

THE DUTCH DISEASE IN UNWONTED PLACES – WHY HAS CROATIA BEEN INFECTED WHILE SLOVENIA REMAINS IN GOOD HEALTH?

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Abstract

Comparing developments in Croatia and Slovenia, the paper tests the proposition that the Dutch disease results from excessive total foreign exchange inflows from various sources – exports of natural resources not necessarily being one of them. It is shown that the sum of foreign exchange inflows from foreign tourism, workers' remittances and net capital inflows (the sum of direct and portfolio investment and changes in the foreign debt position) in Croatia were almost three times as high as those in Slovenia. The consequences were an appreciation of the domestic currency (Kuna) in Croatia, while the Slovenian Tolar exhibited a constant tendency to depreciation. In contrast to Slovenia, Croatia appears to suffer from strong symptoms of deindustrialization. The steeper rise of real wages in Croatia, as the consequence of the overflow of foreign exchange windfall, is seen as the decisive reason for the deteriorating competitive position of producers of tradables in Croatia.

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1. Introduction

Some paradoxical phenomena that result from a country's abundance of exportable natural resources, causing shocks of foreign exchange inflows, have been researched in economic literature under the headings of 'curse of resources' and 'Dutch disease'. Although embracing similar subjects, the two fields differ in the way they are connected to existing economic disciplines and, consequently, in the methods they use. The 'curse' literature has been mainly linked to development economics dealing with the effects of natural resources on growth rates of the economy. With few dissenting voices,¹ it is accepted that the 'curse' is empirically proved since most countries with abundant resources exhibit lower growth rates.² The 'disease' literature, on the other hand, leans towards international economics, preferring model-building to explain the possible negative effects of foreign exchange inflows shocks. Both field studies usually elaborate on a single cause of the curse (disease).

Remaining within the framework of the Dutch disease literature, we shall explore the proposition that *the disease may be caused by several sources of foreign currency supply shocks that act simultaneously* – inflows from exports of abundant natural resources not being necessarily one of them. We shall illustrate our thesis comparing the developments in two transition countries, which, at first sight, do not seem threatened by the disease, since they do not possess large quantities of exportable resources. Nevertheless, one of them (Croatia) appears to suffer from the Dutch disease, while the other (Slovenia) does not show visible symptoms.

In the next section, we shall summarily review the main topics of the literature on the disease. The central section of the paper contains a comparison of Croatia and Slovenia with respect to the greatly differing volumes of net foreign currency inflows. We also examine the influence of market conditions and central banks' policies on the exchange rates of the respective currencies and the different developments in the international competitive position that signal the occurrence of the disease in

1. See, for example, Davis (1995) who finds that the 'curse of resources' is an exception rather than the rule. Stijns (2005), Srijns (2006), and Brunnschweiler and Bulte (2008) also raise concerns over the validity of the "curse of resources" hypothesis.

2. See Sachs and Warner (2001) and also Papyrakis and Gerlagh (2004). Iimi (2007) presents a recent, balanced review of the main issues of the 'curse'. The puzzling findings of lower growth rates are mainly explained by unsatisfactory governance resulting in corruption, social lethargy (lethargy that has engulfed the entire society) and low investment (especially in human capital) as the consequence of rent-seeking in the distribution of natural wealth. It is interesting to note that Norway, having institutional arrangements that reduce rent-seeking, escaped the curse of resources, although lately some weak symptoms could be noticed – see Larsen (2006). In the 'curse' literature, the 'Dutch disease', caused by foreign exchange inflow shocks, is usually cited as just one of the factors contributing to the negative effects of the country's natural wealth on the rate of growth.

Croatia and its absence in Slovenia. The concluding remarks evaluate the findings and suggest additional topics for research.

2. Causes, symptoms and cures

In the simplest terms, the Dutch disease can be described as the consequence of a shock caused by increased foreign currency supply, which leads to a real appreciation of the domestic currency, either through higher inflation or a stronger currency (or both). This increases the costs of domestic inputs, impairing the competitive position of existing or prospective producers of tradables, who receive lower incomes in terms of the domestic currency.

The large inflow of foreign exchange as a consequence of the oil boom in the Middle East, around the North Sea and in some other countries certainly caused conspicuous difficulties in the development of sectors producing traditional tradables, mostly in manufacturing.³ The developed oil and gas exporting economies experienced a deterioration of the competitive position of their existing tradable producing sectors – this malaise was first detected as a consequence of an increase of natural gas exports from the Netherlands, hence, its name.

Some researchers who investigated the subject suggested that the surplus inflow of foreign currency could be equated to a gift or a windfall in the form of an extra transfer of funds from abroad not necessarily linked to exports of natural resources. The causes of the disease were expanded to include other cases where the equilibrium on foreign exchange markets in a country was distorted by an increase in foreign currency supply. For example, an unequal development of economic sectors, some experiencing a boom based on technological progress, could produce symptoms of the disease in the less fortunate (non-booming) sectors. Corden and Neary (1982) approach this case by building a model around the assumption of a single Hicks-neutral improvement in technology in an economic sector that produces tradables. Income shocks that come out of it have two effects: they increase inflation and, hence, cause the real exchange rate appreciation – which is a *spending effect* – as well as relocating factors of production away from the tradable sector towards the resource sector and non-tradables – which is the *resource movement effect*.

