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No. 4

Research Notes

Working Paper Series

Monetary policy aspects of the enlargement of the euro area

- Accession of the candidate countries to the EU is to be followed by the introduction of the euro, although with some delay. This raises two fundamental questions. First, will the ECB, given its current decision-making procedures, be able to adopt the needed monetary policy measures as swiftly as necessary? Second, will structural inflation in the candidate countries cause serious problems for monetary policy in the euro area?
- A reform of the ECB's decision-making procedures is of utmost importance. In order to function efficiently, the ECB's decision-making body needs to be manageable in terms of size. Creating groups within which membership rotates seems to be the best structure for an enlarged euro area.
- In answer to the second question, structural features of countries in the real convergence process should not pose a serious problem for the monetary policy of the ECB. Firstly, due to their size and economic strength the candidate countries will have an only minor weight in the euro-area aggregate data. Secondly, the Balassa-Samuelson effect, which is considered to be at work in countries in the process of catching up, will be only of small magnitude. Other factors are expected to be more important in the process of price level convergence.

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Monetary Policy Aspects of the Enlargement of the Euro Area

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At the Göteborg summit in June 2001, the EU stressed its interest in concluding the accession negotiations with the most advanced candidate countries by the end of 2002. Their accession to the EU would then be possible in 2004, enabling the countries to take part in the elections to the European Parliament due that year. The 2004 enlargement could include up to ten countries.¹

Entry to the EU implies membership in the Economic and Monetary Union: the countries have to regard their monetary and exchange rate policies as a matter of common interest, and it is expected that the new members will participate in the Exchange Rate Mechanism II (ERM II). The central banks must be independent of the governments; and in the financing of budget deficits, governments must not have recourse to central bank credits. However, the introduction of the euro will not occur simultaneously with EU accession, as the Maastricht criteria have to be met first. Because the new member states are not granted an “opt-out” clause, their accession to the euro area will take place automatically when the convergence criteria laid out in the Maastricht treaty are met. In any case, most candidate countries aim for swift adoption of the euro (cf. Table 1).

Reform of voting rules

Currently the ECB’s Governing Council has 18 members with equal voting rights: the six members of the Executive Board, and the twelve central bank

presidents of the countries participating in the euro area. According to the ECB Statutes, votes on monetary policy require a simple majority. However, in reality, decisions are usually adopted by consensus.² In a stalemate case, the president casts the deciding vote.

With the coming round of EU enlargement, the Governing Council could have up to ten more members as early as 2006. With the adoption of the euro by the EU members Denmark, Sweden and the United Kingdom as well as by the remaining candidate countries from Eastern Europe, the number of persons entitled to vote would rise to as many as 33. Under such circumstances, it seems neither practicable nor appropriate to maintain the current voting rules. Decision making would certainly become too cumbersome. Furthermore, the already existing disproportion between voting rights and the size of the population as well as the economic might which each vote ultimately represents will increase considerably. In an extreme case, 17 central bank presidents of smaller countries could determine the outcome of a monetary-policy decision, although the

¹ Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

² This assessment is based on various remarks of Duisenberg in answer to questions following press conferences. As an example, on 3 February 2000 he said: “First, there was no formal vote. Again, as I had hoped and as it was, it was a consensus decision”. Another example dates from 8 June 2000: “We had an intensive discussion, a prolonged discussion, which was very useful and, in the end, resulted in a consensus on what we had to do.” Willem F. Duisenberg, President of the European Central Bank, ECB Press Conference, Frankfurt a. M., 3 February 2000 and ECB Press Conference, Frankfurt a. M., 8 June 2000.

