The Effects of Multinational Corporation (MNC) Penetration on the Global Political Economy. A Re-analysis of a Recurrent Sociological Proposition with Contemporary Data

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The Effects of Multinational Corporation (MNC) Penetration on the Global Political Economy. A Re-analysis of a Recurrent Sociological Proposition with Contemporary Data. In this essay we reconsider the effects of direct foreign investments on the host countries around the globe. A number of sociological analyses (Bandelji 2009; Mahutga – Bandelji 2008), already applied such a question to Central and Eastern Europe (CEE). Is the growing penetration of host countries of multinational investment heralding the promised gains of stable economic growth and social cohesion, or is social polarization around the corner instead? In our re-analysis with contemporary data of one of the most influential essays ever published in international sociology (Bornschier – Chase-Dunn – Rubinson 1978), which predicted that direct foreign investment would increase economic inequality and that it would have a short-term dynamic, but a long-term stagnation effect on the economic growth of the host countries (Bornschier – Chase-Dunn – Rubinson 1978: 651), we re-confirm the main thrust of the sceptical hypotheses on multinational corporation (MNC) penetration. We also show that on the global level and in the 183 countries analysed there is indeed a very strong connection between foreign capital penetration in the mid-1990s on the one hand and rising inequality, deficient life expectancy, rising unemployment, and a deficient under five mortality rate in the first decade of the new Millennium on the other. Economic growth in the contemporary period (2010) is also being determined negatively by the long-term effects of multinational corporation penetration in the mid-1990s, while in the period between 1990 and 2005 the effect was positive. We thus confirm that the approach, established by Bandelji 2009 and Mahutga and Bandelji 2008, is a valid one, and can be generalized on a global level.
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1. Introduction

At the time of the most profound world economic crisis since the Great Depression, it might be appropriate to reconsider the effects of direct foreign investments on the host countries around the globe. From an East Central European perspective, this question cannot be more relevant. Addressing it in one of the sociological journals of the region is an important task. After the end of the Communist regimes in 1989 and the transformation of countries in the region to what standard global political discourse nowadays perceives as full-fledged Western democracies and market economies, and the joining of all of the region′s countries as full members in the Western military alliance NATO and the European Union, multinational corporation (MNC) investment poured into the region at an unprecedented speed, motivating a number of sociological analyses, like Bandelji 2009 and Mahutga and Bandelji 2008, even to speak about the *'natural experiment of Central and Eastern Europe (CEE)'* on the real (negative) societal effects of world economic openings. Is the growing penetration of the host countries by multinational investment heralding the promised gains of stable economic growth and social cohesion, or is social polarization and instability around the corner instead? The message of this type of hard-core empirical sociology to NATO and the European Union decision makers could not be more disturbing. Mahutga and Bandelji 2008 estimated a series of regression models that relate income inequality to foreign investment and a baseline internal development model for the region. They found that foreign investment has indeed a robust positive effect on income inequality; i.e. MNC investments increase social inequalities, with (we add) all the political effects such conditions might imply. Further, they showed that the effect is observable over the short term, no matter how foreign direct investment is measured.

Under such premises, it might be appropriate to recall that one of the most influential essays ever published in international sociology, the essay by Bornschier – Chase-Dunn – Rubinson (1978), which has led to no less than 199 follow-up studies in the literature to date[3], exactly (and 1:1) predicted what was to happen on a very general and global level more than three decades ago, and what Bandelji 2009 and Mahutga and Bandelji 2008 predicted for the region of East Central Europe – an increase in economic inequalities, and the danger of long-term stagnation after the spurt of multinational corporation investment (MNC) had induced economic growth over the last two decades. The re-analysis of Bornschier – Chase-Dunn – Rubinson (1978) on a global level, with contemporary data, is the principal aim of this essay. We will try to draw global

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[3] ISI Web of Knowledge, Thomson Reuters, as available at Vienna University Library, Austria, September 8, 2011.

as well regional conclusions, which will be potentially relevant for the region of East Central Europe.

The rest of this study is organized as follows. In Section 2, we briefly outline the main theories under scrutiny here, namely the dependency model, formulated by Bornschier – Chase-Dunn – Rubinson (1978), and its origins in the writings of Cardoso 1979; and the analysis of transnational capitalism and national disintegration according to Sunkel 1973, Amin 1973 – 1997 and later world system analysis in the tradition of Arrighi 1995, Frank 1998 and Wallerstein 2000. We also discuss the implications of monopolistic structures, which are at the basis of MNC penetration (Bornschier 1976) in the theories of Joseph Alois Schumpeter and Josef Steindl. MNC dependency, reflecting the economic, social and political power of transnational oligopolistic corporations over their host countries as the key to analysing contemporary changes is discussed in Section 3. The data, the development of the research design and the regression analyses are presented in Section 4. We report the empirical results in Section 5. A final section contains our conclusions.

2. The main theories under scrutiny here

Space does not permit us to fully debate the very vast sociological, political science and economic theory literature written on the subject of MNC penetration and economic and social development. Instead, we concentrate first of all on what was actually predicted in the afore-mentioned Bornschier – Chase-Dunn – Rubinson study, 1978:

'(1) The effect of direct foreign investment and aid has been to increase economic inequality within countries. (2) Flows of direct foreign investment and aid have had a short-term effect of increasing the relative rate of economic growth of countries. (3) Stocks of direct foreign investment and aid have had the cumulative, long-term effect of decreasing the relative rate of economic growth of countries. (4) This relationship has been conditional on the level of development of countries. The stocks of foreign investment and aid have had negative effects in both richer and poorer developing countries, but the effect is much stronger within the richer than the poorer ones. (5) These relationships hold independently of geographical area.' (Bornschier – Chase-Dunn – Rubinson 1978: 651)

Later tests of these hypotheses, taking into account the most important control variables, like initial income levels[4], only support and refine the original argument, independent of their research design for different indicators, different time periods, different samples and different methods (see *inter alia* and to mention but a few studies: Beer 1999; Bornschier 1982, 2002; Dutt

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[4] To control for convergence effects of poor countries growing faster than richer ones, see Barro 2003.

1997; Heshmati 2006b; Kentor 1998; Klitgaard – Fedderke 1995; Tausch 2003; Tausch – Prager 1993; Tsai 1995).

In the present essay, we want to again take up this *locus classicus* of empirical international sociology using new and contemporary data from world society, i.e. all the countries of the world with complete and reliable data for the time period of the last two decades. We also include estimates about the determinants of economic growth, based on predictions by the International Monetary Fund (IMF) for the year 2010. Insufficient as these data may be, they allow us at least a foggy picture of the emerging realities of the current global economic crisis, although we would much prefer to use other data (unfortunately not yet on the market).

Long before the transformation in 1989 and what the 'critical sociology' under scrutiny here would be inclined to call 'the full re-integration' of the countries of East Central Europe into the circuits of the 'capitalist world economy' began in 1989, some representatives of 'Western' and 'Southern' sociology debated at length on the long-term societal effects of the 'dependency' of weaker and less developed countries on the centres of the world economy. Such centre-periphery models in the tradition of Prebisch 1950, 1983, 1988, and the proper 'dependency theories' in the tradition of such authors as Cardoso 1977, 1979, Cardoso – Faletto 1971, Furtado 1963, 1964, 1976, 1983, Sunkel 1966, 1973, 1978, and the quantitative research inspired by these theories, namely by Galtung 1971, Sunkel 1973 and later Chase-Dunn 1975, Bornschier – Chase-Dunn – Rubinson 1978 and Bornschier – Ballmer-Cao 1979 can all function as an important 'lighthouse' for the sociology of the new East Central Europe. These theories all claimed that the relations of dependency block long-run economic growth and bring about a socially unbalanced development, short spurts of economic growth notwithstanding. Like it or not, these propositions, simple as they are, have a lot of empirical evidence in their favour. In what now seems to be a prophetic statement compared to today's realities around the globe, dependency and 'world systems' scholar Linda Beer stated more than ten years ago in 1999:

'In the World-System/Dependency perspective there are three mechanisms that are hypothesized to link foreign investment and social inequality [...] First, foreign investment in developing countries generates large sectoral disparities in the national economy, creates labor aristocracies and results in the underutilization of indigenous labor. Second, transnational corporations operating in developing nations accrue a disproportionate share of local sources of credit and repatriate profits rather than reinvesting them in the local economy. Finally, the governments of these nations, motivated by the necessity (generated by their incorporation into the capitalist world economy) of attracting and maintaining foreign investment, implement policies and

strategies that decrease the power of labor and inhibit vertical mobility. These include tax concessions, guarantees of profit repatriation, and labor laws unfavorable to workers' (Beer 1999: 4-7)

These effects, described by Beer 1999, are also the final reason for the empirical global connection, re-established and re-analysed in this essay, between foreign capital penetration on the one hand and rising inequality, deficient life expectancy, rising unemployment and a deficient under five mortality rate on the other. Beer first mentions foreign capital investment in the agricultural sector, which is destroying traditional production processes and which is leading to unemployment and over-urbanization through its capital intensive means of organization (i.e. labour shedding, land enclosure). In the extractive sector of the economy, foreign investment will benefit only a small portion of the national population and will thereby increase income inequality. MNC penetration in this sector will create only a small well-paid labour force, and ownership of natural resources will be very highly concentrated. A similar picture will emerge for manufacturing: profits are increased by the maintenance of a large, surplus low-wage labour force. According to Beer, the national elite of the host countries of MNC investments will strive to maintain its power and higher income so as to maintain its privileged consumption patterns and access to status symbols.