Other sources of shock-increases of the foreign exchange inflows discussed in economic literature include foreign aid,⁴ tourist trade⁵ and workers' remittances.⁶

3. See Holmoy and Massey Heide (2005) and Ismail (2010).

4. Vos (1998) analyses the Dutch disease consequences of foreign aid flows in Pakistan.

5. Capo et al. (2007) describe the reduction of the share of manufacturing and other changes in the structure of the economy of the Balearics as a consequence of the tourist boom.

6. Amuedo-Dorantes and Pozo (2004) analyse the potential of workers' remittances in the countries of Latin America and the Caribbean to inflict economic costs of the Dutch disease type by reducing the international competitiveness of their export sectors.

The stylized descriptions of the symptoms and the course of the disease are based on a number of assumptions concerning, especially, the differences between the tradable and non-tradable sectors of an economy. The prices of tradables are determined by transactions on world markets and unlimited supply at these prices is assumed. On the other hand, non-tradables are supplied locally and their prices are the result of the local market conditions. A large part of the foreign exchange windfall is consumed in the non-tradable sectors - partly as a consequence of an increase in the volume of taxes and government consumption. Since the capacity of satisfying demand for non-tradables cannot be expanded as easily as the supply of tradables, the prices of non-tradables will rise and result in the real appreciation of the domestic currency. The rise in demand for non-tradables and, consequently, the rise in their prices will attract productive resources from the tradable sectors. The resource and price movements - especially the effects of wage increases - that are the consequence of the foreign exchange windfall will harm the existing tradable producers by reducing their profit margins. Some of them will go out of business, reducing the share of the tradables - mostly manufacturing - sector in the economy. Deindustrialisation will then be the most visible symptom of the Dutch disease.

Since manufacturing represents the propulsive economic sector where most innovations – applied later in other economic sectors – occur, deindustrialisation will have long-term negative consequences for countries suffering from the Dutch disease. The loss of the effects of ‘learning-by-doing’ in manufacturing has, therefore, become an attractive subject of study related to the disease. A typical approach is that of Van Wijnbergen (1984). He presents a two-period model where the economy’s productivity in the second period depends on the output in the first period. This is a simple way of introducing the proposition that a temporary decline in the ‘new technology’ producing sector permanently lowers the economy’s productivity and, thus, income per head of the country. Torvik (2001) discusses various aspects of learning-by-doing, especially the spillovers between the tradable and non-tradable sectors that may cause differing outcomes concerning productivity changes. Krugman (1987) presents a model where comparative advantages between countries are created over time by the dynamics of learning. All these studies point to the possible danger that deindustrialisation may pose to the prospects of long-term economic growth of a country.

Some remedies to mitigate the negative effects of foreign currency supply shocks have been proposed. The windfall could be left unused, e.g., as a deposit in foreign banks or spent abroad by buying foreign securities or other assets. This has been done by Middle Eastern oil exporters and Norway.⁷ However, even if none, or only

7. For example, the United Arab Emirates invests proceeds from oil in the Abu Dhabi Investment Authority, Kuwait in the Kuwait Investment Authority, Saudi Arabia in the SAMA Foreign Holdings and Norway in the Government Pension Fund - Global.

a small part, of a large windfall was retained for domestic consumption, difficulties in satisfying increased demand for non-tradables with available domestic resources could appear.⁸ The immigration of a large number of workers to fill the gap in the non-tradable sector has been the result.⁹ In more developed countries, it was thought that part of the windfall could be taxed away and used as subsidies to ailing tradable-producing sectors of manufacturing. These sectors would then be able to continue the process of learning-by-doing and remain able to compete when the foreign currency supply shock wears out. Some suggested that the Dutch disease does not require a cure – market forces would be able to eliminate the negative symptoms. In some cases, the visible positive effects of foreign currency shocks were overestimated, resulting in excessive consumption - the case of Mexico and its over-indebtedness following the exploitation of newly found oil resources is often cited.¹⁰ In most cases, however, the windfall of increased foreign currencies was hailed as a boost to the welfare of the country and governments had understandable difficulties in perceiving the damage it could cause. If non-expected symptoms appeared, they were often treated with inappropriate remedies and little effort was made to delve deeper into the complexities of the disease.¹¹ Serious structural problems then became visible in the economies of some countries as a consequence of their apparent riches.

3. Croatia and Slovenia compared – an assessment of their different vulnerability to the Dutch disease

The Dutch disease in transition countries has been analysed mainly in its narrow sense relating to foreign exchange inflow shocks that result from the exportation of abundant natural resources.¹²

In this narrow sense, neither Croatia nor Slovenia seem to be countries seriously exposed to the Dutch disease. They do not possess any important natural resource

8. For example, only a small part of Norwegian oil revenue is transferred to the government budget, but still Holmoy and Massey Heide (2005) find that Norway is not immune to the Dutch disease. Moreover, even if the whole windfall stays out of the country, the main challenge is to ensure that proceeds from oil do not infuse a false sense of wealth security.

9. Van der Ploeg and Venables (2010) explain that human capital in some Gulf states is imported by the immigration of workers, especially in the construction sector.

10. See Mansorian (1991).

11. Mussi Rodríguez (2006) studies how governments try (sometimes) inappropriately to help the economy in the presence of Dutch disease symptoms.

12. See Fetisov (2007) on the disease symptoms appearing in Russia as the consequence of massive oil and natural gas exports. While investigating the curse of resources in transition countries, Kronenberg (2004) finds little evidence of Dutch disease symptoms. Daianu and Lungu (2007) just hint at the possibility that massive capital inflows into transition countries during the EU accession process could bring about 'a sort of Dutch disease' in the long run.

that could be exported with large profits. The share of mining in industrial production in both countries is less than 2 percent of either output or employment. Some oil and gas found mainly in Croatia can satisfy only a small part of the domestic consumption.