Table 1

Explicit goals for EMU participation and subsequent adoption of the euro

	Euro target date	ERM II participation
Cyprus	2005 with EU accession target of 1.1.2003	As of accession, maximum 2 years
Czech Republic	–	Standard fluctuation bands
Estonia	–	–
Hungary	At the earliest possible date after accession	2 years, possibility of narrower than standard bands
Latvia	–	As of accession or later
Lithuania	–	–
Malta	–	As soon as possible after accession
Poland	–	After accession
Slovakia	–	After accession
Slovenia	As soon as possible after accession, taking into account sustainable real convergence	Quick entry after accession

Source: European Commission, Directorate-General for Economic and Financial Affairs: Evaluation of the 2001 Pre-accession Economic Programmes of Candidate Countries. Enlargement Papers, No. 7, January 2002, p. 12.

countries represent just 20% of the total population and produce only about 15% of the euro-area GDP.³

Reducing the size of the Governing Council appears unavoidable. This raises the question of whether such a reduction can be reconciled with the interests of the member states. It is obvious that the ECB can target its monetary policy only at the euro area as a whole, and regional interests should not play any part in the decisions of a central bank. The central bank presidents of each member country present in the Governing Council are experts on monetary policy and required to exercise their task with a view to the developments in the euro area as a whole. Given their statutory independence, it is likely that decision-making processes within the council develop their own internal dynamics. This does not, however, preclude discussions of regional features and their importance for the area as a whole; in fact, such discussions may be necessary to attain a complete picture of current economic and monetary developments. However, regional aspects cannot be the central consideration in designing monetary policy measures, unless they decisively affect developments in the whole euro area. The independence of the monetary policy decision makers is also supported by the confidentiality of the minutes, as laid down in the ECB's Statutes.⁴ Ultimately, conflicts of interest should arise only in the short term, if at all. A monetary policy oriented towards the needs of Ireland, for example, and thus taking a restrictive stance, would – in the medium term – have to cope with the recessionary tendencies this would trigger in the euro area as a whole. Hence the principle must be: *What is good for the euro area is good for each country.*

There are three possible reform models for the ECB Council⁵: a monetary policy committee of experts (as in the United Kingdom), groups that each appoint a representative (as in the case of the IMF), and rotation (as in the United States). The dilemma in any reform model is that the tendency for individual members to focus on national interests could be aggravated if their representation were restricted.

At first glance, a monetary policy committee comprised of six to ten monetary policy experts seems to be the best solution. Monetary policy requires experts with experience, practical know-how and far-sightedness, and not representatives who pursue national interests. However, a number of reasons could make this option less desirable. First, central bank presidents are usually qualified and experienced experts. Second, as was already stressed, their knowledge of regional developments contributes to a more complete assessment of the developments in the euro area. Third, as regards the accountability and credibility of the ECB, the central bank presidents from each individual country constitute the most important

links between the countries and the Governing Council of the ECB.⁶ Fourth, it is difficult to imagine that the election of monetary policy experts in the euro area could take place without consideration of their regional origin. The decision-making body of the ECB differs in this regard from the Monetary Policy Committee of the Bank of England or from that of the Sveriges Riksbank, which were designed for substantially smaller and more homogeneous monetary areas. Fifth, the experts in the monetary policy committee are not necessarily less attentive to regional developments than the presidents of the national central banks. A study of the voting behaviour in the Fed has revealed that in the United States it is precisely the members of the executive board who take into account developments in their home regions.⁷

If groups of countries were to delegate representatives to the Governing Council, all countries would always be represented, and the decision-making body would be of a manageable size. In such a case one can assume that the representatives would have to co-ordinate their positions with the other countries in their group, which restricts the independence of their decision making. It therefore seems that the already mentioned dilemma of a strong national orientation of the Council's members might be the most severe in this option.

We therefore suggest that forming groups is combined with rotation within each group. Rotation rather than representation should reduce the danger of national interests substantially influencing voting behaviour. The smaller countries of the euro area should form groups that – insofar as practical – approximately correspond to each other in terms of economic importance. Indicators used to determine the weight of individual countries could be the size of population and GDP with both indicators given equal weight. Table 2 shows the proposed groups and the underlying weights of the member countries in the enlarged euro area. Restricting the total number of board members to 19 and retaining the current structure of an Executive Board of six members, then implies that the central bank presidents of the seven largest countries – Germany, the United Kingdom, France, Italy, Spain, Poland and the Netherlands – would always be present in the ECB's Governing Council. The central bank presidents of the other countries, most of

³ If the President had the right of initiative, the status quo could take a dominant role. Cf. R. E. Baldwin, E. Berglof, F. Giavazzi and M. Widgren: Preparing the ECB for enlargement, in: CEPR Policy Paper, No. 6/2001, p. 14.

