
FINANCIAL AND ECONOMIC ASPECTS

ENTANGLEMENTS OF CATCHING-UP: RETHINKING 'INDUSTRIAL REVOLUTION' FROM A GLOBAL PERSPECTIVE

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This article aims at formulating a research program that inter-relates industrial development and catching-up in different world regions in a longitudinal perspective (from the 1770s to the present). The main objective is about de-linking the historiography on the Industrial Revolution in Western Europe both from a predominantly internal and from a Western/Eurocentric perspective of analysis. This requires questioning long established narratives, confronting and re-interpreting them in a way that they do not privilege the regions that introduced the factory system first. The focus is on South/East Asian and West/Central European manufacturing regions, from the nineteenth century onwards also including the United States as major part of the West.

Keywords: *Industrial Revolution, long (Kondratieff) waves, business cycles, hegemonic cycles, peripheralization, orientalizing, divergence – convergence, development theories, development strategies, paths of development, catching up, world-system analysis, postcolonial theories*

Defining Industrial Revolution

The classical definition of 'Industrial Revolution' is inseparably linked to the factory system, first introduced in British cotton mills around 1800. Centralizing production and wage labour in mills, replacing hand devices by power-driven machines were the basic characteristics of the factory system, which became a synonym for 'Industrial Revolution'.¹ Technological innovation, site architecture, workplace and energy transmission, work floor organisation, labour recruitment and labour relations were seen as related, indispensable components of the 'Industrial Revolution', which had become the key issue of modernization in historical, technical and social sciences from the nineteenth century onwards. While most authors concentrated on technology, management and labour organization, others also evoked state and institutions in order to enable and promote the 'Industrial Revolution' (Mokyr 2009; Teich and Porter 1996; Vries 2013; Zmolek 2013). It became common sense to see Great Britain as its birthplace, and the specific political and economic conditions at the end of the eighteenth century as favourable if not decisive for its rise, even if the long-term developments were often considered more important than 'revolutionary' changes (Braudel 1988; Grinin and Koro-

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tayev 2015). Global studies and critics of colonial and imperialist exploitation added new perspectives to the narrative by acknowledging international trade and division of labour as a key factor (Allen 2009; Frank 1998; Komlosy 2004; Vries 2013; van Zanden 2009).

The further development of the factory system contributed to acknowledging successive stages of the Industrial Revolution, resulting in first, second, third and fourth numeration, continuing until today. Others define the introduction of the factory system in Britain as the final phase of the Industrial Revolution (1760–1830), building up on an initial phase (in the 16th century), and a middle phase (from the seventeenth to the mid-eighteenth centuries) in various European regions, while the British breakthrough led to a spread of the factory-system into new sectors and regions (Grinin and Korotayev 2015). The geographical spread opened debates about the preconditions and possibilities to initiate, to copy or to take over the model that had lost its British uniqueness and became a universal aim and indicator of modernity and development instead.

Table 1

Characteristics of the British ‘First Industrial Revolution’ (1760–1830) serving as a model for follow up industrial revolutions

Key components			
Energy	New source (<i>e.g.</i> , muscle → water → steam)	New form of supply (<i>e.g.</i> , canals, railways, pipelines)	New application in production process (<i>e.g.</i> , transmissions, motors)
Machinery	Saving labour (<i>e.g.</i> , introducing power driven machines)	Improving the capacities and quality of existing products (<i>e.g.</i> , durability of colours)	Enabling new products (<i>e.g.</i> , alloys, chemicals, synthetics)
Labour management and productivity raise	By new machinery (<i>e.g.</i> , power loom replacing hand loom)	By restructuring of the commodity chain: division of labour within (<i>e.g.</i> , Taylorism, Fordism) and beyond the factory (globalization of commodity chains)	By new control systems (time management, surveillance, labour codes)

If we accept the three key characteristics – coincidence and interrelation of 1) a new energy system, 2) a new type of machinery, 3) a new type of labour management – , we hardly find a similar innovation before the British one from the turn of the eighteenth to the nineteenth century. This is even more the case, if we add institution building, property relations and class arrangements. Within the logic of the definition, even if we accept a broad era of application, the association of ‘Industrial Revolution’ with the British case, serving as well as a universal model, makes sense. However: Challenging inherent Eurocentrism requires questioning this finding.

Why should the British way of modernizing manufacture at a specific moment of history be taken as the one and only way to the modernization of material production,

to increasing output and productivity? Taking this stance does not primarily concern the effects of industrial change in Britain; it rather reflects the British success in infiltrating the assessment of what 'Industrial Revolution' is standing for: By taking their particular British way of modernization as the general, universal one, the British case has been establishing its characteristics as benchmarks to be followed by all other nations or regions, when they want to enrol in modern economic growth. We must consider the universalizing moment in interpreting progress as part of the discussion of industrial modernization.

The 'revolutionary' power-driven factory system based on wage labour began in English, Scottish, Welsh and some continental west European regions. From here it started to put competitive pressure on all other existing systems of organizing manufacture and agriculture. It did not simply spread to the rest of the world, as conventional diffusionist wisdom claims, however. It was transforming pre-existing systems of production and subordinating them to unfavourable trade relations and low-end positions in commodity chains, extracting surplus value from local production and hereby subsidizing the advanced industrial cores. It did not allow colonized or otherwise subordinated cultures to maintain their traditional mode of combined agricultural and industrial production in the framework of the household economy any longer, as if nothing had happened (Beckert 2014). Surrendering to the cores and becoming suppliers of raw materials was one possible reaction, taking over the core-type pattern of modernization, another one.

Catching-up as a Methodological Approach to Industrial Development

Until today, catching-up attempts, successful or failing, have been attributed to agrarian, industrially under or poorly developed regions/countries, striving to achieve industrial development, which were labelled 'progress.' I suggest broadening the notion of catching-up by including into the comparison the industrialized nations themselves, looking for global preconditions for their modernization.