Other variants of dependency/world systems theory hold even more dire predictions for East Central Europe. Andre Gunder Frank[5], as early as 1998, predicted a general pattern of *'Re-Orient'* away from the Northern-Euro-Atlantic region of our globe towards the Indian and Pacific Oceans, where, according to Frank, the future centre of the world economy will be situated again and where, according to Frank, it always was situated from the very beginning of the world economy to around the year 1750. Thus the period of European and later American dominance in the international system from 1750 to around 1995 is but an interlude in world history, always centred on China. Such a reading of events would imply that the cycle of the post-transformation boom in the region of East Central Europe since 1989 will definitely come to a standstill, and that instead of membership with equal rights and duties in the

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[5] The authors are grateful to one of the peer-reviewers of this essay by drawing our attention to the fact that in the original version of our essay we over-interpreted our data as implying a definite and final positive empirical test of the Andre Gunder Frank 1998 version of dependency/world systems theory. Confronted with this criticism, we decided to concentrate on the analysis in Bornschier – Chase-Dunn – Rubinson 1978, which has become part and parcel of established sociological theory. We came to the conclusion that we have to defer the interesting question of testing the *Re-Orient*-paradigm by Andre Gunder Frank until further research. We are well aware of the fact that such research would have to take into account advances in econometric growth accounting in the tradition of Barro 2003, especially the extensive debates in econometric literature on sigma convergence and beta-convergence. This point has also been emphasized to us, independently of the opinion of the anonymous peer reviewer, by Professor Leon Podkaminer from the Vienna Institute for International Economic Studies (WIIW) in the framework of a year-long academic exchange of opinions by the authors with the WIIW. As Young et al. 2004 have highlighted correctly, there is σ-convergence, when the dispersion of real per capita income across a group of economies falls over time. When the partial correlation between growth in income over time and its initial level is negative, there is β-convergence.

'Euro-Atlantic structures', promised since 1989, the now joint **Euro-Atlantic stagnation** will be the dire post-crisis reality[6].

At this stage, and in view of the recent advances of international social science research on long economic cycles (the so-called Kondratiev economic cycles of around 50-year durations, see Bornschier 1996, for the theoretical foundations and Korotayev – Tsirel 2010 for the latest econometric evidence)[7], we should briefly mention the possibility that the 'logic' of international development might change from cycle to cycle, and even from cycle phase to cycle phase (the A-phase of ascent, and the B-phase of decline)[8]. Let us thus look for a moment at the conclusions, drawn in the Bornschier – Chase-Dunn – Rubinson essay in 1978 (emphasis is our own):

'Foreign investment leads to increasing income inequality, early monopoliza-tion, and structural underemployment, thus favoring early saturation of effective demand and lowering the rate of capital formation in a country. And since capital formation is a major cause of increasing growth, this reduction in capital formation is another mechanism by which foreign investment reduces growth. [...] One of the ways in which foreign investment reduces growth is by reducing state power, and hence the ability of the state to undertake a policy of growth, independent of the class interests created by foreign capital. [...] We note that the empirical relationships we have found occurred during a specific time period, from 1950 to 1970. **It is possible that these relationships are conditional on features of the world economy at that time. It seems possible that the effects of foreign investment and aid on growth and inequality may**

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[6] In keeping with the research tradition, initiated by Seers – Öström 1983; Seers 1981; Seers – Schaffer – Kiljunen 1979; and Seers – Vaitsos – Kiljunen 1980 about 'underdeveloped Europe' we however believe that it is impossible to separate the effects of MNC penetration on the 'centre' and on the 'periphery', because centre/periphery problems nowadays characterize the entire world economy and because the (former) centres, more and more, exhibit characteristics of semi-peripheries.

[7] Such possible shifts in international development logics highlight the relevance of the theoretical heritage of the Austro/American political economist Joseph Alois Schumpeter. The writings of Joseph Alois Schumpeter (Schumpeter 1908, 1912, 1939) and later world system and dependency analyses by Amin 1973, 1976, 1980, 1984, 1989, 1992, 1994a, 1994b, 1994c, 1997a, 1997b; Bornschier 1982; Cardoso 1979, Cardoso – Faletto 1971; Prebisch 1950, 1983, and Sunkel 2003 were always aware of the emergence of crises, cyclical imbalances, regional shifts and their possible causes and consequences, as well as of the rise and decline of entire regions and even continents in the process of capitalist development. As is well-known for Schumpeter 1908, 1912, 1939, 1942, 1950, 1954, the entrepreneur is the prime mover of economic development, which is cyclic in character, connecting innovations, cycles and development. Also Schumpeter believed in very long, 50-60 year economic cycles, the Kondratiev waves, an idea championed by him at all odds and against much of the mainstream of conventional economic theory (for empirical studies on Kondratiev waves, see the posthumous editions of Kondratiev's works in Kondratiev, 1980, 1984, 1998; for a general analysis Devezas 2006; furthermore Bornschier 1996; Goldstein 1988; Korotayev and Tsirel 2010; Tausch 2007, 2008; and for a sceptical view, see Kuznets 1940 and a host of studies on the subject published ever since). The contemporary Russian economist Aleksandr Bobróvnikov 2004 put forward an interesting frame of reference, in fact linking the Kondratiev cycle debate with dependencia and later world systems theory. Bobróvnikov 2004 makes the important point that transnational capital flows during the beginning downswing in the centre to the periphery, where the belated cycle still allows huge profits; while during the belated periphery depression, transnational capital again flows to the centre, thus exacerbating the debt crisis in the periphery.

[8] For Schumpeter, capitalist development takes the form of 'creative destruction' (Schumpeter 1950). Innovation by entrepreneurs/companies is the force that sustains long-term economic growth, even as it destroys the value of established companies that enjoyed some degree of monopoly power. Successful innovation is a source of temporary market power, eroding the profits and position of old firms, yet ultimately losing to the pressure of the new inventions, championed by the competitors (for a formal model of Schumpeterian growth economics, see Aghion – Howitt 1992).

be conditional on whether the world economy is in a period of relative expansion or contraction. [...] The negative effects of foreign investment on economic growth are significantly greater from 1965 to 1975 than from 1955 to 1965. Since the earlier period was one of worldwide economic expansion and the later period has been one of worldwide relative economic contraction, [...] foreign investment may have more negative effects in periods of economic contraction. (Bornschier – Chase-Dunn – Rubinson 1978)[9]

Later world system analyses tended to confirm and expand the dependency argument (Wallerstein 2000). Capitalism in the periphery, like in the centres, is characterized by strong cyclical fluctuations, and there are centres, semi-peripheries and peripheries. The rise of one group of semi-peripheries tends to be at the cost of another group, but the unequal structure of the world economy based on unequal transfer tends to remain stable.

In our theoretical overview, we also should highlight three further variants of dependency/world systems theory, which are all relevant for the propositions we test here, and which are also especially relevant for the political and the social realities of Eastern Europe. Fernando Henrique Cardoso, the dependency theory sociologist, who between 1995 and 2003 served as the President of his home country Brazil, once summarized, at the height of the debate, the quantifiable essence of dependency theories as follows:

• there is a financial and technological penetration of the countries of the periphery and semi-periphery by the developed capitalist centres

• this produces an unbalanced economic structure both within the peripheral societies and between them and the centres

• this leads to limitations on self-sustained growth in the periphery

• this favours the appearance of specific patterns of class relations, and

• these require modifications in the role of the state to guarantee both the functioning of the economy and the political articulation of a society, which contains, within itself, foci of inarticulateness and structural imbalance (Cardoso 1979).

But Cardoso himself was fairly critical of more general attempts to construct a generalized *'dependency theory'* (Cardoso 1977), and in his classic, written with the Chilean sociologist Enzo Faletto (Cardoso – Faletto 1971), he proposed an analysis of the 'dialectics' of concrete situations of dependency and development. These clearly contradict the early and extreme version of

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[9] Thus, dependency and world systems theory today would be inclined to distinguish between the societal logic of the A-phase and the B-phase of the Kondratiev cycles. In the case of our empirical analysis, we would have to start from the assumption that the period under empirical scrutiny here, i.e. 1990 – 2010, is more like the B-phase of the Kondratiev cycle 1973 – 2008, thus resembling the B-phase of the earlier Kondratiev cycle, 1929 – 1973. As Bornschier – Chase-Dunn – Rubinson have stipulated in our quoted passage, it cannot be excluded out of hand that the empirical relationships between, say, multinational corporation penetration (MNC penetration) and economic growth are different in the A-phase of a cycle (say 1929 to the beginnings of the 1960s; and during the A-phase from 1973 to, say, 1990) than they are in the B-phase of an economic cycle (the beginnings of the 1960s to 1973; and 1990 – 2010).

dependency theory, inherent in Frank 1967, by showing that not *'lumpendevelopment'* is on the agenda in countries like Brazil, but a real, and alas socially very contradictory, development of the productive forces. The fact that 'dependency' (or as Frank termed it at that time, a satellite status) excludes development is exactly the opposite of what Cardoso and Faletto wanted to demonstrate. Most importantly, changes in the nature of class relationships and in the nature of the state, increasingly subordinated to the interests of large multinational corporations, and the triple alliance between foreign capital, national capital and the state, did not escape their sociological and above all historical comparative analysis.