⁴ "The proceedings of the meetings shall be confidential. The Governing Council may decide to make the outcome of its deliberations public." Art. 10.4 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank.

⁵ Cf. Baldwin et al., op. cit.

⁶ Baldwin et al. rightly emphasise this, cf. op. cit., p. 23.

⁷ Cf. E. Meade and N. Sheets: Regional Influences on U.S. Monetary Policy: Some Implications for Europe, Discussion Paper No. 523/2002, Centre for Economic Performance.

Table 2

Proposed composition of the ECB Council after a reform of voting rules

	National central bank presidents representing countries or groups of countries ¹	Weight in % ²
1	Germany	20.6
2	United Kingdom	15.4
3	France	14.7
4	Italy	13.1
5	Spain	7.9
6	Poland	5.3
7	Netherlands	4.1
	Sweden	2.4
8	Denmark	1.6
	Finland	1.3
	Belgium	2.6
9	Ireland	1.0
	Luxembourg	0.2
	Greece	1.9
10	Cyprus	0.1
	Malta	0.0
	Austria	2.1
11	Portugal	1.8
	Slovenia	0.3
	Czech Republic	1.5
12	Hungary	1.4
	Slovakia	0.7
	Lithuania	0.5
13	Latvia	0.3
	Estonia	0.2

Executive Board

Germany, the United Kingdom, France and Italy are granted a permanent right to nominate one member of the six-person Executive Board. In accordance with Article 11.2 of the Protocol on the Statute of the European System of Central banks and of the European Central Bank all six members are to be appointed from among persons of recognised standing and professional experience in monetary or banking matters by common accord of the governments of the member states at the level of the Heads of State or Government, on a recommendation from the Council after it has consulted the European Parliament and the Governing Council.

¹ Within the six groups membership in the Council rotates.

² These are determined giving GDP and population equal weight.

Sources: Eurostat; OECD; World Bank; calculations of the DIW Berlin.

DIW Berlin 2002

which form regionally defined groups, would rotate annually. In addition, the four countries with by far the most weight – Germany (20.6%), the United Kingdom (15.4%), France (14.7%) and Italy (13.1%) – should be permanently granted the right to nominate one member of the Executive Board.

Admittedly, this proposal would most likely require a further amendment of the EU treaty, as both the rotation within groups and the permanent right to nominate representatives to the Executive Board need to be laid down in law. However, this should apply to all proposals that aim to restrict the number of members entitled to vote in the Governing Council. Hence this

should also apply to the proposal of Baldwin et al., who suggest the delegation of decision making to a group of experts, i.e. the Executive Board.⁸

The Nice Treaty enables the European Council (in the composition of the Heads of State or Government) to change the voting rules laid down in Art. 10.2 of the Protocol on the Statute of the European System of Central banks and of the European Central Bank. In accordance with Art. 5 of the Nice Treaty, such decisions must be made unanimously and ratified by each member state; the EU Commission, the ECB and the European Parliament have to be consulted during the decision-making process. Making further changes in the Treaty that have to do with the ECB Council and Executive Board should thus not prove to be too difficult. In any case, the decision should be made by 2004, as it will be more difficult to pass a reform limiting voting rights within an enlarged EU.

Real convergence does not imply higher inflation

It is often argued that enlarging the euro area by admitting countries still in the catch-up process would impair the ECB's policies, because real convergence in the new member states is inevitably connected with higher inflation rates.⁹ In such circumstances, the ECB would only be able to achieve its target of a maximum inflation rate of 2% for the euro area as a whole if the more advanced member states had a correspondingly lower inflation rate.¹⁰ This, of course, could substantially hamper their economic development.