In order to avoid the trap of reproducing Euro- or Western centred narratives, our perspective on industrial advancements will not address industrial achievements or paths of development from a forerunners' perspective, which automatically risks being associated with Western advancement. Instead it will concentrate on catching-up strategies, assuming that any advancement in technology, management or labour organisation is taking place under conditions of inspiring models and competitive challenges. These external factors shape the conditions under which a given society is coping with competitive pressure, giving way to imitation, adaption, integration of external solutions or the independent development of new methods and paths. Assessing innovation in terms of catching-up instead of discovery allows embedding processes of innovation into a network of relations instead of attributing it to outstanding lonesome ingenuity.

One has to consider those actors, who had to cope with competitive challenges or pressure by new products, processes or management techniques, undermining their previous economic modes, social relations and political systems and obliging them to acquire new ways to preserve their own socio-economic potential. If they do not adapt to the new techniques and production systems, they risk getting excluded from market access or get integrated into commodity chains on a subordinate position. From an em-

pirical point of view, exclusion, peripheralization and subordination were much more frequent outcomes of competitive pressure than successful handling of adaptive reforms (Menzel 2015).

I therefore propose studying the decline and the adaptive responses of former industrial regions, facing competitive, eventually peripheralizing pressure from the side of the newly industrializing ones. We are used to associate the Global North with competitive advance, the Global South with imitative or adaptive catching-up; by evaluating catching-up on a broader, less Western-centric basis in a *longue durée* perspective, we realize that leading regions and their producers may lose their competitive advantage, giving way to newly emerging industrial actors and polities.

In Western Europe catching-up discourses have a longer tradition. They go back to the sixteenth century, when the emerging royal, imperial or princely states engaged in a competitive process of state formation that opened up towards transforming loose, composed, often scattered empires into political economies into territorial forms of rule. One can even speak of nationalizing the old concept of empire – confessionalization serving as important means of unification. In this perspective, catching-up discourses can be rooted in the nationalizing movements of German or English Protestantism (Hirschi 2005). In the seventeenth and eighteenth centuries, mercantilism and cameralism gave way to ‘jealousy of trade’ debates that preceded later ideas of inter-state competition and policies in support of catching-up of political economies vis-à-vis imperial competitors (Hont 2010). Mercantilist programs are excellent sources for assessing catching-up discourses. It would be promising to compare the arguments of the early European inter-imperial catching-up debates with later ones, developed in the core-periphery or North-South conflict. This article only enters the debate, when catching-up was used as an analytical metaphor as well as a strategy with regard to the introduction of the factory system in Western European countries at the turn of the eighteenth to the nineteenth century.

The catching-up approach also allows considering developing nations'/regions' attempts to adapt or copy Western achievements in technology and productivity in later moments of history on the same conceptual premises, for example, after decolonization and political independence: Catching-up resembles a permanent, revolving process, inter-linking advanced and less-advanced economies in a process of competitive challenge, leading to innovation on the one side, and adaptive response on the other side, embedded into spatial and technological re-arrangements. Industrial history thus can be understood as a process of permanent adaptations, allowing previously less competitive actors to advance temporarily, until the advance pushes others towards adaptive measurements in order to close the gap, or to re-establish imbalances on a new scale. This approach is very close to Grinin and Korotayev, who introduce the term ‘catching up divergence’ for the period from the sixteenth to the eighteenth century, when West European nations were able to narrow the gap in innovation, standard of industrial production and living, which separated them from the leading Asian empires. The term refers to the ‘Great Divergence’ of the nineteenth century, when the West clearly overtook Asian empires and transformed them into supply and sales markets for the Western factory production (Grinin and Korotayev 2015: 41–50). My approach also draws on Andre Gunder Frank's trope ‘ReOrient’, referring to the changing position of East Asian

states when closing and reversing the West-East gap to their advantage from the 1980s onwards (Frank 1998) – a trend which Grinin and Korotayev label ‘Great Convergence.’

Under these conditions it becomes possible to assess the Western industrial nations' leading position as a historical phenomenon: rising against Asian competitiveness in the seventeenth and eighteenth centuries until achieving global hegemony in the nineteenth century, facing regional shifts of leadership within the Global North during the nineteenth and twentieth centuries, and falling behind re-rising Asian competitors in the twenty-first century (Bairoch 1982; Frank 1998; Grinin and Korotayev 2015; Menzel 2015). All these shifts can be framed with the help of ‘catching-up’.

Backwardness versus Peripheralization

Catching-up shall be defined by copying and taking-over (including adaption) of more advanced techniques and proceedings in production, trade, finance, infrastructure and political institutions by a supposedly less developed region/polity, in order to achieve the standards of the supposedly more developed one (Komlosy 2012). Comparison of development usually refers to states, statehood allowing political activity to support economic improvements; achieving statehood is therefore viewed as a precondition to implement catching-up development. However, not only states but also regional and local governments and institutions can promote catching-up. And transfers and imitations can have various aims, fields and directions. So catching-up at first sight seems to be a more neutral term than industrial development, or ‘Industrial Revolution’, allowing including manifold active and reactive measurements to defend or to achieve a better socio-economic performance on a regional or state level. Catching-up does not necessarily mean pursuing the same track as the leading example.

As pointed out above, there were various moments in European history, when craftsmen, merchants, rulers and governments compared the performance of their business or state and proposed improvements, referring to copying, catching-up or overtaking more advanced competitors. Comparing the state of government administration and political economies became common in the course of modern state building from the sixteenth to the eighteenth centuries (Hirschi 2005; Hont 2010).

In the course of history catching-up has been infiltrated by the dominating discourse on the ‘Industrial Revolution’, however. At the turn from the eighteenth to the nineteenth century, the concept of copying and taking over advanced technologies faced conceptual limitation in space and scope, reducing catching-up development to the take-over of the Western model of industrialization, that is the factory system by so called backward regions or states. Both contemporary and retrospective observers argued alongside this hierarchy. ‘Civilizations without machinery’² were simply declared backward; if they were attributed capability to improve (= develop) at all, catching-up policies aimed at implementing techniques, organizations and institutions, modelled along Western standards. On these premises, climbing up the steps on the ladder of ‘progress’ appeared feasible. Criteria to assess success and failure were set by the most advanced, that is the British, later on also other Western nations. Although the overall aim was imposed by the forerunners' endeavour, necessity and criteria for catching-up

were equally accepted by the so-called backward side, and advocated in the development discourse.

