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Diskussionspapiere
Discussion Papers

Discussion Paper No. 97

**Credibility of restrictive policies
and low unemployment in the Czech Republic**

by
Ulrich Thiessen

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Deutsches Institut für Wirtschaftsforschung

Discussion Paper No. 97

Credibility of restrictive policies and low unemployment in the Czech Republic

by
Ulrich Thiessen

Berlin, September 1994

Deutsches Institut für Wirtschaftsforschung, Berlin
Königin-Luise-Str. 5, 14191 Berlin
Telefon: 49-30 - 89789-0
Telefax: 49-30 - 89789-200

<u>Contents</u>	<u>Page</u>
1. Introduction	1
2. Statistical error?	2
3. Real wage adjustment and credibility	5
4. Fiscal adjustment	9
5. Monetary policy	12
6. Concluding remarks and research issues	15

Text Tables

Table 1: Selected Central European Countries: Evolution of Employment, Real Product Wages, and Productivity 1990-1993	2a
Table 2: Selected Central European Countries: Characteristics of Unemployment	2b
Table 3: Czech and Slovak Republics: Unemployment Granger Causality Tests	4a
Table 4: Selected Central European Countries: Wage Regressions	4b
Table 5: Selected Central European Countries: Fiscal Developments	9a
Table 6: Selected Central European Countries: Gross Fixed Capital Formation	10a
Table 7: Selected Central European Countries: Savings Ratios of Private Households	11a
Table 8: Selected Central European Countries: External Current Account (convertible currencies)	11a
Table 9: Selected Central European Countries: Foreign Direct plus Portfolio Investment	11a
Table 10: Selected Central European Countries: Indicators of Monetary Policy	12a

Charts

Chart 1: Czech Republic and Poland: Spread between Long- and Short-term Deposit Interest Rates	6a
References	17

1. Introduction

Unemployment in Central Eastern European countries appears to have generally stabilized on high levels, namely in the range of 9 to 17 percent of the labor force in 1994.¹ The exception is the Czech Republic where unemployment reached a peak of 4.1 percent at the end of 1991. Given that, in general, unemployment in Eastern Europe proved not to be a pool with high turnover and thus central to efficient reallocation, the importance of examining the causes for the Czech Republic's success is evident. Major factors that may explain low unemployment in the Czech Republic are high private sector employment growth, incomes policy in the form of excess wage increase taxation, cuts in unemployment benefits, labor force withdrawals and labor market measures. However, labor force withdrawals, labor market measures and excess wage increase taxation do not appear to satisfactorily explain why unemployment in the Czech Republic has been lower compared to most other Central and Eastern European (CEE) countries. A major difference in the evolution of market economies in Central and Eastern Europe, however, concerns macroeconomic policies. Despite the output decline, the Czech Republic pursued restrictive macroeconomic policies before and during the course of transition. Specifically, the Government adheres to the principle of a balanced budget. The case of the Czech Republic appears to provide further insights regarding the hypothesis that as long as fiscal, monetary, and exchange rate policies are implemented consistently, curtailing domestic demand does not necessarily lead to rising unemployment and depressed business investment (Giavazzi and Pagano (1990)). The paper is organized as follows: Section 2 examines whether official low unemployment in the Czech Republic may be the result of statistical errors and/or associated with some form of "hidden" unemployment. Section 3 analyzes wage adjustment. Section 4 studies the contribution made by fiscal adjustment and section 5 examines the contribution lent by the Czech Republic's monetary policy makers. Section 6 concludes.

¹ The analysis in this paper confines itself to four Eastern European countries, namely the so called Visegrad countries Czech Republic, Hungary, Poland, and Slovakia. (In December 1992, these four countries signed a Central European Free Trade Agreement (Visegrad Agreement), which provides for a gradual introduction of a free trade area until the year 2000).

Credibility of restrictive policies and low unemployment in the Czech Republic

Abstract

Unemployment in the Czech Republic has been relatively low since inception of transition. Potential explanatory factors are high private sector employment growth, excess wage increase taxation, cuts in unemployment benefits, labor force withdrawals and active labor market policies. This paper finds that it appears difficult to explain divergent trends of unemployment in Central and Eastern Europe with labor force withdrawals, excess wage increase taxation and differences in the effectiveness of labor market policies. Therefore, it is necessary to concentrate on high private sector employment growth. Owing to severe data limitations, credibility of restrictive macroeconomic policies is qualitatively assessed and there are indications that credibility may have affected expectations and wage formation such that real wage adjustment, investment, and savings were promoted. Perhaps not surprisingly, the effect of excess wage increase taxation appears to have been marginal whereas the curtailment of unemployment compensation appears to have contributed to increased sensitivity of wage formation to the unemployment level.

2. Statistical error?

According to Table 1 the evolution of the official unemployment rate in the Czech Republic deviates from those in most Central and Eastern European (CEE) countries in two respects: First, it remained rather low below 5 percent and second, it reached a peak at the end of 1991. Hence, the obvious first question is whether the official unemployment rate corresponds to "true" unemployment. Employment and unemployment changes demonstrate the extent of employment restructuring: The changes given in Table 2 show that during the four years since inception of transition in 1990, employment in enterprises with 25 or more employees declined by one third equal to about 1.8 million jobs. At the same time unemployment increased by merely 3.4 percent of the initial labor force in 1990 raising the question what accounts for the discrepancy. According to Labor Force Surveys in January and October 1993, total employment stood at about 4.8 million (while the official figure was also 4.8 million remaining nearly constant during 1993) so that the net job loss since 1990 amounted to about 330 thousand jobs. This implies that most of those who lost their job in relatively large enterprises found employment domestically mainly in the services sector but also in small industrial firms.² Early retirement schemes affected about 100 thousand persons (at end 1993) and thus account for about one third of the net job loss since 1990. The remainder is accounted for by labor force withdrawals³ and employment abroad. Thus the economy experienced the intended restructuring in the form of employment shifts mainly from large industrial enterprises to private firms in services and other sectors (about 1.5 million jobs were created during 1990 through 1993). Another important factor is that the relatively small pool of unemployed in the Czech Republic has a higher turnover than in most CEE countries (long-term unemployment is relatively low) and thus the unemployment outflow rate to jobs is substantially higher than that in Poland, Hungary and the Slovak Republic. Econometric analysis corroborates the view that the labor market in the Czech Republic appears to be more flexible than those in the other

² See also Ham et. al. (1993).

³ Labor force participation in CEE countries was in general higher prior to transition than in Western economies so that it may not be legitimate to interpret a decline of participation rates as "hidden" unemployment but rather as an adjustment to a "normal" level. In the Czech Republic the labor force ("economically active population") declined during 1990 through 1993 by about 100 thousand persons (from about 5.4 million at end 1990 to about 5.3 million at end 1993). If the difference of 100 thousand persons would be added to the number of unemployed, the unemployment rate would have been 5.3 percent at end 1993. In addition, it is not clear to what extent persons who left the labor force became active in the underground economy.

