

# THE SWEDISH UNEMPLOYMENT EXPERIENCE\*

by

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## **Abstract**

By international standards, unemployment in Sweden remained remarkably low throughout the 1970s and the 1980s. In the early 1990s, however, the unemployment rate increased sharply and hit double-digit levels. The paper argues that the steep rise in unemployment was mainly the result of a series of adverse macroeconomic shocks, partly self-inflicted by bad policies and partly caused by unfavourable international developments. The extremely contractionary monetary policy in 1992 appears to have had strong and long-lasting effects on unemployment. Institutional factors do not appear as promising explanations of the steep rise in unemployment in the early 1990s.

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## **1. Introduction**

Swedish labor market performance during the 1980s was widely appreciated as a success story. The unemployment rate remained exceptionally low by international standards. Whereas unemployment in Western Europe climbed to double-digit figures, it stood at around 2 percent on average in Sweden. Employment-to-population rates were also high by international standards. In 1990, total employment had risen to 83 percent of the working age population whereas the average European figure was 61 percent and the OECD average 65 percent.

Between 1990 and 1993, unemployment increased sharply and approached 10 percent of the labor force. Total employment as well as labor force participation fell drastically. Over the period 1993 to 1997, the unemployment rate hovered around 8 percent. However, a strong rebound began in 1997 and involved a substantial fall in unemployment. By 2001 the unemployment rate had fallen to 4 percent. Unemployment increased during 2003 and reached almost 6 percent in 2004. Unemployment fell during the cyclical upturn over the period 2005-2007 and reached 4 percent by the end of 2007.

Why did Swedish unemployment rise so sharply in the early 1990s? The paper argues that the increase was mainly the result of a series of adverse macroeconomic shocks, partly self-inflicted by bad policies and partly caused by unfavorable international developments. The policy failures date back to the 1970s and include an inability to pursue a sufficiently restrictive aggregate demand policy so as to bring inflation under control. This inflationary bias in policy was especially pronounced in the late 1980s when it was fueled by financial liberalization. On the positive side, the inflationary bias of fiscal and monetary policies reflected a firm commitment to maintain full employment. If unemployment approached 3 percent, as it did in the early 1970s, this was considered to be a major policy failure. Although estimates of the NAIRU are fragile, it seems fairly clear that actual unemployment during the late 1980s was well below levels consistent with stable inflation.

Even if macroeconomic shocks explain most of the steep rise in unemployment, other factors have probably caused some rise in the Swedish NAIRU since the 1960s and throughout the 1980s. A trend increase in the generosity of unemployment insurance is a case in point. During the 1990s, however, unemployment insurance became less generous. Other factors, such as product market deregulations and innovations in wage bargaining, may have contributed to some decline in equilibrium unemployment in recent years.

## **2. The Evolution of Unemployment in Sweden**

The Swedish unemployment rate displayed modest fluctuations around an average level of 2 percent during the 1960s, the 1970s and the 1980s.<sup>1</sup> A weak trend increase in unemployment could be identified, however. The recession of the early 1970s entailed higher unemployment than what was observed during the 1960s. Likewise, the early 1980s witnessed a recession where unemployment approached 4 percent, a level considered as exceptionally high by the standards of the 1960s and the 1970s.

The three decades from the early 1960s to the late 1980s also involved sharply rising female participation rates. In 1965, female participation in the labor force stood at 54 percent; in 1989 it had risen to 82 percent. Male participation rates fell only modestly – from 89 to 86 percent between 1965 and 1989 – and the aggregate labor force participation rate thus rose dramatically. Employment increased in tandem with the increase in participation. By the late 1980s, employment-to-population rates stood at 85 and 81 percent for males and females, respectively.

The slump of the early 1990s involved a fall in the level of GDP from peak to trough by 6 percent and produced an unprecedented increase in unemployment. Between 1990 and 1993, unemployment rose from 1.5 percent to 8.2 percent. The increase in unemployment was accompanied by a sharp decline in labor force participation among both men and women. The total decline in employment in the early 1990s amounted to a fall in the employment-to-population rate from 83 percent to 73 percent between 1990 and 1993. Over the period 1993 to 1997, the unemployment rate hovered around 8 percent whereas employment fell slightly. However, a strong rebound began in 1997 and involved a rise in GDP growth and employment as well as a substantial fall in unemployment. By 2001 the unemployment rate had fallen to 4 percent and the employment-to-population rate had increased to 75 percent.

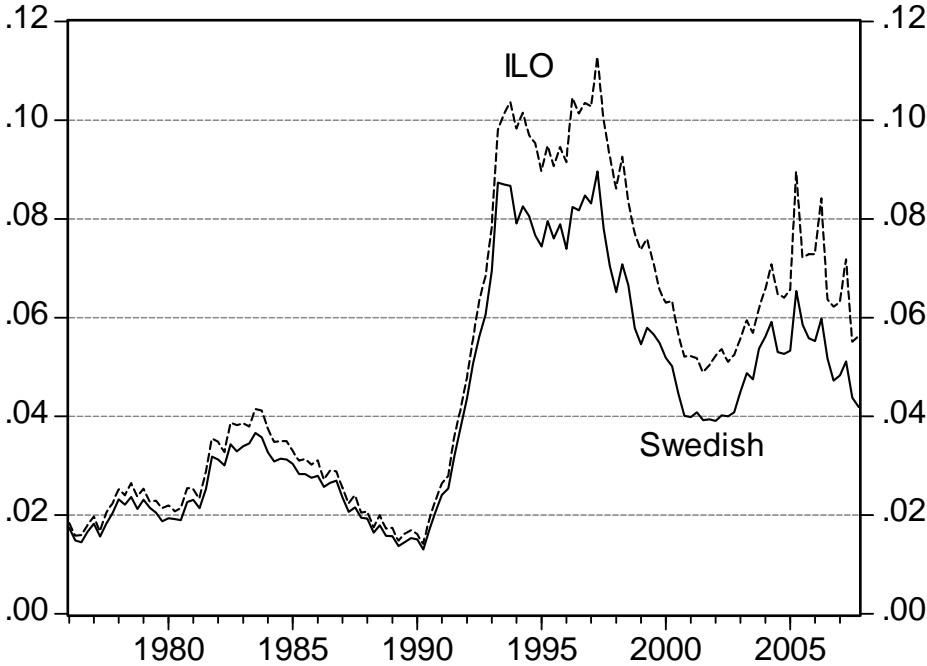
The evolution of unemployment according to two measures is displayed in Figure 1. The gap between “ILO unemployment” and the national measure consists of full-time students searching for a job. The ILO rate hit 10 percent in 1996 and 1997 and had fallen to 5 percent in 2001. An

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<sup>1</sup> The unemployment figures that are used in this paper refer unless stated otherwise to labor force survey data and national definitions. The latter differ slightly from unemployment according to the definitions by the International Labour Organisation (ILO). In particular, students engaged in fulltime job search have been classified as unemployed by ILO but as out of the labor force in the national definition. From October 2007, Sweden has adopted the ILO criteria regarding students who search for work. The working age population is generally confined to those aged 16 to 64.

extended measure of unemployment includes also those “latent job seekers” who are jobless, “willing and able” to work but do not meet the search criteria for being classified as unemployed.<sup>2</sup> This extended unemployment rate hit 12-13 percent in the mid-1990s and had fallen below 7 percent by 2001.

