

Can Differences in International Prices Measure Unequal Exchange in International Trade?

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This article discusses the limitations of using the deviations in international prices as a measure of unequal exchange. It argues that international prices are formed in a complex manner and lower international prices for low income countries cannot simply be considered as evidence for unequal exchange. The empirical validity of the measure is also questionable.

KEYWORDS Dependency Theory, Unequal Exchange, Purchasing Power Parity, Balassa and Samuelson Effect

Introduction

Dependency theory was developed by economists in Latin America in the 1950s in opposition to the prevailing view that underdeveloped countries could achieve economic development by following the examples of developed countries. The theory suggests that international trade leads to the exploitation of underdeveloped countries through unequal exchange which contributes to their underdevelopment. This contrasts the view that trade is a positive sum game where all participating countries gain from (free) trade. Although there are a number of strands of the theory, the basic principle of unequal exchange involves selling (buying) goods with a price that is below (above) their real value. In other words, unequal exchange occurs when prices deviate from their true values which could result from a number of factors. Prebisch and Singer thesis, for example, suggests that the relative prices of commodities exported by underdeveloped countries is lower and they tend to decline over time against the price of goods they import from advanced capitalist economies. This is largely because the demand for manufactured goods (typically produced by developed countries) grows much more rapidly than the demand for primary goods (typically produced by underdeveloped countries). According to Baran and Swezy (1966), industrial monopolies have the power to set the prices (and profits) above their normal levels in developed countries whereas prices are competitively determined in

underdeveloped countries. For Emmanuel (1972) it is the global capital mobility that equalizes the profit rates but average prices remain lower in underdeveloped countries because of lower wage rates. These theories, therefore, argue that underdeveloped countries must limit their trade with developed countries to avoid exploitation and start their industrialization.

Attempts to measure unequal exchange in international trade are not new (see Amin, 1976, Webber and Foot, 1984, Raffler, 1987) but there is a growing amount of research that focuses on 'undervaluation' of low income country currencies as a measure of unequal exchange (Yotopoulos, 1996, Havlik, 1996, Köhler, 1998a and 1998b, Köhler and Tausch, 2002, Somel, 2003 and 2006, Tausch, 2005). Köhler, (1998a) measured unequal exchange based on the deviations in price levels between countries and estimated the global transfer of resources between 22 OECD and 97 non-OECD developing countries. He argued that the sum of surplus transfers amounted to 8% of OECD GNP and to 24% of low and middle income countries' GNP in 1995. Somel (2003) used Köhler's method to measure the transfer of economic surplus from Turkey to the OECD countries through international trade and concluded that it accounted for roughly 10% of the total economic surplus and 7% of the net domestic product.

This study aims to assess the validity of Köhler's measure. It is argued that the theoretical premise of the measure is unpersuasive and its empirical validity is questionable. Although there is no doubt that the deviations in price levels between low income countries (LICs) and high income countries (HICs) is increasing, this does not necessarily imply exploitation through unequal exchange.¹ The well known Balassa and Samuelson effect (BSE), which has not been discussed by Köhler or Somel, for example, provides a plausible explanation of the deviation in price levels between LICs and HICs that does not involve exploitation. The structural changes in HICs that may have increased the relative price of non-tradables may offer another alternative explanation. This study argues that international prices are formed in a complex manner and lower international prices for LICs can not simply be considered as evidence for unequal exchange. It also tests the empirical validity of the measure and argues that the measure has no meaningful impact on economic performance. It is important to note at the outset that this article does not challenge the unequal exchange theory but simply highlights the problems of using deviations in international prices as a measure of unequal exchange.

Köhler's measure of unequal exchange

Köhler uses the 'exchange rate deviation index' (ERDI) which is calculated by dividing Purchasing Power Parity (PPP) rate by nominal exchange rate (ER). PPP indicates the amount of local currency needed to buy the same volume of goods and services that one dollar buys in the USA. Köhler used PPP as a rough proxy of the ratio between the average domestic prices of exports of a country to the dollar prices of their close substitutes in the USA. If a country's dollar exchange rate is three times its PPP, the country is supplying its goods and services at roughly one-third the price of their substitutes in the USA. This means that with its export earnings, the country can import only one-third of what it could import with export earnings at the fair

PPP rate. Therefore, '[t]he surplus is transferred abroad through unrequited real transfers resulting from market exchange rates that undervalue the exports of underdeveloped countries' (Somel 2003: 920).