Both countries, as successor-states after the dissolution of communist Yugoslavia, had similar starting conditions when engaging in the transition process. They followed, however, very different development paths. While Slovenia relied on a strong manufacturing sector, visible signs of deindustrialisation appeared in Croatia. Some of the differences could be explained by the war conditions suffered by Croatia. However, on the basis of very different amounts of windfall received through various foreign exchange inflows, one could suspect that in Croatia the Dutch disease was also at work.

The differing volumes of cumulative net foreign currency inflows in the two countries have been the starting point of our comparative analysis. Since the appreciation of the domestic currency is assumed to be the consequence of a foreign exchange windfall, we also investigate the influence of market forces and monetary policies on exchange rates of the Croatian and Slovenian currencies. The occurrence of disease symptoms – the weakening of international competitiveness and deindustrialisation – in Croatia are then contrasted to the much healthier state of the Slovenian economy.

3.1 Volume of foreign exchange gifts

We analyse three main sources of foreign exchange windfall that could cumulatively cause a marked vulnerability to the Dutch disease, comparing the situations of Croatia and Slovenia. They include incomes from foreign tourist trade, the remittances received from workers in foreign countries and the inflow of capital in both investment and debt liability form. Data on the volume of the windfall received by the two countries from the three sources are given in *Table 1*. All data on the volume of the inflows are given in percentages of the gross domestic product, which makes them easier to use when comparing the two countries.

Table 1. Foreign exchange inflows – percentage of GDP

| | | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|--|-----|-------|-------|-------|-------|-------|-------|-------|
| 1. Foreign tourist trade | CRO | 8.65 | 10.33 | 11.77 | 11.21 | 15.33 | 13.68 | 13.32 |
| | SLO | 3.45 | 3.99 | 3.95 | 3.78 | 3.69 | 3.8 | 3.97 |
| 2. Workers remittances | CRO | 4.48 | 5.34 | 5.36 | 5.35 | 5.05 | 4.89 | 4.51 |
| | SLO | 1.02 | 1.03 | 0.93 | 0.9 | 0.79 | 0.76 | 0.74 |
| 3a. International investment position (net) | CRO | 5.01 | 2.14 | 5.95 | 3.34 | 3.55 | 9.02 | 9.50 |
| | SLO | 1.23 | 1.17 | -1.99 | 2.47 | 2.59 | -0.46 | -2.49 |
| 3.b International debt position (net) | CRO | -1.49 | -0.17 | -12.0 | 8.59 | 9.57 | 7.21 | 6.04 |
| | SLO | 4.34 | 1.57 | -7.50 | -4.48 | 3.47 | 2.92 | 6.33 |
| 4. TOTAL | CRO | 16.65 | 17.64 | 11.08 | 28.49 | 33.50 | 34.80 | 33.37 |
| | SLO | 10.04 | 7.76 | -4.61 | 2.67 | 10.54 | 7.02 | 8.55 |

(CRO – Croatia, SLO – Slovenia)

Source: Croatian National Bank and Bank of Slovenia (see references). Note: International investment position (net) consists of net foreign direct and portfolio investments, while international debt position (net) consists of yearly net increases of external debt incurred by government, banks and non-banking sector.

Foreign tourist trade normally depends on special kinds of endowment with non-exportable ‘natural resources’. In the case of Croatia, these are the sea and littoral landscape on most of the eastern coast of the Adriatic. Slovenia has more limited access to the Adriatic Sea, but their part of the Alps offers conditions for winter sport activities. Although the income per night that the average foreign visitor spends in Slovenia is higher than in Croatia, the number of yearly visits and amount of nights

spent are much higher in Croatia, so that the impact of foreign exchange earned by foreign tourist trade in this country is much stronger. The data (*Table 1, line 1*) indicate that the share of net foreign tourist income¹³ in the GDP of Croatia is approximately three times higher than that in Slovenia. It is obvious that this sector makes a substantial contribution to the Croatian economy as a whole.

The *remittances of workers* from developed European countries play a lesser but still relevant role as a foreign exchange windfall – Croatia having a fair advantage (*Table 1, line 2*). The larger emigration of the Croatian workforce is, at least in part, the result of the larger wage differentials, since Croatia has a substantially lower GDP per capita and, consequently, lower real wages compared to Slovenia.

The third source relating to *net capital inflows* is also substantially larger in Croatia than in Slovenia. It consists of net foreign direct and portfolio investments (*Table 1, line 3.a*) as well as of yearly net increases of external debt incurred by the government, banks and the non-banking sector (*Table 1, line 3.b*)¹⁴. The dynamics of the inflows of foreign funds from this source do not show a definite trend, reflecting the varying pace of privatization and investment dynamics, but also of fiscal developments in the two countries. In the last few years, the outflow of direct and portfolio investment from Slovenia was larger than the inflow, since Slovenian firms started participating actively in the privatization processes in some parts of the former Yugoslavia. Croatia remained constantly on the receiving side of net capital flows.

In total (*Table 1, line 4*), the difference in the inflows from the three sources¹⁵ in the two countries appears rather impressive. In most years, the net inflows in Slovenia amounted to a single-digit percentage of GDP, while those in Croatia stayed in a much higher range, reaching more than 30 percent from 2003 on. The argument that the much larger inflows of foreign exchange from the three sources caused the Dutch disease symptoms in Croatia appears to have a strong empirical foundation.