Figure 1 Swedish unemployment (national and ILO definitions), 1976-2007.

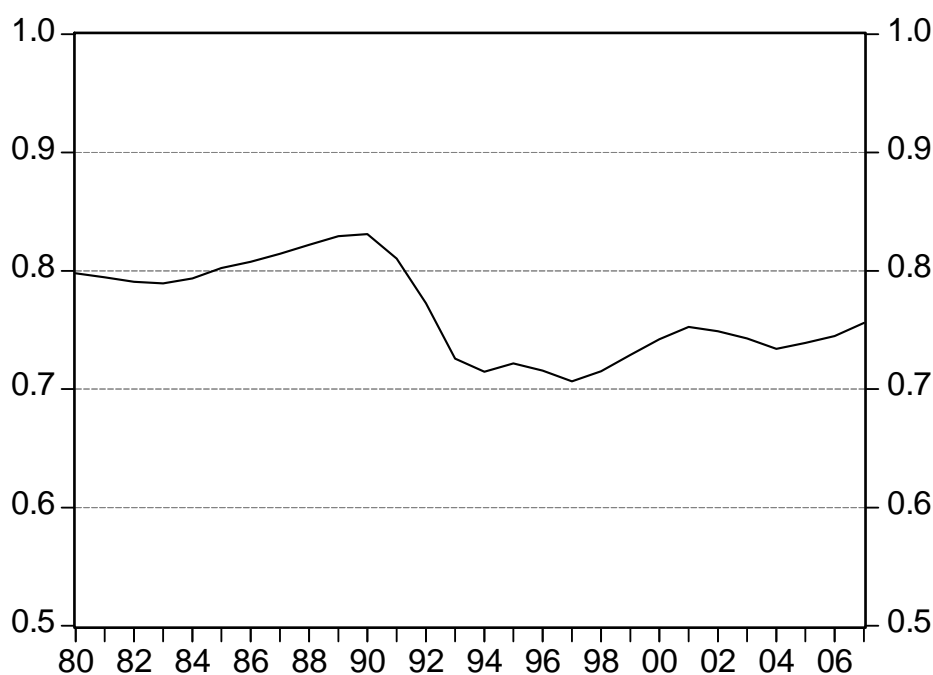


Notes: Seasonally adjusted quarterly data. The ILO unemployment rate is based on a labor force measure that includes full-time students engaged in job search.  
 Source: Labor force surveys, Statistics Sweden.

In the early 1990s, employment fell by more than the rise in unemployment. Figure 2 shows the evolution of the employment-to-population rate. Some of the decline is driven by a marked increase in enrollment in higher education during the 1990s. Between 1993 and 1999, the number of undergraduate students rose by 25 percent, which amounts to roughly one percent of overall working age population and almost 10 percent of the population aged 20-24. A major educational drive for low-educated adults (“Kunskapslyftet”) was initiated in 1997 and encompassed 2 percent of the working age population by the end of that year.

<sup>2</sup> The latent job seeker category comprises also full-time students (including persons in labor market training) that search for employment.

Figure 2. Employment-to-population rate (age 16-64), 1980-2007.



Source: Labor force surveys, Statistics Sweden.

There is evidence – from the labor force surveys and other sources – that nonparticipation for various disability and sickness-related reasons has increased over the 1990s. In 1990, around 5 percent of the population belonged to the sickness/pension category in the labor force surveys. By 2001, this group had increased to 7.7 percent. Data from the National Social Insurance Board on the number of persons receiving early retirement benefits reveal an increase in the number of retirees by close to 20 percent between 1990 and 2000, or a rise from 6.8 to 7.8 percent of the working age population.

The rules pertaining to early retirements have undergone several changes since the early 1990s. The basic qualification rule is based on health conditions. However, it has also been possible for older workers (aged 60-64) to qualify for early retirement pension for labor market reasons, i.e., difficulties of finding a job. Before October 1991, labor market reason could be a sufficient condition. From October 1991 and through January 1997, it was possible to qualify for labor market reasons if certain health conditions were also met. From February 1997, labor market reasons are no longer part of the eligibility conditions. There have also been changes in the rules concerning health conditions. A reform in 1993 made the qualification criteria more stringent. These rules have been slightly moderated by new legislation in place from 1999 and onwards.

All in all, the rules pertaining to sickness benefits, early retirement and disability pensions are likely to have important implications for how labor market shocks affect nonemployment in general, and nonparticipation in particular. If the rules favor labor force withdrawals one would expect that adverse shocks can have permanent effects on nonemployment.

### **3. Causes of the Rise in Unemployment**

#### **3.1 Stabilization Policy in Turmoil**

For most of the 20<sup>th</sup> century, Sweden pursued a fixed exchange rate policy. After the breakdown of the Bretton Woods system in 1973, the Swedish krona was first pegged to the D-mark and from 1977 to 1991 to a trade-weighted basket of foreign currencies. A crucial requirement for the feasibility of the fixed exchange rate regime was, of course, that domestic inflation was kept in line with inflation abroad. This turned out to become increasingly difficult and a series of devaluations took place in the late 1970s and the early 1980s. These devaluations resulted in substantial (albeit temporary) improvements in competitiveness that counteracted the adverse employment effects of unsustainable inflation. The large devaluations in the early 1980s paved the way for an employment expansion that lasted throughout the decade, reinforced by an international upswing as well as expansionary domestic policies. However, the expansionary domestic policies during the 1980s carried the seeds that ultimately led to a complete regime shift in stabilization policy in the early 1990s.