The argument on which such fears are based is related to the Balassa-Samuels model¹¹ (cf. Box 1). This model gives a supply-side explanation for the differences in the price levels between countries in different stages of economic development. According to the model, differences in the overall price level between countries with different levels of development stem from the prices of non-traded goods, especially services. The prices of non-traded goods differ due to the wage level, which is generally lower in less developed countries. The overall wage level of the economy is determined by the productivity in the traded goods sector,¹² in which developing

⁸ Baldwin et al., op. cit. The Treaty states that the Governing Council is the decision-making body of the ECB and must be composed of the Executive Board and the presidents of the national central banks. The Governing Council can delegate certain decisions in accordance with Art. 12, but it is not clear whether this includes all monetary policy decisions; moreover, it would then be equally possible to reverse the delegation.

⁹ Cf. for example Baldwin et al., op. cit.; H.-W. Sinn and M. Reutter: The Minimum Inflation Rate for Euroland, NBER Working Paper, No. 8085/2001.

¹⁰ H.-W. Sinn and M. Reutter, op. cit.

¹¹ B. Balassa: The purchasing power parity doctrine: A reappraisal. In: Journal of Political Economy, 1964, pp. 584–596; P. A. Samuelson: Theoretical notes on trade problems. In: Review of Economics and Statistics, 1964, pp. 147–154.

Box 1

The Balassa-Samuelson effect

The Balassa-Samuelson model gives a supply-side explanation for changes in the relative price of tradable and non-tradable goods. Assuming perfect competition in the tradable goods sector and in the factor markets, the relative price between non-traded and traded goods is entirely determined by the production functions. The Balassa-Samuelson effect states that changes in the relative prices between traded and non-traded goods are a consequence of different productivity advances in the two sectors. As long as PPP holds for the traded goods prices, an increase in productivity in this sector will not influence their price. Instead, in the case of fixed exchange rates or a monetary union, nominal wages will rise. If wages develop similarly in the whole economy, non-traded goods' prices will increase and therefore become relatively more expensive.

The Balassa-Samuelson effect can be described within the framework of a model of a small open economy.¹ The following assumptions are made:

1. The economy produces traded and non-traded goods.
2. The supply side can be approximated by two (different) production functions, in which capital and labour are used as inputs and which are characterised by constant returns to scale.
3. Purchasing power parity holds for the traded goods; their prices are therefore given exogenously.
4. Capital markets are integrated; and the interest rate is thus determined in the world markets.
5. Capital stock is fixed in the short run.
6. The labour market is homogenous within the economy. Wages in the traded goods sector are determined by the marginal product, and these wages hold also for the non-traded goods sector.

Capital stock, the prices of traded goods and the interest rate are thus exogenous. In addition, for the non-traded goods sector, wages are given. In such a setting, the relative price of non-traded goods is uniquely determined by the first-order conditions for firms, i.e. the supply side of the economy. Hence, the trend increase in the relative price of non-tradables can be viewed as an microeconomic equilibrium phenomenon.

Within this framework, an increase in the traded goods sector's productivity that exceeds that in the non-traded goods sector will – assuming unchanged interest rates – raise the capital labour ratio in the traded goods sector and also nominal wages. To ensure that the returns on capital equal the given interest rate, the higher wages will require an adjustment in the capital-labour ratio also in the non-traded goods sector. This, however, implies that the amount of labour used in the production of non-traded goods declines. While the relative price of the non-traded goods increases, their output decreases. This is a consequence of the fact that the production function and the capital stock remain unchanged, while the labour input declines.

The relationship between the increase in the relative price of non-traded goods and productivity growth can be derived as follows. Taking logarithms of and totally differentiating the first-order conditions leads to:

$$[1] \quad 0 = \Delta a_t - b \Delta (k_t - l_t)$$

$$[2] \quad 0 = \Delta (p_{nt} - p_t) + \Delta a_{nt} - c \Delta (k_{nt} - l_{nt})$$

$$[3] \quad \Delta w = \Delta a_t + (1 - b) \Delta (k_t - l_t)$$

$$[4] \quad \Delta w = \Delta (p_{nt} - p_t) + \Delta a_{nt} + (1 - c) \Delta (k_{nt} - l_{nt}),$$

where Δ denotes the total differentials of the respective logarithm and $(p_{nt} - p_t)$ the relative price of non-traded goods. Rearranging equations 1 to 4 leads to the following relationship²:

$$[5] \quad \Delta (p_{nt} - p_t) = c/b \Delta a_t - \Delta a_{nt}.$$

¹ Cf. M. Obstfeld and K. Rogoff: *Foundations of International Macroeconomics*, Cambridge/Mass., London 1995.

