



Neutralizing the Dutch disease

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ABSTRACT

This paper discusses the economic policies required to neutralize the Dutch disease—a long-term overvaluation of a national currency originated in the export of commodities—and the political economy involved. The difficulty in addressing this major market failure is associated with two political problems: the natural resource curse, the generalized rent-seeking that often takes over a commodity-exporting country, and exchange rate populism, the practice of keeping the currency overvalued, to ensure the reelection of politicians. While the two political problems have cultural and institutional roots that make them resilient to change, this paper shows that there is a relatively simple policy—a variable export tax on the commodities—that will make the currency competitive and therefore make it possible for the manufacturing industry to flourish.

KEYWORDS

Dutch disease; exchange rate populism; natural resource curse; new developmentalism economics

JEL CLASSIFICATIONS

O1; F31

To industrialize and make catch up many developing countries must overcome or neutralize a major economic disadvantage, the Dutch disease, which is present in most Latin-American and African countries, and with less severity, in the other continents. This is a long-standing overvaluation of the currency of a country that exports commodities which can be exported at a profit with an exchange rate substantially more appreciated than the one that manufacturing companies that utilize technology in the world state of the art require to be profitable. The literature on development economics associates economic growth with education, good institutions, the emulation of technology of rich countries, and the protection of the manufacturing industry. Today, the last item—protection—is harshly criticized by most economists, who accept the need for high import tariffs only when industrialization is beginning, and the infant industry is a valid argument. Yet, as I will argue, many countries that industrialized successfully used high import tariffs, not to protect the manufacturing industry, but to neutralize the Dutch disease on the domestic market side, and, in doing so, leveled the playing field between the developing country and the already industrialized countries.

Although many countries have neutralized the Dutch disease with import tariffs, they are not the best method because they only do that in relation to the domestic market. This limitation stems from the fact that policymakers before the 1980s had to act intuitively and pragmatically, without knowing precisely what they were doing, because the concept of Dutch disease and the methods for neutralizing the disease were not yet known. Actually, the import substitution strategy that many countries adopted to industrialize was a method were not so protectionist as they appear to be. The high import tariffs on manufactured were a way of neutralizing this major economic disadvantage in relation to the domestic market, rather than a form of protectionism. It is true that, whenever the tariffs exceeded what was required to check the disease, the policy could be combine the two things: leveling the playing field and, in addition, offering protection. In a big domestic market, such as Brazil, the country may industrialize based on import tariffs; in a country with a very big domestic market, such as the United States, the tariffs may help the country to become rich. This may seem surprising in relation to the US, but the simple facts are, first, that it was initially afflicted by the disease due to the exports of cotton and wheat, and later by the exports of oil; second, it kept tariffs high on manufactured goods long after outgrowing the infant industry stage, not opening its economy until 1939! There is little doubt that American policymakers of the time were neutralizing the Dutch disease intuitively.¹

In this paper, I will define the Dutch disease, discuss the role it plays in the determination of the exchange rate keeping it overvalued, argue that when a country has an overvalued currency in the long-term it will not invest in manufacturing, distinguish it from the natural resource curse, and show how it can be neutralized? To answer these questions, my reference point is the new developmental economics (NDE) that I and a group of post-Keynesian and developmental economists in Latin America have been developing since the early 2000s.²

I start from two assumptions: that growth involves industrialization or competitive sophistication, and that the growth depends on the rate of investment. Besides capital accumulation, there are other variables on the supply side that cause growth, such as education, technical progress, good institutions, investments in the infrastructure and a stable national currency; on the demand side we know how important it is to have sustained demand, but investment in physical capital is the most significant factor. Technological progress is also crucial for growth, but it is mainly embodied in physical and human capital. The other variables, particularly education and institutions are very important, but they don't make a difference in the short-term. On the other hand, institutions are often an endogenous variable; they are simultaneously a cause and a consequence of growth. In

contrast, the investment rate—of public investment (mainly in infrastructure) and of private investment (in all other sectors of the economy)—operates simultaneously on both the supply and demand sides and has an immediate relation to growth.

To these two assumptions, I add a claim: that the investment rate depends on the exchange rate if it tends to be overvalued. Contrarily to the conventional wisdom that views the exchange rate as volatile, in developing countries the national currency follows a tendency—the tendency to cyclical and chronic overvaluation, only depreciating in the financial crises. Thus, it remains overvalued for several years between two financial crises. During these years, the country's competent manufacturing industries will not be competitive. Thus, the exchange rate doesn't simply oscillate rapidly around the equilibrium. Instead, it follows a relatively predictable path, remaining substantially overvalued for several years in each cycle. Given that I am assuming throughout this paper a floating exchange rate, the fact that the exchange rate remains around this floor for some years, probably reflecting the lowest exchange rate that the more efficient commodity exporters can tolerate, supposes that the foreign creditors are happy and confident with growing domestic and foreign debts, and credit bubble materialized. Why is the behavior so cyclical? Why the exchange rate appreciates again after the crisis? For two reasons: because the country utilizes high interest rates to attract foreign capital, and because it suffers from the Dutch disease that goes unchecked.