In contrast, in his *'Transnational capitalism and national disintegration (in Latin America)'* (1973), the Chilean social scientist Osvaldo Sunkel**,** whose work is closely connected with the United Nations Economic Commission for Latin America (CEPAL/ECLA), proposed the thought that transnational investment and integration might go hand in hand under certain conditions, with an increasing relative global social polarization between rich and poor and also in the host countries of the evolving transnational system. His essay is very important in our context because he was the first to specify the empirically testable proposition that the presence of multinational corporations drives a 'wedge' of social polarization and division into the social systems of the host countries. And in addition, he had previously specified that 'transnational integration' will imply above all 'national disintegration'. In his 1973 essay, he predicted such structures of rising inequality, both at the national and international level:

'The advancement of modernization introduces, so to speak, a wedge along the area dividing the integrated from the segregated segments (...) In this process, some national entrepreneurs are incorporated as executives into the new enterprises or those absorbed by the TRANCO (i.e. transnational corporations), and others are marginalized; some professionals, forming part of the technical staff and the segment of employees are incorporated, and the rest are marginalized; part of the qualified labor supply and those that are considered fit to be upgraded are incorporated, while the remainder are marginalized. (...) Finally, it is very probable that an international mobility will correspond to the internal mobility, particularly between the internationalized sectors (...) The process of social disintegration which has been outlined here probably also affects the social institutions which provide the bases of the different social groups and through which they express themselves. Similar tendencies to the ones described for the global society are, therefore, probably also to be found within the state, church, armed forces, political parties with a relatively wide popular base, the universities etc.' (Sunkel 1973: 18-42).

In the trajectory of Volker Bornschier's scholarly work, we find his German language text, 1976[10], laying the groundwork for his later empirical analyses, all too often neglected in the international debate on the subject under scrutiny here. Indeed, Bornschier 1976 shows that it is impossible to talk about multinational corporations without taking into account the stagnation tendencies which oligopolistic structures *per se* imply for the advanced economies of the West. The penetration of host countries by multinational corporations will always entail an element of stagnation, while for Bornschier 1980a, 1980b, the multinational corporation *'headquarter-status'* (MNC headquarter status) can still be a mediating influence, cushioning the negative effects of a high MNC penetration for countries like Belgium or the Netherlands, who in turn have many multinational corporations operating and creating profits overseas. And this leads us directly to the importance of the works of Michal Kalecki and Josef Steindl for an understanding of the structures and empirical relationships under scrutiny here. Again, their contribution can only be briefly analysed. The logic of 'dependency' can be linked to the formal economic models developed by the Polish political economist Michal Kalecki, many of them originally published already in the 1930s, 1940s and 1950s (Kalecki 1972, 1979, furthermore Rothschild 1954, 1957, 1958, 1959, 1964, 1965), stressing the linkage between monopoly power, the conditions of dependency (measured by Kalecki by raw material prices), and income distribution (measured by Kalecki by the wage share). In Steindl (1946), the author analysed the process of increasing concentration of capital and the oligopoly of the market. In Steindl (1952), he established a relationship between economic stagnation and the growth of oligopoly in advanced capitalist countries[11]. In the words of Guger – Marterbauer – Walterskirchen,

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[10] This book was Bornschier's 'habilitation thesis' at Zurich University. It lays the groundwork for theories of oligopoly capital and stagnation in modern political economy.

[11] Steindl expected a secular tendency towards stagnation in mature capitalist economies, brought about by monopolization. In the introduction to the re-publication of his book *'Maturity and Stagnation',* Steindl explains the extraordinary development of the post-war period in the West by the following factors: the rising share of the public sector, technical innovations and new products, international cooperation in economic policies, cooperation between business and trade unions, and a favourable political and economic climate.
The post-war boom increased public expenditures, which raised effective demand. These outlays were largely financed by profit taxes. In accordance with Kalecki's arguments, Steindl assumes that the expansionary effect of public expenditures is even higher if taxes are financed by profits and not mass consumption. Technical innovations stimulated investment.
Information and communication technologies, as well as automation and aircraft industries, gave a strong impetus. These innovations, brought about by high military spending, were even disseminated in the private sector. In post-war Europe, private investment was further stimulated by the catching-up process with the USA, a process initialled by the Marshall plan. According to Steindl, the speed of European post-war recovery was greatly enhanced by additional labour supply from agriculture and, later on, from abroad. The change in the secular trend of income distribution since the end of the Second World War in the world's most advanced economies, observed by Steindl, has to be especially noted: since the early 1980s, income distribution has changed in favour of classes with high savings propensities; i.e. in most industrial countries the share of wages and salaries in national income has been declining, while non-wage income, in particular property incomes, have risen sharply, and income inequality between the rich and the poor has increased considerably.

three researchers at the Austrian Institute of Economic Research (WIFO) who were very instrumental in the re-discovery of Steindl's legacy[12]:

'In competitive industries profit margins are highly elastic, and excess capacity is eliminated in the long run by squeezing out surplus capital. In monopolistic industries, on the other hand, price cuts are not practicable. In these industries, demand does not determine prices, but the degree of capacity utilization – also in the long run. The typical producer in the competitive type of industry has low profit margins and rather small chances to survive. In monopolistic industries, on the contrary, producers have substantial profit margins and a high chance of survival. Therefore, it would require a large price cut to eliminate competitors. Hence, oligopolistic or monopolistic firms avoid cut-throat price competition.' (Guger – Marterbauer – Walterskirchen 2004)

Our survey of dependency and world systems theories, relevant for understanding the causal mechanisms of dependency and other theoretical and empirical issues in connection of our re-analysis of Bornschier – Chase-Dunn 1978 would be incomplete if we failed to mention briefly the Arab scholar Samir Amin, who was born in Egypt in 1931. Amin focuses quite extensively on equilibrium in the balance of payments (Amin 1973, 1976, 1980, 1984, 1989, 1992, 1994a, 1994b, 1994c, 1997a, 1997b). Peripheries play a significant role in the worldwide expansion of capital. They allow the recovery of exports from the centres by speeding the break-up of non-capitalist or pre-capitalist environments. There are various phases in the globalization process, ranging from the classic models of raw material exporting economies to the semi-industrialization of the periphery and the re-incorporation of the countries of Eastern Europe. There is a persistent tendency at the periphery towards a deficit in the external balance of payments. Pressure on the external balance of payments always follows a continual progression of absolute advantage benefiting the centres. Further problems are the limited range of products available in the periphery, the pressure for repatriation of profits, the social impact of the worldwide polarization in urbanization, inequalities of income distribution, an increase in administrative costs, and so on. In this context, Amin also mentions the transfer of the multiplier effect of investment from the peripheries to the centres of the system, produced by the strong marginal propensity of the peripheries to import goods and services and export the profits of foreign capital. The underdeveloped economy is not a backward economy, but a limb of the dominant economy. The structural deficits in the

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[12] See also Guger – Marterbauer – Walterskirchen, 2006a and 2006b. According to Steindl, the burden of taxation has shifted from profits to wages – a process which reduced the expansionary effects of the public sector (Steindl 1979: 5). Without unduly mixing the theoretical and the empirical part of this publication, it should be emphasized nevertheless that the very significant downward pressure of MNC penetration on social indicators would be an important empirical test for the Steindl theory of capitalism. Assuming that tax revenues are immediately spent, higher profit taxes are paid out of increasing profits (before taxation) due to higher capital utilization, while an increase in wage taxation reduces consumption.

periphery are accompanied by the monetarization of sectors of the subsistence economy, the ruination of craftsmanship, and the flows of foreign investment into mining and export cash crop sectors. Peripheral growth, under such conditions, Amin says, leads to *'miraculous hopes suddenly dashed'*. The overall dynamic of accumulation in the periphery is governed by exports, whereas in the centres, the means of production is linked to the production of goods for local consumption. In addition, there is a strong causal link between this export orientation and the increasing inequality of income distribution in the periphery. The impoverishment of the peasants, the enhancement of the landowners' position, a preference for investment in light industries, markedly low wages in relation to productivity, the disarticulation of the economy, and the juxtaposition of 'miracles' with large areas of social devastation are the final consequences of this structure. While mass demand and agricultural structures were responsible for the transition from a tributary mode of production in Western Europe to capitalism from the 16th Century onwards, periphery capitalism was and is characterized by the following main tendencies (Amin 1973 – 1997):

- regression in both agriculture and small scale industry characterizes the period after the onslaught of foreign domination and colonialism,

- unequal international specialization of the periphery leads to the concentration of activities in export oriented agriculture and or mining. Some industrialization of the periphery is possible under low wage conditions,

- in the long run, these structures determine a rapidly growing tertiary sector with hidden unemployment and a rising importance of rent in the overall social and economic system,

- the development blocks of peripheral capitalism (chronic current account balance deficits, re-exported profits of foreign investments, deficient business cycles of the periphery that provide important markets for the centres during world economic upswings), and

- structural imbalances in political and social relationships, inter alia a strong *'compradore'* element and the rising importance of state capitalism and an indebted state class.