² L. Sarno and M. P. Taylor: *Purchasing Power Parity and the Real Exchange Rate*. CEPR Discussion Paper, No. 2913/2001.

Hence, the development of the relative price of non-tradables depends on the productivity growth in the two sectors. The coefficient of total factor productivity in the traded goods sector should be higher than 1, because production elasticity of labour in the non-traded goods sector is assumed to exceed that in the traded goods sector.

However, the Balassa-Samuelson model establishes a relationship in levels. A testable relationship in levels can be derived from the first-order conditions determining labour demand. Equating the conditions relating factor costs (wages) to the marginal products leads to the following relationship between the marginal products and the relative prices:

$$[6] \frac{P_{nt}}{P_t} = f \left(\frac{\partial Y_t / \partial L_t}{\partial Y_{nt} / \partial L_{nt}} \right).$$

Productivity increases in the traded goods sector that exceed those in the non-traded goods sector will hence lead to a relative increase in the price of non-traded goods.

countries substantially lag behind the advanced countries (e.g. due to lower capital stock), and thus entails correspondingly lower wages. Key assumptions of this relationship are that the prevailing wage level in the traded goods sector holds for the entire economy, and that the production of non-traded goods essentially relies on labour.

The Balassa-Samuelson model describes a possible path of convergence in the price level as developing economies catch up with those that are more developed. Higher labour productivity in the traded goods sector will raise the wage level in the whole economy. Due to the model's assumption that the production elasticity of labour is higher in the non-traded goods sector than in the traded goods sector, labour productivity increases in the former will be smaller. The rising wage level will therefore lead to higher prices for non-traded goods and a rising price level. However, as the Balassa-Samuelson model only focuses on one aspect of price level convergence, its applicability for accession countries in the catch-up process is limited.

First, this applies to the assumption that the law of one price holds for tradables. Experiences with a single market both in Europe and in the United States show that the differences between the prices for non-traded goods are generally larger than those for traded goods, but that the latter prices also diverge substantially.¹³ These divergences can be caused by the tax system, by differing competitive pressures, or by the *pricing to market strategies* of enterprises. Wage policies are also of crucial importance. If wage increases are not determined by marginal productivity at the firm level, but by centralised or cross-firm bargaining processes, the wage rise will most probably be influenced by average productivity growth for all the firms or for the economy as a whole. In such a case, the increase in the price of non-traded goods will be accordingly lower.

Second, even within the model, the impact of productivity increases on the relative price of non-tradables can differ between countries.¹⁴

Third, it is misleading to assume that countries in the catch-up process produce the same tradable goods as developed countries with the only difference being the respective productivities with which they are produced. Real growth also consists of an increase and change in the supply capacity (e.g. through a higher capital stock), which enables countries to produce an increased variety of traded (and non-traded) goods. The new goods are usually of a higher quality and have a higher technological content. Tradable goods of a higher quality command higher prices, without leading to a loss of purchasing power.

Fourth, the composition of non-traded goods also changes during the real convergence process. On the one hand, this refers to the public infrastructure and the quality of public goods (e.g. health care or education); on the other hand, numerous services are supplied and consumed only after a certain stage of development has been reached.¹⁵ The new services in particular – e.g. in telecommunications or financial intermediation – exhibit above-average productivity growth.

Fifth, rising real income changes demand patterns. This is reflected most prominently in the calculation of the consumer price index. The representative consumer baskets differ substantially between poorer

¹² It is assumed that productivity growth varies less in the non-traded goods sector.

¹³ S. G. Cecchetti, N. C. Mark and R. J. Sonora: Price Level Convergence among United States Cities, Lessons for the European Central Bank, NBER Working Paper, No. 7681/2000; J. H. Rogers: Price Level Convergence, Relative Prices, and Inflation in Europe, International Finance, Discussion Paper (FedBoard), No. 699/2001.