When a company sees that there is demand domestically or abroad and considers a new investment, it calculates its likely return in, and in most cases it will do that having in light of the overvalued currency; and so, it will either not invest at all or will invest just enough to modernize the plant, but not enough to expand production. When the exchange rate is volatile, business decision-makers are insecure; when the currency is overvalued in the long-term, they will decline to invest. Thus, given the Dutch disease, a country will just not industrialize, as it is the case of many countries. Or if, as was the case of Brazil, it neutralized the Dutch disease for some time and reached to industrialize, but when, in 1990, the mechanism that neutralized intuitively the disease was dismantled, the country underwent a major process of premature deindustrialization. In any case, an overvalued exchange rate in the long-term acts as a *switch* that grants or withholds access to existing demand, be it international or domestic.

The disease and the curse

There are two very different problems sharing similar origins that represent major obstacles to growth in developing countries: the Dutch disease and

the natural resource curse. The natural resource curse is essentially a problem of political and institutional dimensions; it is the generalized rent-seeking that occurs in a country exporting commodities; it is the transformation of the state into a predator or an extractive state in which the government and the economic and political elites are oriented not to production, but to the capture of rents by imposing a tax on the export of the commodities. In contrast, the Dutch disease is an economic problem, it is a competitive disadvantage created by an overvalued currency that either blocks industrialization, or, if the country is already industrialized because adopted intuitive policies to neutralize disease but later on abandoned them, it causes premature deindustrialization. Both the natural resource curse and the Dutch disease arise because such commodities benefit from Ricardian rents and/or from commodity booms, but they differ in their nature and consequences. The curse involves the demoralization of politicians and businessmen and the immobilization of the state; the Dutch disease blocks industrialization and condemns the country to eternally being an exporter of commodities.

The literature on the Dutch disease is scarce. Yet, in 2007, an interesting book was published: *Escaping the Resource Curse*, edited by Macartan Humphreys, Jeffrey D. Sachs and Joseph Stiglitz, with a foreword by George Soros.³ Its editors acknowledge that the natural resource curse and the Dutch disease are serious problems, but ultimately, they emphasize the political-institutional problem, the natural resource curse. This is possibly because the three distinguished economists were unsatisfied with the economic solution that they offered for the Dutch disease. In his chapter, Sachs (2007, 191) prescribes certain economic policies designed to overcome the problem. His essential recommendation is that “oil earnings are invested in ways that enhance productivity, and thereby raise rather than lower production in the non-oil traded good sector.” He also considers pegging the national currency to the dollar but notes that pegging requires substantial foreign exchange reserves. And he gets near the solution of the problem when he considers the possibility of subsidizing the production of manufactured goods that make a significant contribution to improving the technological sophistication of the economy, but he does not explore this possibility. As we will discuss in a moment, there is a better solution to the long-term structural problem of the Dutch disease.

In his foreword, Soros (2007, xi) remarks that both the curse and the disease involve three problems, namely currency appreciation (the disease), the wide fluctuation of commodity prices, and their effect on political conditions (the curse). And he asserts, “The first two are purely economic factors and have been studied extensively. It is the third factor that needs to be better understood.” He is right in distinguishing the three problems; he

is also right as to the difficulties posed by the natural resource curse, which is a cultural and institutional problem; but I believe that he underestimated economists' understanding of the Dutch disease, for which the three editors and the other authors of the book didn't offer a sensible or persuasive solution. If they knew what must be done, Soros would have espoused it vigorously because he is a pragmatic economist and financier. He rightly understands that the curse is a difficult problem, because the rent-seeking if not the sheer corruption, which affects many countries engaged in exporting commodities, is a problem that defies simple solution. He would, however, have realized that there is a difficult solution for the disease; difficult because it affects the distribution of income in the short-term, but is a simple solution in economic terms.

In this paper, I will show that there is a clear economic policy solution for the Dutch disease, which countries fail to adopt not only for political reasons, but also because policymakers are unaware of it. There is a direct political problem: the opposition of workers and of rentier capitalists and financiers to the one-time depreciation of the national currency that is required to achieve a competitive exchange rate. The policy solution, which I defined in my first paper on the Dutch disease (Bresser-Pereira 2008), remains essentially unknown. This paper is an attempt to call attention to the problem and develop more thoroughly the solution for it.

The pragmatic and intuitive methods of neutralizing the Dutch disease were deployed between the 1930s and the 1970s, when the World Bank was the leading international agency adopting development economics or classical developmentalism, and rich countries adopted Keynesian, social-democratic and developmental policies, which accepted high import tariffs when the infant industry argument applied. Yet, around 1980, the West experienced a "neoliberal shift." The UK and the US, followed by the other rich countries, adopted a radical economic liberalism, and the international agencies reduced the policy space for developing countries. Thus, the developing countries that accepted the foreign pressure and engaged in reforms, dismantled the pragmatic system that neutralized the disease, essentially import tariffs on manufactured goods, and, consequently, faced a highly competitive disadvantage and deindustrialization.