3. MNC dependency as the key to analysing contemporary changes
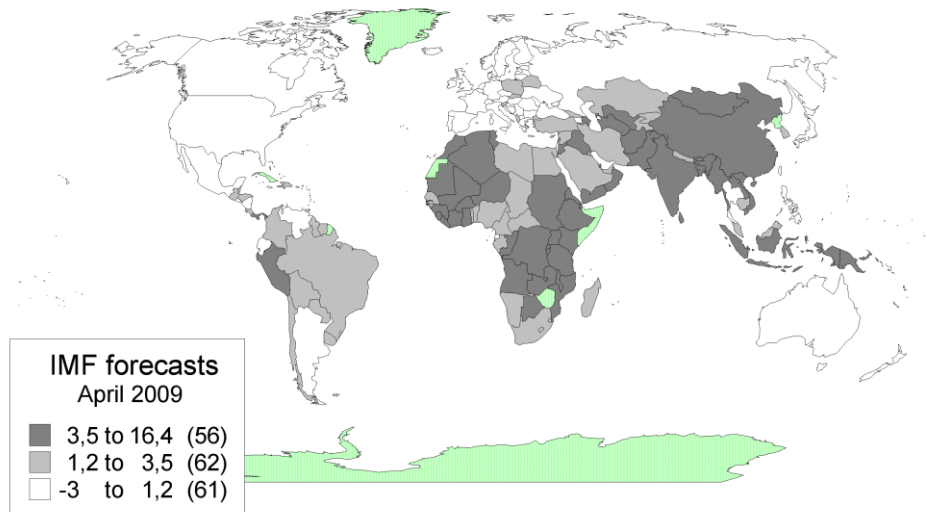World map of the estimates for economic growth in 2009 is shown in Map 1.[13].

The master independent variable in our study is MNC (multinational corporations) penetration. It measures the share of the value of cumulated foreign direct investments by transnational corporations in the gross domestic product of the host country, and thus reflects the power which transnational

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[13] Readers should be aware of the convergence effects (Barro 2003), mentioned earlier.

oligopolies wield over local economies (United Nations Conference on Trade and Development, UNCTAD, World Investment Report 2009).

Map 1: **Economic growth in the world system, 2009**

Source: our own map from http://www.imf.org/external/pubs/ft/weo/2009/01/weodata/weoselgr.aspx

In our article, the monopolistic power wielded by transnational corporations over their host countries and the marginalization of small and medium sized business are precisely measured by MNC penetration.

A large share by transnational corporations in the GDP[14] of a country is the anti-thesis to a large share of small and medium-sized enterprises, recognized by many as the engine of economic growth (see among others, the European Commission website on the issue of small and medium-sized enterprises, available at http:// ec.europa.eu/ enterprise/ policies/ sme/ promoting-entrepreneurship/family-business/)[15].

This study is the first in the literature which links MNC penetration in the mid-1990s (and its growth until 2005) with social and economic development in our contemporary period. Increases in MNC penetration, 1995-2005, are simple percentage differences in MNC PEN ratios from 2005 to 1995. MNC

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[14] Gross domestic product.

[15] Some debates on the dependency/growth trade-off, taking place in the *'American Journal of Sociology'* (Firebaugh 1992; Dixon – Boswell 1996a, 1996b; Kentor 1998) and the *'American Sociological Review'* (Firebaugh – Beck 1994; De Soysa – Oneal 1999; Kentor – Boswell 2003), which all deal with research results from different time periods during the last Kondratiev cycle of the world economy, were somewhat inconclusive about the true long-term growth effects of MNC penetration. Schumpeter, 1908, 1912, 1939, 1950 strongly believed that innovation by entrepreneurs/companies is the force that sustains long-term economic growth, even as it destroys the value of established companies that had enjoyed some degree of monopoly power.

penetration captures the power which international oligopolies wield in different countries of the world system (see also Sunkel 1973 and Cardoso 1979)[16]. It is important to emphasize here that MNC penetration must not be confounded with the Kearney-Index oriented research results on globalization[17], so common nowadays in the economic literature[18] (for details see Heshmati 2006a).

Map 2.A: **MNC penetration in the world system, 2006**
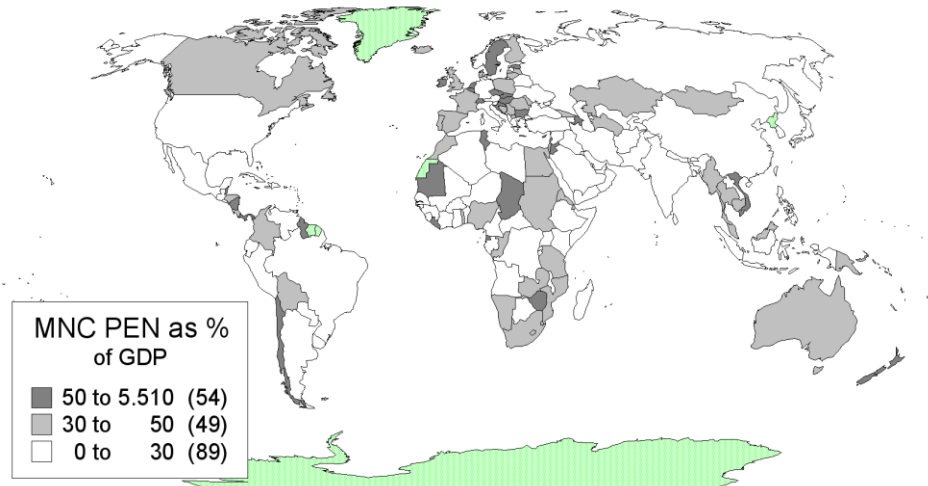
Our geographical presentation of contemporary MNC penetration, based on UNCTAD *World Investment Report* data, will be kept to a minimum. In general terms, we observe that high levels of MNC penetration today means high power concentration in the hands of the transnational corporations over the economies of their host countries in Western Europe, in some parts of Eastern Europe, in many parts of Latin America, Africa, and in Southeast Asia. MNC penetration is reported in Map 2.A and Map 2.B[19].

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[16] To measure MNC penetration by the different shares of GDP which foreign capital investments have in the host countries, i.e. the UNCTAD percentages of the stocks of multinational corporation investments per total host country GDP, is a research tradition which has been well developed by Bornschier 1976, 1980a, 1980b, 1981, 1982, 1983, 2002, Bornschier – Ballmer-Cao 1979, Bornschier – Chase-Dunn 1985; Bornschier – Chase-Dunn – Rubinson 1978.

[17] MNC penetration measures the oligopolistic control of transnational corporations over local markets, while the Kearney index has much to do with openness, connectivity, and also infrastructure (see Kearney 2002, 2003; furthermore Addison – Heshmati 2004; Heshmati 2006a, 2007).

[18] http://www.atkearney.com/index.php/News-media/hong-kong-jordan-and-estonia-debut-among-the-top-10-in-expanded-ranking-of-the-worlds-most-globalized-countries.htm

[19] See our brief analysis on the importance of the 'multinational headquarter status', above.

Map 2.B: **MNC penetration in the world system, Europe 2006**
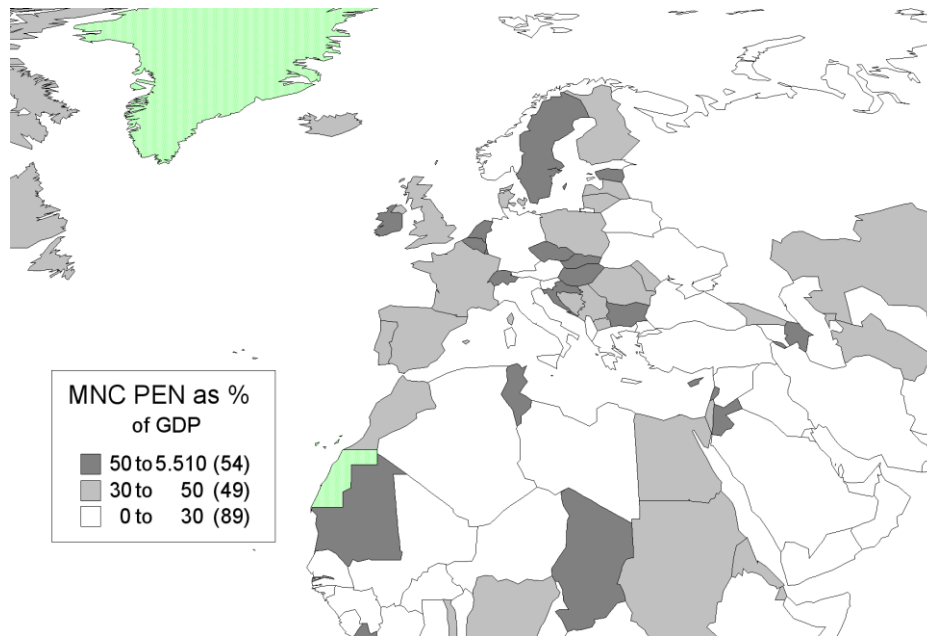
4. Data and research design

The design of our study is based on the SPSS-XV statistical package (Standard Statistical Package for the Social Sciences, a common statistical software offered by the IBM company, International Business Machines) ordinary least square (OLS) standard regressions of economic development (Durlauf et al. 2008, Sala-i-Martin et al. 2004) in the research tradition of development accounting (see Barro 2003). The SPSS-OLS standard regressions specify a critical inclusion criterion of PIN = 5% error probability and POUT = 10% error probability.