¹⁴ As a consequence of different production elasticities between the countries, cf. Equation 5 in Box 1.

¹⁵ J. N. Bhagwati: Splintering and disembodiment of services and developing nations. In: World Economy, 7/1984, pp. 133–143.

Box 2

Empirical investigation of the Balassa-Samuelson effect for five candidate countries

For five candidate countries (Czech Republic, Estonia, Hungary, Poland and Slovenia) we empirically tested for the Balassa-Samuelson effect. As this effect assumes a relationship between trending variables, we tested for cointegration. The estimated relationship is that in Equation 6 in Box 1.

Cointegration was tested for with Engle-Granger single equation tests.¹ That is a rather restrictive method, as possible short-term dynamics cannot be accounted for. However, the small sample and the choice of quarterly data (the number of included observations ranges between 26 and 30) make the use of VAR based methods difficult. In the estimations, we included level shift dummies when structural change made this necessary.

The inclusion of level shift dummies in the estimation equation

$$y_t = a + m d_t(\lambda) + b' x_t + \varepsilon_t$$

requires that they are also included in the ADF test of the residuals:

$$\Delta \varepsilon_t = \alpha^* \varepsilon_{t-1} + \alpha_0^* \Delta d_t(\lambda) + u_t$$

and that the critical values are modified. We used the findings of Hassler² that the values determined by MacKinnon can still be applied, if every dummy variable is treated as an additional non-stationary regressor.

Only in the case of Estonia, could we use the productivity differential between the traded and non-traded goods sector, as only for this country consistent national accounts according to the A6 classification of the ESA95 are available. Productivity advances in the traded goods sector are approximated by productivity increases in industry, while the sectors construction, trade and finance represent the non-traded goods sector. Price developments are reflected in the corresponding deflators.

For the other countries, no quarterly time series on productivity developments in the non-traded goods sector were available. We therefore had to assume that productivity has not grown in the non-traded goods sector, which is a very restrictive assumption. This implies that the determined parameters overstate the actual effect. Productivity increases in the traded goods sector were approximated by productivity in industry. Prices of non-tradable goods are represented by the service prices included in the consumer price index (CPI), and those of traded goods by the producer price index.

We could find a systematic relationship between relative productivity and relative prices for some countries only:

Country	Constant (t-statistic)	Productivity differential (t-statistic)	Dummies ¹ (coefficient; t-statistic)	ADF test of residuals ² , t-statistic
Estonia (1994/1 – 2001/3)	0.07 (2.23)	1.02 (4.91)	ID 943 (0.23; 3.1) SD 951 (0.42; 12.74) SD 983 (0.16; 5.28)	-4.49**
Poland (1995/1 – 2001/2)	-0.61 (-42.45)	0.34 (8.72)	SD 981 (0.07; 4.79)	-3.04
Slovenia (1994/1 – 2001/2)	0.05 (4.62)	0.78 (20.36)	SD 001 (-0.04; -2.69)	-4.30**
Czech Republic (1994/1 – 2001/2)	-0.002 (-0.25)	0.37 (7.02)	SD 973 (0.11; 8.61) SD 984 (0.05; 4.03)	-2.26
Hungary (1995/1 – 2001/2)	0.006 (0.29)	0.28 (7.83)		-4.06**

¹ ID: impulsdummy; SD: step dummy; SD 981 denotes step dummy starting in the first quarter of 1998.

² ** denotes significance at at 5% level.

Sources: Eurostat; OECD; calculation of the DIW Berlin.

¹ R. F. Engle and C. W. J. Granger: Co-integration and error-correction: representation, estimation and testing. In: *Econometrica*, No. 55/1987, pp. 251–276.

² U. Hassler: (Co-)integration testing under structural breaks – A survey with special emphasis on the German unification. In: R. Pohl and H. P. Galler (eds): *Implikationen der Währungsunion für makroökonomische Modelle*, Baden-Baden, 2001.

