Core-periphery: An Old Theory in New Times

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RESEARCH

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Abstract
The subject of this study was an attempt to discover whether and to what extent core-periphery theory can be used to describe international economic relations in the process of creating a global knowledge-based economy. To this aim the most important core-periphery theory theses were selected and tested empirically. The following results were obtained: (1) Over time the profitability of leading products falls and their production is transferred to the periphery – thesis supported. (2) This brings benefits not only to the investors but also to the societies of core nations; it counteracts a fall in living standards among groups affected by unemployment or real wage decreases and indirectly promotes political stability in core nations – thesis supported. (3) Capitalism in the core is of a financial nature – based on speculation – thesis supported. (4) Financial speculation in the core leads to political destabilisation of the periphery – thesis supported. (5) The greater participation of periphery nations in the international economic system, the greater losses they suffer – thesis unsupported. (6) the greater benefits to the core nations – thesis unsupported.

Keywords world factories; living standards in the core; world financial system; advantages from globalisation; new stratification of peripheries

The aim of the study is to investigate whether and to what extent core-periphery theory can be used to describe the international economic relations involved in creating a global knowledge-based economy. Six hypotheses are put forward for empirical verification. The 2008 crisis affected different countries at different times, disrupting the long-term picture of development trends. Thus, in order to get a clear picture of these long-term trends, it would seem advisable to use data from the pre-crisis period.

CORE-PERIPHERY THEORY

Core-periphery theory, also known as dependency theory, was conceived in the 1960s by sociologists and economists in Latin America during numerous attempts to explain the relative development lag of that continent.

Raul Prebisch conceived the theory in its classic form: Dependent development explains how the shape and functioning of periphery economies conform to the needs of core nations. According to Prebisch, the underdevelopment in South America is of a structural nature, and is perpetuated by international economic relations. Participation of South American countries in these relations means a leading role in the export sector, exporting raw materials and basic manufactured goods. The export sector of South American nations conforms to the decisions of the industrialised nations of Western Europe and the USA, which define the core. The periphery comprises Latin America and other so-called 'third world' nations of that time (the 1960s). The core attempts, successfully, to maintain a price structure that favours industrialised nations. If the periphery nations saturate their export sector with new technology, the benefits of improved efficiency are reaped by trade unions and other sectors in the core. The periphery's export sector is not the motor of economic development, as is the case in the core nations (based on Prebisch, 1959).

In this view, the appropriation of wealth by the core is not only the domain of capitalists trading with the periphery. Workers also benefit, and this reduces dissatisfaction and opposition to capitalism in core nations. In this way the periphery finances the social security and political stability of core nations.

International trade relations are polarised – one side is privileged and continues to dominate, the other is dominated and abused (Evers and Vogan, 1987: 339). The core decides on behalf of all nations, joining them in a uniform structure and submitting to a common law: the accumulation of wealth. The rule of the core is maintained and expanded thanks to international institutions such as ONZ, the World Bank, the EU, the WTO and so on, and also thanks to international law (Hardt and Negri, 2005: 23–30). Despite decolonisation, a significant part of the new wealth of core nations comes from the former colonies (Amin, 1974).

The underdevelopment of Latin American countries is a consequence of the historical development of capitalism in colonial countries and metropolises. This process produced a peculiar stratification, where the colonial capital and its export sector is subordinate to the metropolis, but at the same time acts as the national metropolis for the surrounding territory. In this way a chain of dominance is created from the core metropolises in Europe and the USA, right the way through to the furthest reaches of Latin America (Frank, 1987: 88–91). International trade is not the means of raising living standards, but a means used by industrialised nations and their multinational corporations to exploit periphery nations. For this reason South American nations should protect themselves from the global market by tariffs and trade barriers as well as by replacing the export sector with activity aimed at developing their own industry (Yergin and Stanislaw, 2002: 232–244). According to this theory, the underdevelopment of the periphery stems from the behaviour of the core nations. Within the existing system of economic relations, periphery countries will always be poor, unless they separate or exit from the system.

There is, however, another version of core-periphery theory. One author is Fernando Cardoso, sociologist and president of Brazil in the years 1995–2002. Cardoso shares the basic assumptions of the dependency theory, but does not advocate separation from the global economy. Instead he suggests mobilising internal factors of development in order to give economic development another chance. With this aim it is necessary to understand the relations between stakeholder groups in periphery nations. These groups are formed on the strength of economic sectors and their activities incorporate the economic and political spheres; political, in the sense that they strive to make the well-being of the economic sector the guideline for national policy (Cardoso and Faletto, 2008: 36–38). The ideal is industrial development controlled by the state, supported by stakeholders in development, but open to the world market (Cardoso and Faletto, 2008: 140 onwards).