As in the original investigations by Volker Bornschier and his school, we control for the supposed short-term, dynamizing effects of foreign capital inflows (DYN MNC PEN, percentage increases of the share of cumulated foreign investments by multinational corporations in the gross domestic product of their host countries over time) and for development level and its square[20], so that the effects of MNC penetration can be analysed non-linearly in the context of low, medium and high levels of development. We also estimate the effects of public education expenditure and of demography on our dependent variables. Here we distinguish between the current percentages of

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[20] To control properly for convergence effects, mentioned by Barro 2003.

world population as an indicator of current potential market size and the annual population growth rate, 1975 – 2005, as an indicator of the demographic dynamics of a given country.

4.1 The data

The source of data used in this study, which are freely available from http://www.hichemkaroui.com/?p=3526 in PDF format, is secondary databases of the United Nations organizations and foremost those managed by the IMF (International Monetary Fund), UNCTAD (United Nations Conference on Trade and Development), UNDP (United Nations Development Programme), UN Statistics and the USA-CIA (United States Central Intelligence Agency). It contains all major countries with available socio-economic data on growth and its determinants. The choice of countries to be included in the final analysis (originally 183 countries) coincides with the availability of data from our standard sources for socio-economic comparative growth and development analysis.

Data Sources for the selected variables of the final model

IMF http://www.imf.org/external/datamapper/index.php
• Economic growth rate, 2010
UNCTAD
http://www.unctad.org/sections/dite_dir/docs/wir2007_instock_gdp_en.xls
http://www.unctad.org/sections/dite_dir/docs/wir2007_instock_gdp_en.xls
http://www.unctad.org/sections/dite_dir/docs/wir2007_instock_gdp_en.xls
http://www.unctad.org/Templates/Page.asp?intItemID=3198&lang=1
http://www.unctad.org/en/docs/wir2008_en.pdf
http://www.unctad.org/Templates/Page.asp?intItemID=3277&lang=1
• MNC PEN increase in MNC penetration 1995 – 2005
• MNC PEN 1995
UNDP Human Development Report Office
http://hdr.undp.org/en/statistics/data/
• % world population
• Annual population growth rate, 1975 – 2005 (%)
• DYN 1990 – 2005 real economic growth rate
• Life expectancy at birth 2000/2005
• ln GDP per capita in PPP $
• ln GDP per capita in PPP $^2
• public education expenditure per GDP
• RAT2020: quintile ratio (difference in incomes between the richest and the poorest 20% in society)

- total population, 2005
- Under-five mortality rate (per 1,000 live births) 2005

United Nations Statistics

http://unstats.un.org/unsd/Demographic/Products/socind/unemployment.htm
- Unemployment rate, latest available year

United States Central Intelligence Agency

http://www.photius.com/rankings/spreadsheets_2008/population_2008.xls
(based on US CIA)
- % world population
- Annual population growth rate, 1975 – 2005 (%)

The data contain a number of key very well-known variables on development and its indicators. These are grouped into development performance as dependent variables and determinants of development as explanatory variables. The six development performance variables include:
- Economic growth, 1990 – 2005
- Life expectancy at birth 2000/2005
- Unemployment rate, latest available year (by around 2003/2004)
- RAT2020: quintile ratio (difference in incomes between the richest and the poorest 20% in society, by around 2003/2004)
- Growth projection for 2010 as an indicator of the depth and dynamics of the current world economic crisis (IMF)[21]
- Under-five mortality rate (per 1,000 live births) by around 2005

The determinants of development performance listed above are selected among the followings[22]:
- Per cent world population (by around 2004). This standard economic indicator is important for understanding the size of the market and its place in world society.
- Annual population growth rate, 1975 – 2005 (%). This standard demographic and economic indicator also features very prominently in most econometric studies of world development.
- MNC PEN increase in MNC penetration 1995–2005 (simple percentage change of MNC PEN 2005 over 1995). Together with MNC PEN, it corresponds to one of the key concepts of most sociological world systems theory inspired studies of world development.
- MNC PEN 1995 (standard UNCTAD measure of stocks of transnational investments per GDP)

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[21] It has to be emphasized that results, based on the 2009, 2010, and 2011 IMF predictions are pretty similar.

[22] It has to be emphasized that the demographic and human capital formation control variables correspond to standard econometric current practice, described in Durlauf et al. 2008.

- Public education expenditure per GDP (by around 2003). Human capital formation features very prominently in most econometric studies of global development.
- ln GDP per capita in PPP $ (natural logarithm of purchasing power parities, expressed in US dollars) and its square (ln, natural logarithm of GDP/capita in PPP)^2 (by around 2003). Such controls for development level correspond to standard practice in most published essays on global development.

The data covering the entire sample of 183 countries are presented at http://www.hichemkaroui.com/?p=3526 in alphabetic order. In order to conserve space, the square of ln GDP per capita (natural logarithm of GDP per capita) is excluded from the table. We find significant variations in the level of the variables among the countries. The data and its variations across countries are further discussed in the section on the analysis of the results.

4.2 The models

The development performance model is specified as a function of the determinants of growth written as:

$$(1) \qquad DevPerform_i = \beta_0 + \sum_{j=1}^{J} \beta_j X_{ji} + \varepsilon_i$$

where *DevPerform* represents each of the six development performance variables listed above for country *i* and *X* is *J* vector of determinants of development performance listed above, some of which are logarithmic, while others are expressed in level or percentages. β_0 and β_j are unknown parameters to be estimated for an indication of the association and impacts of the determinant of the development indicator. The ε is a random error term assumed to have a mean zero and constant variance. It captures the measurement error in the dependent variable and the effects of left out explanatory variables.

Due to possible problems of multi-collinearity between the explanatory variables and their effects, in the form of confounded effects of determinants, and difficulties in separating the effects, we first used a univariate analysis instead of a multivariate regression analysis (equation 1) where the model is written as:

$$(2) \qquad DevPerform_i = \beta_0 + \beta_j X_{ji} + \varepsilon_i$$

where each of the explanatory variables is defined previously.

5. Analysis of the estimation results

The final models are based on multivariate regression analysis estimating the effects of each of the determinants of growth on different development measures conditional on other determinants.

5.1 Univariate analysis results

In order to isolate individual determinant factors effects of economic growth (measured as GDP per capita) we also utilize the univariate approach. It helps identify the significant predictors of the dependent variables. Here, the set of

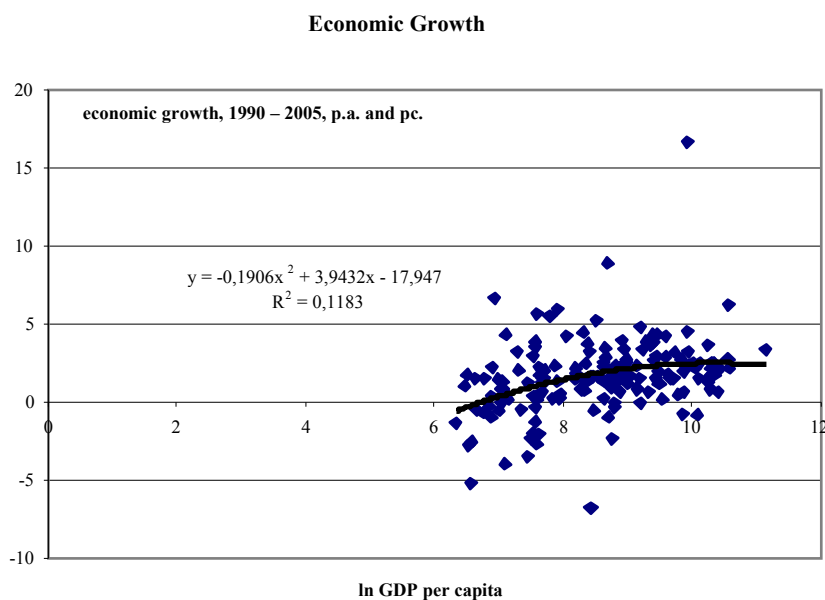Table 1: **Significant predictors of development**