Table 1:

Selected Central European Countries: Evolution of Employment, Real Product Wages and Productivity 1990 - 1993

Quarters	1990				1991				1992				1993			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Unemployment Rate																
Czech Republic	0,1	0,1	0,5	0,8	1,7	2,6	3,8	4,1	3,7	2,7	2,6	2,6	2,9	2,6	3,2	3,5
Hungary	...	...	...	1,5	3,0	3,9	6,1	8,5	8,9	10,1	11,4	12,3	13,4	12,6	12,9	12,1
Poland	1,5	3,2	5,2	6,3	7,3	8,6	10,7	11,8	12,1	12,6	13,6	13,6	14,4	14,8	15,4	15,7
Slovak Republic	0,1	0,2	0,8	1,6	3,7	6,3	9,6	11,8	12,3	11,3	10,6	10,4	12,0	12,5	13,7	14,4
Real Wage Index (Industry)																
Czech Republic	100	98,2	98,9	101,6	66,8	65,6	65,5	76,9	68,9	71,6	70,8	81,6	74,6	82,1	78,2	88,5
Hungary	100	109,1	113,0	125,4	86,6	96,3	100,2	113,5	104,0	111,3	116,3	153,1	107,2	122,7	133,3	141,8
Poland	100	107,3	114,4	137,7	133,6	126,9	124,8	143,7	140,5	134,4	138,5	155,2	147,9	148,4	139,0	151,6
Slovak Republic	100	98,6	101,3	101,4	63,4	64,4	66,4	82,2	70,3	76,3	78,6	91,6	72,1	78,5	80,8	88,7
Employment in Industry Relative to Total Employment																
Czech Republic	0,36	0,35	0,37	0,37	0,36	0,34	0,33	0,32	...	...	...	...	0,30	0,30	0,29	0,29
Hungary	...	...	...	...	...	...	...	...	...	...	...	...	0,32	0,31	0,31	0,31
Poland	0,36	0,37	0,37	0,37	0,37	0,37	0,38	0,37	0,37	0,37	0,37	0,37	0,37	0,37	0,38	0,37
Slovak Republic	0,34	0,33	0,29	0,37	0,36	0,34	0,34	0,32	0,32	0,30	0,33	0,31	0,31	0,30	0,30	0,30
Labor Productivity Index 1/																
Czech Republic	100	97,2	98,1	98,2	93,6	82,2	74,1	80,5	...	...	...	...	74,4	74,8	69,2	80,9
Hungary	100	100,8	92,6	113,8	100,3	94,1	84,9	100,4	97,5	97,5	96,1	117,4	95,4	101,9	102,4	118,2
Poland	100	97,5	101,4	114,0	102,2	91,1	89,9	99,3	103,0	103,7	106,6	114,8	115,1	119,1	112,6	124,1
Slovak Republic	100	108,7	96,4	130,9	91,2	82,2	78,4	95,6	79,7	81,1	74,3	85,5	70,4	74,1	90,6	71,0
Real Wage Index Adjusted for Productivity (unit labor cost)																
Czech Republic	100	101,0	100,7	103,5	71,4	79,8	88,3	95,5	...	...	...	...	100,3	109,8	113,1	109,5
Hungary	100	108,3	122,0	110,2	86,4	102,3	118,0	113,1	106,7	114,2	121,0	130,4	112,3	120,4	130,2	120,0
Poland	100	110,1	112,9	120,8	130,8	139,3	138,9	144,7	136,5	129,6	130,0	135,2	128,5	124,6	123,4	122,1
Slovak Republic	100	90,7	105,0	77,5	69,6	78,4	84,7	86,0	88,2	94,1	105,9	107,2	102,4	106,0	89,1	124,9
Employment in Private Enterprises Relative to Total Employment 2/																
Czech Republic	...	...	...	8,5	...	...	...	21,6	...	...	...	...	...	...	...	...
Hungary	...	...	...	...	...	...	...	34,0	...	...	...	35,8	...	...	...	...
Poland	...	...	...	50,3	...	...	...	63,2	...	...	...	75,8	...	...	...	...
Slovak Republic	...	...	...	5,9	...	...	...	14,4	...	...	...	19,5	...	...	...	...

1/ Based on employment figures related to enterprises with 25 or more employees.

2/ Estimates taken from Blanchard et. al. (1994), p.71.

Sources: OECD (1994), Short term economic indicators, Transition economies, Paris.

Note: Real wage index equals nominal wage index (industry) deflated by producer price index (industry); Producer price index for Hungary from: Central Statistical Office Budapest, Statisztikai Havi Közlemenyek, Monthly Statistics, Budapest, various issues.

Table 2: Selected Central European Countries: Characteristics of Unemployment

	Employment and Unemployment Changes (1993 fourth quarter over 1990 first quarter as percent of labor force in 1990)			Long term unemployment (averages) 1 9 9 2	Unemployment outflow rates (1992 averages; as share of unemployment)	
	Change in Employment 1/ (economy) | (industry)		Change in Unemployment (economy)		Outflow	Outflow to jobs
	Czech Republic	-33,8	-25,2	3,4	28,4	25,8	18,0
Hungary	-37,0	-30,3	11,5	37,3	7,0	3,0
Poland	-13,2	-19,4	14,3	43,4	4,0	2,3
Slovak Republic	-6,3	-19,2	14,3	25,5	9,8	4,8

1/ Based on employment figures related to enterprises with 25 or more employees.
Sources: OECD (1994), Short term economic indicators, Transition economies, Paris.
Data provided by Ministry of Finance of respective country.

Visegrad countries.⁴ It is difficult to explain this relatively higher flexibility and lower unemployment with employment programs (active promotion of entrepreneurial activity, subsidization of job creation, creation of socially purposeful jobs, youth employment measures, job matching, information exchange etc.), because these measures are relatively similar in all Visegrad countries and other CEE countries spend significantly more as percent of GDP on such programs so that differences in effectiveness would have to be substantial if they were to explain differences in the evolution of unemployment.⁵ However, the relatively poor evolution of productivity clearly indicates that the substantial labor shedding on the part of medium and large industrial enterprises did not meet requirements. Privatization of medium and large scale enterprises proceeds in such a way that enterprises designated for privatization present their restructuring proposals to the Ministry of Privatization where these are evaluated together with competing proposals (Leeds (1993)). In most cases, enterprise managements submitted proposals that avoided large-scale labor shedding and received approval. Hence, the favorable characteristics of the Czech Republic's unemployment pool may not be interpreted as proof of an efficient reallocation of labor.⁶ Since the Czech and Slovak Republics implemented drastic cuts in unemployment benefits

⁴ Boeri (1994) presents estimated "matching functions" where outflows from the unemployment pool to jobs are regressed against the stock of unemployment (broken down in short-term and long-term unemployed) and vacancies (lagged). In contrast to results usually obtained for OECD countries, vacancies in Eastern Europe have little impact on job findings. Regarding the impact of unemployment on job finds, Boeri obtains relatively large elasticities for short-term unemployment and relatively low elasticities for long-term unemployment. The exception is the Czech Republic where the coefficient of long-term unemployment (0.3) is not much smaller than that of short-term unemployment (0.5). This is another indication that the labor market in the Czech Republic has more flexibility than those in the other considered countries.