Dependency theory gained a large following, particularly in the 1970s, in world social and political science fields. However, the terminology and argumentation referred to the Latin American colonial and neo-colonial experience. The concept of the core was understood as those countries with the highest levels of industrial development, while the development ideal was taken to be industrialisation. Yet in the 1980s, the core nations began to enter the post-industrial era. For this reason it was ever more difficult for advocates of dependency theory to respond to accusations that their diagnoses were inaccurate and that they were seeking a source of national success where there was none and would never be.

Further development of core-periphery theory has, up till now, run in two directions. And so, on one hand, the idea of placing dependent development and its analysis in the category of exploitation and force has been relinquished. The core-periphery theory is becoming increasingly universal in character and has started to be treated as a general law regulating and explaining the economic and political relations of all known civilisations (wholes composed of at least a few state organisms) including pre-modern. And so, for example, R. Szul claims: 'that world history, including the history of political relations, can be described as the history of the rise, flourishing, expansion and fall of civilisations, and as part of this – the formation of a core or cores, their growth and demise, their movements, rivalry and co-operation with others. Every civilisation can be termed as a core-periphery system' (Szul, 2010: 41). On the other hand, the second development path of core-periphery theory involves a continued search for an answer to the question: in what way do core nations use their political and economic domination to exploit and keep the periphery in a state of underdevelopment?

The updating and generalising of this second development path of core-periphery theory has been the work of Immanuel Wallerstein. Wallerstein expanded dependency theory to apply to the global eco-political system. This system is dominated by core-periphery relations and governed by a constant drive to accumulate capital (Wallerstein, 2004: 62–63). The capitalist system was initiated in the sixteenth century and attained global proportions in the mid-nineteenth century, when it spread to East Asia. Wallerstein shares the Marxist conviction of the fall of capitalism, not as the result of class wars, but from geopolitical processes. This will occur when the periphery joins the global economy and the costs of labour and raw materials rise, leading to economic decline and pro-socialist political change on a world scale (Wallerstein, 2007a).

Within the capitalist division of labour we can distinguish core and peripheral production processes. Peripheral production processes create peripheral products and core processes are the source of leading products. Leading products feature both newness and a significant share of world commodity markets. (In the eighteenth century core processes were textile manufacture and in the year

2000 – IT programming, pharmaceuticals and genetic engineering.) Apart from core and periphery nations Wallerstein distinguishes semi-periphery nations, 'which combine fairly equal proportions of each type of production (core and periphery), e.g. South Korea, Brazil' (Wallerstein, 2007b: 47–49). Core nations are also described as the centre.

Creation of leading products is concentrated in core nations, which, with the help of administrative tools (e.g. patenting, subsidies, tax allowances) enables firms to attain a quasi-monopoly status over importers in periphery and semi-periphery nations. By this means, producers of leading products are able to dictate favourable prices disproportionate to production costs. Thus they reap part of the profits that could be gained by importers in periphery nations. Periphery production processes are of a competitive nature and rivalry takes place among producers of non-leading products. Core – monopoly, periphery – competition. Competition among periphery producers means that producers' profits merely serve to cover costs, or at least are unlikely to increase (based on Wallerstein, 2007b: 44–47).

The life cycle of leading products lasts about 30 years and then those once leading trades gradually become peripheral, profitability falls and they are transferred to semi-periphery and periphery nations (Wallerstein, 2007b: 48) for example textiles and steel production. Moving production does not mean that the gap between rich and poor is reduced. The development of one country has always meant the relative weakening of others. In effect, the economic and social stratification constantly grows (Wallerstein, 2004: 72). The years 1967–1973 saw a new phase of development in the global capitalist system. This involved major capitalists (in the core nations) moving capital from production to the financial sphere. The Latin American classicists of dependency theory drew attention to the fact that international economic relations and the financial system reliant upon it serves the core nations in financing their own industrial development at the cost of periphery nations. Financial speculation is of greater significance in generating profits than production. The world financial system also serves to exploit the periphery, but does not create new economic forms. The global financial system is undergoing transformation, consisting in the fact that, until 1980s, financial speculation involved making loans to periphery nations and later indebting the US government (Wallerstein, 2004: 64, 80–81). Here we come to the weak point of the core-periphery theory. We will notice that when the US government provides credit, this indicates the exploitation of the borrower by the USA, but when the USA takes credit, it indicates the exploitation of the lender by the USA. This problem will be discussed at greater length in subsequent parts of this study. As with the Latin American proponents of dependency theory, Wallerstein places great emphasis on the political powers perpetuating and at the same time shaping world economic relations to meet their own needs.