At the core of any concept of modernization and catching-up was the perception of a deficit, a lack, a deficiency or blockage of economic and social development that could be measured in quantitative and qualitative terms on the level of a polity. Opinions strongly differ about the reasons for the gap to come into existence between advocates of Western modernization theories and advocates of dependency theories; they argue within two diverging theoretical and methodological models, using an entirely different terminology (see Senghaas 1977 and Arrighi 2002).³

Table 2

Backwardness – Peripheralization

Backwardness	Peripheralization
Reference for deficits and deficiencies	Difference resulting from interaction
Method: Indicators allowing comparison	Indicators allowing to study relations
State of retardation	Process of peripheralization
Deviation from the road model	Core formation and peripheralization
Regatta model of single nation states	System model

Advocates of the ‘backwardness’ model of analysis attribute the deficiencies to lacking internal capacities for modernization, a blockage due to geographical, human and institutional factors, in particular political elites who reject modernization in order to maintain their privileges. They suggest external intervention and integration into modern world-markets to overcome blockages (*i.e.* association = ASS) (see Table 3 ‘Development Strategies’).

Advocates of the ‘peripheralization’ model of analysis interpret deficiencies as the result of an unequal interregional division of labour, which translates existing regional differences into regional disparities. Stronger regions are able to establish mechanisms and profit from appropriating value from weaker regions, which – as a result – face peripheralization at the same time. As the cause for the deficit is rooted in the dependent relation with the core regions, overcoming dependency aims – at least temporarily, at diminishing the exposure to external pressure (*i.e.* dissociation = DISS) (see Table 3 ‘Development Strategies’).

Table 3

Catching-up Discourse and Developing Strategies

Catching-up discourse	Development strategies
Causes for the deficit	Strategies to overcome (catch up)
<i>Backwardness</i> Deficit due to lacking internal capacities for modernization	Integration into international markets, thereby profiting from external incentives (FDI, trade, technologies ...)
<i>Peripheralization</i> Deficit due to polarization (core – periphery), resulting from the integration of less developed regions into an unequal division of labour	Diminishing the pressure of stronger competition by protecting internal markets, support of domestic industries, regulation of external exchange

Analyses of the causes for the deficit and development strategies, pursued by state or regional governments, or propagated by political and national movements, do not compulsorily conform, however. Development strategies show a variety of measurements to achieve catching-up, depending on size and geography of a unit, existing resources and economic structure, international position, role in global commodity chains and production networks as well as the historical moment to implement development strategies.

Similar to Alexander Hamilton (1757–1804) in the United States, the German economist Friedrich List (1789–1846) advocated de-linking from British competitive pressure and proposed protectionism for German industry to become competitive themselves (List 1959 [1841]: 75–87). Both authors were arguing against free trade because of its peripheralizing effects on less competitive participants and pleading for the protection of domestic industries (dissociation DISS, focusing internal markets INT) in order to gain a competitive position before opening the German national economy towards external markets in a next step (Association ASS, focussing export markets EXT) (see Table 3 ‘Development Strategies’).

Dieter Senghaas and Ulrich Menzel elaborated a typology and sequence of catching-up strategies, based on broad empirical data of various European states, aiming at overcoming the British challenge, which they extended to non-European states for the twentieth century. They considered the historical moment to be more decisive for the choice of strategy than theories or ideologies. When state capitalism was the dominant (appropriate) form of catching-up for late nineteenth century Central Europe (and the United States), catching-up in twentieth-century Eastern Europe and vast parts of the Third World required state socialism, or another type of developmental state, as a stronger means of development policy. The typology also stresses the switch from one model to another in the course of the catching up process. Senghaas and Menzel identified the following types of catching-up, based on different dynamics.

Types of catching up in a chronological order (1830–1980) (Menzel 1988; Senghaas 1982; also see Komlosy 2012).

I. Dissociation and internal market priority (nineteenth-century Belgium, France, German Empire, Austria-Hungary, United States).

II. Association and export priority (Switzerland, Netherlands).

III. Association, followed by dissociation (Sweden, Denmark, Norway, Finland, Canada, Australia, New Zealand).

IV. Internal market priority under state-capitalism (nineteenth-century Russia, Japan).

V. Internal market priority under state-socialism (twentieth-century Soviet Union, Mongolia, China, Eastern European Peoples Democracies, Yugoslavia, Albania, socialist Third World countries).

VI. Various catching-up strategies of (non-socialist) developing countries, pursuing and combining association and dissociation, export-promotion or import-substitution.

This typology ends around 1980 and therefore is not able to assess the moment, when the share of the global product declined in the Global North (or West) and rose in the Global South, primarily due to catching-up success of big states with large, rapidly growing populations, reversing the position of forerunner-role model and catching-up

agency. Grinin and Korotayev interpret this shift to express ‘convergence’ of the former developing countries, based on GDP comparison. At closer investigation the statistics show that the diminishing (in the case of China reversing) gap between Western and emerging countries goes hand in hand with growing disparities within the Global South. Least developed countries do not only deepen the gap with Western high income countries, but equally fall behind the emerging nations of the Global South (see statistical evidence in Grinin and Korotayev 2015: ch. 3). Due to the increasing integration into global flows and commodity chains in dependent positions of suppliers of raw materials and cheap industrial labour, they remain developing countries. They try to pursue type VI catching-up strategies, aiming at minimizing dependency by balancing their relations between Western and Chinese interests.

Whether the strategies focus on internal markets (INT) or export markets (EXT), and whether they rely on free markets or the state (eventually a socialist state) to regulate catching-up, most development strategies share a common aim: the up-grading of economic structures (impacting and interacting with political and social structures) in order to achieve endogenous growth. In many cases dissociation and association are not seen as antagonistic strategies, but represent instruments of catching-up, which can be combined simultaneously, that is for different sectors, or which can follow each other.