There is today a large literature on the "middle-income trap" that countries like Brazil have been facing since the 1990s. Indeed, many nations, including Brazil, have been caught in it. Since 1990, the Brazilian annual per capita income has been growing at one-fourth the rate of what had it had grown at between 1950 and 1980. But, contrary to what this literature has suggested, the main cause of such quasi-stagnation was not the lack of good institutions. The institutions didn't suddenly deteriorate. The new historical fact explains why developing countries have fallen into the trap was

created by dismantling the mechanism that neutralized the disease, which was embodied in Brazilian trade system. With the 1990 trade liberalization, the import tariffs and the export subsidies, which did not represent protectionism, but were aimed at leveling the playing field, were dismantled; since then the manufacturing industry in Brazil, both national and multinational, faces a major competitive disadvantage in relation to other countries.

The Dutch disease and the NDE framework

The Dutch disease is a long-term overvaluation of the currency resulting from exports of commodities which benefit from Ricardian rents or from commodity booms, and, therefore, can be profitably exported at an exchange rate substantially more appreciated than the rate at which manufacturing companies utilizing the best technology available in the world require to be competitive or profitable. The Ricardian rents are at the heart of the disease: I am assuming the price of the commodity is largely determined by the average cost of production in the least efficient producer country that is admitted to the market. Given this cost, which will not cause Dutch disease in the respective country, in the countries that have a lower cost of production than this one, the Dutch disease will manifest itself, and its severity will be bigger the smaller the cost, or the currency will correspondingly appreciate, because it is essentially the cost of production of the commodities that determines the exchange rate.⁴

The first person to grasp the dynamics of the Dutch disease was Marcelo Diamand in the early 1970s. This distinguished Argentinean economist realized that the overvaluation of the peso originated from the exports of wheat, soy beans and meat. In his day, the expression “Dutch disease” had not yet been coined, but he defined it in countries like Argentina, which faced it, as “unbalanced productive structures”—economies in which, following Dvoskin and Feldman (2015, 221), “... two or more sectors operate under considerably different levels of productivity... which cannot be eliminated by standard devaluations of the exchange rate.” In a 1972 paper, he offered an explanation of the problem. Taking South Korea, the US and Italy as reference points, he argued that:

In each of the countries, the exchange rate is precisely at a level necessary for the price of industrial products to be translated into dollars equal to the international price... In Argentina, the fact that the exchange rate is fixed on the basis of the most productive sector becomes the central determinant of the lack of industrial exports and starts the chain of events that culminates with the crisis and the Argentine stagnation. (Diamand 1972, 9–10)

In other words, the more the commodity sector in Argentina exported, the more it raised the value of the host currency to the point where

investments under consideration or potentially under consideration in the tradable non-commodity industries would not be profitable and would not come to fruition. Diamond, however, argued that the simple devaluation of the national currency would not solve the problem. He reasoned that first, the devaluation will cause inflation; second, it will have a short-term contractionary effect, as it reduced the acquisitive power or wages and other revenues; third, because it “will represent an unjustifiable transference of income to the agricultural sector” (p. 6) their supply will increase, and the international price of the commodity will fall. These are real problems, which make devaluation a bitter remedy. How can a devaluation be accomplished once and for all? Or, in other words, how can the Dutch disease be permanently neutralized? Diamond’s response to this question is not so satisfying as is his analysis of the problem. He essentially proposes a system of multiple exchange rates, which includes a partial compensation for the agricultural sector (which will have a more appreciated exchange rate): the provision of a system of “subsidies to the investments and the use of technological inputs.” On the other hand, the “cost of the import substitution” should be limited to a level “consistent to the productivity of the manufacturing industry” (p. 6). Or, in other words, the level of the import tariffs on manufactured goods should be kept limited, so that the business entrepreneurs know how far they can count on the government. Here, however, there is an unnecessary duplication of policies. If the country adopts a multiple exchange rate regime, its manufacturing industry does not need additional import tariffs. On the other hand, a multiple exchange rate regime is a complicated and intrinsically unstable regime. The policy that I defend because it is derived directly from the theory and is a very simple solution; it is the adoption of variable tax on the exports of the commodities.

The first economists to offer a model of the Dutch disease were Corden and Neary (1982). Our 2008 new-developmental model was the second one to define the disease in theoretical terms. The two models divided the economy into the same three sectors (a commodity exporting sector, a non-commodity tradable sector and a non-tradable sector) and agreed that the overvaluation applies to the tradable non-commodity sector. Meaning, in practical terms, that manufacturing is what suffers from the overvaluation and turns noncompetitive. Our descriptions diverge when the Corden and Neary model limits the disease to commodity booms, while the new-developmental model adds a more long-term factor: the differential or Ricardian rents, which, considering competition, will be higher or lower depending on the cost of production for the least efficient producer admitted in the market and the cost of production of the country whose Dutch disease is on scrutiny. The models also differ because the new-

developmental model uses two equilibrium exchange rates, and because it can derive the policy that will neutralize the disease directly from those two equilibrium rates. More generally, the two models differ because the 1982 model stems from neoclassical economics, while the 2008 model, from classical economics; the determination of the price in neoclassical theory depends only on the demand and supply of the good or service, while in classical theory it fluctuates according to the supply and the demand *around* its value or production cost.