13. Foreign tourist income has an important import component that has to be deducted to arrive at the amount of net income. In calculating net foreign tourist income, we followed calculations given by Jurčić (2000), who found that in 1998 the direct and indirect dependency of Croatian tourism on imports amounted to 32 percent of the gross income. Therefore, we assumed that the windfall content of foreign exchange inflow due to foreign tourist trade amounts (very roughly) to two-thirds of the gross income in both Croatia and Slovenia.

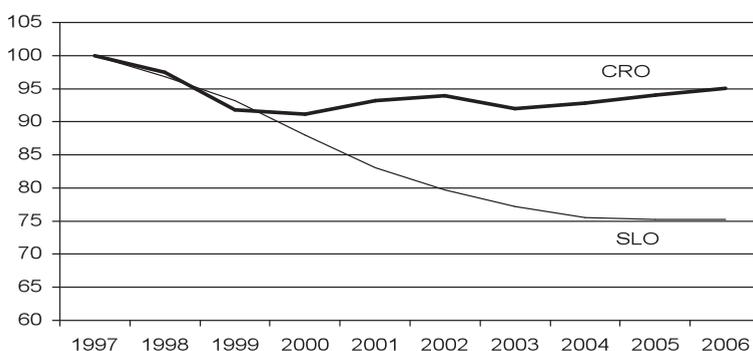
14. The data for 2001 show a substantial change in net debt flows in both countries. This peculiarity is the result of the substitution of European national banknotes by the Euro at the start of 2002. The households in transition countries (including Croatia and Slovenia) that held mostly German marks for their grey market transactions (and savings) had to deposit them in domestic banks at the end of 2001, increasing dramatically their assets.

15. It should be noted that due to the lack of reliable data, the shadowy capital flows relating to foreigners buying real estate have been omitted from our comparisons. It can be assumed that these flows are roughly related to the foreign tourist trade and, therefore, stronger in Croatia than in Slovenia.

3.2 The influence of market forces and monetary policies on the foreign exchange rates in Croatia and Slovenia

If only market forces were at work, larger cumulative inflows of foreign exchange could be expected to result in appreciation or – in the case of a developing transition country – in lesser depreciation of the domestic currency. The foreign exchange markets could, however, be influenced by contractionary monetary policies pursued by the central banks of the respective countries in an attempt to curb the inflation that appeared in the aftermath of the dissolution of Yugoslavia. The data in the figures presented in this section can give us an insight into the working of market forces, on the one hand, and that of monetary policies on the other.

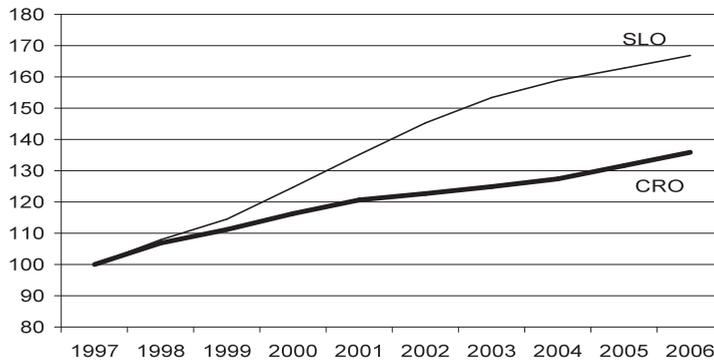
Figure 1. Nominal exchange rates (increase is appreciation), 1997 = 100



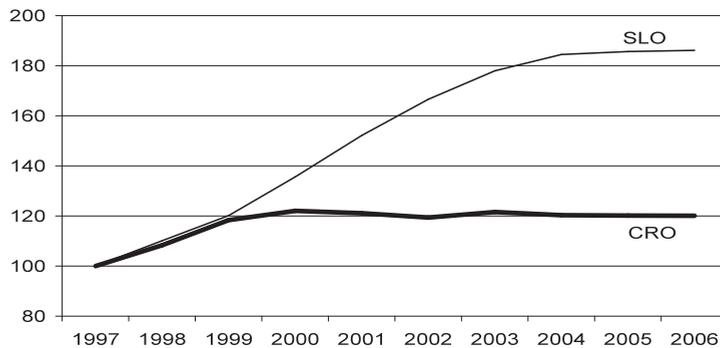
Source: Croatian National Bank and Bank of Slovenia (see references)

The movements of the nominal exchange rates of the Kuna (Croatia) and Tolar (Slovenia) with respect to the Euro are reported in *Fig. 1*. The Croatian Kuna had a stable exchange rate with respect to world currencies represented by the Euro, showing even a slight tendency to appreciation from 1999 on. The Slovenian currency, in comparison, shows a consistent tendency to depreciation. If the influence of monetary policies could be eliminated, the difference in the trend of the movements of the exchange rates of the two currencies would have to be attributed to the much larger foreign exchange windfall received by Croatia.

Inflation is an important intermediate step in the Dutch disease theory, and we therefore paid attention to the price developments as well as to the evolution of the real exchange rates. *Fig. 2*. shows the developments of consumer price indices indicating that Slovenia exhibited significantly higher inflation than Croatia. Prices in Slovenia were 30 percent higher at the end of the sample period than in Croatia. This caused a large real exchange appreciation of the Slovenian Tolar (*Fig. 3.*), while the Croatian Kuna, after initial appreciation, experienced a stable real exchange rate.