Table 4

Development Strategies between Association (ASS) and Dissociation (DISS)

Dissociation (DISS)	DISS/ASS ASS/DISS	Association (ASS)
Focussing Internal Markets (INT)	ILG Import led growth EXG Export led growth	Focussing export markets (EXT)
Liberal market regulation	State capitalist regulation	State socialist regulation

To assess success or failure, we do not only need quantitative and qualitative indicators, but criteria for evaluation, depending on

- Goals of catching-up: maximalist (achieving a core type structure) – minimalist (developing certain branches, competences, technologies).
- Time span: How many years does it require to upgrade economic structures? How many years does an upgrading success have to persist (before a necessary adaptation/modernization) in order to be regarded successful?
- Cyclical shifts: Can up-grading that is limited to a cyclical upswing or downturn be regarded as catch up success? Or does successful catching-up require the capacity to overcome a crisis and adapt to a new arrangement/type of accumulation?

Limits and Deficiencies of the Catching-up Debate

At the turn of the eighteenth and nineteenth centuries, when the modern Western-centric notion of catching-up took shape, the debate started from clearly universalist grounds, declaring an idealized Western path of development to be the common one, ready to guide developing efforts of countries/regions, which had not (yet!) entered factory production, into the right direction. What was perceived to be right and wrong, depended on a very narrow empirical experience, overshadowed by developmentalist, universalist ideologies, conceiving ‘progress’ as the expansion of Western, industrial civilization into all parts of

the globe. Previous positive assessments of non-Western civilizations were reversed into prejudice, disdain and a feeling of superiority, giving way to their ‘orientalization’ (see next section of the paper).

Developmentalist advice conflicted with colonial interest. As colonies served to provide the motherland industries with cash crops and raw materials, industrial development of the colony was not on the agenda of colonial administration. Some economists and politicians tried to argue, why colonial practices benefited the colonized, hence legitimizing conquest, occupation and exploitation with the build-up of transport, administrative and school infrastructure in the colonies. Indigenous elites partly followed this discourse, while others opposed dependency and developed resistance. In Latin America, where the native population was strongly diminished and marginalized, creole elites became opposed to the global system under European and US dominance and advocated national development after acquiring political independence in the first half of the nineteenth century.

In general, catching-up debates were aimed not at the colonies but at the independent states with a later start of industrial modernization, both in Europe and in European off-springs like the United States, Canada, Australia, or Argentina; they were also taken up by modernizing elites in Russia and in Asian Empires, who had an old tradition of ‘industrious’ manufacture but aspired Westernization. Only when colonialism was challenged, catching-up aspirations became part of the anti-colonial agenda; after decolonization catching-up policies entered the political arena in a broad variety of developmental aspirations.

The framework and reference of catching-up was modern economic growth. Depending on the political system, social and institutional aims became part of national development programs. After World War II, when ‘Third World’ states were built along the Western concept of nation state territoriality, the realization of national development projects was embedded in a Cold War – development nexus (Westad 2007: 89). Development strategies had to cope with the long shadow of coloniality on the one hand, and with new spaces of manoeuvring, opened by the conflicting interests of old and new great powers on the other hand. Following the ideas of the Third World Movement founded in Bandung in 1957, postcolonial governments and statesmen were able to make use of the global competition of the great powers U.S. and U.S.S.R. and to a certain extent realize their development aspirations without overcoming existing international inequalities in power and wealth.

In the post-World War II and post-independence decades, the improvement of terms of trade and export income and the build-up of industrial manufacturing enjoyed priority in national development strategies. Ideas of delinking and import-substitution gave way to regional cooperation and joint initiatives to strengthen developing countries' agency in the UN-organisations. In the 1970s, delinking came under pressure of multinational corporations globalizing commodity chains, which transformed the conditions for catching-up. Like suppliers of raw materials, low-end contract manufacture in global commodity chains caused a setback in development. Some governments were able to transform their initially subaltern position in the international division of labour into opportunities of upgrading, allowing to evolve from developing to ‘emerging’ country. Industrial upgrading started in the first tier of Asian ‘tigers’, followed by a

second tier in Asia as well as some Latin American countries. The economic reasons for success are manifold and cannot be separated from political conditions, both internal ones – strong and effective government support – and external ones – geopolitical motivations of great powers to back up certain states for reasons of anti-communist containment. China's 'Opening and Reform' brought a 'great leap forward' because of Maoist legacies, a strong communist party managing China's upgrading towards a core in global capitalism. Like in the case of Great Britain, each trajectory of emergence has its specific moments and conditions; neither is it possible to generalize it nor attribute it to delinking or globalization solely.

The limits of catching-up strategies are evident, however. Historical macro-statistics, which suggest a convergence process (Grinin and Korotayev 2015), only reflect a part of reality. Many developing countries were trapped in various blockages in the course of their post-colonial attempts to build up a self-reliant national economy; they faced colonial heritage as well as on-going neo-colonial activities of their former colonial power or other Western states and institutions, carrying on dependency into the new era of national independence. Studying the reasons, why catching-up failed and did not lead to a successful implementation of modern political economies, resembling the first industrial nations, can help questioning the underlying concepts and means. In spite of the failures, catching-up remained a widely acknowledged, prominent issue until today, underlying any national as well as regional or global United Nations development goal declaration.

From a global perspective catching-up got trapped within the Eurocentric framework of stages of development (Arrighi 2002; Komlosy and Hofbauer 2019). Although opening possible paths of development beyond Western understanding, the concept of catching-up was squeezed by classifying the 'Industrial Revolution' as a necessary precondition for modernization. It became deprived of serving as a more open term for economic development and social advance.

For single units of the world-system (regions, nation states) ascent, take-off, shift from periphery to semi-periphery or core, or vice versa may (and did) take place. A single unit can improve, or worsen its position vis-à-vis other units of the world-system (synchronic catching-up) and/or vis-à-vis a previous period of time (diachronic catching-up). Circumstances and conditions of success require specific case-by-case evaluation, which can contribute to a set of policy recommendations how to manage catching up against the restraints of neo-colonialism and competitive pressures.

