

Spatial Competition and Unevenness in Global Capitalism: Labor, Nature, and the Seesaw of Capital

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Abstract

Critical studies of globalization seek to unmask how this stage of capitalist history reshapes patterns of uneven development around the world. While globalization can reproduce long-standing patterns of North–South unequal exchange, in this paper, I focus on how capital mobility and competition contribute to uneven development. Drawing primarily on Neil Smith’s theory of uneven development, I offer a theoretical discussion of how capital’s capacity to seesaw from place to place in its search for higher profits—and the spatial competition between places that this capacity triggers—constitutes a source of unevenness. Regions, nations, and localities adapt to capital’s seesaw by offering, among others, cheaper labor and lower environmental regulation costs. While this can work for a time, advantages are either eroded by the unfolding contradictions of capitalism or competed away by the emergence of new areas. In the last section, I offer a tentative illustration of this argument with a brief examination of pollution havens and Special Economic Zones.

Keywords

globalization, uneven development, labor, environment, pollution havens, Special Economic Zones

Introduction

Unmasking and criticizing the uneven and unequal nature of capitalist production is a long-standing preoccupation of critical political economy and of the Marxist tradition in particular. This question is especially relevant in our era of capitalist globalization (Robinson, 2004, 2008, 2020) In this paper, I build upon Neil Smith’s (1990, 2006a, 2006b, 2011) work in order to offer

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a theoretical discussion of how the combined dynamics of enhanced capital mobility and competition for this mobile capital constitute a main source of contemporary global unevenness (see also, Harvey, 1999, 2003, 2005; Robinson, 2004, 2008). Here unevenness is understood as the outcome of capitalism's contradictory tendency to universalize capitalist relations and conditions of production while simultaneously producing differentiated spaces via the dynamics of capital mobility, inter-capitalist competition, the division of labor, and the state of the class struggle (Smith, 1990, 2006a; Walker, 1978). Concretely, uneven development is reflected in spatially unequal patterns of investment, employment, economic growth, and socio-ecological impact. While I seek mainly to unpack and extend Smith's (1990) framework, I draw on other accounts, in particular Moore's (2015a) world-ecological perspective, in order to address some aspects of unevenness not sufficiently examined in Smith's early work—for example, the global and ecological dimensions of unevenness. I argue that Smith's 'seesaw theory of uneven development', if recast in an ecological and global context, can help explain some of the main trends of the past decades of capitalist globalization. These include waves of relocation of labor-intensive manufacturing, competition for mobile capital via wage levels and special tax and regulatory policies, and, more generally, intensifying economic turbulence and accelerating socio-ecological degradation (Brenner, 2006; Duménil and Lévy, 2004; Harvey, 2005; Klein, 2014; Robinson, 2004, 2020; Saez and Zucman, 2019).

This argument is elaborated in three sections. In the first section, I locate my discussion in conversation with works on unequal exchange (Emmanuel, 1972; Frey et al., 2019; Suwandi, 2019). I argue that globalization combines, contradictorily, long-standing patterns of unequal exchange with a different dynamic of unevenness rooted in the increased mobility of capital. Competition for mobile investments fuels unevenness by enhancing capital's capacity to move from place to place in the search for lower costs and higher profits (Robinson, 2004: 21–22, 2008: 26). While this spatial competition and the conditions that create it are increasingly central in global capitalism, it has nonetheless received less attention than unequal exchange. Following this, in the second section, I revisit Smith's (1990: 148–154) 'seesaw theory of uneven development' to offer a theoretical account of the dynamic of mobility and competition. I expand the theory by incorporating global and ecological dimensions of unevenness that Smith left relatively unexamined. Global capital's capacity to seesaw from lower profit to higher profit areas unleashes an intense spatial competition for productive investments. At least since the mid-20th century, but more forcefully since the onset of globalization in the 1970s, a growing number of countries and sub-national localities try to attract this seesawing capital by offering one or more of the traits sought by it, for example, lower wages, less stringent environmental regulation, and lax tax regimes (Saez and Zucman, 2019; Slobodian, 2023). This competition creates uneven patterns of investment, growth, and employment—temporarily benefiting some areas, under-developing other areas, pushing inequality upward everywhere, and, potentially, leading to worker unrest.¹