Although the Dutch disease creates a major competitive disadvantage for any country exporting commodities and is a major hampering to industrialization in developing countries, it has received little attention from economists. Instead, they have been attracted to the political problem, the rent-seeking involved in the natural resource curse. This is indeed a serious problem in countries where the culture and the institutions aren't modern, i.e., aren't propitious to investment, technical progress and growth. But, differently from what happens with the Dutch disease, there is no simple solution for this problem, in so far as culture and institutions are endogenous to the process of economic development.

Determination of the exchange rate

In new-developmental economics, the Dutch disease is one factor determining the exchange rate. To understand the policies that will neutralize it, it is necessary to comprehend this determination. In determining the exchange rate, we must start from the value of the foreign money, around which the exchange rate floats according to the supply and demand of foreign money. This value is value that covers the cost of production of the goods and services exported that balance the country's current account. It varies according to the variation of the comparative unit labor cost of the country: if the unit labor cost of the country, i.e., the wages divided by the productivity of labor, increase more in one country than in its competitors, the value of the foreign currency goes up and pushes the exchange rate to depreciate the country's currency to keep the current account balanced.⁵

To define the Dutch disease, instead of focusing on the value of the foreign money, we need the "current equilibrium"—the exchange rate that balances intertemporally the current account of the country—and the "industrial equilibrium"—the exchange rate that the companies producing tradable goods and services utilizing the best technology available in the world require to be competitive. The current equilibrium is dependent on the value of the foreign money and on the international price of the exported commodities. The industrial equilibrium is basically dependent on the variations of the productivity and the wages of the manufacturing

companies (or, more precisely, the companies producing tradable non-commodity goods and services) utilizing up to date technology require to be competitive. The severity of the Dutch disease can be defined as the relative difference between the two equilibriums. Economics assumes that the industrial equilibrium should be equal to the current equilibrium but in many countries the Dutch disease makes that they are different. Defined in these terms, the Dutch disease is a major market failure, or, to look at it from a different angle, inflicts a major competitive *disadvantage*. It reduces the competitiveness of all companies producing non-commodity tradable goods and services, not only the *existing* but also the *potential* companies.

Thus, first, the exchange rate is determined by the value of the foreign currency, which, in turn, depends on the comparative unit labor cost of the country, and, second, the exchange rate depends on the supply and demand of foreign money, which makes the exchange rate float around the value. The next problem in the determination of the proper exchange rate, is to know how the supply and demand for foreign money works. Does the supply and demand make the exchange rate follow a certain pattern? Or is it heavily influenced by unpredictable capital flows, as many believe, given that capital flows have increased strongly in the last forty years. NDE opts for the first explanation. The capital flows depend mainly on the interest rate, which, in turn, tends to be set at a level high enough to attract capital and to serve as a nominal anchor against inflation. Thus, despite the magnitude of the capital flows, the exchange rate follows a pattern: it tends to move to a cyclical and long-term chronic overvaluation, which is depicted in [Figure 1](#) with the two equilibriums. Currency crises mark the end and the beginning of each cycle. When a country is hit by a financial crisis, the national currency devalues sharply, and often moves well above the industrial equilibrium. Once the crisis abates, the currency begins to appreciate again, crosses the industrial equilibrium and then the current equilibrium, enters the realm of current-account deficits, and eventually reaches a floor where it remains for several years. Given the overvalued currency, the current-account deficit increases dangerously, and the country's foreign debt

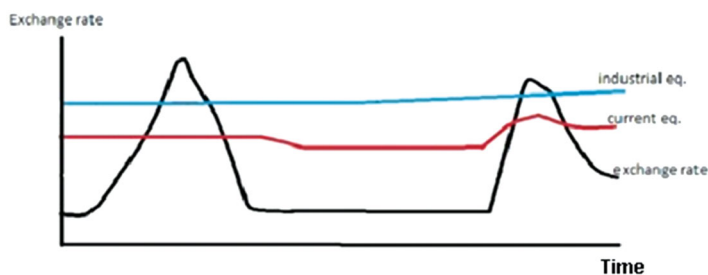


Figure 1. The exchange rate and the two equilibriums.

rises to a point where international creditors suddenly lose confidence and stop the roll-over of foreign debt, resulting in a new currency crisis.