Köhler's analysis, in essence, is similar to the analysis of international price levels. Figure 1 clearly shows that, when expressed in international currency (USD), the average prices are substantially higher in HICs than LICs in 2010. This implies that the currencies of LICs are undervalued and with the same amount of money one could buy more goods and services in LICs than HICs. For Köhler this is the source of exploitation through unequal exchange. His measure (PPP/ER ratio) is commonly discussed in many international economics textbooks as a measure of currency over/under valuation. What Köhler has noticed, however, is that, according to this measure, LICs systematically have undervalued real exchange rates. This is interesting because, as Köhler states, LICs have often been blamed by the World Bank and IMF to have overvalued real exchange rates. The issue, therefore, is whether ERDI is an accurate measure of unequal exchange.

Somel identifies two reasons for the 'undervalued' exchange rates in LICs: The first is unrelated to trade: a strong demand for reserve currencies (such as USD and Euro) generated by official reserve accumulation and capital outflows pulls the market value of LIC currencies below their purchasing power parities against the reserve currencies. The second is related to the monopolistic structures in high HICs that keep their export prices high whereas extreme competition among LIC exporters keeps their export prices low.

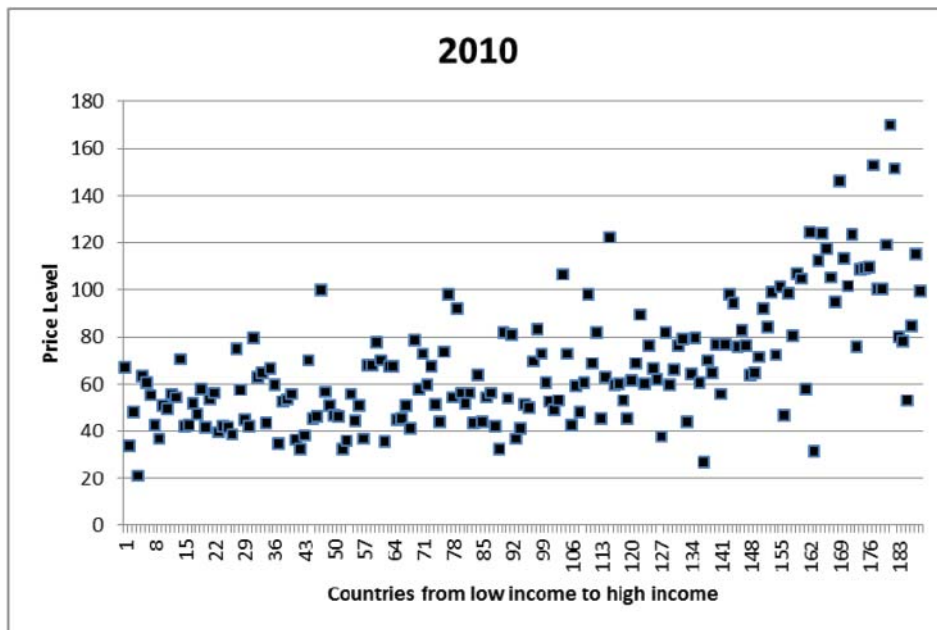


FIGURE 1 Average price levels of countries (2010).

Note: The USA price level is 100. The calculations involved 188 countries.

Data Source: Penn World Table.

Although these are potentially valid arguments which need to be supported by empirical evidence, Köhler and Somel disregarded a number of important alternative theoretical explanations of high prices in HICs. First, the well known Balassa and Samuelson effect (BSE) offers an explanation of the differences in international prices on the basis of productivity disparity between tradable and non-tradable goods and services. Second, increase in the relative price of non-tradables owing to quality improvements in HICs may be another alternative explanation. Third, a decline in transport cost in HICs can increase their average prices by causing an appreciation of their currencies. Finally, international capital movements, interest rate and trade policies may also play an important role.