The credit market was one important source of domestic demand expansion. By the end of 1985, Swedish financial markets had been largely deregulated. Restrictions on household loans in commercial banks and credit institutions had been lifted, which set in motion a rapid increase in bank loans to the household sector. This change took place during a period when marginal tax rates were generally high and when mortgage payments were deductible in income taxation. The interaction of financial deregulation, progressive taxes and generous rules for deducting interest payments created the preconditions for a strong credit expansion. The total credit volume increased at an annual rate of almost 20 percent during 1985-1990. The consumption boom that followed involved a fall in the household savings rate to minus 5 percent of disposable income in 1988 and a gradual build-up of household debt.

The surge in aggregate demand contributed to a fall in unemployment along with a gradual increase in inflation. By the end of the 1980s, unemployment was approaching 1 percent of the

labor force. Monetary policy was tied to defending the fixed exchange rate and fiscal policy was too lax to prevent the rise in inflationary pressure.

During the late 1980s, a government committee developed a far-reaching proposal for reform of the Swedish tax system. Key elements were lower marginal tax rates on labor earnings and the introduction of a dual system of income taxation with a 30 percent tax rate on income from capital. Mortgage payments could then be deducted at 30 percent. These reforms were put into practice in 1990 and 1991 and caused a marked increase in after-tax real interest rates. The demand for owner-occupied housing fell predictably; between 1990 and 1993, the fall in real prices amounted to 30 percent. On top of this, the household savings rate rose from minus 5 percent in 1988 to plus 7 percent in 1992.

In this environment, Swedish stabilization policy took close to a U-turn. The prime objective for decades had been full employment, although the desirability of low inflation was recognized in words. In practice, this has led governments to undertake several devaluations in the late 1970s and the early 1980s so as to restore competitiveness that had been eroded by high inflation and fixed exchange rates. In the early 1990s, the government declared that low inflation was the prime objective of stabilization policy. A unilateral affiliation of the krona to the ECU was declared in May 1991. The stated intention was to rule out future devaluations as escape routes from unsustainable inflation and loss of competitiveness.

In addition to self-inflicted wounds, Swedish policy making was also hit by bad luck in the early 1990s. An international recession struck during the first years of the decade. Industrial production declined between 1990 and 1993 by 4-5 percent in the EU area and by over 6 percent in Germany. The general weakening of major Swedish export markets added to the falling demand for Swedish exports and reinforced the sharp decline in GDP.

During the fall of 1992, the krona was put under a number of speculative attacks and it became increasingly doubtful whether the fixed exchange rate was sustainable. The real exchange rate was overvalued with between 10 and 20 percent, creating severe difficulties for the export sector. In order to defend the fixed exchange rate, the central bank kept a high short-term interest rate throughout 1992 and raised it to no less than 500 percent in September. Given inflation rates around two percent, also the real interest rate was extremely high during this period. In November 1992, the fixed exchange rate regime had to be abandoned and the krona was floating.

A new monetary regime was established, including an inflationary target (from early 1993) and a more independent central bank (from the late 1990s).

The story told so far emphasizes two main policy failures. First, it is clear that fiscal policy was too lax in the second half of the 1980s. The fixed exchange rate target had tied the hands of monetary policy and only fiscal policy tools were available to combat rising inflationary pressure. Second, it is also clear that the timing of financial deregulation and tax reform was less than optimal. Under more ideal circumstances, the tax reform should have preceded financial liberalization. Had the financial liberalization taken place in an environment with less favorable conditions for household loans, the effects on credit demand and private consumption would have been smaller.

These claims appear fairly uncontroversial, although the fine details of the impact of financial deregulation and tax reform are debatable. More controversial is an assessment of the policy stance vis-à-vis the emerging slump in the early 1990s. A less stubborn defense of the krona would presumably have cushioned the downturn and led to a less dramatic rise in unemployment.

### 3.2 Monetary Policy and Climbing Real Interest Rates

The rise in real after-tax interest rates in the early 1990s had essentially three sources, namely the international rise in interest rates, the tax reform that raised after-tax rates, and the steep fall in inflation. These developments triggered a decline in aggregate demand in general and housing demand in particular. However, higher real interest rates can also have “supply side” effects via firms’ behavior. In particular, changes in real interest rates can influence equilibrium unemployment through the effects on the demand for labor. A higher real interest rate effectively works as a tax on new hires; hiring a worker carries an up-front recruitment cost and a higher rate of interest makes the “investment” in a new worker less profitable.

The defense of the Swedish Krona in 1992 resulted in unusually large monetary policy shocks. Real interest rates increased even more than nominal interest rates during this episode because inflation fell sharply between 1990 and 1992. Meanwhile the real exchange rate was heavily overvalued, which resulted in a drastic reduction of Swedish exports. This is difficult to capture using conventional measures of monetary policy. The standard measure of monetary policy in fixed exchange rate regimes is the nominal exchange rate. However, the nominal exchange rate remained fixed from 1982 to November 1992. Hence, no monetary policy action at all was

implemented during this period according to this measure. It would not capture the overvalued real exchange rate or the high real interest rates. Another alternative is to use changes in the nominal interest rate. This measure would capture some of the increase in real interest rate but again fail to detect the overvalued real exchange rate. Keeping the nominal value of the exchange rate fixed while the real exchange rate is overvalued constitutes a contractionary monetary policy, as witnessed by the rapidly deteriorating competitiveness of Swedish exporting firms.

An alternative is to use a so called monetary conditions index (MCI) to capture the total effect on the economy of the exchange rate and the interest rate.<sup>3</sup> MCI is a weighted average of the real interest rate and the real exchange rate, where the weights depend on the relative effects of the two variables on demand. MCI can be used for both fixed and floating exchange rate regimes.<sup>4</sup> Figures 3a and 3b show the short-term real interest rate and the real effective exchange rate, each along with the baseline measure of monetary policy; see Alexius and Holmlund (2008).

Alexius and Holmlund (2008) use a structural VAR model to examine how monetary policy affected Swedish unemployment in the early 1990s. The baseline specification includes three endogenous and three exogenous variables. The domestic output gap, unemployment, and monetary policy are modeled as endogenous. The exogenous variables are the foreign output gap, productivity shocks, and a measure of the structural budget deficit. Monetary policy shocks are identified by assuming that a change in the interest rate does not affect the output gap and unemployment in the same quarter. The qualitative results are as expected. Contractionary monetary policy increases unemployment and decreases the output gap. Expansionary fiscal policy decreases unemployment and increases the output gap. Foreign demand shocks reduce unemployment, increase the domestic output gap and cause contractions of monetary policy.

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<sup>3</sup> This measure has been used by, among others, Bank of Canada, as operational target of policy.