In this cyclical process, two factors cause the appreciation after the financial crisis: the Dutch disease, which pulls the exchange rate up to the current equilibrium, and the interest rate set at a high level in relation to the international interest rate to attract foreign capitals and to make the exchange rate an anchor against inflation. As the financial crisis retreats, the currency gradually appreciates again, pulled up, first, by the Dutch disease, up to the current equilibrium, which is determined by the commodities. To continue to appreciate, cross the current equilibrium, and enter the domain of current-account deficits, the exchange rate must now be pulled up by high interest rates and the capital inflows that they cause.⁶ Why do developing countries often place high interest rates on their currencies? To implement two habitual and usually equivocated policies: (a) the policy of growth with current-account deficits and foreign indebtedness, i.e., with “foreign savings,” and (b) the use of the exchange rate as an anchor against inflation, and (c) for reasons of political economy: the power of rentiers and financiers to obtain high rates.

To summarize, the exchange rate is, first determined by the value of the foreign currency; second, it floats around this value, according to the supply and demand of foreign money, and follows a cyclical process. In this process, the exchange rate remains on a kind of bottom for several years, during which it cannot appreciate because below this level even the commodities will become noncompetitive, incurring losses. Since I am assuming a floating exchange rate regime, the exchange rate will remain in this level for some years because credit bubble materializes. This will happen because creditors are happy with the high interest rate, and the multinationals are happy with their sales and profits. Yet, sooner or later the creditors will lose confidence, and the bubble will burst. In this model, the capital flows have a role, but they follow the pattern just described. The exchange rate volatility has a direction and follows a pattern.⁷

In the determination of the exchange rate the decision to adopt the policy of growth with foreign savings is a decision to appreciate the national currency, to the extent that there is a simple correspondence between the current-account balance and the exchange rate, which is depicted in [Figure 2](#). The exchange rate that balances the current account is substantially more competitive than the exchange rate that creates a current-account deficit of, for instance, 3% of GDP. This is usually disregarded by economists, because the current-account balance is viewed as the dependent variable, and the variation in the exchange rate is regarded as the independent one. This is what usually happens: some exogenous factor appreciates or depreciates the currency and the current account changes

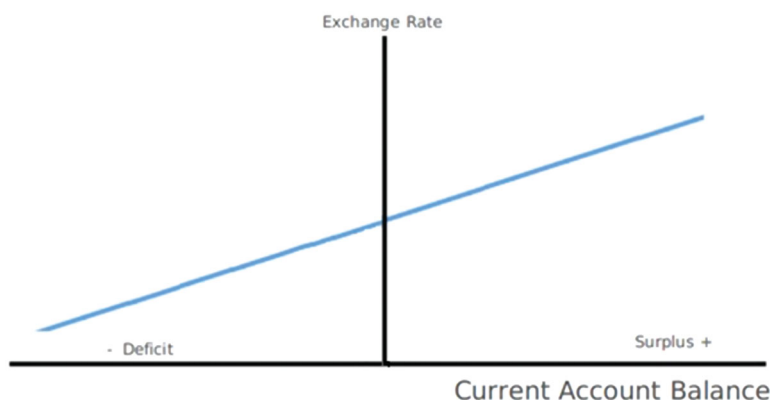


Figure 2. The current account and exchange rate.

accordingly. Yet, thinking in a longer-term framework, this is not the reality for developing countries. Their policymakers believe they should grow by borrowing foreign money, because the corresponding “foreign savings” (the current-account deficit) would add to the domestic savings, and the rate of investment would increase. Thus, their policymakers *decide* to incur current-account deficits, or maintain the deficit inherited from the previous government, having as an exclusive constraint that the interest rate paid must be equal to or smaller than the growth of GDP, thereby keeping the country’s foreign indebtedness rate constant. They don’t consider that this deficit will have to be permanently financed by *additional* capital inflows which will increase the supply of foreign money and will appreciate the national currency, thus rendering uncompetitive the companies in the tradable non-commodity sector of the economy. In other words, the decision to incur in current account deficits discourages investment in the manufacturing industry, while stimulates consumption. And, soon, the current-account deficit becomes “normal,” or “structural,” thereby causing the permanent overvaluation of the national currency.

Figures 1 and 2 illustrate the new-developmental model of what determines the exchange rate. Figure 1 shows the cyclical behavior of the exchange rate and the behavior of the current and industrial equilibriums. We have the two value equilibriums and the exchange rate. The industrial equilibrium and the current equilibrium vary over time: the industrial equilibrium fluctuates mainly because of changes in comparative unit labor costs, the current equilibrium mainly because of variations in the terms of trade. The exchange rate follows the tendency to a cyclical and chronic overvaluation of the currency. Figure 2 shows the linear, time-independent relation between the current account and the exchange rate, which turns into a determinant of the exchange rate once policymakers choose to pursue economic growth using net foreign indebtedness.