Figure 2. Consumer price indices, 1997 = 100

Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

Figure 3. Real exchange rates (increase is appreciation), 1997 = 100

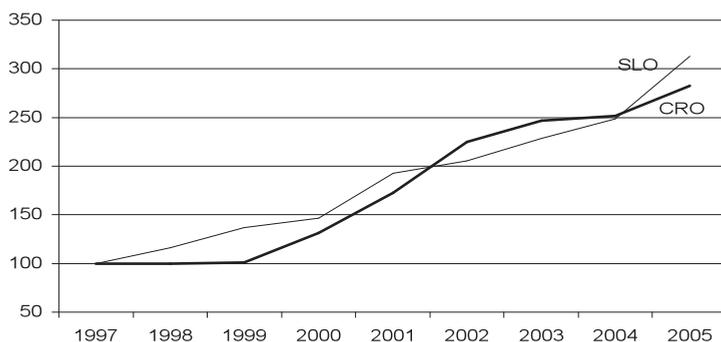
Source: Croatian National Bank, Bank of Slovenia and Eurostat (see references)

The direction and intensity of the influence of monetary policies on the exchange rates can be assessed by examining the developments concerning money supply and the increase of international reserves. It can be assumed that a steeper rise in both money supply and the accumulation of international reserves by central banks signal expansionary monetary policies that reduce the pressures for appreciation. On the other hand, expansionary monetary policy (or any expansionary policy more broadly) creates inflationary pressures that can result in a real currency appreciation and a loss of competitiveness.

The differences between the movements concerning money supply in Croatia and Slovenia can be seen in *Fig. 4*. The Croatian National Bank pursued orthodox monetary policies to limit the danger of reviving inflation after the monetary reform of 1993/94. The money supply was reduced to such levels that a proper barter economy

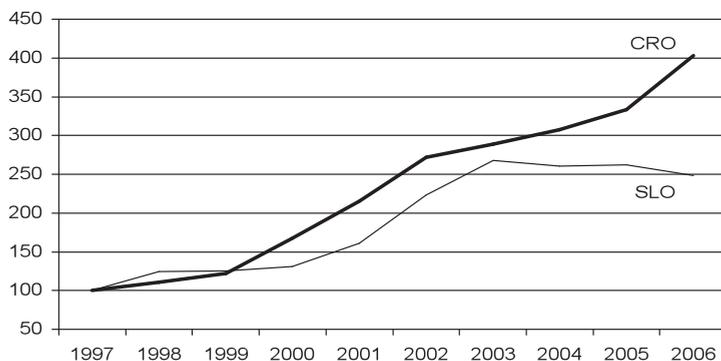
evolved. After some time, it became evident that the contractionary measures had been overdone and from 2000 on money supply in Croatia rose at a faster pace than in Slovenia. Relating the data to the respective exchange rates (with the Slovenian currency depreciating and the Croatian slightly appreciating) and inflation, it can be deduced that the money supply in real terms in Croatia rose much faster than in Slovenia. Nevertheless, the Croatian Kuna did not stop appreciating.

Figure 4. Money supply (M1) in Croatia and Slovenia, 1997 = 100



Source: IMF (2007)

Figure 5. International reserves in Croatia and Slovenia, in Euros, 1997 = 100



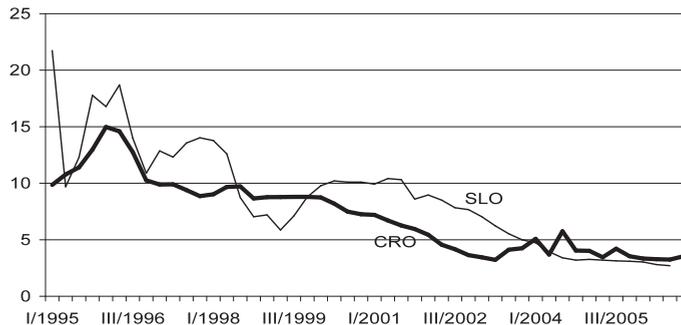
Source: Croatian National Bank and Bank of Slovenia (see references)

The differences in the increase of international reserves, which can be observed from *Fig. 5*, are another aspect of differing monetary policies. The rise of the reserves in Croatia has been much steeper than in Slovenia, indicating that the Croatian National Bank bought foreign exchange to control the appreciation of the domestic currency.

Another aspect of monetary policy that should be discussed here is the difference in the level of interest rates between Croatia and Slovenia, since interest rates are

often an important determinant of international flows of foreign investments. Interest rates in *Fig. 6* exhibit the same tendencies of decrease in levels. However, due to higher inflation in Slovenia, mostly interest rates in Slovenia were higher than in Croatia, until Slovenia joined the EU. Only the Slovenian goal of introducing the Euro managed to reduce their interest rates below those in Croatia.

Figure 6. Interest rates in Croatia and Slovenia



Source: Croatian National Bank and Bank of Slovenia. (see references) **Note:** these are interest rates on Kuna and Tolar time deposits not indexed to foreign currency, since data for the government bonds are not available for the whole period.

The data considered in this section indicate that the appreciation of the Croatian Kuna has been the result of large foreign exchange inflows. It could not be contained even by monetary policies of the central bank aimed at reducing the appreciation. Lacking the support of foreign exchange inflows, the Slovenian Tolar exhibited a constant tendency to depreciation.