<sup>4</sup> The main alternative is to split the sample and estimate two different models using different variables to represent monetary policy in the two regimes. However, if the sample is split in November 1992 and two different models are estimated for the two sub-periods, the recession in 1993-1994 loses any possible link to the 1992 monetary policy since these two events are not included in the same sample. If we want to analyze the effects of these major Swedish monetary policy shocks we have to include data both from fixed and floating exchange rate regimes and use a measure of monetary policy that is applicable to both regimes.

Figure 3a. Real interest rate and MCI.

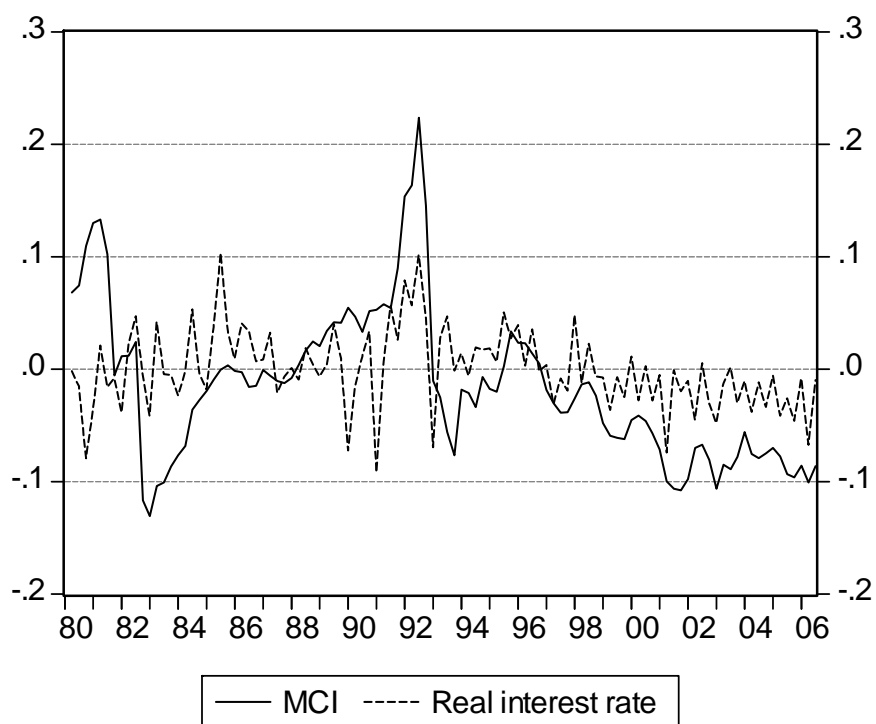
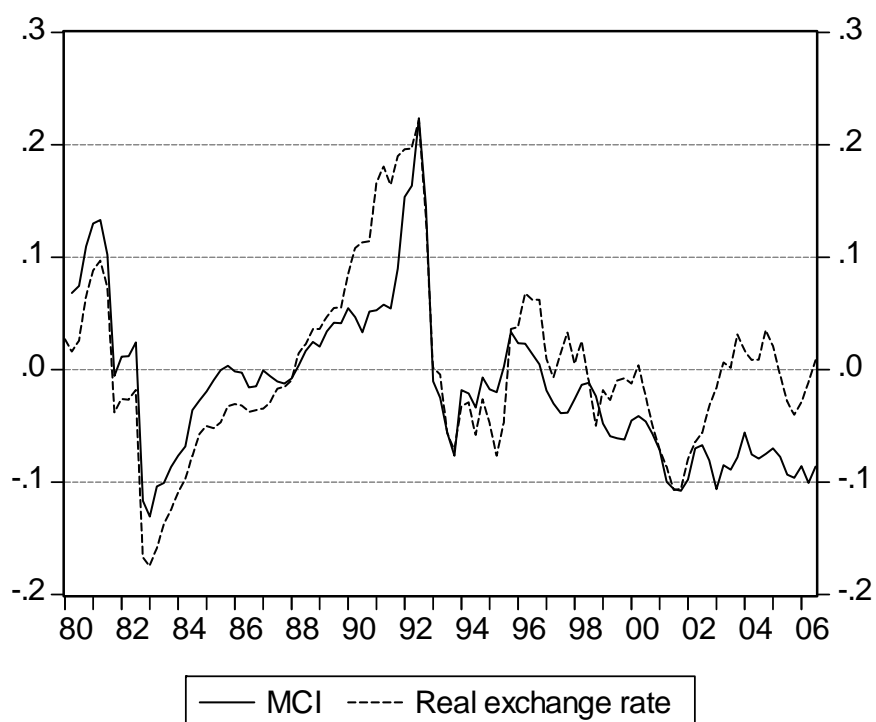


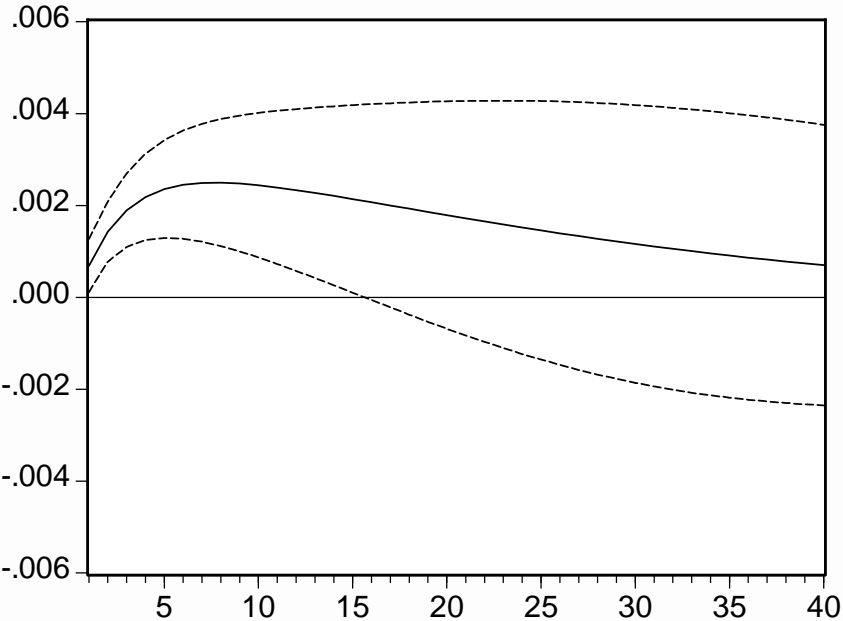
Figure 3b. Real exchange rate and MCI.