The core-periphery theory was created to describe world industrial civilisations and the division into nations producing industrial goods and nations providing the raw materials for producing those goods. In present times a global economy is forming based on knowledge. By verifying these hypotheses we can judge whether and to what extent the core-periphery theory applies to these 'new times'.

HYPOTHESES

(1) Over time the profitability of leading products declines and their production is passed to the periphery. (2) This brings benefits, not only to the investors but also to core nation societies; it helps

counteract falling living standards in groups affected by unemployment or a decrease in real wages and indirectly contributes to political stability in core nations. (3) Capitalism at its core is of a financial nature – based on speculation. (4) Financial speculation in the core leads to the political destabilisation of the periphery. (5) The greater the involvement of periphery nations in the international economic system, the greater losses they suffer. (6) The greater direct benefits to core nations.

DEINDUSTRIALISATION AND 'WORLD FACTORIES'. PROCESSES AND PRODUCTS IN THE CORE AND THE PERIPHERY

In the course of further discussion, Hypothesis 1 will be subjected to verification: Over time the profitability of leading products declines and their production is passed to the periphery. The manufacturing industry is no longer a core production process. The share of industry in generating national income and in the employment structure begins to decline. In 1975–1991, the greatest relative drop in the share of industry in generating national income was witnessed in: France, from 36.1 per cent to 21.2 per cent; Great Britain, from 26.5 per cent to 21.4 per cent; Italy, from 27.7 per cent to 22.0 per cent; and the USA, from 21.9 per cent to 17.4 per cent (Klamut, 1996: 169). In 1970 in the G7 countries (the USA, Canada, Japan, France, Great Britain, Germany and Italy) industrial workers comprised 38.2 per cent of those employed, while in 2007 this figure was just 27.7 per cent. The greatest relative drop was witnessed in: the USA, from 34.4 per cent to 19.8 per cent; France, from 39 per cent to 22.6 per cent; and Great Britain, from 44.8 per cent to 22.2 per cent.

This was accompanied by structural changes involving the shrinking of traditional lines of industry and a sudden expansion of products in the field of computer electronics. Let us examine the course of these changes in the USA (Table 1).

The decline in traditional industries is clearly visible, especially when compared to the rise in computer production and other electronic goods – 169 times greater than in 1972. The metallurgy industry's growth peaked as early as 1972 and fell to its lowest point in 1982.

The phenomenon of deindustrialisation in one region of the world is accompanied by the phenomenon of less industrialised nations taking up peripheral production processes. The greatest success in this

Table 1: Production index of selected products and lines of production in the USA in the period 1972–2006; the year 2002 = 100

Inventory	1972	Highest index value and year of attaining it	2006: all industries = 111.1
Textiles	86.4	Year 1997 = 116.1	92.7
Clothing	191.4	Year 1978 = 201.1	80.7
Metal production	121.8	Year 1974 = 145.3 Year 1982 = 81.5	112.0
Fabricated metal products	69.6	Year 2000 = 111.2	108.9
Computers and similar electrical goods	1.1		169.1

Source: Based on US Census, Business Enterprise, 2008, Table 764.

area has been achieved by China. In 1989 China ranked eighth in world raw steel production – at 15 million tonnes. The leader at that time was the USA, producing 128 million tonnes. However, in 2006 the world leader in steel production was China, producing 422.7 million tonnes (over 20 times more than in 1969), while Japan came in second place with a production level four times lower, at 116.2 million tonnes. Meanwhile US production fell to 98.6 million tonnes (based on the Statistical Yearbook of the Polish Central Office of Statistics and Nation Master, 1992). Other peripheral products follow a similar pattern. In the period 1980–1989 shoe manufacture in China rose six-fold, from 157 to 1,104 million pairs, while in the USA if fell from 386 to 225 million pairs. The situation was comparable in other core nations, for example production in the Netherlands halved, from 12.1 to 5.7 million pairs (Statistical Yearbook, 1992: 354). Another typical peripheral product is clothing. In 2006 the world market was governed by China, with a 31 per cent share in global exports, compared to 8.9 per cent in 1990 (Cotton Association, 2006–2008).

Another example of industrial production being taken up on a large scale could be India. Taking the scale of production in the period 1993–1994 to be 100, in 2008 a dramatic rise in the production of peripheral industrial goods took place. The index for the production of transport vehicle parts and fittings reached a value of 443; metal production 326; textiles and clothing 284; wool, silk and textile fibres 284.1 (Government of India, 2008).