Theoretical problems

There are reasons to doubt the validity of ERDI as a measure of unequal exchange. For example the BSE is a powerful and widely accepted theory to explain the price differences between LICs and HICs which directly challenges the arguments of Köhler and Somel. Although the BSE is not free from problems, it should have been taken seriously and considered carefully. The conventional BSE suggests that, if everything else is held constant, a country that experiences productivity increase in its exportables experiences exchange rate appreciation that increases the price of non-tradables as well as average prices in international currency (US Dollar). If we assume that HICs are relatively more productive in their exportables sector, this explains why HICs have relatively higher average prices than LICs.

Subasat (2010) argues, however, that although the BSE provides a reasonable explanation for the deviations in price levels between countries that export similar types of commodities, it is less compelling in terms of explaining the price differences between LICs and HICs, as these countries typically export dissimilar types of commodities. For example, two LICs with very similar economic structures may have very different average prices in international currency if one country experiences faster productivity increase in its exports than the other country. This does not imply, however, that the country with lower average price (with low exportable productivity) is exploited more than the one with higher average price.

Moreover, although the BSE focuses on faster productivity increase in exportables, an increase in domestic prices could also come from an increase in the domestic price of nontradables which may result from quality improvements such as lower student/teacher ratio in education or patient/doctor ratio in health. In addition, lower international prices for LICs may result from a decline in their terms of trade. As suggested by Somel (2003), one cannot rule out the possibility that the commercial policies of HICs which limits LICs' access to their markets in agricultural products may have an important impact on average prices in many LICs. The competition from heavily subsidized agricultural exports from the HICs may have reduced their average international prices, therefore their average prices.²

A number of alternative explanations of the higher prices in HICs can also be considered. If transport cost falls for HICs more than LICs, this would have similar impact to an increase in their exportable prices and would cause an appreciation of their currency (Aten, 1997). Capital movements and interest rate policies may also

play an important role. The increasing mobility of international capital may lead to a change in exchange rates and cause increase/decrease in international prices. Such capital movements, however, would not result in higher prices in HICs as HICs are net capital exporters. Trade policies might have influence on RER and prices. Harberger (2003) suggests that import restrictions would reduce demand for imports, cause an appreciation of the ER by reducing demand for foreign currency and push up average prices, whereas taxes on exports would reduce the supply of foreign currency, cause a depreciation of the ER and reduce prices. Lipsey and Swedenborg (1996) also confirm that there might be a positive correlation between protectionist policies and prices.

Although the terms of trade supports argument supports Köhler, it is clear that this is one of many alternative explanations of differing average prices amongst countries that we have investigated. Therefore, it may be interesting to look at the empirical validity of ERDI and this is tackled in the next section.

Empirical evidence

The ERDI exhibits the following empirical anomalies that weaken it as a meaningful measure of unequal exchange. Firstly, as Figure 2 shows, although there is a strong positive correlation between relative price level and per capita GDP between countries in 1990 and 2000, such a correlation did not exist in 1960 and 1980. Although increasing correlation between the variables through time may imply increasing unequal exchange, the lack of correlation before 1990 implies that LICs were not exploited

