	1	0	1979:3	1	0
1973:1	0	-1	1979:4	1	0
1973:2	0	0	1980:1	0.5	-2
1973:3	0	0	1980:2	0.5	-1.5
1973:4	0	0	1980:3	0	-1
1974:1	0.2	0	1980:4	0	-1
1974:2	0.5	0	1981:1	0	-1
1974:3	0.3	0	1981:2	0	0
1974:4	0	0	1981:3	0	0
1975:1	0	0	1981:4	1	0
1975:2	0	-0.3	1982:1	0	-1
1975:3	0	-0.7	1982:2-	0	0
1975:4	1	0			

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