The recent Brazilian cycle, which lasted from 2002 until the financial crises of 2014, supports the theory, which was defined in 2008. In the third quarter of 2016, the industrial equilibrium increased from R\$3.80 to R\$4.00 per dollar because of the rise of Brazil's comparative unit labor costs; the current equilibrium fluctuated around R\$3.20 per dollar from 2007 to 2013, meaning that the Dutch disease inflated the currency by between R\$0.60 and R\$0.80 per dollar, while the exchange rate floated around the bottom line at R\$2.80 per dollar, causing an average current-account deficit of 3% of GDP. As a consequence, in this period the country experienced a new wave of deindustrialization because the profit rate of the manufacturing companies fell dramatically, and they became highly indebted. In 2014, a major fall in the country's international commodity prices announced the recession that was under way, triggered the inevitable decision by the manufacturing companies to stop investing, the now-tradable companies followed, and a major recession unfolded, which caused a fall in GDP of 7.1% in the 2014–2016 period.

Neutralizing the Dutch disease

Although only recently defined, the Dutch disease is a problem as old as capitalism and international trade. It is a major problem and once it is considered by economists and historians, it will change how economic history is understood. I, for instance, am persuaded that the main cause of the decline of Spain and Portugal from the sixteenth century was the Dutch disease that stemmed from the gold, silver, and sugar cane that these countries obtained from their colonies. Their currencies remained overvalued in the long-term, making industrialization and growth unviable from the seventeenth century, when the manufactures developed in France, England and the Netherlands and opened room for their industrial revolution. Another example is related to the import substitution industrialization. Given the Dutch disease, the respective high import tariffs were not necessarily protectionist; they were also a way of neutralizing the Dutch disease in the domestic market thus creating equal conditions of competition to the manufacturing industry. Third, industrialization was only possible in the US because, as we have seen, they maintained high import tariffs on manufactured goods till 1939. Does the recent surge in oil and gas output in the US caused by production of shale gas threaten to create the Dutch disease? Yes, but not much. First, given that the severity of the Dutch disease originated from oil and gas exports depends on the difference between its cost of production and its international price, the respective differential or Ricardian rents are relatively small. Second, because the production of shale gas represents a small fraction of its GDP.

The neutralization of the Dutch disease is also an old practice, although the disease been defined recently, in the 1982 paper by Corden and Neary referred above, while the correct way of neutralizing it still more recently, dating from the Bresser-Pereira's (2008) paper. Yet, this fact didn't stop pragmatic and competent policymakers from searching for ways to neutralize it long ago and, in many cases, achieving a positive outcome intuitively, as previously mentioned. In most cases, such intuitive neutralization was only achieved in relation to the domestic market of the country, not in relation to the foreign markets. The usual policy adopted was to impose a high import tariff on manufactured goods. A 20% tariff, for example, is equivalent to depreciating the currency by 20%. The tariff establishes a dual, if not a multiple, exchange rate regime. Some countries adopted directly dual or multiple exchange rate regimes instead of tariffs, but the management of such a system is very complex and difficult.

Liberal economists indicted all import tariffs as "protectionism," while developmental economists defended them in the manner of Alexander Hamilton, who first adopted the infant industry argument. In addition to this argument, the neutralization of the Dutch disease also justifies import tariffs, which, in this case, don't constitute protectionism; the import tariff merely levels the playing field. From this perspective, the import tariffs may be seen as a tool for neutralizing the Dutch disease on the domestic market side. And we have a new explanation for the import substitution model of industrialization. In so far that the import tariffs were checking the Dutch disease, they didn't represent protectionism. To industrialize, countries had no alternative but to impose the import tariffs.

In countries that adopted the import substitution strategy, growth rates fell once the domestic markets was saturated: they fell more quickly or more slowly depending on the size of the domestic market. The import tariffs on manufactured goods neutralized the disease only in the domestic market. If the neutralization of the disease was also done in relation to the foreign markets, this constraint to further growth would disappear. Brazil realized that when, in 1967, it completed its intuitive neutralization of the Dutch disease by adding to the import tariffs a program subsidizing exports of manufactured goods. The average import tariff at the time was very high: 45%. The export subsidy was equally set at 45%. The policy was highly successful. Exports of manufactured goods represented only 6% of total exports in 1965; by 1990, they had reached a peak of 62%. Yet, in that year, weakened by ten years of foreign debt crisis and high inflation, the country agreed to liberalize trade, believing that it was only eliminating protectionism. What it didn't realize was that in fact, it was dismantling the mechanism that had neutralized the Dutch disease. From then on, the

country has faced major competitive disadvantage, deindustrialization and low growth rates.