⁵ During 1990-93, excluding unemployment compensation, the Czech Republic spent on average about 0.1 percent of GDP on labor market programs whereas Hungary and Poland spent about 0.2 percent and 0.3 percent, respectively. During 1992 the Slovak Republic spent about 1.3 percent of GDP on labor market programs and during 1993 about 0.3 percent. Detailed assessments of labor market programs in CEE countries are provided in OECD (1994a) and OECD (1994b). Nevertheless, labor market programs clearly raise the flexibility of labor markets and reduce unemployment. With regard to OECD countries empirical analyses find a significant negative impact of spending for labor market programs on unemployment (see Burda (1993)). In 1992, about 300 thousand persons were enrolled in job creation and retraining schemes in the Czech Republic, which equals roughly the number of unemployed.

⁶ Based on a labor market model that assumes certain marginal cost and benefits of unemployment and thus an optimal rate of unemployment, Burda (1993) calculates an optimal time path for lay-offs in public enterprises. However, given the uncertainty with regard to the true cost particularly of long-term unemployment (e.g. loss of human capital and perhaps even a negative effect on the sensitivity of wage bargaining with regard to unemployment), the author suggests himself to avoid moving to a high unemployment trap.

(effective at the beginning of 1992), it appears helpful to study the effects this measure had on unemployment, participation and wage formation.⁷ A Granger causality test (Table 3) provides support for the hypothesis that this cut contributed to the subsequent decline in unemployment in the Czech Republic. However, regarding the Slovak Republic, where unemployment decreased temporarily in response to the cut, this hypothesis needs to be rejected. Also on the basis of a Granger causality test, the hypothesis that the cut in unemployment benefits contributed to the decline in participation needs to be rejected for both countries. Regarding wage formation, wage regressions were estimated for both countries for the period 1990-1994 and 1992-1994 using monthly data (Table 4). The regressions were estimated not only to study the effect of curtailment in unemployment benefits on wages but also to measure the impact of incomes policy and they are therefore discussed in detail in the following section. Here it shall be noted that indeed the sensitivity of wages relative to the unemployment rate increased in both countries following the cut in benefits as measured by a rise in the coefficients of the unemployment rate. For the Czech Republic the absolute value of this coefficient increased from 0.05 for the whole period 1990-1994 to 0.17 for the period since 1992. In the Slovak Republic the regressor unemployment rate had the wrong sign for the period 1990-1994 and was therefore dropped. However, for the period 1992-1994 it has the correct negative sign and attains a relatively large absolute value (0.49). On the other hand, and also for the period 1992-1994, the regressor incomes policy carries the wrong positive sign for both countries and it loses its significance. Therefore it had to be dropped from the equation. In addition, the coefficient of the regressor price level increased in both countries (far above unity) showing that there is no money illusion. These changes indicate that following the cut in unemployment benefits, wage behavior changed in both republics with the unemployment rate becoming more influential and incomes policy losing its significance. There may, of course, be additional factors that contributed to these changes, but in the absence of other clear structural breaks, the change in the unemployment compensation scheme has to be considered seriously. It may thus be summarized that the low rate of unemployment in the Czech Republic reflects primarily strong growth of private employment, soft adjustment in large enterprises, and a decline in participation. The cut in unemployment benefits at the

⁷ Effective January 1, 1992, only persons who were employed, enrolled in education, or took care of a child for 12 months during the past three years qualified for unemployment benefits and the maximum period during which unemployment benefits could be received was reduced from 12 to 6 months (with minor exceptions). As a result, the number of persons receiving unemployment benefits dropped from 72 percent in the Czech Republic and 81.3 percent in the Slovak Republic (at end 1991) to 58.4 percent and 52.2 percent, respectively, in January 1992.

Table 3
Czech and Slovak Republics: Unemployment Granger Causality Tests
Sample: 1991.01-1993.06, monthly data

	Czech Republic			Slovak Republic		
	F(30,2)	F(30,4)	F(30,6)	F(30,2)	F(30,4)	F(30,6)
U is not caused by UNB	3,69	3,58	2,97	2,62	1,37	2,77
UNB is not caused by U	3,13	1,71	2,36	5,37	2,85	2,98
LF is not caused by UNB	0,40	0,56	7,76	0,25	0,89	1,52
UNB is not caused by LF	4,10	3,08	4,95	2,27	0,51	0,64
Critical F-ratio	3,39	2,82	2,51	3,39	2,82	2,51

Note: U = unemployment rate,
 UNB = proxy for "generosity" of unemployment benefits: ratio of unemployed receiving unemployment benefits to total number of unemployed,
 LF = labor force;
 Data from: Czech Statistical Office: Monthly Bulletin; Slovak Statistical Office: Monthly Bulletin; Ekonomicky monitor (Economic Monitor, monthly).

Table 4

Selected Central European Countries: Wage regressions

Monthly data 1990.01-1994.03		Summary statistics:
Czech Republic	$\ln w = 0.6 - 0.05 \ln U + 0.44 \ln y + 1.17 \ln \text{CPI} - 0.04 I$ <p style="text-align: center;">(0.6) (-1.8) ^(t-3) (3.4) ^(t-1) (8.4) ^(t-1) (-1.0) ^(t)</p>	$R^2 = 0.91$ $R^2_{\text{adjusted}} = 0.89$ D.W. = 1.96 S.E. = 0.07
Poland	$\ln w = -0.02 - 0.06 \ln U + 0.41 \ln y + 1.15 \ln \text{CPI} - 0.28 I$ <p style="text-align: center;">(-0.01) (-1.6) ^(t-3) (1.8) ^(t-2) (12.0) ^(t-1) (-3.1) ^(t)</p>	$R^2 = 0.99$ $R^2_{\text{adjusted}} = 0.99$ D.W. = 1.73 S.E. = 0.07
Slovak Republic	$\ln w = 2.9 + 0.27 \ln y + 0.84 \ln \text{CPI} - 0.08 I$ <p style="text-align: center;">(2.6) (2.1) ^(t-1) (7.1) ^(t-3) (-2.2) ^(t)</p>	$R^2 = 0.87$ $R^2_{\text{adjusted}} = 0.86$ D.W. = 1.89 S.E. = 0.08
Monthly data 1992.01-1994.03		
Czech Republic	$\ln w = 0.47 - 0.17 \ln U + 0.45 \ln y + 1.21 \ln \text{CPI}$ <p style="text-align: center;">(0.6) (-2.7) ^(t-3) (4.1) ^(t-1) (11.6) ^(t-3)</p>	$R^2 = 0.89$ $R^2_{\text{adjusted}} = 0.87$ D.W. = 2.33 S.E. = 0.05
Slovak Republic	$\ln w = -0.19 - 0.49 \ln U + 0.40 \ln y + 1.56 \ln \text{CPI}$ <p style="text-align: center;">(-0.1) (-1.7) ^(t-3) (2.3) ^(t-1) (5.5) ^(t-3)</p>	$R^2 = 0.79$ $R^2_{\text{adjusted}} = 0.75$ D.W. = 1.82 S.E. = 0.07
<p>Note: With the exception of the regression for the Czech Republic for the period 1992-1994, all regressions adjusted for first-order serial correlation of the errors through Cochrane-Orcutt procedure. T-statistics in parentheses.</p> <p>w = nominal average gross wage in industry, U = Unemployment rate, Y = Real industrial output, CPI = Consumer price index, I = Dummy variable for incomes policy.</p>		
<p>Data from: Czech Statistical Office, Monthly Bulletin, Statistické přehledy (monthly statistical surveys); Polish Central Statistical Office, Biuletyn statystyczny (monthly statistical Bulletin); Slovak Statistical Office, Ekonomický Monitor, Monthly Bulletin.</p>		

end of 1991 appears to have contributed to maintaining a low unemployment rate through increased incentives to search work but also through moderation of wage behavior and there is no measureable adverse impact on participation.