If core formation and peripheralization processes in global capitalism are inseparably related and produce each other, catching-up (in the sense of overcoming polarization) is impossible, however. From a state encompassing, trans-national or world-systemic perspective 'backwardness' is not due to exclusion, but to dependent inclusion into the world-economy, requiring replacing the static term 'backwardness' by the dynamic term 'peripheralization'. Correspondingly, core must not be dealt as a 'status' achieved solely on the grounds of its internal strength or superiority, but as the result of 'core-formation processes' embedded in interregional or international relations which – at the same time – correspond with processes of peripheralization.⁴ In the framework of global capitalism this means that successful catching-up reproduces regional imbalances in new forms.

It goes without saying that catching-up does not overcome inequality, neither between nor within states. It can only be perceived as success, if the perspective is limited to the ascending party. From the side of polities, who lose previous advantage, or surrender against competing efforts to catch up, gaps remain, may widen, and therefore revive or prolong the necessity to take a next effort; so catching-up will enter the agenda anew. Catching up remains a permanent challenge even for those peripheries, which were able to improve their position. Once success in a specific field of development has been achieved, they often face a situation in which features of dependency and peripheralization occur in a new field. This can be observed in the case of industrial development, which many 'Third World' states were able to realize, becoming 'Newly Industrializing Countries' (NIC). Industrial development was restricted to sectors that had lost their leading position in innovation and value-creation in the Western cores; or manufacturing had lost its leading position vis-à-vis knowledge based sectors, turning the success of industrial catching-up into a new disadvantage.

China, to a lesser extent India and some other so called NEXT or SWING states with high growth rates were able to enter modern knowledge-based sectors, putting the West under competitive pressure or surpassing it. Apart from the rising inequalities within these states, Grinin and Korotayev's finding of 'convergence' can be confirmed; as their population outweighs smaller emerging and (least) developing countries, the 'Great Divergence' indeed turned into a 'Great Convergence' from the 1990s and 2000s onwards (Grinin and Korotayev 2015: ch. 3). This finding does not inform us about the quality of catching up in a single state, however. To evaluate whether catching-up in growth led to a catching-up in development requires including qualitative indicators as well.

Peripheralization and Orientalization

Following Edward Said (1986), 'orientalization' is understood as an attitude assigning deficiencies to peoples or polities who do not correspond to the Western model of modernization. They are declared to be the 'other', thus contributing to the re-assertion of the Western self-perception as being superior, legitimizing foreign intervention, rule or domination. Speaking from a position of presumptuousness about others, supposedly less developed, less civilized people ('savages', 'barbarians', 'natives') is a common phenomenon in history. It got a new facet, when in the nineteenth century civilizations, which until then had enjoyed high esteem and admiration by Western observers (Arab, Muslim, Chinese, and Confucian ...), were portrayed and labelled as despotic, traditional, not capable to modernize from within.⁵ The term 'orientalization', initially used to describe the Western making of the Arab and Muslim world's deficiencies, lost its regional connotation and became a general term, used to characterize similar processes defaming non-Western societies to be inferior while confirming the West's superiority.

Table 5

Coping with orientalization

Ascribing deficits	Counter-strategies to overcome deficiency ascription and imbalances of development
Defining somebody (a polity, an ethnic group, a nation) to be unable for development because of internal deficiencies or	Rejecting being characterized by deficiencies legitimizing inequality as well as civilizing (development) strategies

Table 5 (continued)

Ascribing deficits	Counter-strategies to overcome deficiency ascription and imbalances of development
blockages against modernization. Deficit invention serving as a form of legitimizing dominance, hierarchy and intervention in the name of stability, civilization or development	a) Challenging the necessity to modernize according to Western models; insisting on difference/particularity as a positive sign of distinction. b) Strengthening the existing endogenous and/or cooperative potential to overcome peripheralization

Critiques of orientaling practices were developed in the framework of postcolonial studies (Said 1986; Kaps and Komlosy 2017). They focused the discursive construction of the other in a double process of delegitimizing different cultural values and legitimizing one's own superiority. As a consequence, difference, otherness was perceived as a positive category, orientaling a way to discredit it, blaming the other for lack of modernizing potential. To strive for catching-up was seen as a way to accept the Western scheme of assessing progress, comparison between developed and underdeveloped societies as a method to establish superiority. Both the concept of backwardness and the concept of peripheralization were rejected for accepting Western paths and values as guiding principles for development. Moreover, Said also rejected world-system and global history approaches for promoting Western epistemic concepts (Said 1986).

From this perspective the peripheralization and the orientalization approaches appear irreconcilable. While postcolonial theory blames critiques of inequality for reinforcing Western supremacy, socio-economic approaches blame postcolonial discourse orientation for legitimizing inequality and accepting hierarchy and dominance by stressing the right to particularity, rejecting the necessity and the legitimate aim to overcome poverty and underdevelopment. However, there is a way to reconcile the two approaches, eventually overcoming the limits of each of them. Rejecting the dominance, exercised by discursive ascriptions of supposedly inferior features, is a necessary precondition for any critique of social inequality. Political economists could expand and sharpen their analysis by taking up the postcolonial challenge of their own orientaling contributions. Critique of orientaling or othering practices must not stop at the discursive ascription. Discursive ascription or invention of deficits is part of political, military or economic ways to establish colonial dominance (Kaps and Komlosy 2017). Conversely, core and periphery formation on socio-political grounds relies on the construction and perception of images categorizing the role of different social and political actors, involved in the process. Realizing the correlation between socio-cultural and socio-economic processes of core-formation and peripheralization will hopefully allow perceiving the permanent remaking of 'self' and 'other' in a process of mutual interaction (Kaps and Komlosy 2017; Boatcă and Spohn 2011).