Apart from China and India, the abovementioned phenomenon of taking up peripheral production processes also affects other countries, mainly Asian such as Indonesia, Malaysia, Vietnam. In this way 'world factories' are formed – that is countries specialising in producing peripheral goods. This analysis supports Hypothesis 1.

THE GEOPOLITICAL CONSEQUENCES OF DEINDUSTRIALISATION AND REINDUSTRIALISATION PROCESSES

In this section we will deal with the second core-periphery thesis: Transferring production of declining industries to periphery nations brings benefits, not only to the investors but yet again to core nation societies; it helps counteract falling living standards in groups affected by unemployment or a decrease in real wages and indirectly contributes to political stability in core nations.

According to core-periphery theory transfer of capital from production to the financial sector involves 'exporting the workplace' outside the core. In the 1980s and 1990s in the USA, and to a lesser extent in Western Europe relatively high-paid jobs were cut in industry. New jobs were created mainly in services, but these usually require lower-level qualifications and are much more poorly paid. A large number of new jobs are part-time, temporary or seasonal. This applies especially to unskilled and semi-skilled workers and office workers. In the USA job cuts are accompanied by real pay cuts, with the exception of the top fifth earners. As a result middle class numbers fall (those with a middle income) and the gap in earnings between the rich and the rest of society widens (Thurow, 1999: 39 onwards, Luttwak, 2000: 102 onwards). In the period 1980–1997 hourly wages (in 1982 levels) for the private sector excluding agriculture fell from 7.78 to 7.66 USD (Thurow: 118).

In core nations this should have resulted in social unrest and political instability. However, this did not occur and the democratic system of core nations in the last 20–30 years has shown relative political stability. How can this phenomenon be explained? From research into globalisation and poverty in core nations, de-industrialisation and unemployment, it appears that a relatively effectively balanced social policy counteracted the growing numbers of people living below the breadline (Breadley *et al*, 2003). The second, and perhaps more important, factor of political stability appears to be the phenomenon of the price shaping of basic food articles. While the growth of most products and services doubled, the prices of basic items rose insignificantly, and some even fell. This was possible because the vast majority of these goods are produced in the 'world factories'. Thus there is no doubt that if these goods were produced in core nations it would not be possible to maintain their low prices, due to labour costs. In the USA, for example, in the period 1992–2006, labour costs in the non-agricultural sectors rose by 24.6 per cent. In the processing industry they in fact fell, but only by 1.5 per cent (US Census, Business Enterprise, 2008, Table 770) (Table 2).

In another large core nation, Germany, in the period 1991–2007, the inflation index was somewhat lower, but price shaping in furnishings, clothing and shoes reflect those in the USA and Great Britain (Consumer price index for Germany, 2008). Home furnishings, clothing, children's goods and home entertainment did not go up in price, and in fact remained stable in comparison with other goods.

We can assume that a large proportion of the working and middle classes covet luxury clothes and services. In terms of this group, a fall in real wages by no means lowers the ability to satisfy basic home needs (with the exception of food items). It is therefore possible that the ill effects of losing a job or receiving lower wages are felt much less keenly than we might suppose from a cursory glance at economic statistics. The conclusion is that the transfer of declining industries to 'world factories' counteracts a lowering of living standards and indirectly contributes to political stability in core nations.

'... the transfer of declining industries to "world factories" counteracts a lowering of living standards and indirectly contributes to political stability in core nations.'

THE WORLD FINANCIAL SYSTEM

We will now attempt to verify the thesis that: capitalism in the core is of a financial nature, based on speculation. The shape and functioning of the world financial system are as follows: the use of information-communication technology for making financial transactions, investment banking and modern financial engineering.

Information-communication technology had already appeared in the 1970s. But its dramatic growth began towards the end of the 1980s, when processors and telecommunication payments suddenly became cheaper. 'It became feasible – that is dirt cheap – to exchange data almost anywhere, anytime. The net, the grand net, began to precipitate out of this supersaturated solution. Network power followed' (Kelly, 2001: 23).

As CH Geisst, author of a book on the history of Wall Street, writes: 'thanks to the technological revolution at the end of the 1970s, the number of stock market transactions soared' (Geisst, 2008: 16). We must agree with E. Gostomski, who states that 'the force behind the structural changes to financial markets was the liberalisation and deregulation of these markets as well as progress in data processing and telecommunication technology' (Gostomski, 2008: 7).