3.3 Deindustrialisation

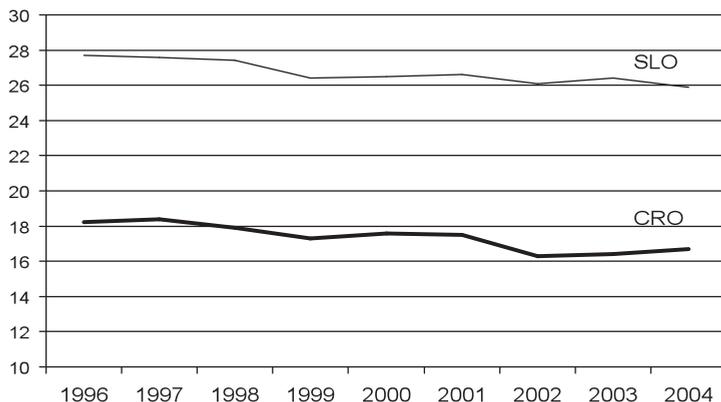
The appreciation of the local currency as an apparent symptom of the Dutch disease in Croatia should be expected to result in decreased international competitiveness and deindustrialisation.

Data on the changes of the share of manufacturing in the output and employment of the economies of Croatia and Slovenia are given in *Fig. 7.a and 7.b*. Manufacturing in Croatia has obviously a lower share in both output and employment of the national economy. Moreover, the rate of decrease of the respective shares of manufacturing is also slightly higher in Croatia than in Slovenia.¹⁶ These findings cannot be interpreted as giving definitive support to the Dutch disease diagnosis of the Croatian economy, since other factors could also be at work. The decreasing share of

16. For Croatia, the average annual rate of decrease is 1.03 percent in the case of the share of manufacturing in output and 2.6 percent in the case of the share of manufacturing workers in the total employment, while for Slovenia the rates are 0.8 and 1.5 percent, respectively.

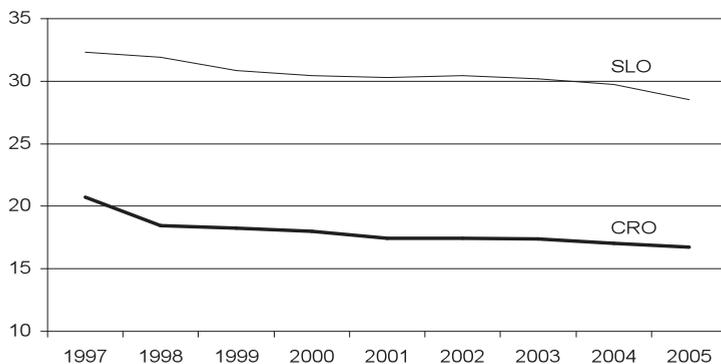
manufacturing in the economy is a common phenomenon in most developed countries.¹⁷ It appears even more pronounced in transition countries that pass through the process of eliminating the over-industrialisation left over from the time of prevailing socialist ideologies.

Figure 7. The share of manufacturing
a. output, in percentages



Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

b. employment, in percentages



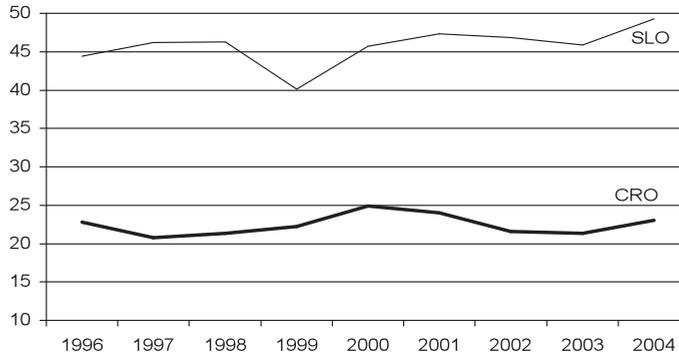
Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

If caused by the Dutch disease, deindustrialisation should be explained as a consequence of decreasing international competitiveness. The best indicators of this pro-

17. See Saeger (1997) and Bernard (2009).

cess are data on international trade – those for exports from Croatia and Slovenia are given in *Fig. 8*.

Figure 8. The share of exports in output, in percentages

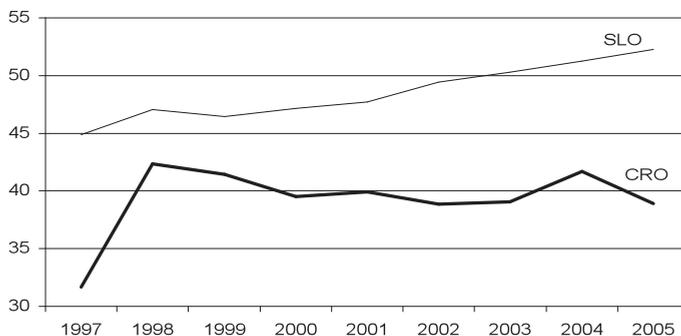


Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

The difference between the two countries with respect to the intensity of exports is evident – Croatia has a share of exports in GDP just over half of that observed in Slovenia. The differences are larger than those of the share of manufacturing output and employment in the economy in the two countries and Croatia has not shown any increase in export share in recent years. Slovenia, on the other hand, follows other developed states in steadily increasing the relation of exports to GDP. It should be added that the volume of imports in Croatia is more than double of the volume of exports, while Slovenia exhibits a roughly levelled trade balance.

