кретных трансформационных процессов, которые пережили и продолжают переживать бывшие социалистические страны. Они, сверх того, в достаточной уже мере засвидетельствовали *фундаментальность* ошибки *отождествления второго и третьего мира*. Сама же идея «нормативности» транзитологических концепций не только для *тех* частей мира, на чьем эмпирическом материале они вырабатывались post factum, но и для других, в которых на момент оформления таких концепций данные явления абсолютно никак *еще и не проявлялись,* — вообще заслуживает места в какой-нибудь «хрестоматии по научной наивности»...

Единственный, как полагаем мы, перспективный для транзитологии путь — не механическое проецирование «западного взгляда» на незападные ареалы и реалии «сверху», а выстраивание теории «снизу», на основе историко-цивилизационного опыта и современной действительности тех частей мира, к которым пространственно и геокультурно принадлежат те или иные страны. Тем более актуальным представляется такой курс в ситуации нарастающей в современном мире *плюрализации* путей общественного развития, усиления *нелинейного* характера нынешних политических, экономических, социальных, национально-этнических, духовно-ментальных процессов и явлений.

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МЕТОДЫ СРАВНИТЕЛЬНОГО АНАЛИЗА В ТРАНЗИТИВНОЙ ЭКОНОМИКЕ

Dilemmas of applying exchange rates in international comparisons

Mieczyslaw Dobija[1]

An exchange rate results from the operation of a market, where free exchange of currencies takes place. Opportunities for a theoretical modelling of the phenomenon — that is, of a market valuation of one monetary unit in comparison with the other — did not in fact arise until 1970s, after the failure of Bretton Woods's contract. This was a milestone in the economic history, as it was then that market forces proved really forceful, as they broke through the chains of politicians' and other key money players' misconceptions and their erroneous belief that those market forces should be harnessed and money always controlled. It should be noted that these basic misconceptions were mastered particularly by those politicians and economists who preached and praised the free market. Since no later than 1973 exchange rates have been decided by the market, therefore conditions for serious scientific research arose.

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We might note that in order to understand currency exchange rates, a theory is required that would explain the nature of money, and which shall include, among its indispensable parts, the theory of monetary unit and the models of its valuation in the exchange for products and for other currencies, i.e. inflation theory and currency exchange theory. Such comprehensive knowledge is lacking, as the predominant money-centred theories do not deal with a money unit but they use a puzzling category of «amount of money» (or quantity) instead. In econometrics there exists, however, PPP (purchasing power parity) theory research based on time sequences of exchange rates. The unified theory of money and exchange rate has not been formulated yet as one can see from many papers (Galbraith, 1982), (Mundell, 2000), (Dobija, 2003a, 2003b), and others.

As stated by (Kasa, 1995), PPP is one of the oldest economic theories. The author traces it back to the philosopher D. Hume and the year 1752. We know, however, that it has been used in practice ever since commerce existed and currencies were exchanged. In operation, though, this simple theory comes upon considerable operational difficulties, as not all goods are subjected to market arbitration, and furthermore, price levels can be measured differently — therefore a very low efficiency of PPP in explaining the behaviour of exchange rates. K. Kasa (1995) ventures that PPP explains the trend of dollar—mark rate in 60 %, and yen—dollar rate in 20 %, which illustrates the efficiency of this theoretical tool. Statistical tests performed on the data pertaining to real values of currency rates collected over twenty plus years consistently reject the PPP hypothesis in this simplified formula (Lothian, 1998). Based on empirical data, it was noted that the above formula does not hold for any given pair of countries in any given period of time. The scientists still hope that the hypothesis shall not be rejected over a longer period of time and/or upon application of more sophisticated methods of statistical analysis.

In an attempt to explain the weaknesses of PPP Balassa and Samuelson focused their attention, in 1964, on the issue of productivity. According to the Balassa — Samuelson's theory (Beachill, Pugh, 1998) it is the higher productivity of labour in the sector of goods subjected to international exchange that is variable responsible for the behaviour of exchange rates. The explanation provided by those authors assumes (Rogoff, 1989) that the higher efficiency in the industrial goods sector in wealthier countries does not result in the decrease in prices but in the increase in the rate of return on the production factors applied. The capital, however, is mobile and subject to arbitration, therefore higher productivity is mostly the reason for the increase of wages in this sector. These further influences the increase of wages in other sectors and results in the increase of price level generally. According to K. Kasa (1995), if we take into account the Balassa — Samuelson effect, i.e. the difference in the level of productivity thus understood, the nearly 60 % trend of the yen-dollar rate and nearly 100 % in the case of mark-dollar rate can be explained. It should be noted, however, that empirical analyses of this kind are not the best way to buil-

ding a strong theory, as has been clarified by Z. Czerwinski (1993) in his analysis of the nature of econometrics research.

The results of research upon exchange rates may be presented and summarised as follows. Exchange trends are influenced by relationships (parities) of inflation and productivity. In spite of the lack of theoretical base to the research, as far as inflation and productivity are concerned, a hypothesis may be formulated, stating that the variable of the **real productivity of labour** is essential in explaining the nature of money and currency exchange rates. This is therefore the principal theoretical premise of this work.

In the present state of affairs, we lack theories to explain, how and to what currency exchange rates might be applied. In practice, exchange rates are used freely arbitrarily, in effecting comparisons of various sorts. The needs are of a serious calibre, from consolidated financial statements of international corporations, to GDP comparisons. However, multiplying the product price, the wages, or the GDP by the exchange rate often produces absurd results. Renown economists are aware of that, as they introduce, like (Kolodko, 2004), a new unit, or rather, calculation index called PPS (purchasing power standard), alas, the latter is not properly rooted in theory. And without an adequate theory base, this is just another arbitrary theoretical element, which further diminishes our trust in the reliability of comparisons.