Alongside these processes began the expansion of investment banking

Table 2: Price index of selected non-perishable goods in cities in the USA, August 2008 and in Great Britain at the end of 2007

USA; August 2008		Great Britain; end of 2007[c]
Average price of *general goods* 1982–84 = 100, prices in August 2008 = 218.		Retail price index of *general goods* in Great Britain in 1987 = 100; year 2007 = 206.6
IT hardware and services	10.0[a]	
PCs and *accessories*	92.9[a]	Electric home appliances – 73.2
Bedroom furnishings	124.8[b]	
Kitchen, living and dining room furnishings	90.7[b]	150.5
Kitchenware	72.5[b]	
Clocks and ornaments	69.7[b]	
Men and boys' clothing	110.2[b]	95.8
Women and girls' clothing	104.2[b]	67.0
Shoes	121.9[b]	110.0
Toys	66.4[b]	Girls' clothing – 88.8
Audio video equipment	102.6[b]	
Audio accessories	51.1[b]	
Other video equipment	19.9[b]	

Sources: [a]Consumer Price Index, 2008, Table 2.
[b]Consumer Price Index, 2008, Table 3.
[c]Focus on Consumer Price Indices, 2008, Table 4.

epitomised by investment banks and investment funds. (In further discussion these terms will be used interchangeably.) Banks and investment funds have existed for a long time, but in the 1980s and 1990s the quality of their environment changed in connection with adapting to ICT innovations in the financial sector. The internet allowed non-stop global stock market operations. This was followed by an unprecedented growth in the number of investment banks while traditional credit banks and every other type of financial institution started setting up their own investment funds.

The expansion of investment banking began in the USA with very modest (for the USA) sums of money. In 1993 private investment funds handled 'just' 22 billion USD (Craig, 2002). However, 6 years later this figure had risen five-fold – to 108.1 billion USD (Craig, 2002). Even more impressive was the expansion of American venture capital funds: from 3.9 billion in 1993, they grew in 6 years nearly 12 times, to 46.6 billion USD (Craig, 2002). The unusually rapid development of investment banking in the 1990s has continued at a similar pace in the twenty-first century.

In 2007, global investment banking attained incomes equal to 8.43 trillion (thousand billion) USD, over two times greater than in 2003. In the years 2006/2007 alone incomes rose by 21 per cent. As in other knowledge-based sectors, world investment banking was dominated by the USA, accounting for 53 per cent of its capital. The input of Europe, Africa and the Near East accounted for 32 per cent, and Asia 15 per cent (IFSL Research, 2008: 7).

The time came for innovation in risk management and ever more refined financial engineering. In the meantime the development of risk management methodology led to further innovations in the form of derivatives. Generally speaking these consist in creating, through a complex calculation process, new securities based on those already owned. These new securities can be converted to money, but because only the first security is a substitute for real money owned, the second and remaining securities are therefore not substitutable.

The ingenuity of financial engineering is that it spreads the risk over many entities participating in the financial system. Another beneficial circumstance related to its development is the generation of investment capital through adding and combining real money and derivatives. As a result investment funds increased the size of investment capital and made it available in much greater amounts than a traditional credit bank would be capable of doing.

The global derivatives market developed along with internet technology. By the time of the crash in 2008, it had reached gargantuan size, already alerting the anxiety of analysts. At the beginning of the 1990s, Schuman estimated that only 2–3 per cent of global financial transactions directly served the needs of trade and industry (Martin Schuman, 1999: 66). This estimation did not take account of the input of services in creating real money, and thus its dramatic overtones. Several years later, Graj wrote that in 2007 the derivatives market had grown to 36 times American GDP and that the 'the value of real money amounts to 2–3 per cent of the value of derivative contracts'(Graj, 2008: 31).

Let us now take a closer look at how the value of the derivatives market relates to real economic processes. In the period 2004–2007 the world derivatives market grew by 130 per cent and reached a value of around *600 trillion (600 thousand billion) USD* (Kolany, 2008). According to the estimates of one major international bank, the value of the world derivatives market in 2007 reached 596 trillion (596 thousand billion) USD (Bank for International Settlements 2008, Table 1). Let us assume that the index of real

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economic processes (real money) is the value of GDP. In 2007 world GDP amounted to a little over 54 trillion (54 thousand billion) USD (United Nations, 2008) (Table 3).

Irrespective of any reservations regarding the accuracy of these measures and diagnoses, one conclusion is irrefutable: the disparity between the value of real economic processes and the value of financial engineering products has reached a level that justifies use of the term financial capitalism.The thesis that capitalism in the core is of a financial nature, based on speculation, has received sufficient empirical support.