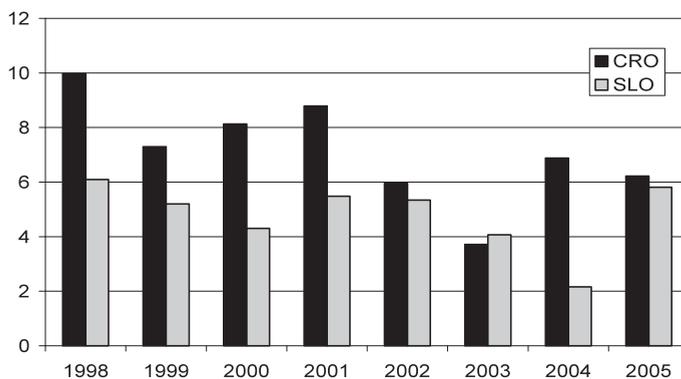
Fig. 9 offers an additional insight into the differences in the international competitiveness of manufacturing, depicting the data that indicate the share of ‘technologically progressive’ branches of manufacturing in total exports – chemical and machinery producing industries are taken as representatives. It can be seen that Slovenia has a much higher share of exports of these branches in total manufacturing exports compared to Croatia. The loss of learning-by-doing, especially intensive in these branches, presents an additional factor contributing to the stagnant characteristics of Croatian manufacturing.

Figure 9. The share of chemical and machinery producing industries in total exports, in percentages



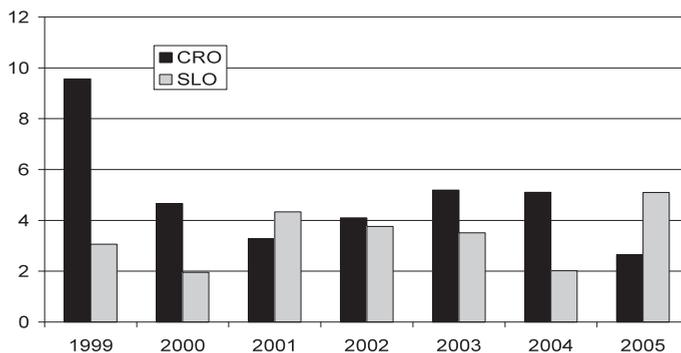
Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

**Figure 10. Yearly wage growth in Croatia and Slovenia
a. in terms of Euros, in percentages**



Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

b. with respect to domestic consumer prices, in percentages



Source: Croatian Central Bureau of Statistics and Statistical Office of the Republic of Slovenia (see references)

It would be interesting to see whether the loss of international competitiveness of Croatian manufacturing can be ascribed to increases in domestic costs, while prices of tradables given by international markets remain constant. The movements of wages, as the main component of domestic costs, are given in *Fig. 10.a* and *10.b* in terms of an international currency (Euro) and with respect to domestic consumer prices.

It is obvious that wages in Croatia rose more rapidly than those in Slovenia, whether measured in Euros or in relation to consumer prices. This must have produced a high hurdle for Croatian exporters and also for producers for domestic markets. Many of them were forced out of business when costs exceeded incomes that were reduced by the appreciation of the Kuna.

One could infer that the sequence of factors contributing to serious symptoms of the Dutch disease in Croatia went the following way. Very large windfalls of various foreign exchange inflows produced an appreciation of the domestic currency and spilled over to increases in wages, first in the non-tradable industries and then in the tradable industries. This made the domestic production of tradables too costly, reducing at first exports and then the total output of manufacturing. The reduction of exports and output in branches with a higher content of technologically intensive products could signal an additional deindustrialisation pressure resulting from the loss of the effects of learning-by-doing. Overall, a transfer of resources from manufacturing, concerning both labour and capital, into non-tradable producing sectors can be observed. The friction caused by the difference in the qualifications of workers demanded in manufacturing and in non-tradable producing sectors limited the possible transfer of labour, causing unemployment and early retirement tendencies.

4. Concluding remarks

The thesis that the cumulative effects of various sources of abundant foreign exchange inflows can produce the Dutch disease appears to hold for Croatia – none of the main sources (foreign tourism, workers' remittances or net capital inflows) could alone produce the disease symptoms. In comparison to Slovenia, which did not succumb to the disease, the volume of inflows of foreign exchange in Croatia from all three sources appears impressive.

The comparison of relevant developments in Croatia and Slovenia give support to the Dutch disease diagnosis. The exchange rates of the Croatian currency held steady to the Euro, even appreciating slightly, while those of Slovenia fell, following a trend that could be expected in unstable macroeconomic conditions during the transition processes. The data on money supply and increasing international reserves show that the influence of market forces (abundant supply of foreign exchange) in Croatia was strong and that the central bank actually intervened trying to limit the appreciation of the domestic currency. The overspill of foreign exchange windfall to wages, which rose much quicker than those in Slovenia, certainly contributed to the

decline of international competitiveness of Croatia's manufacturing sector, leading to the deindustrialisation of the Croatian economy.

Additional research could certainly give better support (or refutation) of the presented theses. The assessment of the *net contribution* of foreign exchange inflows from various sources could be improved. On this basis, statistically founded studies could be carried out linking some 'quantified' symptoms of the disease with the volumes of surplus inflows. The difficulties of separating the typical causes of the Dutch disease from those originating in other domains (e.g., overall trends of deindustrialisation in developed as well as in transition countries) could thus be reduced.

The analysis of the Dutch disease has hitherto been confined to windfalls flowing between *areas that use different currencies*. Booming sectors within a single currency area produce some of the symptoms, but there are certainly conspicuous differences. The consequences for a country suffering from the Dutch disease and joining a broader currency area could therefore be an interesting subject for research. This may certainly be relevant for transition countries that want to join the Euro area although they are suffering from the disease caused by large capital inflows. In general, the field invites research on the relationship between structural changes in an economy and its international competitiveness, on the one hand, and net foreign exchange inflows, on the other.