Critical values for the ADF test of the residuals³:

	Number of stochastic variables				
	1	2	3	4	5
1%	-3.90	-4.30	-4.65	-4.96	-5.24
5%	-3.34	-3.74	-4.10	-4.42	-4.70

3 J. G. MacKinnon: Critical values for cointegration tests. In: R. F. Engle and C. W. J. Granger (eds.): Long-run Economic Relationships: Reading in Cointegration. Oxford University Press, 1991, pp. 267–276.

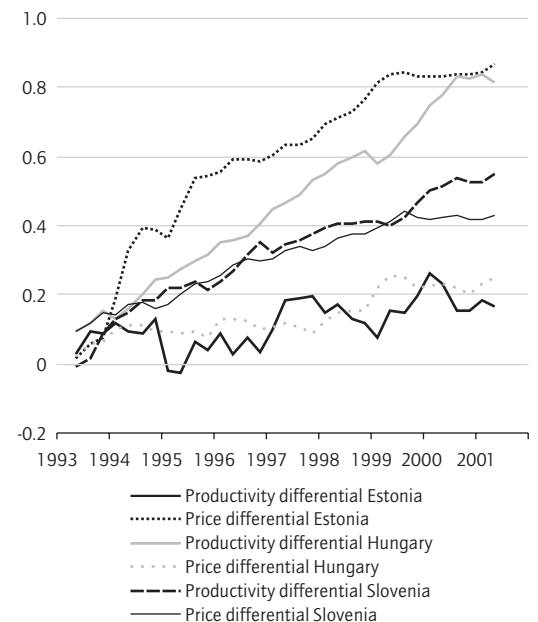
and richer countries. While food has a larger weight in the former, services are relatively more important in the latter. However, not only the weights of the goods included change during the growth process: new goods enter the basket, while others are removed. For example, when the Irish Statistical Office altered its representative basket in 2002, they eliminated TV rental and added the purchase of DVD players.

These five factors mean that price level convergence during the catch-up process can only partly be viewed as inflation. Furthermore, precisely these factors result in growth in the countries in the catch-up process being higher when measured with purchasing power parities instead of at constant prices. However, this does not preclude the prices of some services rising due to higher wage levels connected with higher productivity in the traded goods sector. Examples of such services are provided by the much cited hairdresser, but also by taxis or home nursing.

We examined the Balassa-Samuelson effect for five candidate countries (cf. Box 2). Figures 1 and 2 show the development of the relative price of non-tradables and productivity growth. All countries are characterised by a trend of increasing relative prices for non-traded goods. But productivity advances differ markedly between the countries examined. The Estonian series moreover indicates that the difference between the productivity increases in the traded and non-traded goods sectors can be rather small. In addition, the effect of productivity increases on increases in the relative price of non-tradables differs greatly between the countries examined. The estimated coefficients are small in countries with large productivity increases and high in those with rather low productivity developments. We conclude that other factors will have at least an equal influence on the determination of the relative price of non-traded goods. Most importantly, in all the candidate countries the prices of some basic utilities (such as housing, water and energy) are still regulated. As their liberalisation must be completed before accession to the EU, adjustments are frequent and considerable. From Figures 1 and 2 it can be

Figure 1

Productivity and price differential¹ in Estonia, Hungary and Slovenia



1 Difference between the change in productivity and the change in prices of traded and non-traded goods.

Sources: OECD; calculations of the DIW Berlin.

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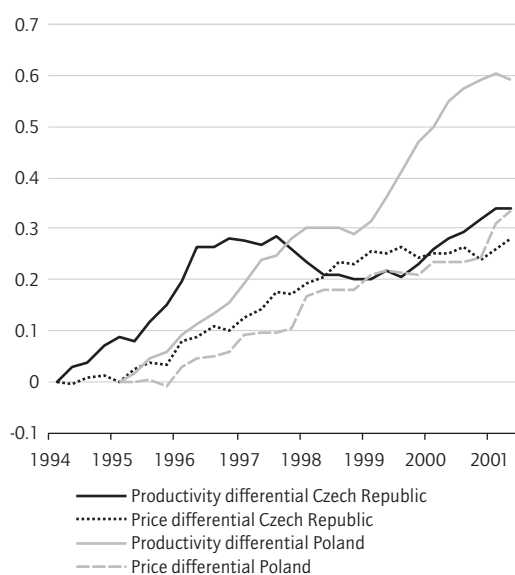
seen that the price differential series are characterised by a number of level shifts. As most of the regulated prices are services, it comes as no surprise that the relative price of non-tradables shows a trend increase; this however is independent of the productivity trends in the traded goods sector.