Dimension	variable label	beta-weight	error probability	dependent variable
dependency from MNCs	MNC PEN INWARD	0.347	0.000	growth 1990 – 2005
dependency from MNCs	MNC PEN INWARD	0.193	0.045	Inequality
dependency from MNCs	MNC PEN INWARD	0.102	0.047	under five mortality
dependency from MNCs	MNC PEN INWARD	-0.132	0.065	growth 2010 (IMF)
dependency from MNCs	MNC PEN INWARD	0.162	0.066	Unemployment
dependency from MNCs	MNC PEN INWARD	-0.097	0.083	life expectancy
increases in MNC PEN	DYN MNC PEN 95-2005	-0.185	0.047	Inequality
increases in MNC PEN	DYN MNC PEN 95-2005	-0.159	0.059	growth 1990 – 2005
market size	% world population	0.187	0.007	growth 2010 (IMF)
market size	% world population	0.200	0.011	growth 1990 – 2005
Demography	Annual population growth rate, 1975-2005 (%)	0.460	0.000	growth 2010 (IMF)
Demography	Annual population growth rate, 1975-2005 (%)	0.415	0.001	Inequality
Demography	Annual population growth rate, 1975-2005 (%)	0.143	0.017	under five mortality
Demography	Annual population growth rate, 1975-2005 (%)	-0.179	0.054	growth 1990 – 2005
Demography	Annual population growth rate, 1975-2005 (%)	-0.107	0.092	life expectancy
public education expenditure	public education expenditure per GNP	-0.275	0.001	growth 1990 – 2005
public education expenditure	public education expenditure per GNP	0.251	0.005	Unemployment
public education expenditure	public education expenditure per GNP	0.183	0.042	Inequality
public education expenditure	public education expenditure per GNP	-0.097	0.087	life expectancy
Modernization	ln GDP	5.356	0.000	Inequality
Modernization	ln GDP	-4.688	0.000	under five mortality
Modernization	ln GDP	5.169	0.000	Unemployment
Modernization	ln GDP	2.189	0.007	life expectancy
Modernity	ln GDP^2	-5.269	0.000	Inequality
Modernity	ln GDP^2	4.035	0.000	under five mortality
Modernity	ln GDP^2	-5.367	0.000	Unemployment
Modernity	ln GDP^2	-1.445	0.074	life expectancy

dependent and independent variables are the same as those presented previously. The independent variables are classified both as dimensions and their corresponding variable labels. The unconditional beta weights and error probabilities are reported in Table 1.
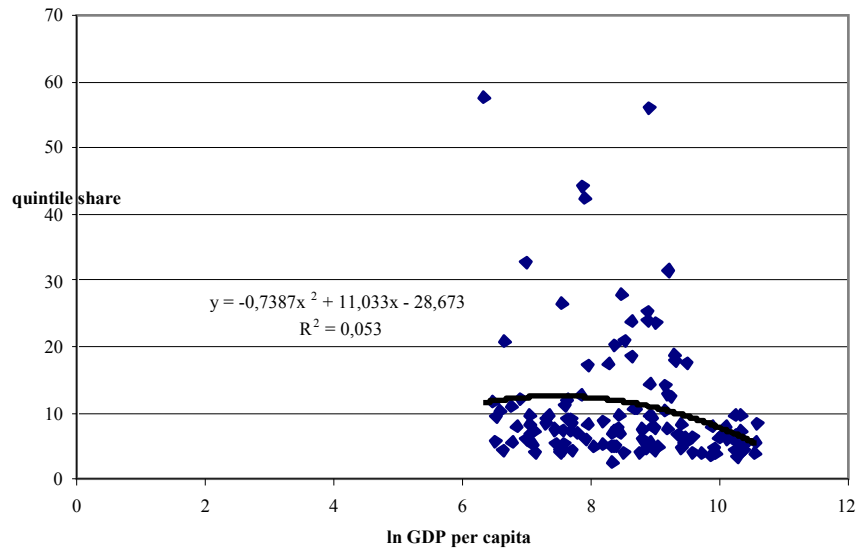
The results show, with the exception of a few cases, that the relationships between each pair of variables are statistically highly significant. In addition to the indication of significant relationships, the nature of a positive or negative relationship and its strength is also indicated. The relationship between our six development performance variables and the logarithm of GDP per capita and its square as explanatory variables are presented in Graphs 1.A-1.F. This is done to capture the non-linearity in their relationships.

GDP per capita and IMF predicted growth in 2010 are negatively and linearly related, suggesting that the prediction is based on a simple linear relationship. A minor non-linear and positive relationship is observed between GDP per capita and economic growth 1990 – 2005 and GDP per capita and life expectancy, while a negative relationship between GDP per capita and inequality was found. GDP per capita is highly nonlinearly related to the under-five mortality rate and the unemployment rate. The former is U-shaped, while the latter has an inverted U-shaped relationship. The fit of the models measured as R^2 is between 0.053 and 0.653, suggesting a good fit. A large share of the total variations in the development performance variables is explained by GDP per capita and its square.

Graph 1.A − 1.F: **Relationship between Development level (ln GDP per capita) and development performance indicators**

Economic Growth

ln GDP per capita

Inequality

$$y = -0,7387x^2 + 11,033x - 28,673$$
$$R^2 = 0,053$$

quintile share

ln GDP per capita

Life

$$y = -1,0135x^2 + 25,021x - 72,506$$
$$R^2 = 0,6534$$

life expectancy

ln GDP per capita

Under-five mortality

under-five mortality rates

$y = 13,299x^2 - 271,32x + 1392,5$
$R^2 = 0,6505$

ln GDP per capita

Unemployment

unemployment rate

$y = -1,6925x^2 + 28,748x - 111,14$
$R^2 = 0,1153$

ln GDP per capita

Future growth (2010)

$$y = -0{,}0591x^2 - 0{,}2734x + 9{,}39$$
$$R^2 = 0{,}2922$$

IMF predicted growth, 2010

ln GDP per capita
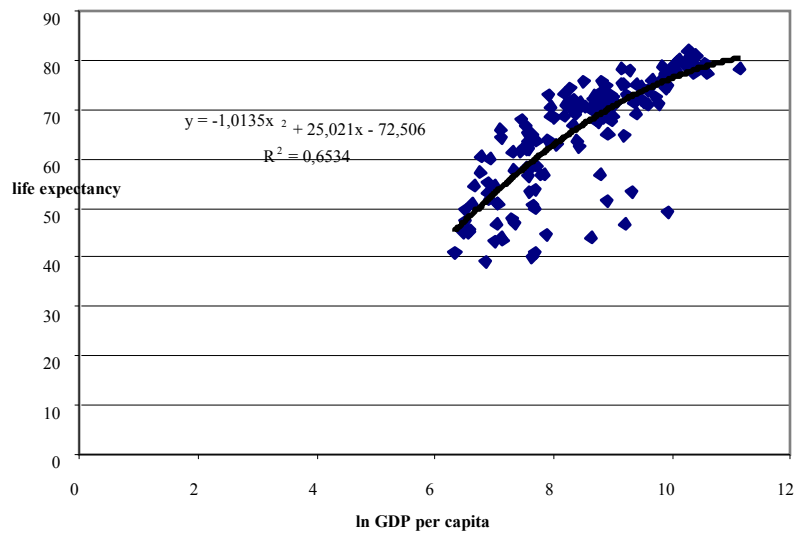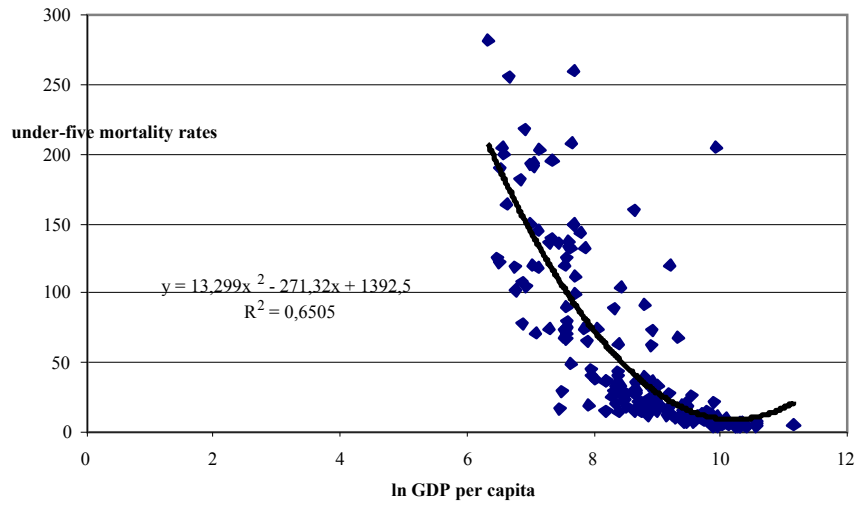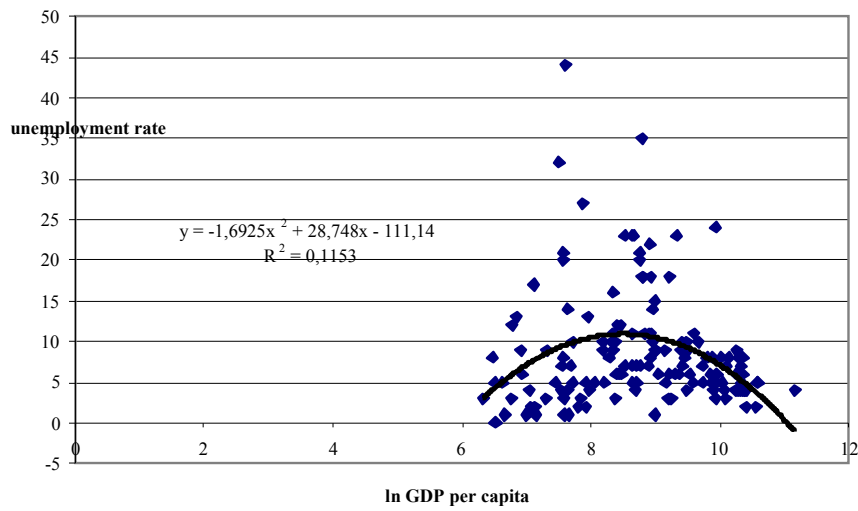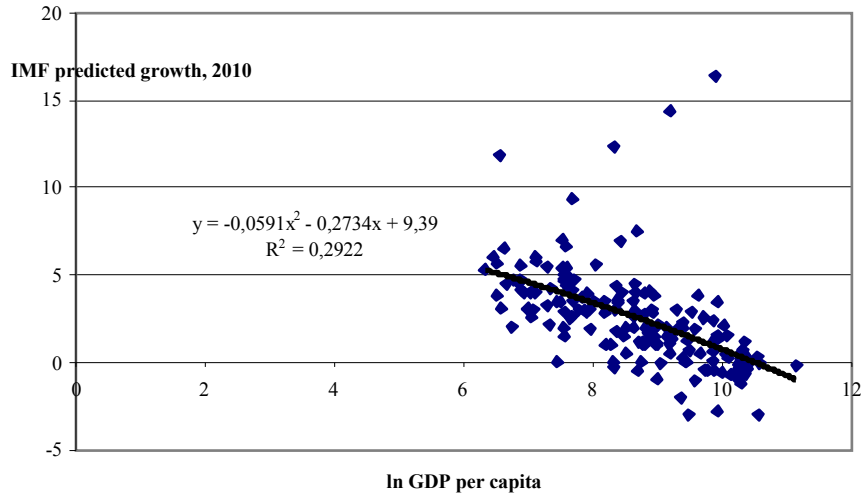
5.2 Multivariate analysis results