3. Real wage adjustment and credibility

Real wage flexibility is a primary determinant for the employment level. Despite the disagreement among economists about appropriate measures to reduce relatively high unemployment in several Western European countries, there is at least agreement with regard to improving the sensitivity of real wages to unemployment. A necessary condition for unemployment to remain low is that wage bargaining does not entail that "insiders" pursue a real wage target without regard for unemployed (outsiders).⁸ Given the extent of aggregate demand shocks and shifts in relative demand and prices suffered by CEE countries in the beginning of transition, real wage adjustment was attempted to be promoted through incomes policy in the form of "excess wage increase taxation." Table 1 presents product wage indices regarding the industrial sectors. With the exception of Poland, strong adjustment was achieved in the beginning of 1991 (through price increases). Since then real wages in the Czech and Slovak Republics remained below their 1989 levels. The productivity decline (output per worker) offset this adjustment only partly so that labor costs decreased despite the output decline (row 5 in Table 1).⁹ By contrast, in Hungary and Poland labor costs remained substantially above their respective 1989 levels despite a somewhat smaller decrease in labor productivity. Apparently, the Czech Republic has been successful with regard to enforcing a real wage decline in line with that of productivity. Together with a deep devaluation of the national currency in the beginning of reforms, labor costs remained low thus attracting foreign firms. Given the relatively high degree of

⁸ In the Czech Republic as well as in other Eastern European countries the form of wage bargaining is only evolving. Given the empirical evidence for OECD countries, it appears that wage bargaining should be centralized through strong coordination among both employers' federations and trade unions and through bargaining at the highest levels of these organizations (Calmfors and Driffill (1988)), preferably without participation of the government except through provision of a mediator. Such an organization may facilitate that the aggregate real wage level evolves in line with aggregate productivity. Non-participation of the Government may appear important to secure impartiality of the latter and prevent emergence of tax- or other concessions in exchange for certain wage deals.

⁹ Productivity figures are biased upwards because they are based on employment figures related to enterprises of 25 employees or more. (Total employment is larger than the figures used here). Reliable data on total employment are available from Labor Force Surveys. These were not used here because they do not provide quarterly figures since 1990.

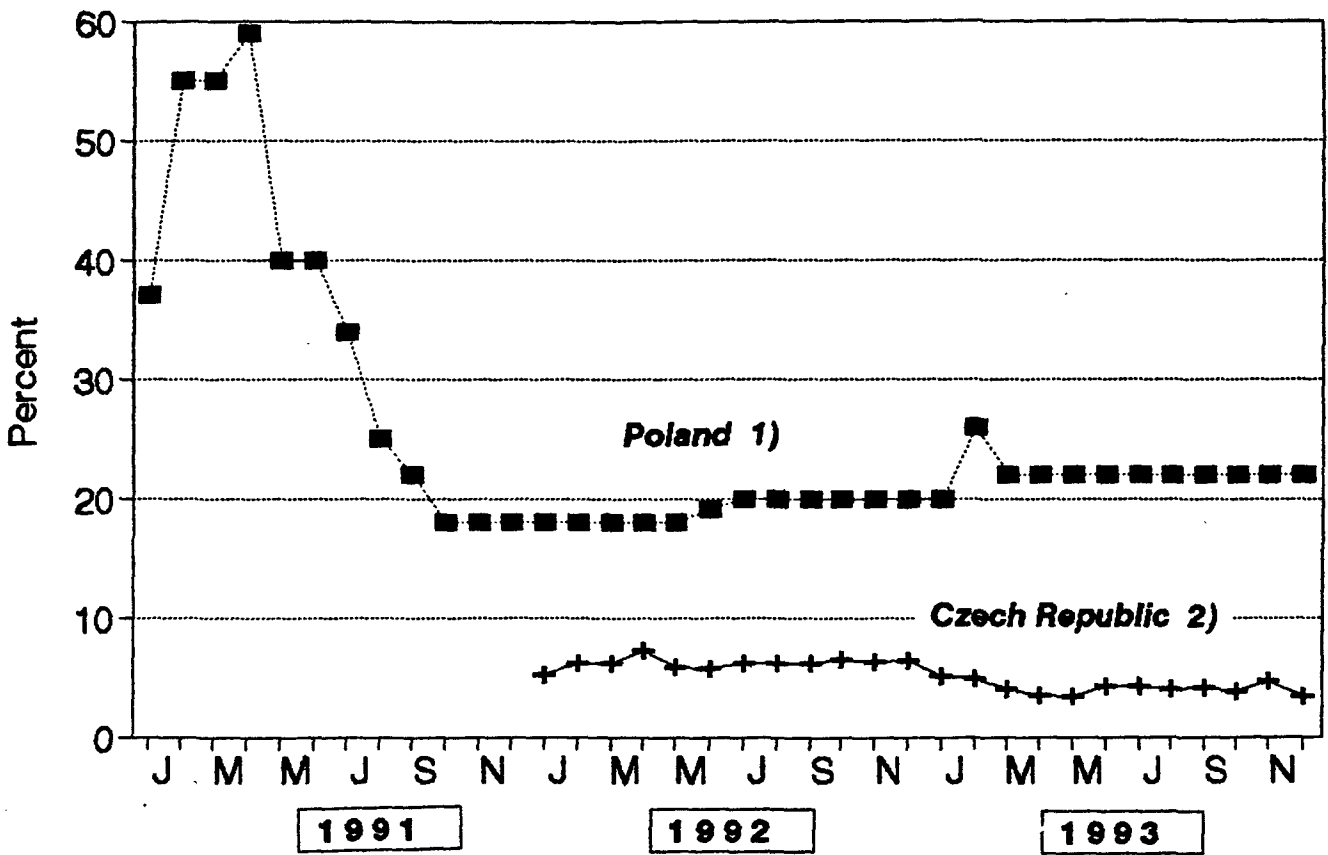
openness of the Czech Republic's economy and thus sensitivity to exchange rate movements, it could appear that indeed real wage adjustment together with restrictive demand management is a primary explanation for low unemployment since it may explain both growth of private sector employment (formal and informal) and maintained competitiveness of public enterprises and thus the lags in their labor shedding.¹⁰ It is generally maintained that incomes policy in the form of excess wage increase taxation contributed to enforcing real wage adjustment. Theoretical reasons and the empirical evidence suggest, however, that there is only one convincing case for incomes policy (narrowly defined as measures that aim at restraining growth of the aggregate wage level), namely inflationary inertia when inflation is relatively high.¹¹ CEE countries implemented this policy because during the initial phase of transition it was unclear how enterprises would behave that were no longer subject to central planning and because the policy was preferred over setting incentives for managements to maintain profitability (such as equity stakes, profit shares etc.). A priori it is, however, not clear whether relatively successful real wage adjustment in the Czech Republic is attributable to incomes policy. It is conceivable that credible restrictive policies provided for feedback to wage formation. In an open economy with a fixed exchange rate the spread between long- and short-term interest rates incorporates expectations of exchange rate changes and thus of inflation. For instance, the larger an expected devaluation, the larger c.p. tends the spread to be. A narrowing of the spread, all other things equal, indicates a decline of expected depreciation and inflation. The Czech Republic has a fixed exchange rate. The long-term time deposit interest rate in the Czech Republic declined from around 17 percent at end of 1991 to around 12 percent in the beginning of 1994 and with it declined the spread since 1992 (Chart 1), indicating that indeed lower inflation was expected. In Poland the fixed exchange rate regime was abandoned in October 1991 and replaced by a crawling peg regime. Long-term interest rates declined gradually since April 1991 and the spread narrowed during 1991. However,

¹⁰ A preferable way to analyze the extent to which wages exceed labor market clearing levels may be seen in calculation of the cumulative deviation of product wages from average productivity consistent with full employment (wage gap) as suggested by Sachs (1983) and as regularly performed by the OECD for several industrial countries. Wage gap calculations are based, among others, on the assumption that labor demand is profit-maximizing, a condition which may not hold with regard to many public enterprises. Data availability and the missing benchmark for a full employment productivity level pose further difficulties.