My discussion is primarily theoretical. That said, in the third section, I provide a tentative empirical illustration of the argument. I first describe, in general terms, the association between wages and environmental regulation costs, and the relation between these and foreign direct investment (FDI). Afterward, I offer a brief critical examination of two examples of capital's seesaw at work in global manufacturing, specifically, the proliferation of pollution havens and the growth of Special Economic Zones (SEZs) (UNCTAD, 2019, 2022). While the discussion of pollution havens highlights capital's seesaw and its relationship to environmental regulation costs, the discussion of SEZs describes how states have responded to this dynamic. On the basis of this discussion, I argue that Smith's framework can help illuminate key aspects of contemporary uneven development that are rooted on capital mobility and spatial competition for investments.²

Unequal Exchange, Spatial Competition, and Contemporary Unevenness

While inspired by its critical spirit, the argument outlined here differs significantly from the unequal exchange framework used by notable Marxist scholarship on globalization (Amin, 1999; Ricci, 2019; Smith, 2015; Suwandi, 2019). Contemporary unequal exchange theory includes two main variants: the classic approach with a focus on labor and a more recent version where the ecological question is central. The first, which emerged as a Marxist critique of the Ricardian notion of the gains from trade, focuses on how international trade hides transfers of value from Global South to Global North, or, as in the classic paradigm, from peripheral to core countries (Amin, 1979). Emmanuel (1972), for example, showed that trade between regions that have tendentially equal rates of profit but unequal rates of exploitation produces a hidden transfer of surplus value from the region with higher rates of exploitation (and lower wages) to the region with lower rates of exploitation (and higher wages). Because of its lower wages and specialization in labor-intensive industries, then, Global South exports contained larger shares of *unpaid* labor than Global North exports. This means that, under capitalist free trade, part of the periphery's surplus value is appropriated by the core economies via this unequal exchange (Amin, 1979). Recent scholarship expands this tradition by placing the theory in the context of capitalist globalization, showing the continuing relevance of hidden transfers of value in the global production system (Ricci, 2019; Smith, 2015; Suwandi, 2019).

Since the 1980s, furthermore, this conceptualization has been updated to account for the ecological dimension of North–South trade. Theoretical interventions (Foster and Holleman, 2014; Frey et al., 2019: 11–140; Hornborg, 1998) and empirically focused analyses (Frey et al., 2019: 143–241; Jorgenson, 2006; Roberts and Parks, 2007) highlight the role of unequal valuations of nature and of different rates of extraction of resources emerging from the North and South in producing development and underdevelopment. Studies of unequal ecological exchange show that capitalist trade patterns undervalue Global South ecologies, leading to the South's loss of disproportionate shares of energy and material resources while also experiencing larger environmental impacts (Clark and Foster, 2009; Frey et al., 2019).

In both variants, unequal exchange theory remains an important critical perspective because it captures the unevenness created by value transfers hidden in global trade structures. That said, here I draw on Smith (1990, 2006a, 2011) to tackle other sources of unevenness that have emerged alongside, and exist in tension with, the structures of unequal exchange. I refer mainly to the combined dynamic of capital mobility and spatial competition for investments that, since the 1970s, is central in shaping global uneven development. In the current global economy, the effects of this intertwined dynamic of mobility and competition exist in contradictory relationship with the structures of unequal exchange. The two processes are contradictorily combined because unequal exchange represents an unqualified benefit for the core economies as long as high-wage nations and low-wage nations produce commodities that are, in some way or another, complementary—that is, as long as there is unequal specialization between North and South (Amin, 1979). If countries with different wage levels compete directly in the world market producing equivalent commodities, however, this direct competition transforms the situation into one where low-wage countries grow some of their industries and their income by underselling high-wage countries (Arrighi, 1990: 13). Considering this, maintaining the unequal specialization that underpins unequal exchange comes at the cost of the North's losing segments of its manufacturing base because of their relocation—via the intertwined process of capital mobility and spatial competition for investments—to the low-wage regions. This relocation, however, implies important dislocations. As trade competition and relocation of industries accelerated in the past decades, for example,

Northern manufacturing workers experienced historic unemployment and income stagnation (Autor et al., 2016; Brenner, 2006: 323–343; Moody, 1997; Pollin, 2007). On the flip side, Suwandi (2019) shows that global value chains built on the basis of extension of labor-intensive manufacturing to the Global South constitute a new form of imperialism. While the South gains manufacturing employment, it is under an unequal integration whereby Southern manufacturing suppliers are exploited by Global North command centers.