Impulse response functions trace out the path of the effects of a structural shock on a variable over time. The effects of monetary policy shocks on the unemployment rate are displayed in Figure 4. A contractionary monetary policy shock of one standard deviation (or an increase in the real interest rate of approximately 2.3 percentage points) results in 0.25 percentage points higher unemployment after 9 quarters. After ten years unemployment is still 0.07 percentage points higher than it would have been without the shock. As this is a stationary VAR, all shocks are temporary but monetary policy is itself persistent so the shock dies out gradually.

As in the study on U.S. data by Ravn and Simonelli (2007), the response of unemployment to monetary policy shocks is hump shaped. A contractionary monetary policy shock obtains its maximum effect on unemployment after 9 quarters, which is a more protracted response than in Ravn’s and Simonelli’s study. Half of the maximum effect has disappeared after 30 quarters and 28 percent of it still remains after ten years. This can be compared to the results in Ravn and Simonelli (2007) where a monetary policy shock reaches its maximum effect on unemployment after 5 quarters. Their estimated half live is much shorter, only 8 quarters, and none of the effect remains after ten years. Hence monetary policy has more persistent effects on unemployment in Sweden than in the U.S. The reason for the different results is probably found in the functioning of the labor markets rather than in factors related to monetary policy.

Figure 4. Response of unemployment to a monetary policy shock.



Note: Response to a temporary one percentage point increase in the real interest rate. 95 percent asymptotic confidence intervals. The left scale is in units of percentage points divided by 100.

The estimated coefficients behind the impulse response functions can be used to determine how much unemployment increased due to the contractionary monetary policy during the 1992 crisis. The total effect can be calculated by feeding the sequence of monetary policy shocks from 1991:4 to 1992:3 into the impulse response functions. The peak occurs during 1994:4 when around half of the Swedish unemployment was due to the contractionary monetary policy during 1991-1992.

The impact of monetary policy may appear large, but the policy was also exceptionally contractionary during 1991-1992. Monetary policy has a non-negligible impact on unemployment according to the Riksbank's own model-based simulations; see Sveriges Riksbank (2007). A one percentage point higher short-term interest rate is estimated to be associated with around 0.8 percentage points higher unemployment.<sup>5</sup>

#### **4. Institutional and Structural Changes**

We have emphasized macroeconomic shocks – and monetary contraction in particular – as main explanations of why unemployment rose so sharply in the 1990s. For completeness, other candidate explanations should also be addressed. By and large, however, institutional changes do not stand out as promising explanations.

##### 4.1 Unions and Wage Bargaining

A high degree of unionization is a fundamental ingredient of the so called Swedish Model. Labor legislation is based on the presumption that the overwhelming majority of workers belong to a union. Indeed, union density has hovered above and around 80 percent of the number of employees over the past couple of decades. The coverage of collective agreements is even higher. The shocks that kicked Sweden into a major slump had nothing to do with a sudden surge in union density. In fact, union density declined slightly – from 82 to 80 percent – between 1987 and 1990 (Kjellberg, 2001).

An arguably more promising explanation focuses on changes in wage bargaining systems. The heydays of centralized wage bargaining in Sweden were the period 1956-1983, which involved

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<sup>5</sup> The Riksbank considers alternative paths of interest rates for 3-4 years. The path with “high” interest rates involves 0.7 percentage points higher interest rate by the end of 2010 relative to a baseline scenario. This path is associated with 0.6 percentage points higher unemployment by the end of 2010.

nationwide negotiations between the peak employee and employer organizations. This system came under increasing stress during the late 1970s when some employer organizations argued that the central frame agreements left too little room for flexibility at the local and industry level. A significant step towards more decentralized wage bargaining came in 1983, when the metalworkers' union and their employer counterpart sidestepped the national negotiations and opted for an industry agreement. Wage negotiations after 1983 have mainly taken place at the industry level, albeit with some exceptions.

It is possible that the breakdown of centralized bargaining contributed to some increase in wage pressure and made it more difficult to curtail inflation in the late 1980s. It seems unlikely, however, that the impact was strong. In fact, when the slump was underway, wage bargaining reverted temporarily to a highly centralized arrangement. The government initiated a nationwide incomes policy for 1991-1993 so as to bring inflation under control. This policy involved coordination to an unusual degree, incorporating virtually all employer organizations and most of the unions.

#### *Towards a New Regime for Collective Bargaining*

In the summer of 1996, several blue-collar unions in the manufacturing sector launched an important initiative that eventually materialized as the so-called Industrial Agreement (IA) of 1997. The agreement was struck by the blue- and white-collar unions as well as employer organizations in the industrial sector and was mainly concerned with procedural "rules of the game". It represented an attempt to establish consensus around timetables for negotiations, the role of mediators, and rules for conflict resolution. A group of "impartial chairs" have been appointed and the agreement states rules for when and how these chairs could intervene in the negotiation process. For example, they can order a delay of industrial action for up to two weeks. The IA model also involves a group of independent economic experts that provide basic information about wage developments and general macroeconomic issues.

The Industrial Agreement has served as a model for similar agreements in the public sector (and also in parts of the service sector). As of 2002, over 50 percent of the labor force is covered by IA-type agreements. IA also came to serve as a model for government policies concerning industrial relations. A new national mediation institute (Medlingsinstitutet) has been created (in operation from June 2000) with the power to appoint mediators even without the consent of the parties concerned.

The IA innovations that emerged in the late 1990s represent a move towards informal coordination in wage bargaining. The new rules of the game and the efforts to build consensus on wage developments consistent with low inflation and high employment may have borne some fruit in terms of wage moderation.

Perhaps paradoxically, the move towards informal macro-coordination in wage bargaining has taken place simultaneously with a clear shift towards stronger local influence over the distribution of wage increases. Pay setting in the public sector is a case in point. Previous rigid wage scales have been abandoned and there is, at least in theory, substantial room for wage adjustments tailored to the needs of recruiting and retaining employees.

Finally, it is noteworthy that recent econometric evidence reveals a remarkable stability of Swedish wage setting relationships. The available studies find no evidence of structural breaks in the early 1990s (Forsslund and Kolm, 2004; Holden and Nymoen, 2002; Nymoen and Rødseth, 2003).

#### 4.2 Unemployment Insurance

Sweden has a generous UI system where pre-tax replacement rates for eligible workers have reached 90 percent during some years. Although the system is voluntary, it has been heavily subsidized and its coverage has shown a trend increase. On average some 65 percent of the stock of unemployed registered at the public employment offices received UI during 1990-1995.<sup>6</sup> The fraction of new spells of unemployment covered by UI was even lower; Carling et al (1996) report that less than 50 percent of the inflow of new unemployed received regular UI compensation in the early 1990s.