The recommended policy

The use of high import tariffs and export subsidies on manufactured goods or multiple exchange-rate regimes is not the best policy to neutralize the Dutch disease. The most effective form derives directly from the model. Given that the Dutch disease is the difference between the industrial and the current equilibrium, which, on its turn, is basically determined by the prices of the commodities the country exports,⁸ the imposition of a variable tax or retention on the exports will increase the cost incurred by the exporters, and the exchange rate will depreciate accordingly. If, at a given point, the industrial equilibrium is M\$4.00 and the current equilibrium is M\$3.20 per dollar, the tax would be M\$0.80 per dollar (M being the national currency). The tax—which is the difference between the industrial equilibrium and the current equilibrium—will vary according to the severity of the disease, which depends mainly on the variation in the commodities' international prices. That is, when the prices increase, the disease turns more severe and the tax required to cure the disease must also increase, and vice versa. The level of the tax should not be at the discretion of the finance minister, but should be set in law, which, for each relevant commodity, will have a table associating price intervals with the respective tax, with both values defined in real terms. The original construction of the table requires an estimation of the industrial and the current equilibrium. If the disease is not severe and the international price of the export commodity falls substantially, the tax may be set at zero. And we can even have a case in which the price falls so much that the tax turns into a temporary subsidy. Brazil's industrialization (1930–1980) was a result of the government adopting, over fifty years, several forms of multiple exchange rate regimes that neutralized the Dutch disease. They were a “disguised” export tax, which the coffee producers decried as “exchange rate confiscation.” In short periods when the international price of coffee fell a great deal and its exports turned “burdensome,” i.e., when the export price didn't cover the cost of production, the government was supposed to create a special fund to compensate the commodity exporters.

Why does the export tax neutralize the Dutch disease? Because it increases the cost of producing the commodity, and, as a consequence, always assuming a floating exchange rate, the current equilibrium will converge to the industrial equilibriums. Another way of explaining this is to consider a principle taught in basic microeconomics: when a tax is imposed on the sale of a good, the supply curve of the commodity shifts to the left;

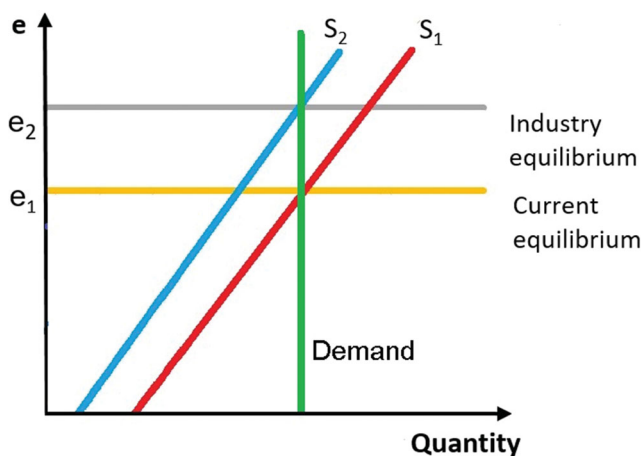


Figure 3. Neutralization of the Dutch disease by shifting the supply curve (S_2 to S_1).

given that the demand of the good is inelastic in relation to the country's exchange rate, the demand curve is vertical, and the current equilibrium will converge on the industrial equilibrium. Figure 3 shows the neutralization of the Dutch disease by means of a shift in the supply curve.

In our Brazilian example, an export retention or tax of R\$0.80 per dollar on the exports of the main commodities will neutralize the Dutch disease. In Argentina, in the major 2001 financial crisis, the government created a “retención” or tax on the export of commodities. It did so for fiscal reasons, not as a policy to neutralize the Dutch disease. Although it was a fixed tax, it did neutralize the disease, reindustrialization took place, and high growth rates were achieved, while the country experienced a current account surplus. Then, in 2007, inflation increased, and the government decided to use the exchange rate as an anchor against it, the current-account surplus evaporated, the peso appreciated, and the growth rate fell.

Note, however, that if the other basic cause of the long-term appreciation of the exchange rate is also not changed—if the interest rate is not reduced because the country insists in trying to grow with foreign indebtedness, or because the capital inflows used to attract capitals are used to control inflation—the exchange rate will turn somewhat more competitive but will still remain uncompetitive.

What should be done with the new tax revenue? The only workable use is the creation of a sovereign fund, like Norway's fund. Contrary to a commonly held belief, the fund will not neutralize the disease (this is done by the export tax on commodities), but it will prevent hard currency inflows from re-appreciating the national currency, and, so is a necessary complement. As it has been in Norway, the fund will be fed by the tax, and only the revenues from the fund will enter the country. Without the fund and this policy, the tax will not work.

Winners, losers, and hard choices

Who will gain and who will lose when the disease is neutralized? In the short run all will lose, because a devaluation is always contractionary, as it reduces the purchasing power of all. Second, the companies indebted in foreign money will suffer, but they are aware of the risk they are assuming, and they have at their disposal, in the financial system, hedging mechanisms whose cost they must consider when they decide to borrow. But in the long-term—the term which is fundamental when we deal with economic growth—the once and for all depreciation involved in the neutralization of the Dutch disease is a must.