It is indisputable that currency exchange rates are formed by the market and used for converting units of different currencies. On the other hand, it remains an open question whether currency exchange rates can be used to translate prices between goods expressed in different currencies. Economists were hoping so, and they expressed their hope in the law of one price, which, however, became one grave disappointment.

Dealing with comparability of product prices using exchange rates, is the principle called law of one price, which was proven erroneous and consistently false in relation to McDonald's products. Among economists, there are those who claim that the law of one price is correct, and it is the exchange rates that are wrong. This may be true in a situation when exchange rates are manipulated as a result of a certain policy, but otherwise, in any other situation, stating that is disrespectful of market mechanisms and there is no point in discussing this matter further. Table 1 includes data enabling identification of two engines, one produced in Poland, and the other in the United States. Their prices clearly show that the law of one price does not work, or the exchange rate would have to approximate one. This significant problem of assets' conversion when developing consolidated statements for capital groups was further discussed by (Jędrzejczyk, 2004).

Another example concerns wages. Here we shall apply capital theory in calculating minimum wages (Dobija, 2000). In order to illustrate the problem, let us take an elementary example of employees with no previous work experience or professional education. A model person to receive a mini-

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mum wage should be a young unskilled and inexperienced employee, who is just beginning his/her first job, right after he or she reaches the employable age. In the case of USA, this age would be no more than 17 (6 plus 10). Using the 8 % capitalisation rate being an economic constant[1] as demonstrated in the work of (Dobija, 2004a), we can compute equitable wages adequate to the value of human capital.

USA Poland

Monthly costs of living (5 persons family) $350 400 zl
Number of years in employment 17 years 17 years
Coefficient of future value (assuming the rate of 8 %) 33, 75 33, 75
Value of an employee's capital: H $141751 162 001 zł
Annual labour costs 0,08H $11340 12 960 zł
Monthly labour costs $945 1 080 zł
Labour costs per hour (176h) $5.36 6,13 zł

The required minimum wage in the USA remains at the level of $5, 25 per hour, which shows a very close fit between theory of human capital measurement and practice. We might note here that the current rate of approximately 3, 00 zł to 1 US$ does not find application in comparing wages. Instead the above calculations supported by theory of human capital shows the right method of doing international comparisons. Other comparison of wages is in body of table.

Estimation and comparison of salaries for Professors of age 40

Variables	Poland	USA	Ukraine[2]
1	2	3	4
Number of years of costs of living capitalization	25 lat	28 lat	23 lat
Monthly costs of living	500 zł	$430	450 UAH
Years of professional education Poland [mgr 5 lat + dr 5 lat + dr hab. 5 lat = = 15 lat) USA (bachelor 4 + mgr 2 + dr 4 = 10) Ukraine (bachelor 4 + mgr 1 + kand. 3 + dr 5)	15 lat	10 lat	13 lat
Monthly costs of education	350 zł	$850	200 UAH
Years of works	15 lat	16 lat	17 lat
Learning parameter	10 %	10 %	10 %

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[1] Dobija, Mieczyslaw, «Nature and the Size of the Risk Premium» (March 19, 2006). Cracow University of Economics, General Accounting Theory Working Paper No. 82/KR/1/2005/S/254 Available at SSRN: http://ssrn.com/abstract=892231.

[2] Ukrainian cost of living data were elaborated with help of academics Oleny Wojnaiowicz i Katarzyny Romanczuk (Житомирський державний технологічний університет) at date 2007-01-23.

1	2	3	4
Insurance from University	20 %	15 %	35 %
Future value coefficient	73,1059	95,3388	60, 89329
Capitalized costs of living (K)	438 635 zł	$491948	328 824 UAH
Capitalized costs of education (E)	114 039 zł	$147 763	51 589 UAH
Percent of experience Q(T)	35 %	35 %	32 %
H = K + E	552 674 zł	$639 711	380 413 UAH
H(T) = (K + E)(1 + Q(T))	746 110 zł	$863 610	502 145 UAH
Yearly costs of labor W = 0,08 · H(T)	59 689 zł	$69 089	40 172 UAH
Monthly costs of labor (:12)	4 974 zł	$5 757	3 348 UAH
Fair salary without insurance	**4 145 zł**	**$5 006**	**2 480 UAH**
Real average monthly salary	**4 250 zł**	**$5 300**	**1 044 UAH**
Shortage of salary	—	—	1 436 UAH

Examples concerning wages clearly show how inadequate exchange rates are in comparing remuneration. We often come across an opinion that for instance in Belarus; monthly wages are around 30 USD as it used to be in Poland, where many people then experienced a better standard of living than now. But those wage examples shed light upon one more issue. If costs of living were nominally equal in Poland and the USA, then the exchange rate would express merely differences in labour productivity.

This leads us to an understanding that the exchange rate (**ER**) may and should be expressed as a product result of two factors: the nominal **ERN** and the productivity **ERP**.

$$ER = ERN \cdot ERP$$

As it will be shown, the value of ERP proves to be of use in GDP comparisons that require the application of the exchange rate.

Similarly, they are applicable in the measurements and rankings of GDP, particularly in comparisons of GDP per capita. We may gather that the faulty application of exchange rates in the conversion of wages and prices gets carried over to GDP equations. A critical analysis of arbitrary GDP value setting was presented by Z. Hellwig (1997, chapter 4). A telling quotation from his work (p. 39) illustrates state of the art: *«...According to the data in Pc Globe, in respect to GDP per capita in 1991 Poland was ranked as ...120 which placed it among the poorest countries of the world. One year later, in 1992, it was already number 64, leaving behind two thirds of all worlds' countries».* Further in this paper we present a procedure of applying currency exchange rates to calculate per capita GDP.

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