This assessment of the Balassa-Samuelson effect on overall inflation is confirmed by work e.g. by economists at the ECB.¹⁶ According to their investigation, the most important factors determining the

16 O. Arratibel, D. Rodríguez-Palanza and Ch. Thimann: Inflation Dynamics and Dual Inflation in Accession Countries: A "New Keynesian" Perspective ECB Working Paper, No. 132/2002.

Figure 2

Productivity and price differential¹ in Poland and the Czech Republic



¹ Difference between the change in productivity and the change in prices of traded and non-traded goods.

Sources: OECD; calculations of the DIW Berlin.

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prices of non-traded goods are wage increases and factors related to the transition process, such as the liberalisation of regulated prices. Another piece of evidence is added by a panel investigation of the Balassa-Samuelson effect in the accession countries, which explicitly takes into account the weight of the traded and non-traded goods in the consumer basket

Table 3

The impact on the overall HICP of inflation in the candidate countries

	Weight in the HICP of an enlarged euro area in % (base year = 2000)	Effect of an inflation differential of 1.5 percentage points in the candidate countries on the total HICP, in percentage points
Czech Republic	0.76	0.011
Cyprus	0.14	0.002
Estonia	0.08	0.001
Hungary	0.64	0.010
Lithuania	0.20	0.003
Latvia	0.12	0.002
Malta	0.06	0.001
Poland	2.81	0.042
Slovakia	0.28	0.004
Slovenia	0.27	0.004
Total	5.37	0.080

Sources: Eurostat; calculations of the DIW Berlin.

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on the one hand, and productivity increases in Germany on the other. Even in the countries with the highest productivity increases in the traded goods sector – Hungary and Poland – the inflation differential caused by higher productivity growth in the traded goods sector amounts to just about 1.5 percentage points.¹⁷ As the estimations were made assuming no productivity advances in the non-traded goods sector, and as regulated prices are included in the non-traded goods prices, this should mark the upper limit of potential inflation differences due to the Balassa-Samuelson effect. Given the weight of Poland in an enlarged euro area's HICP of 2.8% (cf. Table 3), the Balassa-Samuelson effect would cause an increase in the overall inflation rate of 0.04 percentage points. In the case of Hungary, a smaller country, the increase would be 0.01 percentage points.

Conclusion

The EU could be enlarged by up to ten countries by 2004. A corresponding enlargement of the euro area is likely to follow with a delay of just a few years. An early change in the ECB's voting rules is urgently needed in order to prevent the decision-making process from becoming too cumbersome. Our proposal, i.e. forming groups within which membership in the Governing Council rotates, would lead to a manageable size of the decision-making body, without compromising the close ties with individual regions. Furthermore, the accountability of the ECB to member states and thus support for the ECB would be retained.

An impairment of monetary policy as a result of enlarging the euro area to include countries in the catch-up process need not be feared. The importance of the Balassa-Samuelson effect during the price level convergence is limited, and the weight of the accession countries in the overall HICP will be rather small. Therefore, it is highly likely that price developments in the new member countries will have only a negligible impact on the euro area's aggregate inflation rate. At the same time, the limited importance of structural inflation in the accession countries indicates that inflation can be swiftly reduced, if the market participants expect such a decline and adjust their behaviour accordingly. The accession countries would thus gain from early participation in the ERM II – the preliminary stage for adopting the euro – and an early announcement of the target date for meeting the Maastricht criteria. The more expectations can be positively influenced, the less the real costs of the disinflation process will be.

¹⁷ B. Egert: Investigating the Balassa-Samuelson Hypothesis in the Transition: A Panel Study, Economics of Transition 2/2002.

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