The results from the 42 SPSS-XV standard OLS regression coefficients, their standardized errors, beta-weights, *t*-values and error probabilities to measure the effects of the 7 predictor variables on the 6 dependent variables are presented in Table 2. The table is divided into 6 different panels each, for each development performance variable. The fits of the models measured by adjusted R^2 and degrees of freedom are reported at the end of each panel. The adjusted R^2 is between 0.193 and 0.663, i.e. 19.3% and 66.3%, indicating the share of the total variation in the dependent variable explained by the set of explanatory variables. A joint F-test for the significance of the slope parameters is also reported, suggesting that the null hypothesis of zero effects should be rejected in favour of the alternative hypothesis, representing the appropriateness of the current specification of the model.

5.3 The results linked to the theories

Let us now look more precisely at the quantitative results. First we turn to economic growth 1990 – 2005. Significant effects on the growth rate, at a 5% significance level, are wielded by the share of the country in world population (beta +0.200), MNC Penetration (beta +0.347) and public education expenditures (beta -0.275). Our equation explains 24.3% of the economic growth 1990 to 2005. The effects, which are significant at the 10% level, include the negative effects of population growth and increases of MNC penetration over time.

Table 2: **The OLS estimation results**

1. Economic Growth 1990 – 2005	Beta	std error	beta-weight	t-value	error prob
Constant	-11.895	9.620	xx	-1.236	0.219
% world population	0.186	0.072	0.200	2.596	0.011
Annual population growth rate, 1975 – 2005 (%)	-0.338	0.174	-0.179	-1.942	0.054
MNC PEN INWARD	0.033	0.008	0.347	4.263	0.000
DYN MNC PEN 95-2005	-0.014	0.008	-0.159	-1.904	0.059
public education expenditure per GNP	-0.315	0.093	-0.275	-3.406	0.001
ln GDP	3.138	2.218	1.629	1.415	0.160
ln GDP^2	-0.154	0.127	-1.397	-1.218	0.226
F-test=7.277, R2 adj 0.243, n=138					

2. Inequality	Beta	std error	beta-weight	t-value	error prob
Constant	-172.157	41.478	xx	-4.151	0.000
% world population	-0.216	0.278	-0.065	-0.777	0.439
Annual population growth rate, 1975 – 2005 (%)	3.287	0.978	0.415	3.362	0.001
MNC PEN INWARD	0.080	0.039	0.193	2.031	0.045
DYN MNC PEN 95-2005	-0.068	0.034	-0.185	-2.012	0.047
public education expenditure per GNP	0.836	0.405	0.183	2.062	0.042
ln GDP	39.910	9.528	5.356	4.189	0.000
ln GDP^2	-2.261	0.546	-5.269	-4.141	0.000
F-test=6.776, R2 adj 0.264, n=114					

3. Life Expectancy	Beta	std error	beta-weight	t-value	error prob
Constant	-43.401	31.747	xx	-1.367	0.174
% world population	0.027	0.238	0.006	0.113	0.910
Annual population growth rate, 1975 – 2005 (%)	-0.927	0.546	-0.107	-1.698	0.092
MNC PEN INWARD	-0.043	0.025	-0.097	-1.745	0.083
DYN MNC PEN 95-2005	0.031	0.025	0.072	1.244	0.216
public education expenditure per GNP	-0.531	0.309	-0.097	-1.722	0.087
ln GDP	19.911	7.323	2.189	2.719	0.007
ln GDP^2	-0.754	0.419	-1.445	-1.801	0.074
F-test=34.233, R2 adj 0.624, n=141					

4. Unemployment	Beta	std error	beta-weight	t-value	error prob
Constant	-109.356	27.734	xx	-3.943	0.000
% world population	-0.239	0.202	-0.099	-1.186	0.238
Annual population growth rate, 1975 – 2005 (%)	-0.111	0.484	-0.022	-0.230	0.818
MNC PEN INWARD	0.041	0.022	0.162	1.857	0.066
DYN MNC PEN 95-2005	-0.008	0.021	-0.033	-0.367	0.714
public education expenditure per GNP	0.782	0.274	0.251	2.859	0.005
ln GDP	27.537	6.379	5.169	4.317	0.000
ln GDP^2	-1.635	0.363	-5.367	-4.500	0.000
F-test=5.305, R2 adj 0.193, n=127					

5. Growth 2010 (IMF)	Beta	std error	beta-weight	t-value	error prob
Constant	-3.343	10.673	xx	-0.313	0.755
% world population	0.220	0.080	0.187	2.752	0.007
Annual population growth rate, 1975 – 2005 (%)	1.060	0.184	0.460	5.772	0.000
MNC PEN INWARD	-0.015	0.008	-0.132	-1.860	0.065
DYN MNC PEN 95-2005	0.012	0.008	0.104	1.397	0.165
public education expenditure per GNP	0.155	0.104	0.107	1.488	0.139
ln GDP	1.521	2.463	0.631	0.617	0.538
ln GDP^2	-0.132	0.141	-0.952	-0.934	0.352
F-test=14.239, R2 adj 0.400, n=140					

6. Under Five Mortality	Beta	std error	beta-weight	t-value	error prob
Constant	1241.548	171.617	xx	7.234	0.000
% world population	-0.491	1.288	-0.019	-0.381	0.704
Annual population growth rate, 1975 – 2005 (%)	7.101	2.947	0.143	2.410	0.017
MNC PEN INWARD	0.293	0.146	0.102	2.007	0.047
DYN MNC PEN 95-2005	-0.122	0.140	-0.046	-0.874	0.384
public education expenditure per GNP	-1.880	1.670	-0.061	-1.126	0.262
ln GDP	-243.800	39.620	-4.688	-6.153	0.000
ln GDP^2	12.051	2.266	4.035	5.318	0.000
F-test=40.275, R2 adj 0.663, n=141					

Our next equation explains the income difference between the richest 20% and the poorest 20% of the population. Our equation for the 114 countries with complete data explains 26.4% of the total variance. Apart from the well-known effect of rising income inequality at middle levels of development and declining inequality thereafter, associated in the literature with Kuznets 1955 and 1966, we observe significant effects of rising inequality, caused by population growth, MNC penetration and public education expenditures, and the mitigating effects of rising MNC penetration over time, possibly due to the short-term employment effects of MNC capital inflows. It must be noted, however, that DYN MNC PEN does not have a significant effect on official unemployment rates (see below), which suggests the possibility that the inequality mitigating the short term effects of fresh MNC inflows is mainly caused by changes in the pay structure of the industrially employed, official labour force.

The following equation – which explains 62.4% of total variance for the 141 countries with complete data – features the determination of life expectancy. Apart from the well-known *'plateau curve of basic human needs'* (Goldstein 1985), caused by ln GDP per capita and its square, we are confronted with the following negative effects, which are all significant at the 10% level: population growth, MNC penetration and public education expenditure. Without the influence of our predictors, life expectancy would be 43 years, but this effect is not significant.