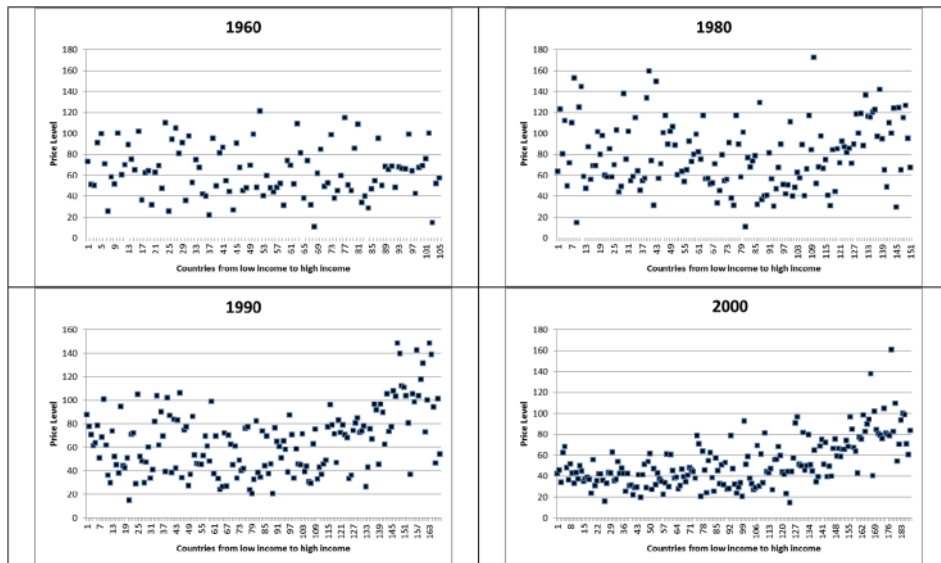


FIGURE 2 Average price levels of countries (1960–2010).
 Note: The USA price level is 100. The calculations involved 105 countries in 1960, 151 countries in 1980, 168 countries in 1990, 188 countries in 2010.
 Data Source: Penn World Table.

through unequal exchange during the years when unequal exchange theory and its predecessor, the Singer–Prebisch thesis, were particularly popular. Bergin, Glick and Taylor (2004) suggest that before the First World War the relationship between price level and per capita GDP was in fact negative which creates further problems not only for Köhler's measure but also for the validity of BSE.

Secondly, Köhler's calculations display surprisingly high exploitation rates for a number of countries. According to his calculations, the loss of surplus owing to 'exchange rate undervaluation' was 172% for Nigeria, 127% for Mauritius and 112% for Nicaragua in the 1990s.³ Simple calculations based on the above loss of surplus figures and the trade openness levels of these countries show that Mauritius must have sold its exports about 16.5% of its fair price in the 1990s. The same figures are 17% for Nicaragua and 21.1% for Nigeria. Although these figures are plausible in Köhler's theoretical framework, it is very difficult to explain why undervaluation for some LICs has been much greater than others.

Finally, the unequal exchange theory puts a very strong emphasis on external exploitation as a reason for underdevelopment. As mentioned earlier, Köhler's estimation of the surplus transfers amounted to 8% of OECD GNP and to 24% of low and middle income countries' GNP in 1995. If accurate, such a large transfer of resources is bound to have strong implications on investment and economic growth rates. If developing countries lose re-investable resources through unequal exchange, one would expect more heavily exploited countries to have lower investment and economic growth rates. Our empirical investigations⁴ offers no support for Köhler's argument since 'surplus transfers' have no meaningful impact on either investment or GDP growth rates. When a more sophisticated growth model, which includes a number of control variables, is employed, however, the results show that countries that 'lose more reinvestable resources' through 'surplus transfers' seem to be growing faster than the countries that lose less reinvestable resources or countries that gain reinvestable resources. Countries that are exploited more appear to grow faster which is inconsistent with Köhler's argument.

Conclusion

Somel (2003) notes that until recently, discussions on the transfer of economic surplus remained theoretical and argues that Köhler's method provides compelling empirical evidence. The anomalies of Köhler's measure of exploitation and the above theoretical discussions which suggest that the deviations in international prices may be caused by a number of complex factors mean that finding evidence for international exploitation by using international prices is not possible. The relatively lower average international prices in LICs can not simply be considered as a measure of unequal exchange.

Obviously, none of the above arguments invalidate the unequal exchange theory but simply highlight the problems of using deviations in international prices as a measure of unequal exchange. In fact, the above theoretical framework suggests that the benefits of productivity changes in HICs may be largely captured by HICs. Although it is beyond the purpose of this paper to explore this issue in depth, clearly, if the productivity increase in exportables for HICs exceeds LICs (a realistic assumption of the BSE), the terms of trade should improve for LICs. Therefore even a lack

of improvement of the terms of trade for LICs can be considered as evidence for unequal exchange.

More importantly, the above arguments imply neither that LICs benefit from free trade nor do they deny the importance of trade policy as part of a broader industrial policy to promote development. Free trade leads to specialization based on comparative advantage that may reduce the potential benefits of trade and may even harm LICs. Clearly, the international environment remains inhospitable for LICs. As Watkins (2001) puts it, 'the record of industrialized countries in the area of trade policy is one of heroic under-achievement. They have collectively reneged on every commitment made'. He argues that developing countries are losing around US\$100bn a year through unfair protectionist policies; tariff barriers in rich countries are four times higher for poor countries than for industrialized countries; Northern governments have increased agricultural subsidies, instead of cutting them; rich countries have failed to fulfil their commitment to phase out Multi-Fibre Agreement restrictions on textile and garments exports; the world's poorest countries face some of the highest tariff barriers on their exports; intellectual property and investment rules are being applied in a manner that undermines social and economic welfare in poor countries and further marginalizes them. Therefore, LICs need to move from low to high value-added commodities and, therefore, are in need of trade policies as part of broader industrial policies to achieve it.