References:

- Amuedo-Dorantes, C. and S. Pozo, 2004, "Workers' Remittances and the Real Exchange Rate: A Paradox of Gifts", *World Development*, 32 (8), 1407-1417.
- Bank of Slovenia, wired at:
<http://www.bsi.si/pxweb/Dialog/Database/ang/serije/serije.asp>
- Bernard, A., 2009, "Trends in manufacturing employment", *Perspectives*, Statistics Canada, February, 5-13.
- Brunnschweiler C. N. and E. H. Bulte, 2008, "The resource curse revisited and revised: A tale of paradoxes and red herrings", *Journal of Environmental Economics and Management*, 55, 248-264.
- Capó, J., A. Riera Font and J. Rosselló Nadal, 2007, "Dutch Disease in Tourism Economies: Evidence from the Balearic and the Canary Islands". *Journal of Sustainable Tourism*, 15 (6), 615-627.
- Corden, M. W. and J. P. Neary, 1982, "Booming Sector and Deindustrialization in a Small Open Economy", *Economic Journal*, 92 (December), 825-848.
- Croatian Central Bureau of Statistics, *Statistical Yearbook*, wired at: <http://www.dzs.hr>
- Croatian National Bank, wired at:
<http://www.hnb.hr/publikac/hpublikac.htm?tsfsg=c623963213c0ad2cad77bea4666927c9>
- Daianu, D. and L. Lungu, 2007, "Inflation Targeting, Between Rhetoric and Reality. The Case of Transition Economies", *European Journal of Comparative Economics*, 4 (1), 39-64.

Davis, G. A., 1995, "Learning to Love the Dutch Disease: Evidence from the Mineral Economies", *World Development*, 23 (10), 1765-1779.

EUROSTAT, wired at:

<http://epp.eurostat.ec.europa.eu/portal/page/portal/hicp/data/database>

Fetisov, G., 2007, "The 'Dutch Disease' in Russia - Macroeconomic and Structural Aspects", *Problems of Economic Transition*, 50 (1), 53-73. Translated from *Voprosy ekonomiki*, 2006, 12, 38-53.

Holmoy, E and K. Massey Heide, 2005, "Is Norway immune to Dutch Disease? CGE Estimates of Sustainable Wage Growth and De-industrialisation", *Discussion Papers*, Statistics Norway, No. 413.

Iimi, A., 2007, "Escaping from the Resource Curse: Evidence from Botswana and the Rest of the World", *IMF Staff Papers*, 54 (4), 663-669.

IMF, 2007, *International Financial Statistics*, Yearbook 2007, 40, Washington D.C.: IMF

Ismail, K., 2010, "The Structural Manifestation of the "Dutch Disease": The Case of Oil Exporting Countries", *IMF Working Paper*, WP/10/103.

Jurčić, Lj., 2000, "The Import Dependence of Croatian Tourism", *Acta turistica*, 12 (1), 3-17.

Kronenberg, T., 2004, "The Curse of Natural Resources in the Transition Economies", *Economics of Transition*, 12 (3), 399-426.

Krugman, P., 1987, "The Narrow Moving Band, the Dutch Disease, and the Competitive Consequences of Mrs Thatcher: Notes on Trade in the Presence of Dynamic Scale Economies", *Journal of Development Economics*, 27, 41-55.

Larsen, E. R., 2006, "Escaping the Resource Curse and the Dutch Disease? When and Why Norway Caught Up with and Forged Ahead of its Neighbors", *American Journal of Economics and Sociology*, 65 (3), 605-640.

Mansonian, A., 1991, "Resource Discoveries and Excessive External Borrowing", *Economic Journal*, 101 (November), 1497-1509.

Mussi Rodriguez, C., 2006, "Dutch Disease in Saudi Arabia?", Lund University, mimeo.

Papyrakis, E., and R. Gerlagh, 2004, "The Resource Curse Hypothesis and its Transmission Channels", *Journal of Comparative Economics*, 32, 181-193.

Sachs, J. D., and A. M. Warner, 2001, "The Curse of Natural Resources", *European Economic Review*, 45, 827-838.

Saeger, S. S., 1997, "Globalization and Deindustrialization: Myth and Reality in the OECD" *Weltwirtschaftliches Archiv*, 133 (4), 579-607.

Statistical Office of the Republic of Slovenia, *Statistical Yearbook*, wired at:

http://www.stat.si/eng/pub_letopis_prva.asp

Stijns, J-P., 2005, "Natural resource abundance and economic growth revisited", *Resources Policy*, 30, 107-130.

Srijns, J-P., 2006, "Natural Resource Abundance and Human Capital Accumulation", *World Development*, 24 (6), 1060-1083.

Torvik, R., 2001, "Learning by Doing and the Dutch Disease", *European Economic Review*, 45, 285-306.

- Van der Ploeg, R. and Venables, A. J., 2010, "Absorbing a Windfall of Foreign Exchange: Dutch Disease Dynamics", *CEPR Discussion Paper*, No. DP8086.
- Van Wijnbergen, S., 1984, "The Dutch Disease: A Disease After All?", *Economic Journal*, 94 (March), 41-45.
- Vos, R., 1998, "Aid Flows and Dutch Disease" in a General Equilibrium Framework for Pakistan", *Journal of Policy Modeling*, 20 (1), 77-109.