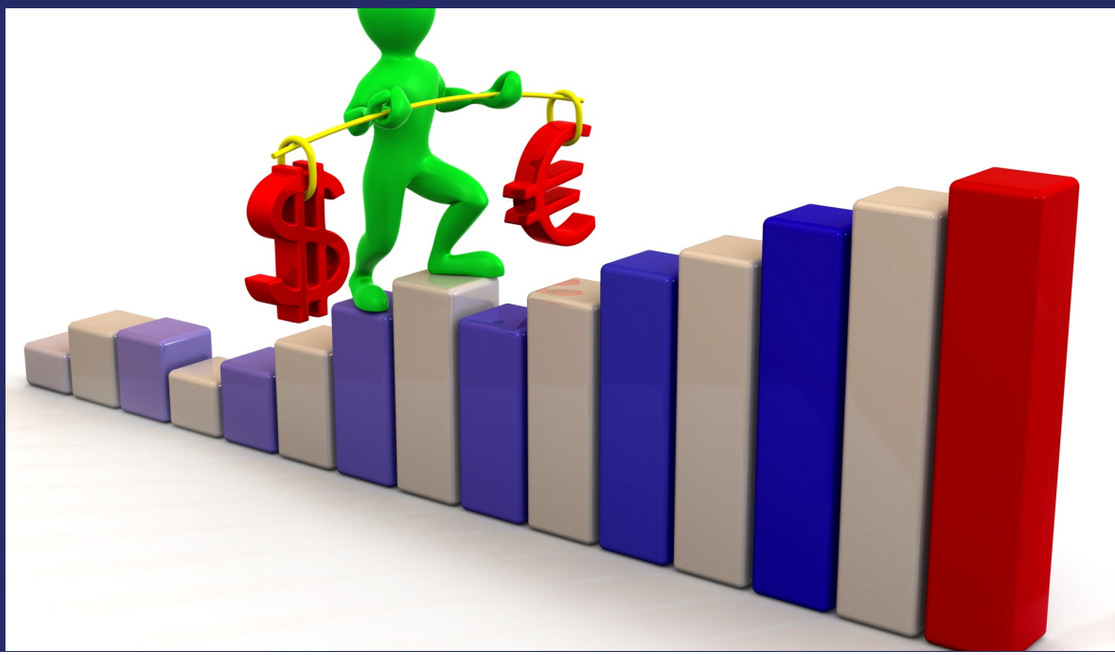
The deterioration in macroeconomic performance of many economies since the early 1970's presents a cross-country study which examines this deterioration in terms of the degree of wage indexation, the choice of exchange rate regime, and the effects of shocks that have hit these economies. Wage indexation stabilizes output around a desired level in the presence of demand shocks, but destabilizes output in the face of supply shocks. The optimal degree of wage indexation therefore depends on the relative prevalence of those shocks. It is well recognized that sticky real wages in the presence of supply shocks can lead to sub-optimal macroeconomic outcomes. The choice of an optimal exchange rate regime can partially offset the negative consequences of that rigidity. Consequently, the optimal degree of wage indexation is a function of the relative strength of demand and supply shocks as degree of nominal exchange rate flexibility. The book offers analysis where each country has to find its own way to make the true choice of the type of exchange rate regime due to the fact that the consequences of wage indexation for macroeconomic start by choosing the type of exchange rate regime.



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Exchange Rate, Wage Indexation, External Shocks and Competition

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EXCHANGE RATE ADJUSTMENTS, WAGE INDEXATION, EXTERNAL SHOCKS AND COMPETITIVENESS

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To My Precious Kalina and Goran

Contents

1. Introduction

New open economies have allowed economists to deal with classical problems using new tools while generating new ideas and issues. In their attempts for the new models to be covered by empirical regularity, the researchers introduce different assumptions about the international prices of goods, particular the models for the price of the market and the destination-currency pricing of the exports. Some of these result models imply that exchange rate changes lack the cost-transmission effect, so it seems that they are calling for radical devising of the role of the exchange rate in international adjustment. Recent open economy research has produced a synthesis of dynamic interim approaches with old models of sticky prices in macroeconomic fluctuations.