THE GEOPOLITICAL CONSEQUENCES OF FINANCIAL MARKET ACTIVITY

In the course of further analysis we will test the thesis that states that: the world financial market serves to exploit the periphery and that financial speculation in the core leads to the political destabilisation of the periphery. The above-mentioned growth in investment funds and the derivatives market has caused stock markets to become too small. Around 2002, trade markets began to be overtaken by investment banking. Commodity markets, previously dominated by producers and consumers of raw materials, witnessed a

Table 3: Global derivatives market (before the 2008 crisis), world GDP and respective growth rates in the period 1995–2007

Global derivatives market (before the 2008 crisis)		
Average annual growth rate 1995–2004	Average annual growth rate 2004–2007	Value of world derivatives market measured by contract values, December 2007
20%[a]	33%[a]	*596.004 trillion USD*[b]
	Global GDP	
Annual growth rate 1993-2004 = 2.9%	Annual growth rate 2005–2007	Value of world GDP in 2007 ***54.635*** *trillion USD*[c] *9.2% of the value of derivatives*
	Global wealth	
The value of global wealth in 2007 is estimated on the assumption that the ratio of world GDP and global wealth is the same as in 2000 (calculated by researchers from UN University) – 1:3		*27–28% of the value of derivatives*[d]

Sources: [a]Bank for International Settlements, 2007: 1.
[b]Bank for International Settlements, 2008, Table 1.
[c]United Nations 2008.
[d]Own calculations based on: Davies *et al*, 2006: 2 and United Nations 2008.

large influx of new traders, interested not in the goods, but in their price dynamics. Prices began to depart from production size and real demand.

In mid-2008, food prices on the world market were 83 per cent higher than 3 years earlier (Kruger and Raupp, 2008). Soya, which in 2006 cost 200 USD per tonne, at the beginning of 2008 cost 462 USD; in the same period the price of maize went up from 100 to 200 USD per tonne. Meanwhile wheat, which cost 100 USD at the end of 2006, cost as much as 386 USD at the beginning of 2008 (Kiedy głodni [*When hungry]* – 2008). It is worth noting that wheat is not generally used for biofuel – the main raw materials are maize, soya, rapeseed and other oil-bearing plants. Therefore the growth in demand for biofuel, stimulated by the rise in crude oil prices, does not affect the price of wheat. It is estimated that in the period 2006–2007, world wheat resources fell by 1 per cent, while consumption fell by 3 per cent. (World Grain, 2006–2007). If wheat prices simply reflected the play of supply and demand, these small reductions could lead at most to a 10–15 per cent increase in prices. Yet wheat prices rose from just under 200 dollars in 2006 to 386 dollars at the beginning of 2008 (Kiedy Głodny [*When hungry],* 2008). There is no doubt that this resulted from price speculation.

USA government information indicates that in January 2007, it was possible to buy a barrel of Brent oil in the USA for 48 USD. Prices on the world market were similar (Ceny ropy USA 2004–2008 [*USA oil* prices *2004–2008*]). In the last week of July 2008, the average price of oil in the USA reached 134.44 USD before it began to fall (Ceny ropy USA 2004–2008 [*USA oil* prices *2004–2008*]). This is another instance where growth is, to a significant degree, speculative in nature. One

American government agency is responsible for, among others, calculating the demand for oil. These calculations show that between the first quarter of 2007 and the first quarter of 2008 in China, the demand for oil grew insignificantly, while in the USA it fell significantly, from 20.79 to 19.88 million barrels a day. World demand, measured in the same way, showed negligible change – from 85.78 to 85.85 (World Petroleum [oil] demand, 2004–2008) Supply could have fallen, but did not. Oil supply on the USA market in the period of the highest price rises, from January 2007 to July 2008, measured by the USA government agency, even increased somewhat, from 19.562 to 20.320 (USA petroleum supply, 2004–2008). Supply and demand remained unchanged, but the price rose over 2.5 times, without a doubt mainly due to speculation.

The speculation fever in food prices resulted in a dramatic deterioration in living conditions in various parts of the world. In the space of a few weeks, the cost of a bag of wheat in Mauretania doubled. Yet in Great Britain food prices in 2007 only rose by 6.6 per cent, similar to other European countries (Kiedy głodny 2008 [*When Hungry 2008*]). This disproportionate growth in prices is of course a consequence of the EU common agricultural policy, which protects European countries from world markets and what happens there.