Unemployment benefits cover a fraction of previous earnings up to a ceiling. The average replacement rate for a population of workers is thus based on the statutory replacement rate (up to the benefit ceiling) as well as the ceiling. The development of average replacement rates has shown a trend increase from the early 1960s to the 1980s (Björklund and Holmlund, 1991; Forsslund and Kolm, 2004). In the late 1980s, average replacement rates hovered around 85-90

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<sup>6</sup> This refers to “regular” UI benefits which are based on previous income. Individuals not qualified for regular benefits may be qualified to a basic allowance that has amounted to around 50 percent of the maximum UI benefit level.

percent. Although benefit payments were formally limited to 60 weeks for most workers, the practice of allowing qualification through labor market programs effectively increased maximum duration substantially.

The trend increase in the generosity of UI is a prime candidate explanation of the trend increase in the duration of unemployment between the 1960s and the 1980s. However, it is difficult to identify specific sharp changes of UI around 1990 that could explain the rise in unemployment in the early 1990s. It might perhaps be argued that the existence of a generous benefit system reinforced the rise in unemployment, even if the rise was ultimately caused by adverse macroeconomic shocks; this is the interaction argument discussed by Blanchard and Wolfers (2000). There are two problems with this argument, however. First, generous benefits strengthen the automatic stabilizers in the economy, thus reducing the adverse employment effects of recessionary shocks. Second, absent changes in institutions it is virtually impossible to identify empirically these interaction effects from data pertaining to a single country.

The fiscal crisis in the early 1990s induced a sequence of decisions to make the UI system less generous and less expensive. The statutory replacement rate was reduced from 90 to 80 percent in 1993 and was further reduced to 75 percent in 1996. It is noteworthy that the main motivation for benefit cuts was the need to exercise fiscal restraint. Concerns about possible adverse incentive effects have not played a major role in the Swedish political debate (at least not until recent years). In fact, in the wake of fiscal consolidation in the late 1990s, a decision was taken to raise the UI replacement rate to 80 percent from September 1997.

The average effective replacement rate depends also on the benefit ceiling. The ceiling was reduced in 1993 and remained constant in nominal terms until 1998 when a rise was undertaken. However, the increase was small and did not even restore the nominal value of the pre-1993 ceiling. The next adjustments of the ceiling came in 2001 and 2002. The combination of a slightly declining benefit ceiling and continuous nominal wage growth led to a substantial fall in replacement rates for workers with above-average earnings. For workers in the first quartile of the wage distribution, the fall in replacement rates between 1992 and 2000 amounts to 10 percentage points (which is equal to the statutory change since these workers are well below the ceiling). The fall amounts to 20 percentage points for a median-wage worker and to 25 percentage points or more for workers in the top quarter of the wage distribution.

The overall generosity of the UI system thus fell over the 1990s. Available empirical studies indicate that the benefit cuts of 1993 and 1996 led to a fall in the duration of unemployment. Harkman (1997) examined the 1993 reform and found that it had some positive effect on job finding. He also identified a fairly large positive effect on the exit rate to nonparticipation. Carling et al (2001) investigated the effects of the 1996 benefit cut and estimated a positive job finding effect but found no effect on labor force exits.

Conventional theory suggests that higher replacement rates should raise wage pressure so there is a presumption that the benefit cuts have caused wage moderation. Unfortunately, it has been notoriously difficult to pin down precisely how UI benefits affect wage determination. Two recent studies report somewhat conflicting results. Forslund and Kolm (2004) find some evidence supporting the conventional hypothesis but the results are sensitive to the exact specifications. Nymoene and Rødseth (2003) cannot confirm that replacement rates matter for Swedish wage setting.

In summary, the UI system around the year 2000 was less generous than in the early 1990s. There is some evidence that the benefit cuts during the 1990s have reduced the duration of unemployment and presumably therefore also reduced the NAIRU.

#### 4.3 Taxes

The period from the early 1960s to the late 1980s exhibited an almost monotonic rise in tax rates. The total tax wedge, including direct and indirect taxes on workers and payroll taxes on employers, increased by over 50 percent over this period.<sup>7</sup> The fact that unemployment remained low strongly suggests that most of these tax increases were borne by labor in the form of slower growth of real take-home pay. A marked trend reversal took place in the early 1990s and involved base broadening and lower marginal tax rates. It was clearly not a sharp rise in the tax wedge that caused Sweden's mass unemployment in the early 1990s.

The fact that the tax reform substantially reduced tax progressivity raises the possibility that this reform added to wage pressure by reducing the costs of wage increases. Some theory as well as some empirical work suggests that progressive taxes may bring about wage moderation when

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<sup>7</sup> The measure of the total tax wedge is  $\theta = (1+s)(1+vat)/(1-t)$ , where  $s$  is the payroll tax rate (levied on firms),  $vat$  is the value added tax and  $t$  is the income tax paid by workers. See Forslund and Kolm (2004) for more information about the evolution of tax wedge.

there is bargaining over wages. Holmlund and Kolm (1995) use their estimated wage pressure effects in some back-of-the envelopes calculations and find that the decline in tax progressivity between 1989 and 1992 may have raised equilibrium unemployment by around one percentage point. The empirical evidence on wage behavior and tax progressivity is somewhat mixed, however. For example, Forslund and Kolm (2004) cannot confirm that lower progressivity increases wage pressure.

#### 4.4 Employment Regulations

##### *Temporary Work*

The Swedish legislation on employment protection presumes, unless otherwise stipulated, that an employment contract is valid until further notice. When terminating the contract the employer must provide a valid reason and advance notice. Compared to many other OECD countries, the periods of notice are lengthy but no redundancy pay is stipulated. The grounds for collective redundancies are liberal although they have to proceed in accordance with seniority. During the 1990s there have been no significant reforms of the employment protection legislation concerning the termination of open-ended contracts. There have, however, been several changes concerning the regulation of fixed-term contracts. A new law in 1997 introduced the opportunity to strike collective agreements on derogations from statutory law regarding fixed-term contracts at the local level, provided that the parties had a central agreement on other matters. The 1997 legislation also opened up for fixed-term contracts without specified reasons.

The sharp fall in total employment in the early 1990s was due to sharply falling “permanent” (open-ended) employment and not the result of a decline in the number of fixed-term contracts. In fact, the number of fixed-term contracts stood at approximately the same level in the first quarter of 1994 as it did four years earlier. The overall decline in total employment was marginally offset by a slight increase in self-employment.