In the attempts of researchers to make more reliable these models covered by empirical regularity, they introduced different assumptions regarding the behavior of international prices. It is a good illustration for the power of the new approach, but it is also a question of huge consequences for policy analysis, an assessment of the stabilization benefits of exchange rate flexibility. Pessimism over the gross profits of the flexible exchange rate is a continuous feature of the intellectual scene, and the latest round of debates is precisely based on the observation of the extremely low and slow transmission of exchange rate changes to consumer prices.

2. Do the changes in the exchange rate promote international adjustment?

In the economic literature, there are five varieties of exchange-rate pessimism. The above question is old, meaning that its significance has developed significantly over the years. When the Bretton Woods Institutions began operating in the late 1940s, the term "international adjustment" was understood everywhere in conditions of a return to the balance of payments balance. Namely, the depreciation of the exchange rate will reduce the payment deficit if its effects on the international relative prices lead to successful higher export and lower import levels. Today, one may ask whether the implication of the policy of maximizing welfare is more important than variation in the exchange rate?

The basic implications for the currency mode of the negative response are not changed according to the theory. If exchange rate fluctuations do not have a beneficial role - through the effects of shocks on international payments or aggregate activity, then the credible fixed exchange rate regime as currency union is preferred as one introduced exchange rate variable. In the history of economic literature exists classic elastic pessimism. Starting from Tinbergen's studies in the mid-1930s, empiric researchers (before and early after World War II) formed a position that the elasticities of prices in export and import demand were rather low or too low to meet the Marshall-Lerner condition according to which the currency depreciation will improve the trade balance.[1] Thus, Metzler concludes:[2]

"Considering the low price elasticity found in most empirical studies of demand, it seems more likely that depreciation, in the short term, cannot improve the country's trade balance unless the inelastic demand for imports is the same with an appropriate inelastic export offer. Even in cases where the resilience of the trade

[1]Tinbergen, Jan, *An Econometric Approach to Business Cycle Problems*, Paris: Hermann, 1937.
[2] Metzler, Lloyd A., "The Theory of International Trade," in Howard S. Ellis, ed. *A Survey of Contemporary Economics*, Philadelphia: Blakiston, 1948.

Balassa-Samuelson effect would be 2.77 percentage points. This means that when the differential of productive growth between the non-trable completely flows toward the inflationary differential between the non-trable sector, and when it is the only factor that affects this differentiation, then it would be 2.77 percentage points.

During the observed period, this was not the case, so the existence of barriers in the aforementioned transmission mechanism and/or the influence of some other factors is obvious. In order to assess the impact of the Balassa-Samuelson effect on the inflationary general price level, it is worthwhile to consider the share of services (the non-tradable sector) in Croatia's consumer basket. This share was 23%, so it follows that during the observed period, the contribution of Balassa-Samuelson's effect to the average annual inflation, taking β1 equal to 1, was 0.64 percentage points on average, which is almost identical to those that are obtained in the analysis for the period 1996-2002 by Égert.[73] Although the productive differential between the tradable and non-tradable sector during the observed period was higher in Croatia than in the Eurozone, the higher share of the non-tradable sector in the Eurozone consumer basket (41% compared to 23%) resulted in a negative Balassa-Samuelson effect. This would mean that if only the productive differential affects prices in Croatia and the Eurozone, Croatian inflation would be lower, which was not the case in the observed period.

By applying a simple framework, it is confirmed that the average contribution of the Balassa-Samuelson effect to annual inflation is a maximum of 0.64 percentage points. The econometric analysis is a statistical insignificance of the coefficient explained by the Balassa-Samuelson effect (domestic and international). The inability

[73] Egert, B. (2005): Balassa-Samuelson Meets South Eastern Europe, the CIS and Turkey: A Close Encounter of the Third Kind?, *The European Journal of Comparative Economics*, vol. 2, no. 2, pp. 221-243

to confirm the link between relative productivity and relative prices can be explained by several factors.