¹¹ Johnson (1972) showed theoretically why incomes policy is doomed to fail. See also Rakowski (1983). The empirical evidence clearly supports Johnson's reasoning (e.g. Pencavel (1981)) and the fact that several Eastern European countries abandoned incomes policy provides additional evidence that incomes policy is not sustainable.

Chart 1

Czech Republic and Poland: Spread between long- and short-term deposit interest rates 1991 - 1993



1) One-year deposit rate minus demand deposit rate.

2) Long-term time deposit rate minus short-term time deposit rate.

Sources: Czech Statistical Office, Monthly Bulletin;

Polish Central Statistical Office, Monthly Statistical Bulletin.

since mid-1992 it tended to increase which appears to be inconsistent with a lowering of expected inflation. Therefore, it may not surprise if relatively successful real wage adjustment in the Czech Republic has been primarily the result of credible restrictive policies rather than incomes policy in the form of excess wage increase taxation. To assess the impact of incomes policy (in the form of excess wage increase taxation) on wage adjustment, wage equations were estimated for the period 1990-94 for the Czech and Slovak Republics and for the period 1989-1993 for Poland using monthly data.¹² Specifically, the nominal average gross wage in industry was regressed against the unemployment rate, real industrial output, and prices (CPI). Incomes policy is proxied by a dummy variable.¹³ Table 4 reports the results: All coefficients have the expected sign, except that of the unemployment rate in the Slovak Republic in the regression for the period 1990-1994 (where unemployment was consequently dropped from the equation), and the overall fits appear satisfactory. According to the regressions, wage adjustment in the Czech Republic cannot be attributed primarily to "excess wage increase taxation." The Czech Republic is the only country where the regressor incomes policy is not significant by conventional standards for the period 1990-1994. Moreover, the coefficient of incomes policy in the Czech Republic is relatively small. Comparing the coefficients of the unemployment rate for the two periods shows that wage formation appears to have been increasingly affected by unemployment. This is also true with regard to the Slovak Republic where unemployment rose to a much higher level. An analysis of the question whether lower expected inflation in the Czech Republic and thus credibility of fiscal and monetary adjustment had a dampening effect on wage growth is complicated by two facts: First, during 1993 actual

¹² All variables were tested for unit root non-stationarity with and without time trend and using different lag structures yielding the following results: the variables wage and CPI regarding Poland may appear to follow a random walk (at 5 percent significance level using the McKinnon critical values). Consequently, the equation was reestimated using first differences which resulted in the usual substantial fall of R squared and adjusted R squared (to 13 and 6 percent, respectively) and insignificance of the regressors unemployment rate and incomes policy. However, the signs of the coefficients remained unchanged. Thus, the coefficients in the wage equation for Poland may be biased although their signs appear to be correctly measured. To be able to reject the hypothesis for all other variables to follow a random walk (at the 5 percent significance level) required in a few cases to increase the number of lags up to six which, however, should be a standard procedure given that the underlying process followed by the time series analyzed may not be a pure autoregressive model but contain moving average components (Said and Dickey (1984)).

¹³ The proxy for incomes policy attains the value one when incomes policy was in effect and zero otherwise. Incomes policy was in effect in the Czech Republic during February 1991 through December 1992 and again since July 1993, in Poland during end of 1989 through end of the estimation period and in the Slovak Republic during the beginning of 1991 through end of 1992. All variables, except the proxies, were transformed into natural logarithms.

inflation rose although lower inflation may have been expected (according to Chart 1) so that forward actual inflation cannot be used as a proxy for expected inflation¹⁴ and second, severe data limitations and the very fact that CEE countries are transforming their economies into market economies and thus did not merely implement adjustment programs whose credibility needs to be ascertained, makes it difficult to apply the methods suggested in the empirical literature on credibility. This literature may be distinguished into two branches: The first one suggests to use a model related to the prereform period on the basis of which either inflation is forecast (Blanchard (1984), Christensen (1987), Giavazzi and Giovannini (1989), Kremers (1990),) or subjective probabilities of the model parameters are estimated through application of the Bayesian learning procedure (Baxter (1985), Weber (1991)). If the model overestimates inflation during the adjustment period or if the evolution of fundamentals is compatible with both an adopted exchange rate regime and steady-state equilibrium conditions, then adjustment policies are shown to have gained credibility.¹⁵ A second branch concentrates on constructing proxy variables for credibility. Variability of the exchange rate (Christensen (1990)) and, regarding developing countries, the spread between the parallel market exchange rate and the official rate (or preferably that component of the spread which is not affected by changes in fundamentals but reflects purely exogenous credibility effects (Agenor and Taylor (1992))) have been suggested. Additional variables that could indicate credibility, perhaps after some adjustment procedure, may be seen in capital flows, private savings, and growth of public debt as a share of GDP. Variability of the exchange rate (as measured by exchange rate variance) was used as an additional regressor in the wage regressions. It proved insignificant. Unfortunately, detailed data on capital flows, private savings and growth of the public debt to GDP ratios are not yet available in high frequency. Growth of the public debt to GDP ratio, inflation adjusted, may appear to be a useful proxy for credibility, because a reform program cannot be credible if fiscal deficits imply an explosive path for real public debt. In this respect it may be noted that growth of public debt to GDP ratios in Hungary, Poland and the Slovak Republic would have been substantially larger had the real interest rate to be paid on this debt been positive (the Czech Republic has a fiscal surplus since 1993). The fact that it has been negative since inception of transition reduces that growth but does not mean that a government can escape the rule that it cannot sell claims in

¹⁴ Nevertheless, the equation was also estimated using inflation one and two quarters ahead as a proxy for expected inflation. This did not substantially alter the results. Whether inflation is lagged or forward looking, the coefficients remains about unchanged.

¹⁵ However, these approaches have been criticized on the ground that model specification may be incorrect and thus measured credibility may not only reflect exogenous credibility.

excess of the present (real) value of future tax collections. This would suggest to calculate a credibility proxy as growth of the public debt to GDP ratio assuming a positive real interest rate.