Both unequal exchange and spatial competition for mobile capital contribute to global unevenness—albeit pulling in different directions, working in different ways, and having potentially different degrees of significance. Nonetheless, in this paper, I bracket the problematic of unequal exchange since it has received significant attention in the critical literature. I focus instead on how capital mobility and spatial competition have become increasingly central under globalization. This dynamic is the result of two defining traits of post-1970s capitalism: growing trade and, in particular, increased cross-border flows of capital (Robinson, 2004; Shaikh, 2007). As Robinson (2004) shows, the explosive growth in FDI in the past decades—growing from a few dozen billion US dollars annually in the early 1970s to trillions of dollars in the 2000s—is empirical evidence that more capital is moving across borders. International portfolio investments and other forms of financial flows, not counted in FDI, add further evidence to this new mobility (Robinson, 2004). In this era of renewed capitalist mobility, the inflow of foreign capital has been embraced by nation-states and sub-national localities as a developmental strategy. As the third section will argue, this is clearly evident in the worldwide proliferation of Special Economic Zones designed to attract mobile capital (Robinson, 2008: 104–126; Slobodian, 2023; UNCTAD, 2019). As more nation-states embrace this new strategy of development via FDI, global capital is freer to, in Smith's (1990) words, seesaw from one zone to another following profitability signals and producing unevenness.

Revisiting Smith's Theory: Capital's Seesaw in Global and Ecological Perspective

A notion of capitalism's unevenness is found in the Marxist tradition at least since Marx's own writings. Today, however, the classic conceptualization of this phenomenon is associated with Leon Trotsky. The Russian revolutionary formulated a 'law of combined and uneven development' that portrays a discontinuous process where development occurs at different rates depending on the specific geographical and historical context. Moreover, development is not spread evenly across spaces, leading to the existence of economic regimes that combine 'advanced' and 'backward' traits (Trotsky, 2008). While this notion of discontinuity and heterogeneity is implied in my discussion, the different conditions of our era—when capitalist relations of production have been generalized across the world—constitute a historically specific form of unevenness. When post-World War II regulations and controls that constrained global trade and capital mobility were increasingly dismantled as a response to the 1970s accumulation crisis—a dismantling process that accelerated with China's post-Mao economic reforms and the collapse of the Soviet Union—the transnational capitalist class attained more freedom and flexibility than ever before to exploit or appropriate labor forces and ecologies across the globe (Moore, 2015a: 255–264; Robinson, 2004, 2008). In this context, unevenness is in part produced by what Smith (1990) called 'the seesaw movement of capital' from low-profit zones to potentially high-profit zones in a globalized space structured by capitalist relations of production (see also Harvey, 2003: 63–64, 93–95). This notion, introduced by him in the 1980s, provides a useful starting point for a theoretical discussion of uneven development under globalization.

A complete outline of Smith's (1990) theoretical discussion, as laid out in *Uneven Development*, is beyond the scope of this article. It must be noted, nonetheless, that Smith's seesaw model is part

of a complex dialectical elaboration of uneven development contained in his book. Smith (1990: 1–31) first surveys the ideological perspective on nature, where nature is either something separate from (and external to) humans, or, alternatively, something universal (thus, in this version nature includes everything, even human institutions). While the universal concept of nature risks conflating social and natural processes, the view of nature as what is external to humans provides the foundations for notions of the ‘domination of nature’ (Smith, 1990: 23–31). In opposition to these interpretations, Smith (1990: 54) argues that rather than dominating nature what capitalism does is to progressively subordinate all production to production for profit and, in doing this, it *produces* nature, and space, in historically specific ways.