Thus it is possible that the rigidity of the labor market and high unemployment in Croatia weaken the mechanism where productive growth should encourage higher wages. On the other hand, the prices of the tradable sector are greatly affected by market liberalization and tariff reduction and non-tariff barriers to foreign trade, which has contributed to more intense competition in the domestic market, which in turn limits the higher price growth. The growth in the prices of the tradable sector is likely to be affected to a significant extent by the deregulation process of formerly administered regulated prices.

Conclusion

New open economies have allowed economists to deal with classical problems using new tools while generating new ideas and issues. In their attempts for the new models to be covered by empirical regularity, the researchers introduce different assumptions about the international prices of goods, particular the models for the price of the market and the destination-currency pricing of the exports. Some of these result models imply that exchange rate changes lack the cost-transmission effect, so it seems that they are calling for radical devising of the role of the exchange rate in international adjustment. Recent open economy research has produced a synthesis of dynamic interim approaches with old models of sticky prices in macroeconomic fluctuations.

In the attempts of researchers to make more reliable these models covered by empirical regularity, they introduced different assumptions regarding the behavior of international prices. It is a good illustration for the power of the new approach, but it is also a question of huge consequences for policy analysis, an assessment of the stabilization benefits of exchange rate flexibility. Pessimism over the gross profits of the flexible exchange rate is a continuous feature of the intellectual scene, and the latest round of debates is precisely based on the observation of the extremely low and slow transmission of exchange rate changes to consumer prices. The belief in the virtues of wage flexibility is widespread in policy circles. It manifests itself most clearly in the recurrent calls for wage moderation (or even outright wage cuts), issued by international policy institutions, and addressed to countries facing high unemployment. The Great Recession and the "crisis of the euro" have only reinforced those views. The case for flexible wages rests on its perceived role as a factor of macroeconomic stability. Thus, a decrease in wages is expected to offset, at least partly, the negative effects on employment (and output) of an adverse aggregate

shock. Conversely, the presence of rigid wages tends to amplify the employment and output effects of most aggregate shocks.

The role of wages as a cushion is viewed as being particularly important in the context of economies that have joined a currency union or adopted any other form of hard peg, for in those cases the exchange rate is no longer available as an adjustment mechanism. In the face of a country-specific adverse shock that calls for a real exchange rate depreciation, a wage-based "internal devaluation" is warranted. The presence of wage rigidities, it is argued, will hinder that adjustment, and make it longer and more painful, by requiring, ceteris paribus, a higher rate of unemployment to bring about the needed adjustment in wages and prices. To the extent that wage flexibility acts as a substitute for exchange rate flexibility, it is viewed as particularly desirable in economies that have adopted a hard peg or joined a currency union.

The analysis of the interaction between wage rigidities and the exchange rate regime has a long tradition in macroeconomics. Recent research on the consequences of wage rigidity in currency unions can be found with nominal rigidities the impact of wage adjustments on employment works to a large extent through its induced effect on the endogenous component of monetary policy, as the latter is loosened or tightened in response to lower or higher inflationary pressures. In the context of a closed economy model, whether an increase in wage flexibility raises welfare depends on the monetary policy rule in place and, in particular, on the strength of the central banks systematic response to inflation. If that response is weak, the benefits of increased wage flexibility in the form of more employment stability will be small and, in many cases, more than offset by the losses associated with greater volatility in price and wage inflation. Openness of the country brings about two additional factors with potentially counteracting implications. First, openness makes room for a "competitiveness channel", whereby a reduction in domestic wages leads to a term of trade depreciation and, as a result, an increase in aggregate demand, output and employment. That mechanism should work to stabilize employment and, ceteris