Notwithstanding the difficulty to incorporate a satisfactory proxy variable for credibility in the wage regressions, the estimation results suggest that the effect of incomes policy in the Czech Republic has been rather moderate. Wage adjustment in the Slovak Republic has been relatively similar to the Czech Republic although insufficient to prevent a rise of unemployment to above 10 percent since the end of 1991. The relatively high employment growth in small firms experienced by the Czech Republic has not come forward in the Slovak Republic although privatization is generally evaluated as proceeding satisfactorily. While some authors argue that sluggish growth of private economic activity is mainly attributable to the fact that the Slovak Republic has been even more dependent on CMEA markets prior to transition than the Czech Republic¹⁶, an additional explanation may be seen in the unsustainably large fiscal deficit since 1992 that, owing to its potential adverse effect on expectations, may have prevented an unleashing of private savings and foreign investment as experienced by the Czech Republic.

Given the difficulty to construct a proxy for credibility that would be a significant independent variable in the wage regression and have the expected negative sign, the following sections on fiscal and monetary policy attempt to provide a qualitative assessment of credibility by showing that indeed macroeconomic policies in the Czech Republic deviate from those pursued in the other countries.

4. Fiscal adjustment

Table 5 gives an overview regarding the evolution of fiscal and primary balances of consolidated budgets, and of public domestic and external debt. Analysis of fiscal adjustment requires that revenues and expenditures are comprehensive so that the total burden which falls on the public is considered. With the exception of Poland, the budgets presented in Table 5 include the central government, local authorities, social security funds and extra-budgetary funds.¹⁷ On the other hand, inter-enterprise arrears and bad debt in

¹⁶ See, for instance Ham et.al. (1993).

¹⁷ With regard to Poland the figures represent the state budget only. However, in most CEE countries (and Russia) local authorities and extra-budgetary funds (including social security funds) are not entitled to tap financial markets so that these budgets are nearly balanced and their non-consideration does not result in a major distortion.

**Table 5: Selected Central European Countries:
Fiscal Developments
(Consolidated Budgets) 1/**

	1989	1990	1991	1992	1993
	(as percent of GDP)				
Czech Republic 2/					
Revenues	62,1	60,2	50,9	47,5	49,0
Expenditures	64,5	60,1	52,9	48,0	48,5
interest	...	...	...	1,0	1,6
Primary balance	...	...	...	0,5	2,1
Fiscal balance	-2,4	0,1	-2,0	-0,5	1,4
Real GDP growth rate	...	-0,4	-14,2	-6,6	-0,3
Net Domestic Public Debt	...	...	5,0	7,0	7,0
Net External Debt	...	...	...	17,6	17,8
Hungary					
Revenues	53,5	53,0	50,5	49,0	47,9
Expenditures	54,3	52,2	54,9	55,7	54,9
interest	2,4	3,0	4,1	5,2	5,6
Primary balance	1,7	3,8	-0,3	-1,5	-1,4
Fiscal balance	-0,7	0,8	-4,4	-6,7	-7,0
Real GDP growth rate	-0,2	-3,5	-11,9	-4,4	...
Net Domestic Public Debt	...	...	9,0	17,0	...
Net External Debt	...	...	57,0	51,0	...
Poland					
Revenues	30,8	33,3	25,7	27,0	...
Expenditures	36,9	32,7	32,7	33,8	...
interest	...	0,4	1,5	3,2	...
Primary balance	...	1,0	-5,5	-3,6	...
Fiscal balance	-6,1	3,1	-6,2	-6,7	-3,5
Real GDP growth rate	...	-11,6	-7,6	1,5	4,0
Net Domestic Public Debt	...	...	11,0	16,0	19,2
Net External Debt	...	...	59,0	61,0	56,4
Slovak Republic 2/					
Revenues	62,1	60,2	...	50,7	48,0
Expenditures	64,5	60,1	...	63,8	55,5
interest	...	...	...	...	3,9
Primary balance	...	...	...	...	-3,6
Fiscal balance	-2,4	0,1	...	-13,1	-7,5
Real GDP growth rate	...	-0,4	-14,5	-7,0	-4,1
Net Domestic Public Debt	...	...	6,9	22,1	28,3
Net External Debt	...	...	...	23,0	24,4

1/ With the exception of Poland comprises Central Government, local authorities, social security fund, and extra-budgetary funds. Figures for Poland are State Budget only. All figures are preliminary and subject to future revision.

2/ Figures for 1989 and 1990 are for the former Czech and Slovak Federal Republic.

Sources: Data provided by Ministries of Finance and Central Banks.

Debt figures are estimates; Net domestic public debt: sum of net credit to the government through the banking system plus stock of bonds and short-term papers outside the banking system; Net external debt: gross external debt minus official foreign assets.

banks' balance sheets (recapitalization) will result in some additional public debt burden. Poland set up a fund providing somewhat less than 1 percent of GDP in 1994 to cushioning the restructuring of bad loan portfolios. Hungary decided to recapitalize banks through government equity stakes. The Czech Republic created agencies that took over some bad loans. Thus, it appears that recapitalization did not result in a major increase of the public debt to GDP ratios as was initially expected. Table 5 shows that only the Czech Republic achieved to reduce expenditures in line with the shrinking tax base. The factors which tend to slow down the downsizing of the Government appear not to be effective in the Czech Republic.¹⁸ Specifically, within 4 years the state budget's share in GDP was reduced by 20 percentage points to a level lower than that of several industrial countries. This downsizing was achieved despite external shocks resulting in a cumulative output contraction larger than that in Hungary and Poland.¹⁹ The Czech Republic was forced to redirect a larger share of its exports than Hungary and Poland. The Czech Republic's share of exports to Western countries as a share of total exports prior to transition was less than a third. To accomplish a redirection of exports (goods with little market acceptance on international markets) within a short period, the authorities initiated both a large devaluation (namely about 50 percent in real effective terms based on unit labor costs during 1990-91) and the required contraction of domestic consumption through removal of subsidies, ceilings on current expenditures and, in the beginning of 1992, the cut in unemployment benefits. The expenditure reduction concentrated on consumption. Hence, capital formation as a share of GDP was held nearly constant since 1988 (Table 6). This is in contrast to the declines of investment in most CEE countries (which has been drastic in high inflation countries). The expenditure reduction was facilitated by the fact that the former Czechoslovakia entered the transition period without a substantial monetary overhang and relatively little external debt. (Domestic public debt in transition countries was absent). Consequently, and in contrast to both Hungary and Poland, a measure of "government's net worth" remained positive²⁰ thus contributing to lower expected inflation

and their non-consideration does not result in a major distortion.

¹⁸ See Kornai (1992) for an examination of these factors.

¹⁹ The collapse of trade among the former CMEA countries hit the Czech Republic somewhat harder than Hungary and Poland, because a relatively larger share of exports was not denominated in convertible currencies and openness was larger.

²⁰ See Thiessen (1994), p. 145.