The concept of 'backwardness' therefore has to be abandoned. In order to make sure that the concept of 'peripheralization' does not equally reproduce the deficit trap, peripheralization processes require being related with orientaling ones (Komlosy 2012). If signs and indicators of peripherality are acknowledged, we need dynamic historical methods to analyse peripheralization as an entangled process, in which external

and internal actors have been involved. Peripheralization has always been accompanied by deficit invention, or orientalization, in order to legitimate ‘civilizing missions,’ which allow transforming ‘backward’ regions into places for the extraction of goods and values, as well as for the West to confirm the feeling of superiority.

This plea for reconciling the two approaches is not limited to the level of analysis, but to strategies as well. Accepting the pluralism of paths, as postcolonial analysis suggests, as a necessary prerequisite for endogenous development can help developing strategies of social and economic improvements, which do not comply with Western models (Boatcă 2016). As a consequence catching-up may re-widen its meaning and overcome the fixation on copying Western models; instead it may open ways to strengthen internal potentials of a given region, as well as cooperative potentials striving for balanced divisions of labour overcoming dependency and developing self-reliant paths of development.

In the light of reversed positions of ‘West’ and ‘East’ in the process of converging economic indicators, orientalization has to be reconsidered. Will the Western orientalis-ing self-understanding of civilizational superiority be given up, once the supposedly inferior societies catch up or converge? In the long run, a reversal of deficit ascription is possible and Eastern or Southern values might become the benchmark to evaluate progress and success. Conversely, in the short run, we can observe a reconfirmation of orientalis-ing attitudes in Western leadership and public opinion, carrying on orientalis-ing disqualification of non-Western societies against the evidence of their successful catching-up. There is no evidence for similar expressions of superiority in East Asian societies, which seem to be more tolerant in accepting diversity; moreover, they have been adapting Western values to their own cultures instead of rejecting them.⁶

Globalizing Catching-up

Business cycles or long waves of modern economic growth are a useful tool of analysis for embedding rise and decline of single units into the broader framework of the world-economy (for more details see Komlosy 2019). As long as catching up efforts of developing countries took place within a core-periphery structure of the world economy that was dominated by the so-called developed Western countries, business cycles remained a Western means of perception and analysis. Once former peripheral or semi-peripheral states started to overcome peripherality and engaged in taking a leading position in a new long wave, business-cycles stopped being a Western concept. So far⁷ this was only the case in the course of the fifth Kondratieff wave, when Chinese companies entered as low end suppliers of global commodity chains, but moved up to higher ends and to more value-adding sectors, challenging the Western centrality for the first time in the history of modern Kondratieff waves. It is still a highly debated question, whether or not China, or an alliance of Global South states, will be successful in becoming a type of core region that will be able to define the nature of a next Kondratieff wave (Nolan 2014).

Long waves, as modelled in a world-system understanding, emphasized the impact of upswings or crises on core-periphery relations. Following the Kondratieff framing, medium term cycles or long waves were relating transformations on the time-axis with transformations in the spatial arrangement of core and periphery formation within the world-system (Modelski and Thompson 1996; Wallerstein and Hopkins 1977;

Bornschier and Lengyel 1992; Duijn 1983). In an upswing new regions, or sectors, were incorporated into the international division of labour, controlled by the core, delivering raw materials. During crises, cores risked losing lead positions, while peripheries – and more so to the pending semi-peripheries – acquired opportunities of catching-up along with the shifting technological and organizational arrangements of the international division of labour.

From a world-system perspective on global capitalism, capital accumulation results from the spatial imbalances between cores and peripheries, including various intermediate positions such as semi-peripheries.⁸ Cores rise to their position upon their capacity to appropriate transfer value from regions, which undergo peripheralization in the process of their subordinating, often forceful integration into the uneven international division of labour. In this respect they are attributed the passive role of a victim; their activities are limited to the degree of cooperation with core states or corporations. Only when peripheries and semi-peripheries were able to turn peripheral incorporation into the basis for an eventual ascent, their agency grew. The conditions, which are favourable for such an ascent (= catching up), are subject of development studies – differing according to underlying development concepts and strategies, however.

Why some cases succeed in catching up and others do not, cannot be assessed from case studies alone. It requires taking account of the changing relations among old and new cores as well as hegemonic leadership according to historical developments and cyclical pattern. While an A-phase is shaped by a new leading sector arrangement in cores, including peripheries solely as suppliers of resources, a B-phase multiplies the functions peripheries fulfil for the core, which offers more occasions to overcome peripherality. Some peripheries become tapped for additional resource extraction, requiring the build-up of new transport and communication infrastructure; others serve as cheap outsourcing locations for those core industries which are no longer profitable in the core because new sectors or fields of activities had taken over the lead. Initially under core control, some peripheries may find a way to move up the commodity chain, from a low-end supplier to a more controlling and value-adding position at the high end of a chain, albeit at the expense of new geographical patterns of peripheralization (Fischer, Christian, and Cornelia 2010; Bair 2005, 2014; Komlosy and Musić 2021).

The ascent from a periphery to a semi-peripheral or to a core position represents a form of catching-up. Hence, instead of conceiving catching-up as a linear sequence, the cyclical approach helps globalizing and embedding catching-up into the shifting relations between core and periphery formation. Cyclical turning points support these shifts, allowing for a change of competitive positions, which impacts both old and new cores and always varies the foundations, on which lead, competitiveness and dependency become effective. Grinin and Korotayev suggest relating critical turning points in the relation between global cores and peripheries into a broader, long-durée narrative (Grinin and Korotayev 2015). Similar to other global historians and economists, they identify the 1820s as the moment, when Western states' GDP growth left former leading Asian economies behind, initiating the so called 'Great Divergence.' From 1980 onwards, the divergence gave way to converging GDP. According to Grinin and Korotayev, the potential of convergence has been starting taking shape from the very moment of divergence onwards. While the gap was still growing, the experience of divergence contrib-

uted to the idea of catching-up on the side of the colonized and exploited. According to the authors, divergence has also been preparing the grounds and delivering the means and methods until catching-up turned into convergence. To my mind, this narrative is convincing on the one hand for linking processes, which usually are analysed independently from each other, on the other hand it underestimates the persisting and newly arising imbalances, resulting from divergence and convergence processes, especially in those states and regions, where divergence does not give way to convergence.