Figure 5 displays the evolution of permanent and temporary employment over the period from 1987 and onwards. The strikingly different developments of permanent and temporary employment stand out. When the economy approached the cyclical peak in the late 1980s, we observe rising permanent employment along with a decline in the number of fixed-term contracts. From the early 1990s and during most of the rest of the decade there is a remarkable increase in fixed-term contracts that amounts to roughly 50 percent. Measured relative to total

wage and salary employment, the number of temporary workers rose from 10 percent to 16 percent; see Figure 6.

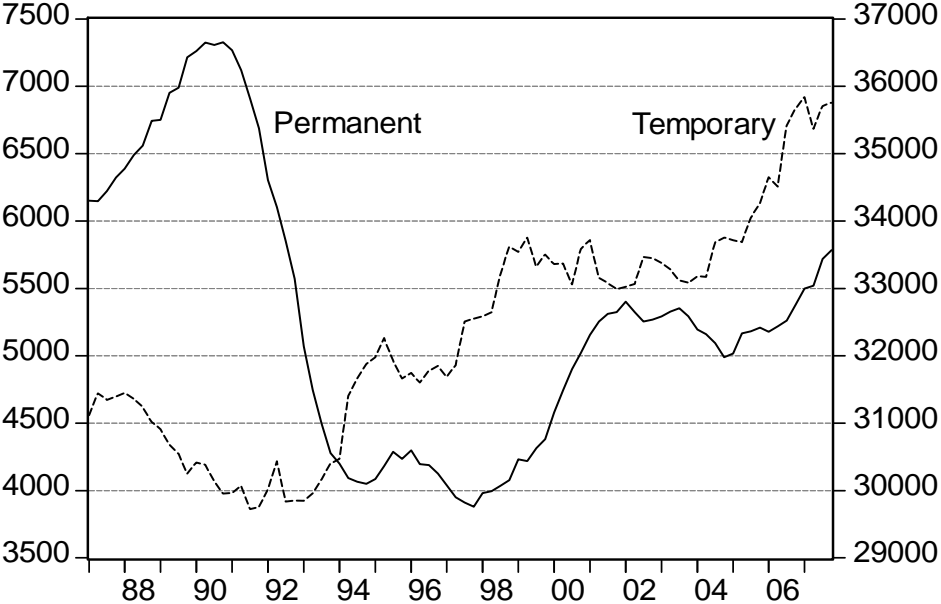
Why did fixed-term contracts exhibit this almost relentless growth during the 1990s? The causes are not well understood. Holmlund and Storrie (2002) discuss the issue and conclude that legislative changes are unlikely to be important. A more promising explanation focuses on the consequences of adverse macroeconomic conditions. A recession is associated with relatively more hirings on temporary contracts, presumably reflecting stronger incentives on part of firms to offer short-term jobs when workers are easier to find as well as an increased willingness on part of workers to accept temporary work when job offers in general are in short supply. The Swedish experience as well as the developments of temporary work in the other Nordic countries lends support to this hypothesis. The share of temporary work has been relatively stable in Norway (with stable or falling unemployment) but increased sharply in Finland over the 1990s, i.e., a period when Finnish unemployment skyrocketed.

The effects of a rising number of fixed-term contracts on flows into unemployment are obvious, at least in an accounting sense: the higher the share of fixed-term contracts, the larger the inflow to unemployment as these contracts entail substantially higher unemployment risks than open-ended contracts.<sup>8</sup> As noted, there has been a marked rise in unemployment inflow over the decade. Roughly 50 percent of this rise in inflow can be accounted for by higher inflow from temporary jobs. This development may have contributed to some increase in equilibrium unemployment through higher job separation rates. Fixed-term contracts may however also have favorable effects on job finding, as firms are likely to perceive such contracts as less risky than open-ended ones.

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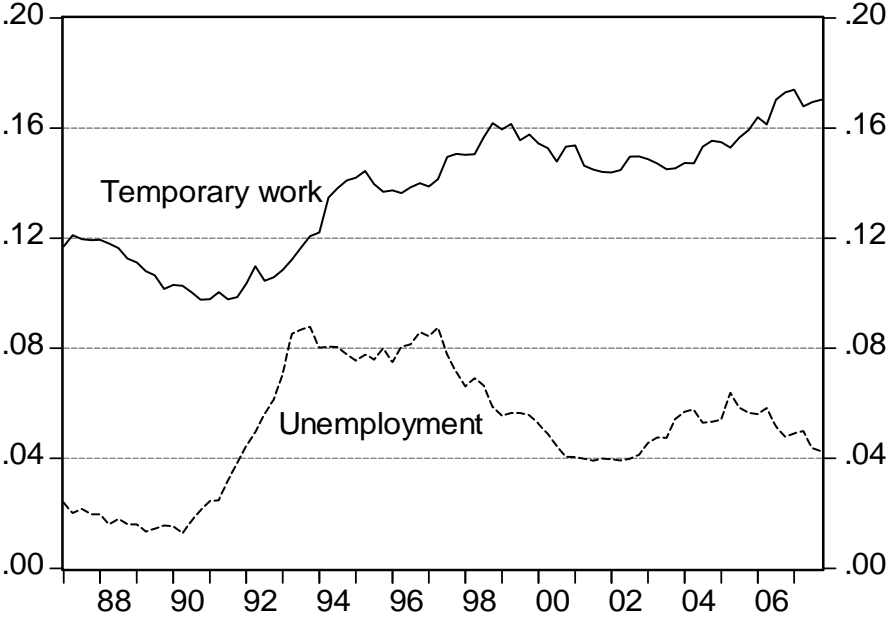
<sup>8</sup> Over the period 1987-2000, the flow data from the labor force surveys indicate that the average risk of becoming unemployed was more than ten times higher for a temporary worker than for a worker on an open-ended contract.

Figure 5. Permanent (right scale) and temporary (left scale) wage and salary employment 1987-2007 ('00s, seasonally adjusted quarterly data).



Source: Labor force surveys, Statistics Sweden.

Figure 6. Temporary work as fraction of total wage and salary employment and unemployment as fraction of the labor force, 1987-2007 (seasonally adjusted quarterly data).



Source: Labor force surveys, Statistics Sweden.