The manufacturing industry will be the predicted and desired beneficiary; the better companies will turn competitive. The commodity exporters will pay the variable tax, but as this tax is equal to the disease, they will eventually spend nothing, because what they paid in taxes, they will get back in depreciation of the national currency. In the Brazilian case, they will pay R\$0.80 per dollar of commodities exported and receive R\$0.80 back per dollar of commodities exported in the form of currency depreciation. The commodity producers will pay nothing in net terms, their revenues in the domestic currency will be kept constant in real terms despite the change of the international price, but they will lose the Ricardian rents, which will be captured by the state while the international prices of the commodity do not fall enough to terminate the disease. In this process, the companies in the tradable non-commodity industries will benefit, because their profit rate will not be affected by the disease, and the state, which receives an additional revenue variable with the variation of the international price of the commodity and the correspondent variation in the export tax.

Who will pay? On one side, the wage workers and the salaried employees and managers on the other, the rentiers, because the acquisitive power of the wages and salaries, as well as the dividends, interests and real-state rent of rentier capitalists will lose purchasing power with the depreciation. The rentiers will pay more than the workers and employees with the depreciation, because besides the fact that their revenues will lose purchasing power, their wealth will also lose value (something that doesn't apply to the wage and salary earners), and because the depreciation requires reducing interest rates—something that they intensely oppose. This comparison explains why rentiers, the financiers who manage the wealth of rentiers, and the liberal economists who represent their interests, are not interested in discussing the exchange rate and the current account deficit; they are only interested in discussing the fiscal deficit. The same behavior on the part of the developmental economists who expect to represent the interests of workers is less understandable. It is true that they also lose in the short-term, but less than the rentiers, because making the national currency

competitive will mean more jobs for them almost immediately, and soon their wages will recover purchasing power.

Since the 1980s, economic populism has been defined as the state irresponsibly spending more than it gets in taxes and incurring chronic budget deficits. I call this “fiscal populism,” to be distinguished from “exchange rate populism,” where the nation-state is spending more than it gets and incurs in current-account deficits. Exchange rate populism, which keeps the currency appreciated beyond what is sustainable in the long-term is very attractive to politicians who want to be reelected. It increases the incomes of all (not only the wages of workers and the salaries of the middle class, but also the incomes of rentier capitalists in the form of interest, dividends and real-estate rents), and it makes everybody seem richer. In this context, the fact that the neutralization of the Dutch disease requires the opposite, a depreciation of the currency, makes this policy unattractive to both politicians and the people. This is one of the two reasons why it is difficult for countries to impose the required tax. The other reason is the natural resource curse.

Thus, there is a solution to the Dutch disease, a simple economic solution to a major economic problem. It involves short-term costs, and, for that reason, it faces political opposition. In contrast, there is no simple solution available to policymakers for the natural resource curse. The curse is a political and institutional problem with strong cultural roots. It tends to be overcome when the country industrializes, becomes capitalist, contractual, and democratic. We would like to believe that directly changing culture and institutions would be the cause of economic development rather than its consequence. But anyone who knows how societies work will understand that this causal inversion is very difficult.

In sum, we now know what causes the Dutch disease, and why it is a major obstacle to industrialization and growth. We also know what cures it, and the costs involved. A remaining crucial piece of work is to make economists realize that the proposed solution will work, that it has a cost, but its benefits are huge and in the short-term. Thus, if a president of prime minister adopts the proposed policies in the beginning of her administration, she will be able to be reelected, and the history of her country may make a turn.

Notes

1. This is something that simple historical research can probably demonstrate: prior to World War II, if the domestic market was substantially more important than foreign markets for the American manufacturing industry, this hypothesis about the neutralization of the Dutch disease in the U.S. will be confirmed.
2. There is a sizable literature on new developmentalism. I cite here Bresser-Pereira (2009, 2010, 2016, 2019), and Bresser-Pereira, Oreiro, and Marconi (2016). The last

reference is a more complete version of the same book originally published in English by Routledge in 2014.

3. In the same year another book on the theme was published, *Natural Resource: Neither Curse nor Destiny*, edited by Daniel Lederman and William F. Maloney. The editors claim in their introduction that there is no natural resource curse, nor is there any “so called” Dutch disease. For them “several plausible indicators of the incidence of natural resource exports seem to have a rather *positive* than negative effect on subsequent economic growth. Put bluntly, *there is no resource curse*” (Lederman and Maloney 2007, 3; emphasis in original). I will not lose my time with such an approach.
4. Producers in each country will vary in terms of their efficiency, but in terms of the Dutch disease it is the average national cost that is relevant.
5. Note that to understand the Balassa–Samuelson effect—the fact that the real exchange rate of a country varies according to variations of the productivity of tradable goods of this country in relation to the variation of the productivity of other countries—the concept of the value of the foreign currency exempts the use of purchasing power parity.
6. Interest rate “level” means the average real interest rate around which the central bank practices its monetary policy.
7. It is usual to hear that the exchange rate became irrelevant because of the volume and unpredictability of capital flows. I agree that this poses difficulties, but this obstacle is not sufficient for giving up on creating a theory of the exchange rate. Second, in this model, capital flows are considered in one of the three habitual policies: growth with current-account deficits to be financed by capital flows.
8. See Emmanuel Kohlscheen (2014).

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