A new globalizing perspective was introduced by Andre Gunder Frank, Kenneth Pomeranz and others initiating a debate about the 'Great Divergence' (Frank 1998; Pomeranz 2000). Up to that moment, most modern Western historiography did not consider (East) Asia as a genuine agent of modernization. Acknowledging competence, or even admiring Asian skills of government, mercantile and technological innovation, had prevailed until the eighteenth century (with very poor empirical knowledge about them), when it gave way to disrespect and disdain, blaming Asian Empires for 'despotism', 'stagnation' and a general incapacity to modernize along the Western universalized path (still not knowing more) (Osterhammel 1998). Instead Western sciences became preoccupied with self-assertion of Western superiority, which became evidenced by its capacity to achieve the 'Industrial Revolution.' From there, superiority was traced back into history, constructing more or less racist explanations for 'European exceptionalism' (Jones 1987; Landes 1998).

Asian ruling and intellectual elites were split over these allegations. Some took over the Western perspective, striving to westernize according to the supposedly universal pattern; others rejected the pressure to modernize or insisted on developing Asian paths of modernization, eventually incorporating Western elements into local and regional trajectories. Whether they liked it or not, they were forced to take account not only of Western incursions into their societies but equally of Western orientaling ascriptions, accepting, rejecting or adapting them to their situations. Coping with Western supremacy strongly differed in the case of India,⁹ which became a British colony in the nineteenth century, and China,¹⁰ which was able to maintain imperial sovereignty. The Asian debates were hardly perceived by Western academia until in recent years a new global history with strong participation of scholars of Asian origin or background, many of them working at Western universities, rejected the Eurocentric narrative burdening world history since its beginnings during European Enlightenment (Chakrabarty 2007; Chaudhuri 1990; Deng 2016; Hamashita 1994; Kaveh 2017; Pankaj 2012; Parthasarathi 2011; Roy 2005; Sugihara 2005; Wong 1997, among others).

In the course of the global turn in history, finally, also Western scholarship discovered the strong Asian competitive position at the time of the emerging 'Industrial Revolution.' Instead of considering the West as the only centre of competence accumulation, Asian regions from West to East Asia were acknowledged for their leading world-economic role up to the eighteenth (in the case of Ottoman Empire, Persia and India) and the nineteenth centuries (in the case of China and Indochina) (Frank 1998; Pomeranz 2000). The discovery of similar levels of industrial development and standards of living in English and Chinese regions in the eighteenth century (Frank 1998; Pomeranz 2000) was helpful in overcoming the myth of Western superiority at the beginning of the 'Industrial Revolution.' Conversely, this focus prevented the scholars of the so called 'California

School' from acknowledging the impact of Western transformations both internally and as global hegemon from the sixteenth century onwards. Other authors pleaded for a compromise, acknowledging the contributions of Western science and innovation in building up the foundations to catch up with East Asia in the fifteenth to eighteenth centuries, until time was ripe for the 'Great Divergence' of the nineteenth century (Chase-Dunn 2015; Goldstone 2009; Grinin and Korotayev 2015; Vries 2015). Although Asian societies led in many respects until the nineteenth century, Western science did not only catch up in the number of innovations, but showed greater aptitude in empirical application of new scientific knowledge into the world of production, they argue.

In spite of different positions of the single authors,¹¹ the 'Great Divergence' debate broke with the Eurocentric, Euro-exceptionalist narrative denying Asia an active and leading role in the world economy. Many scholars pointed at the Asian continuity of labour-intensive, 'industrious' modernization, surviving and resisting colonisation and representing a distinctive path of modernization, independent from Western Industrial Revolutions (Austin and Sugihara 2013; Hamashita 1994; Sugihara 2005). Others put greater emphasis on the rapid take-over of Western technology and entrepreneurial spirit, inspiring Asian elites to transform foreign domination into political independence and the strife for catching-up.

Inspired by the 'Great Divergence' debate, Western world-history underwent a shift from the colonialism – dependency paradigm towards acknowledging the strong and influential role of Asian societies in the world-economy. Moreover, the idea of strong Asian traditions gave rise to studies analysing Western efforts to introduce the factory system in the context of global competition and the Western strive to overcome Asian superiority in various branches of trade.

Mechanization and centralization of industrial production and wage-labour in factories ('Industrial Revolution'), backed by protection and conquest of markets, was itself a strategy of catching-up of Western European states against the industrially more advanced Asian producers at the end of the eighteenth century. If the 'rise of the West' was a consequence of global interactions, encouraging the imitation, substitution and replacement of Asian manufacture on domestic and export markets, the myth of an 'endogenous capitalism' could no longer be maintained. As a consequence, manifold efforts to re-value the 'Industrial Revolution' from a global perspective are under way, challenging old patterns, models and narratives. They may liberate the idea of catching-up from its Western-centric constraints, including the dogma of implementing a Western type of 'Industrial Revolution' as a means of catching-up.

By bringing Asia in, the contributions to 'Great Divergence,' acknowledging India and China an equal or even leading role until Great Britain's industrial and hegemonic take off blended into the debate about hegemonic or accumulation cycles, in particular into the first Kondratieff cycle that coincided with the rise of British global leadership.

It follows that the 'Great Divergence' was assessed as a key turning point, allowing the first British 'Industrial Revolution' to take place, triggering the cycles modelled by Kondratieff and others. Once started, the cyclical movement was considered being driven by inner Western developments and contradictions, giving way to a sequence of 'Industrial Revolutions', all of them under Western dominance. This narrative brought about an overemphasis on 'divergence,' finally providing arguments for the Western

success. But it had difficulties explaining the renaissance of Asian tigers from the 1950s to 1980s and the more recent resurgence of China (and to a lesser extent India) as the gravity centres of the world economy.