At the beginning of 2008 in seven countries (Haiti, Mauretania, Egypt, Mozambique, Senegal, Burkina Faso, Cameroon) the situation set off hunger riots, leading to the deaths of 100 people in Cameroon in March (Kruger and Raupp, 2008). The food situation also worsened in Afghanistan and Pakistan, where the army was deployed to protect food convoys. In North Africa governments began to receive criticism for failing to provide the people with food, and this went hand in hand with the growing activity and popularity of Islamic fundamentalists (Kruger and Raupp, 2008). There was anticipation of growing pressure from fundamentalists in Europe, with a new wave of terrorist attacks. Signs of a worsening political situation due to the food crisis were also noted in Indonesia – the largest Islamic nation, as well as cities in Latin America. According to USAID representatives in April 2008, the combination of high energy and food costs could lead to a 'food storm' in many countries. In consequence we can expect migration from rural areas to large cities and a further increase in the numbers of urban dwellers 'suffering extreme hunger' (McConnell, 2008).

What proof is there that investment funds were the main perpetrators of the above-mentioned price fluctuations? The financial crisis in 2008 considerably weakened investment funds. They suffered losses on the stock market, which in turn prompted shareholders to withdraw their investments. With declining resources, the potential of investment funds to manipulate prices on commodity markets was also reduced. For this reason, on 8 October 2008, the price of Brent oil fell to the level of the previous year, at 86.1 USD a barrel (Interia.pl, 2008), and in November 2008 it was possible to buy a barrel of oil for less than 50 USD (Onet.pl Biznes, 2008). The situation was similar on other commodity markets. In the second half of 2008, the situation on the food market in terms of supply was the same as in 2007, but the price of wheat began to plummet. Where the price of wheat at the beginning of 2008 stood at 386 USD, in September it had fallen to 188 USD a tonne (Kiedy głodni [*When hungry*], 2008).This is convincing proof that price increases were to a significant degree speculative in nature. Speculative, meaning, unrelated to the real relation of supply and demand. The thesis that the world financial market causes the political destabilisation of the periphery is upheld.

DIRECT BENEFITS AND LOSSES FROM PARTICIPATION IN INTERNATIONAL ECONOMIC RELATIONS

In the next parts of our analysis we will test two theses: The greater the level of participation of periphery nations in the international economic system, the greater losses it suffers and (the second thesis) the greater the direct benefits gained by core nations. Let us suppose that two players equally covet the same commodity. Possessing it would benefit them. This being so, the greater benefit will be gained by the one that obtains more of the given commodity in a given time than the other. There is no doubt that growth in GDP is a commodity universally coveted by governments and citizens. Now let us look at the level of participation in the world economic system. We will take into account the 'world factory' nations, which quite clearly moved from a minimal level of participation in the world economic system to a much greater level at the turn of the 1970s – 1980s. The Chinese People's Republic joined the world economic system followed somewhat later by Vietnam. India began to pull away from protectionism in the 1980s. To compare, information is given about nations with minimal or no relation to the world market economy. We will base the comparison on the years before the 2008 crisis, which reduced economic growth in core nations Table 4.

Table 4: Average annual growth in GDP in selected core nations and in 'world factory' nations in the years 1971–1977 and 1982–2007 in per cent

	1971–1977	1982–2007
China	5.9	10.1
Vietnam	4.4	6.9
India	3.6	6.1
USA	3.7	3.1
Western Europe	3.2	2.1
Cuba	5.9	2.0
North Korea	8.6	0.2

Source: Based on United Nations, 2008.

Before India, China and Vietnam entered world economic relations, their rate of growth was lower. In core countries at the same time the opposite trend occurred. The three periphery nations that joined the global market gained in 1982–2007 relatively greater benefits than core nations. Periphery nations that remained outside world markets suffered losses. The losses of periphery nations are not a necessary condition of core nation benefits. It is possible for benefits to be gained on both sides. Generally speaking we can say that: joining the global market benefits periphery nations more than remaining outside.

Now let us return to the previously mentioned USA debt in China, sometimes referred to as China's financing of the USA. This debt stems largely from the fact that the USA buys more (in 2007–232.7 billion USD) than it sells (in 2007–69.38 billion USD) in China (Michalak, 2008). In November 2011, China owned 8 per cent of the USA's total foreign debt (US Government Info, 2012). For the authors of dependency theory, the neo-colonial exploitation of the periphery by the core consists in the periphery being a market for the developing industry of the core. Another symptom of periphery nations was a trade deficit. This being so, then relations between the USA and China are of a neo-colonial nature, which disadvantages the USA. This is, however, an absurd conclusion, even if logical. It shows the internal contradiction of the core-periphery theory in those aspects evaluating economic relations between the core and the periphery. There is no doubt that the expansion of the Chinese economy was initiated by the direct foreign investment of core nations. A leading role was and continues to be played by the USA, which remains the largest investor in China (in terms of direct investment) at a level of 56.58 billion USD (Michalak, 2008). As we can see, the input of the USA in China's GDP growth is clearly greater than the input of China in the GDP growth of the USA. Benefits are gained not only by the Chinese state, but also its citizens. In 2007 alone, real wages rose in China by 8 per cent (*Gazeta Praca*, 2008). By comparison, in the USA in the period 1990–2006 real wages rose by 21 per cent, that is less than 2 per cent annually. Conclusion: both tested theses must be rejected.