### *Temporary Work Agencies*

Employment intermediaries in the form of temporary agency work have been on the rise in most OECD countries in recent years. The workers concerned are employed in temporary work agencies (TWA) but assigned to work at a different user firm. Since 1993, Sweden has one of the most liberal TWA regulations in the OECD. Most EU countries have some specific regulations concerning TWAs. Sweden, on the other hand, has essentially no special regulation. The TWA sector was virtually illegal and therefore non-existent in Sweden before 1993. It is still small and accounts for less than one percent of the labor force. The sector is presumably considerably more important in terms of new hires. In Sweden, fixed-term contracts account for an overwhelming majority of new hires even though the share of the stock of employees is only around 15 percent. Analogously, it is likely that TWAs are much more quantitatively important for the flows than for the stocks.

There is so far only scanty empirical knowledge about the TWA sector and its labor market impact. It is plausible that TWAs can have favorable impact on overall recruitments by effectively reducing hiring costs. These effects may conceivably be stronger in an economy with stringent employment protection, i.e., high costs of hiring and firing. Emerging evidence from the U.S. suggests that TWAs can serve to screen prospective employees and thereby perhaps improve matching between workers and vacancies. Work by Katz and Krueger (1999) on U.S. state data suggests that wage inflation has been lower in states with a higher initial TWA share.

In summary, the 1990s have seen notable changes concerning employment contracts in the Swedish labor market. The steep rise in the number of fixed-term contracts appears to be an endogenous response to macroeconomic and probably also structural (but not well understood) factors; in any event, the increase has little to do with legislative changes. The fast growth of employment intermediaries is clearly due to a major reform in the early 1990s. The growth of fixed-term contracts may have contributed to some rise in unemployment through more frequent worker separations. The growth of the temporary work agencies should have improved matching efficiency. On balance, the total effect on unemployment is probably small.

### 4.5 Product Market Regulations

Standard theory predicts that more competitive product markets are conducive to low unemployment, at least in the long run. More intense competition brings about increased output

and employment at given wage costs. It should also foster wage moderation by raising the costs to unions of aggressive wage demands.

The 1990s have seen a general trend towards increased competition in Swedish product markets. The areas of deregulation include public procurement, telecommunications, energy, domestic air-traffic, railway transport and taxi. A new competition law has been put in place in 1993 that involved tougher sanctions against non-competitive behavior in product markets. In addition, there has been some rise in competitive pressure arising from Sweden's participation in the European economic integration.

Nicoletti et al (2001) have tried to obtain quantitative estimates of the impact of product market regulations on employment by exploiting information on regulatory reform in OECD countries since the late 1970s. Taken at face values, the estimated effects are quantitatively nontrivial. The results for Sweden would imply that regulatory reform over the 1980s and the 1990s have added 2 percentage points to private sector employment relative to population.<sup>9</sup> Although this estimate should be taken with at least the usual caution, it points in the "right" direction. It is likely that the regulatory reforms in conjunction with intensified international competition have led to some decline in the Swedish NAIRU.

#### 4.6 A Rise in Equilibrium Unemployment?

Several studies have attempted to estimate the equilibrium unemployment rate in Sweden. The methods vary and so do the results, although differences in methods do not seem to explain differences in results. Some early studies focused on changes in inflation and attempted to determine the unemployment rate consistent with stable inflation. A more ambitious structural approach involves estimation of price- and wage-setting schedules. Many attempts to estimate the NAIRU arrive at series that can be described as smoothed versions of the actual unemployment rate.

The estimates in Holmlund (1993) indicated a trend rise in NAIRU since the mid-1960s and a NAIRU close to 3 percent around 1990. Forslund (1995) estimated wage and price setting schedules and solved for the equilibrium unemployment rate; this turned out to be around 4-6 percent in the early 1990s. Elmeskov et al (1998) reported estimates according to which NAIRU

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<sup>9</sup> See OECD Employment Outlook 2002, chapter 5. A caveat is that the results also indicate that product market regulations are less harmful in countries with corporatist wage setting regimes.

had risen by 4 percentage points between the late 1980s and the mid-1990s. Apel and Jansson (1999) presented system estimates of potential output and the NAIRU using unobserved components methods. The results differed depending on the exact specifications. Some specifications indicated a marked rise in the NAIRU over the 1990s, whereas others indicated only marginal changes. The recent study by Lindblad and Sellin (2008) recognizes the open economy aspects of the equilibrium unemployment rate and model unemployment along with the real exchange rate. The basic conclusion from here is that the dramatic rise in Swedish unemployment in the early 1990s was mainly a cyclical phenomenon.

All in all, climbing real interest rates probably added to some increase in the NAIRU in the early 1990s but otherwise it is difficult to identify sharp changes in the usual structural suspects – benefits, labor market institutions, taxes etc – that could explain the huge rise in unemployment. The steep rise in unemployment is best understood as being mainly the result of a series of adverse macroeconomic shocks. It should be recognized, however, that the shocks hit when unemployment in all likelihood was well below the NAIRU; at least part of the rise thus reflected an adjustment towards a more sustainable level of unemployment.

## **5. Concluding Remarks**

The paper has argued that adverse macroeconomic shocks caused the steep rise in Swedish unemployment in the early 1990s. These shocks had both domestic and foreign origins, where the domestic ones were the results of major policy failures. The timing of financial liberalization and the “tax reform of the century” was certainly not well designed. The consumption boom that emerged in the late 1980s, involving gradually rising inflation as well as falling unemployment, could have been curtailed by fiscal policy. However, fiscal policy was generally too lax and the hands of monetary policy were tied to the defense of the fixed exchange rate. The economy was already edging towards recession when macroeconomic policy finally took a firm anti-inflationary stand. The exceptionally contractionary monetary policy in 1992 appears to have had long lasting effects on unemployment.

The strong recovery in the late 1990s moderated fears that the high unemployment should become persistent. In many respects, the labor market rebound from 1997 and onwards indicated that the Swedish labor market worked reasonably well. Wage inflation was under control and job finding rates rose uniformly across unemployed individuals with short and very long time in joblessness.

Several policy changes may have contributed to some decline in the NAIRU over the 1990s. Unemployment benefits became less generous; the labor market opened for employment intermediaries, and regulatory reforms enhanced competition in product markets. Moreover, innovations in collective bargaining arrangements facilitated informal coordination of wage negotiations. It seems unlikely, however, that Sweden will return to the extremely low unemployment rates that prevailed in the late 1980s. These low rates were almost certainly not sustainable.

The new Swedish government that took office in 2006 has initiated a number of labor market reforms that are intended to increase employment and reduce unemployment. The unemployment insurance system has been made less generous, tax rates have been cut on low earnings so as to encourage labor force participation, and various reforms of active labor market programs have been undertaken. It remains to be seen what the impact of these reforms will be.

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