**Table 6: Selected Central European Countries:
Gross fixed capital formation**

	1988	1989	1990	1991	1992	1993
	(as percent of GDP)					
Czech Republic	...	26,5	27,1	16,2	25,0	27,0
Hungary	21,0	19,9	17,8	21,3	19,8	19,0
Poland	22,5	16,4	19,6	14,9	11,6	9,4
Slovak Republic	...	27,5	31,3	28,3	28,5	28,0

Sources: Data provided by Ministry of Finance of respective country. All figures are preliminary and subject to future revision.

and presumably affecting private investment owing to its impact on expected taxation.²¹ Table 5 shows that primary balances in the other Visegrad countries have been negative since about 1991, indicating a positive impact on growth of the public debt to GDP ratio and possibly an adverse effect on growth to the extent that higher taxation is expected and interest rates rise. Another consequence of fiscal austerity in the Czech Republic may have been a positive effect on savings of private households. Table 7 shows a divergent evolution of private savings ratios in the considered countries. During the initial phase of transition private savings ratios rose in most CEE countries (despite negative ex-post deposit real interest rates). Since the fiscal balances were generally deteriorating, a legitimate question was whether private savings behavior in CEE countries followed the 'Ricardian equivalence' hypothesis. Had this been the case then it could have possibly been argued with Barro (1989) that fiscal deficits do not necessarily have to be detrimental to growth. However, according to Table 7 private savings ratios in Hungary, Poland and the Slovak Republic declined since 1991. Hence, the data appear to suggest that during recent years the correlation between private savings and the fiscal balance has been positive which would corroborate the argument that fiscal retrenchment rather than fiscal expansion tends to improve the private savings performance and thus also external performance. As a result of fiscal austerity in connection with stabilized private savings, the trend of the external current account of the Czech Republic indicates an improvement while the current accounts of all other considered countries tended to deteriorate (Table 8). It ought to be noted that the strong external performance in the Czech Republic was achieved without unduly restricting imports. Tariffs remained low, and import quotas (mainly on consumer goods) have been transitory. Thus, the favorable effect of net exports on employment could have been even larger had additional measures restricting imports been taken. Additional evidence supporting the view of expansionary fiscal contraction may be seen in the rate of increase in foreign investment in the Czech Republic (Table 9) and the fact that growth during the first half of 1994 is estimated to have been about 4 percent on an annual basis. To summarize, the evolution of private sector employment growth and of other available macroeconomic aggregates in the Czech Republic appear to correspond to theoretical reasoning suggesting that restrictive policies pursued before and during transition and

²¹ A detailed analysis would require examination of the response of real private investment and consumption to fiscal retrenchment. The notion is that spending cuts that are expected to persist result in lower expected taxes and therefore in higher real investment and consumption. In the case of the Czech Republic this expansionary effect of fiscal contraction should have mainly shown up as higher investment, because consumption was deliberately highly taxed. Future availability of data may make the required estimation of investment- and savings function possible.

**Table 7: Selected Central European Countries:
Savings Ratios of Private Households**

	1989	1990	1991	1992	1993
	(as percent of disposable income)				
Czech Republic	3,5	0,1	6,1	6,2	7,4
Hungary	3,3	8,3	12,1	11,0	7,4
Poland	...	20,7	16,4	15,8	11,0
Slovak Republic	4,3	-1,0	6,4	3,3	3,5

Sources: Data provided by Ministry of Finance of respective country. All figures are preliminary and subject to future revision.

**Table 8: Selected Central European Countries:
External Current Account (convertible currencies)**

	1989	1990	1991	1992	1993
	(as percent of GDP)				
Czech Republic	0,8	-3,8	1,0	0,8	1,8
Hungary	-5,2	0,4	0,9	0,9	-6,9
Poland	-2,7	1,1	-2,8	-0,3	-2,6
Slovak Republic	...	...	3,8	2,1	0,5

Sources: Data provided by Central Bank of respective country. All figures are preliminary and subject to future revision.

**Table 9: Selected Central European Countries:
Foreign direct - plus portfolio investment**

	1989	1990	1991	1992	1993
	(in millions of U.S. Dollars)				
Czech Republic	...	...	592	967	1580
Hungary	180	337	1000	1534	1348
Poland	36	10	117	284	580
Slovak Republic 1/	...	...	...	100	-373

1/ Net outflow in 1993 owing to transfers related to privatization process in the Czech and Slovak Republics.
Sources: Data provided by Ministry of Finance of respective country.

privatization that proceeded relatively rapidly had a favorable effect on expectations and thus on investment, savings, and wage formation.

5. Monetary policy

How did monetary policy contribute to high employment growth in the private economy and in what respect differs monetary policy in the Czech Republic from that in Hungary, Poland, and in the Slovak Republic?

The stabilization programs adopted by these countries at the outset of liberalization included pegging the exchange rate to the U.S. dollar or a basket of currencies so as to stabilize expectations and provide an incentive for enterprises to improve efficiency and profitability. In addition, given the difficulty to forecast growth and money demand, there has not been an alternative to choosing the exchange rate as the nominal anchor. However, it appears that differences in monetary policy emerged soon. First, the former Czech and Slovak Federal Republic chose to adopt a Central Bank law which provided for a relatively high degree of independence of the Central Bank. A tight ceiling was established for credits (which may only be short-term) granted by the State Bank to the Government. In 1993 the Czech Republic adopted a Central Bank law that extended the autonomy of the Czech National Bank to exchange rate policy. In Poland limits for lending by the Central Bank to the Government are relatively weak and have not been binding and the Hungarian Central Bank law stipulates that the Central Bank has to coordinate exchange rate policy with the Government. The law on the National Bank of Slovakia is similar to that adopted in the Czech Republic. Given the empirical evidence regarding the importance of Central Bank independence for price stability (Cukierman (1992)), these legal aspects appear to be of importance in explaining divergent monetary growth and inflation trends.

A second difference regarding monetary policy among the considered countries concerns the initial stabilization policies. Table 10 shows that the large devaluation undertaken by the former Czech and Slovak Federal Republic resulted in a sudden and deep decline of unit labor costs in U.S. dollars, whereas the initial devaluations in Hungary and Poland and subsequent devaluations did not produce a lasting effect on these costs. Thus, credibility of the commitment to a fixed parity was enhanced by competitiveness gains which appear to have been less pronounced in Hungary and Poland. Given a deterioration of competitiveness in Poland during 1991, a crawling peg exchange rate regime was adopted. In addition, credibility of the pegged exchange rate in the former Czech and Slovak Federal

**Table 10: Selected Central European Countries:
Indicators of Monetary Policy**

	1989	1990	1991	1992	1993
	(Annual percent changes; end period)				
	M 3				
Czech Republic	7,6	9,6	25,9	22,6	20,2
Hungary	13,8	29,2	29,4	27,4	19,8
Poland	239,3	119,7	36,9	57,5	36,0
Slovak Republic	...	...	...	4,7	18,0
	M 3 real 1/				
Czech Republic	...	-8,5	-19,0	10,7	-3,8
Hungary	-2,7	0,2	-3,6	3,7	-0,9
Poland	-54,1	-37,1	-14,6	9,1	-1,1
Slovak Republic	...	...	...	-4,9	-4,2
	M 3 real adjusted 2/				
Czech Republic	...	-8,1	-4,8	17,3	-3,5
Hungary	...	3,7	8,3	8,1	-0,9
Poland	...	-25,5	-7,0	7,6	-5,1
Slovak Republic	...	...	...	2,1	-0,1
	Inflation (CPI)				
Czech Republic	...	18,4	53,6	11,5	18,2
Hungary	17,0	29,0	34,2	22,9	20,9
Poland	639,8	249,3	60,3	44,4	37,6
Slovak Republic	...	...	58,3	10,0	23,2
	Real effective exchange rates 3/				
Czech Republic	...	-40,0	-20,7	14,7	19,3
Hungary	1,2	4,2	13,3	7,9	10,1
Poland	1,7	-21,6	54,9	-5,5	-15,6
Slovak Republic	...	...	...	...	...
1/ M3 deflated by CPI.					
2/ Adjusted for real GDP growth.					
3/ Nominal effective exchange rate deflated by unit labor costs, except Hungary where the consumer price index was used.					
Sources: Data provided by Central Bank of respective country.					
All figures are preliminary and subject to future revision.					