Our analysis for unemployment rates in 127 countries with comparable and complete data suggests that 19.3% of the total variance of the unemployment rate in these countries can be significantly explained by the unemployment increasing effects of public education expenditures, the modernization process (ln GDP per capita), and the unemployment mitigating effects of 'modernity' (ln GDP per capita^2). Also, there is an unemployment increasing effect, which is significant at the 10% level, wielded by MNC penetration.

Our analysis of the determinants of predicted economic growth in the year 2010, which was calculated for 140 countries and explains 40% of the total variance of the variable, reflects the enormous weight which demographic dynamics will play in the future of the world economy. Both of the big markets with very large populations (beta +0.187), as well as countries with a high population growth rate (beta +0.460), will benefit from high rates of economic growth in 2010. These variables are significant at the 5% level; in addition, MNC penetration negatively determines future economic growth (beta -0.132, error probability 6.5%).

Our last analysis deals with under-five mortality rates. It was calculated with the complete, comparable data from 141 countries. Again, the *'plateau curve of basic human needs',* discovered by Goldstein 1985, plays an important role, with ln GDP per capita and its square determining a good part of the entire variance of under-five mortality rates. The share of entire variance explained by our equation is 66.3%. The other significant negative effects wielded on the variable are caused by population growth and MNC penetration.

So, it appears that the development logic of different economic cycles shifts from cycle to cycle, and the pre-crisis world of the 'golden days' of the post-1989/90 boom seemed to correspond to the logic where high foreign capital penetration would guarantee a long-term, but socially unbalanced economic growth. Foreign capital inflows did not result in immediate spurts of growth, but first destroyed, in a Schumpeterian fashion, existing economic structures instead. After the end of Communism in Eastern Europe in 1989, this global model, which seemed to dominate the global economy before the crash of 2008/2009, and which combined relatively rising rates of inequality and material poverty (measured with deficient life expectancy rates and relatively high under five mortality rates) with rapid economic growth, reflected the boom years after the military coup in Brazil in 1964. This was the model in which East Central Europe was the main area of expansion of global capitalism. Krasilshchikov (2008) analysed this logic with his comparison of post-Communist Russia with Brazil during the heyday of dependent development[23].

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[23] Our discussion, for reasons of space, can only briefly touch upon debates on the dependency/growth trade-off, which took place in the *'American Journal of Sociology'* (Firebaugh 1992; Dixon – Boswell 1996a, 1996b; Kentor 1998) and the

But the new world structure of the post-crisis years, which now seems to emerge from the ruins of the post 1975/82 long economic cycle, will in many ways resemble the world predicted by Bornschier – Chase-Dunn – Rubinson, 1978 even more, because projected economic growth during the global crisis is now negatively determined – with at least a 6.5% error probability – by past MNC penetration. Thus the early formulations of quantitative dependency, written in the late 1970s, gain much greater relevance today as we face this long economic cycle so similar that of the mid-1970s.

So the often-hailed beneficial effects of foreign capital penetration materialize even less nowadays than ever before. As correctly predicted by the vast majority of the MNC penetration quantitative dependency literature, social polarization dramatically increases due to a development model based on a very high foreign capital penetration. In our present study, the significant negative development policy effects on development performance regard equality, life expectancy, employment and the reduction of under-five mortality. Fresh inflows of foreign capital somewhat alleviated inequalities.

The demographic dimension of our results also has to be taken into account. We show that large markets with numerous inhabitants, both in the period of 1990 – 2005, as well as in 2010, are significantly and positively connected with growth performance. Annual population growth, however, significantly contributes to deficits in basic human needs satisfaction, inequality, and to stagnation in the last period of economic growth, 1990 – 2005. Population growth rates significantly and positively contribute to the future growth performance of a country in 2010.

Ever since the writings of Coleman (1965), education should also be mentioned among the determining variables of a country's development performance. Education and human capital formation figure prominently in the *'Human Development Reports'* of the United Nations Development Program as variables, which determine positively the development outcome. For the UNDP, it has been self-evident over the last decade that gender empowerment and the re-direction of public expenditures away from national defence will help contribute to a positive development outcome. However, neo-liberal thought correctly would caution against such premature conclusions. Some readers, by looking at our fairly pessimistic findings about the trade-off between public-sector human capital formation expenditures and economic

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'American Sociological Review' (Firebaugh – Beck 1994; De Soysa – Oneal 1999; Kentor – Boswell 2003), all dealing with research results from different time periods during the last Kondratiev cycle of the world economy. Recent research, based on data from the B-phase of the Kondratiev-cycle 1973 – 2008, claims that MNC PEN indirectly affected growth by both crowding out and depressing the productivity of domestic investment (De Soysa – Oneal 1999; Agosin – Machado 2005). In addition, MNC PEN effects on growth may have changed over the last couple of decades (De Soysa – Oneal 1999; Herkenrath 2003; Herkenrath – Bornschier 2003), but depend on the quality of host government interventions (Herkenrath 2003; on the situation in East Asia: Kerbo 2005a, Kerbo 2005b); and foreign capital penetration effects also depend on the lobbying power of foreign investors (Kentor – Boswell 2003).

growth, might exclaim in despair that they frankly don't believe these findings. But Weede, 2002, 2004 has shown that standard indicators of human capital endowment - like literacy, school enrolment ratios, or years of schooling - suffer from a number of defects. They are crude. Mostly, they refer to input rather than output measures of human capital formation. Occasionally, Weede also emphasizes, they produce implausible effects. They are not robust significant determinants of growth. Weede himself replaced them by average intelligence. This variable consistently outperforms the other human capital indicators in spite of suffering from severe defects of its own. According to our data, public education expenditures negatively affect economic growth (1990 – 2005), equality, life expectancy and employment[24].

Now let us move towards the dimension of development history. This often puzzling question can here be answered in the following sense. Modernization – i.e. rising income levels (ln GDP per capita) -- has the following expected strong positive effects on development performance: life expectancy and reduction of under-five mortality (i.e. basic human needs satisfaction). However, modernization contributes to a significant increase in inequality and unemployment[25].

Economic maturity, or modernity if you prefer, i.e. ln GDP/capita[2], is good for the following performances: equality and employment. The contradictions of modernity are largely to be found in what Goldstein called in 1985 the *'plateau curve of basic human needs',* basically constraining life expectancy and infant mortality reduction at very high levels of development, mainly due to the environmental and psychological strains of modern, urban life.

6. Conclusions

By focusing on MNC penetration as the measure reflecting the power which transnational oligopolies wield over the local economies, we have tried to free

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[24] There are important voices in the global and also the European political debate, which link the current crisis of the European model (debt crisis in the Southern European states and in Ireland *et cetera)* to Europe's inability to perform better in the global University rankings. Most prominent among these was former British Prime Minister Tony Blair, who said in his European Council Presidential speech to the European Parliament in 2005*: 'China and India in a few decades will be the world's largest economies, each of them with populations three times that of the whole of the EU. The idea of Europe, united and working together, is essential for our nations to be strong enough to keep our place in this world. Some have suggested I want to abandon Europe's social model. But tell me: what type of social model is it that has 20 million unemployed in Europe, productivity rates falling behind those of the USA; that is allowing more science graduates to be produced by India than by Europe; and that, on any relative index of a modern economy — skills, R&D, patents, IT — is going down, not up. India will expand its biotechnology sector fivefold in the next five years. China has trebled its spending on R&D in the last five years. Of the top 20 universities in the world today, only two are now in Europe'.* http://www.timesonline.co.uk/tol/news/world/europe/article536750.ece It is inevitable that empirical results like the present one will add to the chorus of those who then will be tempted to say that University reform and University privatization should be important political steps to achieve more viable development, since the University systems of the leading Anglo-Saxon countries are based on tuition fees and all admit a strong private University segment.
[25] This is well compatible with contemporary economics in the tradition of Kuznets 1955. Kuznets, and the literature published on the issue ever since, expected income inequality to rise with rising average income levels, and at high stages of development, inequality is expected to level off again.

dependency and world systems research from some neo-Marxist connotations, which might have surrounded that concept in the past and which perhaps were mainly responsible for the fact that the concept so well entered the core-research agenda of global political science and sociology, but failed to influence the course of the debate in the major mainstream economics journals. Giving the concept a Schumpeterian interpretation also enables us to understand the dramatic changes currently taking place in the world economy.

After the end of Communism in Eastern Europe in 1989, the model which emerged on the ruins of the Berlin Wall and took shape on a global scale combined relatively rising rates of inequality, material poverty (measured with deficient life expectancy rates and relatively high under-five mortality rates) with rapid economic growth. But in a Schumpeterian creative-destructive fashion, the countries formerly under strong control of oligopolies (especially East Central Europe) are now being severely castigated in turn. Because of the negative influence of both high MNC penetration and low demographic dynamics, our investigation is especially pessimistic for the new member countries of the European Union in East Central Europe. They combine all the ills examined in our investigation – a high rate of their economies controlled by transnational capital, a low population growth rate, and an already small share of world population which is shrinking. Whether democracy can survive under such strenuous conditions is another matter, beyond the scope of this essay. For Western Europe, faced by the partial collapse of the fruits of reconstruction policy and the European Union enlargement in Eastern Europe, prospects are also very dark, due to the current debt crisis and the dual effects of low demographic dynamics and a high MNC penetration.

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