paribus, to strengthen the "endogenous policy channel". From the viewpoint of the "competitiveness channel", the degree of openness of the economy and the elasticity of net exports with respect to the real exchange rate would seem to be important determinants of the gains from greater wage flexibility. On the other hand, monetary policy in the open economy may be driven, to a greater or lesser extent, by the desire to stabilize the exchange rate. In the absence of capital controls, maintaining a stable exchange rate requires that the interest rate does not deviate much from its relevant foreign counterpart. In that case, the "endogenous policy channel" will be dampened, and so will be the effect of lower wages on aggregate demand and employment. In order to understand the role played by the exchange rate in determining the gains from wage flexibility, above was developed a small open economy model with staggered price and wage setting, and study the impact of greater wage flexibility on macroeconomic stability and welfare, as a function of the exchange rate policy in place. The example showed that the impact of wage adjustments on employment is smaller the more the central bank seeks to stabilize the exchange rate. Also, an increase in wage flexibility often reduces welfare, and more likely so in economies under an exchange rate-driven monetary policy. Also, here was explained a case for an open economy with a floating exchange rate, where the efficiency of fiscal and monetary policy depends fundamentally on the wage-setting process. In Mundell-Fleming models, monetary expansion raises output via exchange rate depreciation, while fiscal expansion has no output effect. These results hold only when real wages can be altered by exchange rate movements, if the real wage is fixed, the Mundell-Fleming ranking of policy is reversed.

The deterioration in macroeconomic performance of many of the industrial economies since the early 1970's has been difficult both to explain and to counteract. The above elaboration presents a cross-country study which examines this deterioration in terms of the degree of wage indexation, the choice of exchange rate regime, and the effects of various shocks that have buffeted these economies. While

macroeconomic performance, particularly in the labor market, has been generally poor over this period, some countries have fared better than others. A common explanation for this divergence in performance is that those countries with the most flexible labor market institutions have been in the best position to withstand the shocks of the period. The theoretical rationale for this explanation can be found in the early literature on the macroeconomics of wage indexation, which found that wage indexation stabilizes output around a desired level in the presence of demand shocks, but destabilizes output in the face of supply shocks. The optimal (labor market clearing) degree of wage indexation therefore depends on the relative prevalence of those shocks. It is well recognized that sticky real wages in the presence of supply shocks can lead to sub-optimal macroeconomic outcomes. What is not generally appreciated, however, is that the choice of an optimal exchange rate regime can partially offset the negative consequences of that rigidity. Consequently, the optimal degree of wage indexation is a function not just of the relative strength of demand and supply shocks but also of the degree of nominal exchange rate flexibility. Equivalently, the optimal exchange rate regime is a function of the degree of wage indexation. Specifically, monetary policy can be used to obtain a degree of nominal exchange rate flexibility. The optimal degree of flexibility, given the existence of a certain degree of wage indexation, is that which leads to the attainment of the labor market clearing real wage. Under complete wage indexation, however, monetary policy cannot alter the real wage, and the optimal degree of exchange rate flexibility is indeterminate.

Explanation for the consequences of wage indexation for macroeconomic can be started by choosing the exchange rate regime. Drawing on models where wage indexation is based on current inflation, literature concludes that wage indexing would be a strong and powerful reason to prefer a flexible exchange rate regime before a fixed exchange rate regime. This result arose according to a traditional approach where policy makers are assumed to be concerned only for output

stabilization as well as in a more modern approach where policymakers were taken to worry about maintaining low inflation despite a stable output, but where their preferences are timely inconsistent and expose themselves to inflationary bias.[74] The essence of this argument is that wage indexing helps to protect the output from monetary shocks regardless of the exchange rate regime in operation. If this effect is true, indexation of the wages makes the fixed exchange rate unnecessary to deal with monetary shocks and reduces the initials to create inflationary surprises.

[74] Alogouskofis, G. 1994. "On Inflation, Unemployment, and the Optimal Exchange Rate Regime." In *The Handbook of International Macroeconomics*, edited by F. Van der Ploeg, 192-223. Cambridge, Mass.: Basil Blackwell.

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