Republic was enhanced by the intention to remove exchange controls.²² Steps to liberalize the exchange system in Poland and Hungary were taken, but there has not been an announced commitment to abolish exchange controls. Similarly, the Slovak Republic intends to maintain exchange restrictions.

Restrictions and guidelines regarding the setting of interest rates during the initial phase of transition, bank's inexperience in credit risk assessment, poor loan portfolios, oligopolistic or even monopoly market structures, the uncertain environment and thus a general unwillingness on the part of banks to lend to enterprises may not permit to evaluate credibility of monetary policy on the basis of the evolution of (long term) real interest rates and interest rate differentials to currencies in the respective basket. However, the gradual decline of long-term interest rates and narrowing of the spread between long- and short-term rates in the Czech Republic provides evidence that inflationary expectations abated gradually since the second quarter of 1992 (Chart 1). There has been credibility of the pegged exchange rate.²³ The evolution of money demand and currency substitution are also indicators of inflationary expectations and credibility. The ratio of M2 to GDP may be of interest, because it does not only indicate velocity but also the base available to banks in extending loans. During 1989 through 1992 this ratio remained relatively stable in the Czech Republic (around a level of 0.7) and increased since 1993. By contrast, in Poland it fell from about 0.9 in 1989 to about 0.3 in 1991 and has since recovered slightly. In Hungary the ratio has increased continuously from about 0.4 in 1989 to about 0.6 in 1993. Although velocity (the inverse of this ratio) is a crude indicator of stability of money demand, its evolution indicates that money demand in the Czech Republic has been relatively stable compared to that in Poland and Hungary. In addition, it shows that the lending base of banks in the Czech Republic was not subject to a drastic decline as happened in Poland during 1990 through 1992 and thus financing of the enterprise sector was facilitated. Moreover, the strong increases in foreign currency deposits in Poland and Hungary indicate that currency substitution appears to be of significance in these countries. (Growth of foreign currency deposits in the Czech Republic has been modest).

²² The Czech Republic intended to introduce full convertibility of the koruna for current account transactions and to start phased liberalization of capital flows by mid-1995.

²³ In response to changes in external trade, the number of currencies included in the currency basket was reduced in May 1993 from five to two currencies, i.e. Deutsche Mark (65 percent) and U.S. dollar (35 percent).

A third difference regarding monetary policy in the considered countries concerns the sources of monetary growth: In Poland and in the Slovak Republic base money expansion comes mainly from financing government expenditures,²⁴ in Hungary government and enterprise financing are the main sources, whereas in the Czech Republic money growth comes mainly from expansion of credit to enterprises and since 1993 also from capital inflows. Since inception of transition, CEE countries experienced a relatively cautious behavior of banks with regard to lending to enterprises. (Credit ceilings were not fully used). Banks may prefer investment in government securities even if their expected real return is lower than the expected real lending rate for loans, because they consider the effect of the repayment probability on the expected return on loans. The relatively small supply of government securities in the Czech Republic and increasing private savings provided incentives for banks to lend to the enterprise sector, improve enterprise evaluation and meet their risk taking function.

Fourth, Table 10 shows that growth of the money supply (M3) in the Czech and Slovak Republics during the initial phase of transition has been relatively moderate which, together with a minor monetary overhang, provided for a moderate contraction of the real money supply adjusted for the output decline during 1990-91 and thus a sharp reduction of inflation in 1992. This development together with fiscal adjustment produced a decline of long-term time deposit rates from around 17 percent at end of 1991 to around 12 percent in the beginning of 1994.

Finally, monetary policy is itself affected by the different structure of financial systems in the Visegrad countries: The large banks in Poland are regional banks. In Hungary they are specialized according to sectors, whereas in the Czech and Slovak Republics several successor banks of the former mono-state bank were established with relatively diversified loan portfolios. This latter organization improves competition among banks which may have an impact on availability of credit for enterprises because it provides for efficient allocation of capital. A relatively low degree of competition among banks and concentration of loan portfolios affects the transmission mechanism of monetary policy: For example, monetary tightening does not necessarily result in crowding out of enterprises whose return is lowest and reduce aggregate demand but it may initially merely reduce profit margins of banks so that the lags in transmission become longer. In addition, efficient

²⁴ In the Slovak Republic real credit to the Government during 1993 increased by about 20 percent while that to enterprises and households decreased by about 11 percent.

enterprises may be crowded out if large borrowers obtain credit on a preferential basis. The Central Bank may thus be apprehensive towards tightening. In connection with the financing of fiscal deficits this may contribute to explaining higher monetary growth in Poland and Hungary than has occurred in the Czech Republic.

6. Concluding remarks and research issues

This paper addressed the question whether there may be a connection between relatively low unemployment in the Czech Republic and differences in macroeconomic policies pursued in major CEE countries. The starting point was that it appears difficult to explain divergent trends in unemployment with differences in the effectiveness of labor market measures and labor force withdrawals. The Czech Republic experienced a gain in jobs during 1990 through 1994 equal to more than 80 percent of the number of jobs lost. This gain occurred primarily in private enterprises in the tertiary sector. Restrictive macroeconomic policies pursued even before transition and a consistently implemented stabilization program during 1991 and 1992 appear central in explaining this employment growth owing to their effect on expectations and thus on wages, savings and investment. Although a lack of data renders empirical proof difficult, in particular concerning the response of private consumption and investment to fiscal retrenchment affecting public debt, expected taxation, expected inflation, real interest rates, and wealth, it appears that had the combined effect of the pursued restrictive policies not been expansionary, employment growth in the private economy and in enterprises with less than 25 employees could not have been as large as it has been. An agenda for deeper research on these questions would thus be suggested: compilation of time series on private and public consumption, private and public investment, taxation, ex-ante real interest rate, disposable income, and personal wealth, and hence estimation of consumption and investment functions and construction of a credibility variable to be included in the wage equation could provide further insights regarding credibility and the expansionary impact of restrictive policies in the Czech Republic. In addition, analysis of the savings behavior of private households would be helpful, in particular regarding their relationship with fiscal deficits and their interest sensitivity so as to understand better the macroeconomic effects of fiscal policy and why savings have not declined despite continuously negative ex-post real interest rates on deposits.

However, the estimated wage equations have shown that wage formation in the Czech Republic and other CEE countries is closely linked to changes in consumer prices. Given

the experience of most Western European countries where this is also the case and where wage growth is little affected by both the level of and increases in unemployment, it may appear important to provide for a form of wage bargaining where wage behavior remains sensitive to unemployment. Hence the recommendation for the wage bargaining process to become one of the described centralized form. The fact that curtailment of unemployment benefits in the Czech and Slovak Republics appears to have provided for increased sensitivity of wage growth to unemployment may suggest to maintain a system of moderate unemployment compensation. It may also serve as useful evidence for those Western European countries that experienced relatively high unemployment and rigid downward wages.

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