ADAPTING THE CORE-PERIPHERY THEORY TO THE GLOBAL KNOWLEDGE-BASED ECONOMY

Core-periphery theory overestimates the strength of domination of the core over the periphery and underestimates the importance of market mechanisms in international relations as well as the benefits of the international division of labour. However, the claim that core nations are prone to identify their own interests with universal economic laws has a solid foundation. Domination does not mean lack of autonomy for the dominated party. The essence of the core's domination is that it produces new, innovative goods of mass demand. The core is more innovative than the periphery. The more the periphery covets the core's products, which they themselves are unable to produce, the greater the core's domination and ability to dictate prices. International relations are based on the play of market forces, in which core nations have a stronger position, while the periphery nations are able to choose and seek out their own development opportunities. It is not the case that all the periphery's woes are the consequence of the core's plotting against them.

A new world division of labour is emerging, into nations with a knowledge-based economy and nations taking on the industrial production, which has become uneconomic for core nations. Using core-periphery theory terminology, we can say that the industrial processes and produce have become periphery processes and produce. What distinguishes core nations is the relatively high saturation of their markets with products and processes, which are knowledge-intensive (e.g. the USA, Scandinavia, Australia and Japan).

The division into the knowledge-intensive world economic core and world factories overlays the traditional division of raw-materials producer and producer of manufactured goods. In effect the periphery has stratified into raw-materials nations and industrial periphery nations. The industrial periphery nations, for example China, are in the same position in relation to raw-materials nations as industrial nations once were in relation to their colonies and post-colonies.

China is currently a major player in the African economy and political scene, enjoying a position of some authority and popularity. Good proof of this could be the Chinese-African summit in Peking, which was attended by 48 African nations, with only five not present. On the African scene China has an advantage over the West, since it does not demand from its borrower's reforms, financial transparency, protection of human rights etc. In the period 1996–2005 China's share in trade with Africa rose from 0.8 per cent to 9 per cent. In the nearest future China will become the biggest trade partner on the continent. 77.6 per cent of African exports to China are natural resources (Rządkowska, 2008, p. 31). China's need for raw materials, especially crude oil, will grow and this may induce China to adopt some sort of neo-colonial policy regarding Africa, aimed at gaining an exclusive zone of influence and political control of raw material sources.

The emergence of a new economy and continued demand for manufactured goods has led to the formation of three production functions in the world division of labour: raw materials production; industrial production; and the processing of knowledge into products and services. These functions create a hierarchy of states in terms of creating value added and productivity. New international terms of trade also mean a new inequality: the raw materials nations (also called the world's villages) are in the least favourable position, their trade terms leaving them worse off than the world factory nations and core nations. Industrial periphery nations have favourable terms of trade in relation to raw materials nations, but unfavourable in relation to core nations. It follows that core nations enjoy a favourable position in relation to both industrial periphery and raw materials nations.

The core differs from the periphery with its relatively harmonised development. The relatively high level of development of the new economy is accompanied by a high use of information-communication technology in industrial production as well as in the service sector. As a result these sectors show a similarly high level of productivity. The periphery is characterised by unbalanced, often chaotic 'island' development. Only a minority of workers are employed in the relatively high-profit export sector. Islands of wealth are surrounded by oceans of economic stagnation and poverty.

'Szul claims that currently we are dealing with world decomposition involving the divergence of economic and political powers … this political power has a rather fragile and leaky economic base'.

For the time being the USA holds the primacy in the development of a new economy and this will probably continue for the next several years. This does not, however, guarantee its political hegemony. As Kennedy pointed out, there is a strong link between political power and the share in the world economy (Kennedy, 1994), which in the case of the USA stands at one-fifth. The expanding political role of China and India shows that a strong political position can be built on peripheral products, which are produced on a large scale. Szul comes to a similar conclusion, claiming that currently we are dealing with world decomposition involving the divergence of economic and political powers, partly because periphery nations such as China and India are gaining political strength (Szul, 2010, p. 43). However, this political power has a rather fragile and leaky economic base.

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