Notes

- ¹ In this article 'high' and 'low' income countries refer to the ranking of countries in terms of their per capita GDP. This is different from the World Bank's classification of countries into low, middle and high income which involve categorizing countries into these separate groups.
- ² This does not imply unequal exchange, however, as subsidies are costly for HICs despite the fact that they benefit agricultural producers. Trade policies can harm countries without unequal exchange.
- ³ The same figure is 228% for Suriname but there must have been a calculation mistake for this country as exports appear to be higher than the GDP in Köhler's table A-1.
- ⁴ Detailed econometric results are available upon request from the author.

References

- Amin, S. 1976. *Unequal development*, (New York: Monthly Review Press).
- Aten, B. 1997. Does space matter? International comparison of the prices of tradables and nontradables, *International Regional Science Review*, 20 (1-2), pp. 35-52.
- Baran, P. A. and P. M. Sweezy 1966. *Monopoly Capital*, (New York: Monthly Review Press).
- Bergin, P. R., R. Glick and A. M. Taylor 2004. *Productivity, tradability, and the long-run price puzzle*, NBER WP 10569.
- Emmanuel, A. 1972. *Unequal Exchange: A Study of the Imperialism of Trade*, (London: NLB).
- Harberger, A. C. 2003. *Economic Growth and The Real Exchange Rate: Revisiting The Balassa-Samuelson Effect*, Paper Prepared for a Conference Organized By The Higher School of Economics, Moscow.
- Havlik, P. 1996. 'Exchange Rates, Competitiveness and Labour Costs in Central and Eastern Europe,' WIIW Research Report No. 231.
- Köhler, G. 1998a. 'The structure of global money and world tables of unequal exchange', *Journal of World-Systems Research*, 4 (2), p. 145:168.
- Köhler, G. 1998b. 'Unequal exchange 1965-1995: world trend and world tables', *World-Systems Archive*, Working Papers, online: <http://wsarch.ucr.edu/archive/papers/kohler/kohler3.htm>.

- Köhler, G. and A. Tausch 2002. *Global Keynesianism: unequal exchange and global exploitation*, (Huntington NY: Nova Science).
- Lipsey, R. E. and B. Swedenborg 1996. *Product price differences across countries*, Paper Prepared for the 28th General Conference of the International Association for Research in Income and Wealth, Cork, Ireland, August 22–28, 2004.
- Heston, A., R. Summers and B. Aten 2002. *Penn World Table, Version 6.1.*, Center for International Comparisons at the University of Pennsylvania (CICUP).
- Raffer, K. 1987. *Unequal exchange and the evolution of the world system*, (London: MacMillan Press).
- Somel, C. 2003. 'Estimating the surplus in the periphery: an application to Turkey', *Cambridge Journal of Economics*, 27 (6), pp. 919–933.
- Subasat, T. 2010. 'Can Balassa and Samuelson effect explain the international price disparity between low and high income countries?', *Economics Bulletin*, Vol. 30 no.3 pp. 2495–2504.
- Tausch, A. 2005. *Tectonic shifts in the structure of international inequality*. Centro Argentino de Estudios Internacionales, Working Paper N° 11, (Fecha de Publicación).
- Watkins, K. 2001. 'Eight broken promises: why the WTO isn't working for the world's poor', *Oxfam Briefing Paper* 9, (London: Oxfam International).
- Webber, M. J. and S. P. H. Foot 1984. 'The measurement of unequal exchange', *Environment and Planning*, 16 (7), pp. 927–947.
- World Bank 2012. *World Development Indicators*, CD-ROM, (Washington, D.C.: World Bank).
- Yotopoulos, P. A. 1996. *Exchange rate parity for trade and development: theory, tests, and case studies*, (Cambridge, England: Cambridge University Press).

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