Another reading of the 'Great Divergence' is possible, as Frank advocated in his last book.¹² Accordingly, the rise of the West can be understood as a process, which required constant inputs and movers, not only by extraction and asset transfers from the colonized world, but also by on-going (mainly) Asian answers to cope with Western competitive pressure, which prompted colonizing counter-measures as well as the promotion of industrial modernization with local Asian faces. Looking at how Asian economies met the Western challenge at different conjunctures of long waves and accumulation cycles can help to arrive at a narrative of synchronous entanglement of the parties involved in the cyclical movements of world-economy and its geopolitical power structure.

Combining Spatial, Temporal and Sectorial Entanglements

A global history of industrial development will have to combine the spatial with the temporal character of uneven development. Instead of a linear perception, which neglects regional imbalances, unevenness must become the key element to understand the historical development of industry in different parts of the world. It follows, that writing a global history of industrial development requires taking account of the 'synchronicity of the non-synchronous.'¹³

What are the consequences for future framing of uneven and combined development studies?

The investigation sets in at the time of the onset of the 'First Industrial Revolution,' marked by the introduction of the factory system. This event is taken as a decisive rupture not because of the revolutionary character of the changes, which ever since have been strongly overemphasized. Even in Britain they only concerned a small part of the population and the economic landscape; factory production for a long time coexisted with other forms of craft and home industries, manufactories and putting-out systems, wage labour being combined with other paid and non-paid forms of work, including the household (Komlosy 2018). The industrial transformations in Britain did have consequences on a global scale: not only did British factory products, first cotton yarn then followed by other branches, set pressure on manufactures, craft and home production all over the world, prompting them out of the market or adapting specific strategies to stay competitive (Beckert 2014). Factory products and their productivity also set the standards for the evaluation of any manufacture production. Having or not having experienced the 'Industrial Revolution' was the one and only criteria for progress. Even today, as industrial (mass) production is significant for emerging economies, the post-industrial cores are still referred to as 'industrial countries,' attributed because of their participation in the 'Industrial Revolution' and their successive industrial diversification.

The term 'Industrial Revolution' should therefore not be detached from the historical context of British respectively Western lead and hegemony. It is a purely Western phenomenon, imposed on the whole world, which is transformed into degrees of deficit, none, bad or better performance, graded by Western standards and institutions, and therefore must be abandoned in order to liberate the discourse from its burden. I do not see a way to conceive of catching up developments anywhere else to conform to the benchmark

requirements of the 'Industrial Revolution' made in Britain. Conversely, the concept of catching-up can serve as a useful analytical tool to grasp the permanent regional shifts in economic and technological leadership and inspiration. The term 'catching up' is open to acknowledge manifold actors in this process, and does not exclude non-European players or the European periphery by definition.

In a world-system framing, business and accumulation cycles allow assessing moments of divergence and convergence, movements of expansion and contraction of the world economy on a global scale. To make big history feasible, systemic framing also requires local and regional dimensions. Competition represents a form of dialogue – action, reaction, and adaption –, which is not only shaped by global players and global hegemony, but also by local and regional core-periphery relations, interrelating with the global sphere. Leading as well as catching-up actors, their achievements, strategies and failures, require rooting in a specific social and political environment. This is the moment, when politics – state regulations and measurements to promote catching up – come on the research agenda.

Focusing synchronicity of various functional locations and sectorial arrangements at a specific cyclical moment is a key issue. If cyclical development is not conceived as a succession of independent consecutive stages, but as an overlapping process, in which older layers coexist and eventually merge with newer ones, we have to consider the multiplication of synchronicity in the course of the historical process. Each cycle adds new combinations (Norkus 2018). In other words: Each moment of catching up refers to an already existing sectorial setting. If it is not merely imitating this setting, it produces synchronous non-synchronicity, characterized by the coexistence and combination of advanced and out-dated sectorial arrangements, with on-going sectorial complexity contributing to a more and more differentiated pattern of global and regional stratification.

NOTES

¹ Following classical definitions of Chris Ashton (1969) and David Landes (1969).

² According to the *International Encyclopedia of the Social Sciences*, (ed. David L. Sills; New York 1968), vol. 3, Entry 'Colonialism', pp.1–6, '... features of the colonial situation are: domination of an alien minority, asserting racial and cultural superiority over a materially inferior native majority ... A non-Christian civilization that *lacks machines* and is marked by a backward economy ... And the imposition of the first civilization upon the second.'

³ For a more recent introduction into the elaboration of development theories see Karin Fischer, Gerhard Hauck and Manuela Boatcă (2016).

⁴ The author is following the World-System concept and terminology as proposed, among others, by Immanuel Wallerstein and Terence Hopkins (1977: 111–145) and Immanuel Wallerstein (2011).

⁵ By authors from very different political backgrounds such as Karl Marx, Max Weber or Karl August Wittfogel (see Kaps 2014).

⁶ This question deserves closer investigation with regard to different non-Western civilisations.

⁷ Unless one extends business cycles in periods of time prior to Western hegemony, as proposed by George Modelski and William R. Thompson (1996) or Andre Gunder Frank (1998).

⁸ Most recently discussed in Boatcă, Komlosy, and Nolte (2016a, 2016b, 2018).

⁹ In India, the imperial past gave way to 1) anticolonial positions, blaming colonialism for its legacies that have to be overcome by independent leaders' efforts, 2) postcolonial positions that see a continuity of coloniality in contemporary politics, and to 3) revisionist positions that acknowledge the

contributions of colonial governance for economic modernization, education and state-building. See Chakrabarty 2007.

¹⁰ As China did not face direct colonial rule, scholars were less occupied with analysing the imprints of foreign domination on the Chinese elites. Discussing China as part of the world-economy or the world-system is therefore rather the exception (see Susanne Weigelin-Schwiedrzik 2005).

¹¹ Eric Vanhaute (2016) analyzes different positions on the Great Divergence.

¹² Frank 2014. A *Journal of World-System Research* special issue Vol. 21, 1 (2015) was dedicated to debating Frank's ReOrient concepts.

¹³ The idea was developed by the German philosopher Ernst Bloch in 1953 and became a metaphor in social science history to express the spatial unevenness of development in different part of the world.

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