Smith (1990: 44–45) theorizes, for example, that pre-capitalist production systems entailed a distinction between first nature (non-produced use-values) and second nature (produced use-values). With the unfolding of capitalisms’ tendency to universalize commodity production, then, the production of nature becomes deeper, to the point that *all* use-values are now produced nature (see also Smith, 2006b). He argues that even ‘pristine’ natural spaces such as Yellowstone or Yosemite, are, in fact, the product of a cordoning off of a certain space within the context of a regime rooted in commodity production for profit. National Parks are *produced* as pristine spaces commodified via postcards, restaurants, and packaged tourist experiences more generally (Smith, 1990: 56–57). The same is true with respect to space. Far from being an absolute arena where production and exchange happen, space is produced under capitalism. Citing Marx’s own insights on this question, Smith (1990: 81–90) explains that, under capitalism, space is simultaneously a set of commodities (e.g. in the transportation sector) and means of production that is produced unevenly. As modern history unfolds and commodity production expands globally, capital’s universalizing tendencies push for the generalization of capitalist relations and conditions of production. Contradictorily, however, this historical process is geographically uneven, since spatially differentiated class dynamics, accumulation rhythms, and divisions of labor produce places that play distinct roles in world markets and grow at different paces. In short, Smith (1990: 90) posits that ‘uneven development is the concrete manifestation of the production of space under capitalism’.

In this dialectical framework, the production of space is inherently contradictory and uneven, leading to the generalization of capitalist relations of production while differentiating spaces along various axes. One must add that the production of nature is also contradictory since it does not guarantee control. It triggers multiple unexpected outcomes that undermine the notion of domination of nature (Smith, 1990: 62–63). Since Smith did not elaborate sufficiently on how this contradiction relates to unevenness, I draw on Jason Moore’s (2010, 2015a) work on capitalism as world-ecology to unpack this role of nature in uneven development. Moore (2010, 2015a) argues that the production of nature is an inherently dynamic and contradictory process whereby forms of commodification of nature that work for capital—in the sense of facilitating increases in profitability by reducing the cost of natural inputs—do so only within limits. For example, while fossil fuel extraction on the cheap fueled waves of windfall profits over centuries, as Moore (2015a, 2015b) shows, this capital-intensive regime of appropriation of nature ultimately erodes the socio-ecological basis of accumulation. Unfettered extraction has contributed to climate change while also exhausting easily accessible cheap coal and oil sources. In addition, there is rising environmentalist pressure on states to deal with climate change, resulting in policies that, if not block, at least make the access to—and use of—cheap carbon sources more expensive. These processes can result in what Moore (2010, 2015a) calls a tendential *underproduction* of cheap nature and, in turn, represent important obstacles to long-run profitability. Below I incorporate Moore’s insight when I retake the question of the role of nature in uneven development.

Going back to Smith’s original contribution, he uses the conceptual tools outlined above—but mostly those related to space—to put forward a ‘seesaw theory of uneven development’.

Smith (1990) described his theory in terms of an abstract space produced by the institutionalization of capitalist relations of production. This space is profiled by what he called a 'profit surface' (Smith, 1990: 148):

If the accumulation of capital entails geographical development and if the direction of this development is guided by the rate of profit, then we can think of the world as a 'profit surface' produced by capital itself[.] Capital moves to where the rate of profit is highest (or at least high), and these moves are synchronized with the rhythm of accumulation and crisis. The mobility of capital brings about the development of areas with a high rate of profit and the underdevelopment of those areas where a low rate of profit pertains. But the process of development itself leads to the diminution of this higher rate of profit. (Smith, 1990: 148–149)

This global space profiled by a profit surface emerges when capitalist property and production relations are generalized, and it is shaped by profit-seeking and its determinants. That said, this theorization of a profit surface does not describe it as neutral container or smooth absolute space where accumulation simply takes place. As a space produced by capitalist development, its topography is always and necessarily uneven. First, as noted above, historical capitalism differentiates spaces along the axes of class dynamics, accumulation rhythms, and international divisions of labor—creating, for example, the core-periphery differentiation analyzed by unequal exchange studies (Smith, 1990: 112–113). Second, the increasingly total mobility of capital—an outcome of the generalization of capitalist relations of production—itself reaffirms the pre-existing unevenness. Smith's model suggests that there is a constant movement of capital from low-profit to high-profit regions that reproduces the spatial unevenness that made capital mobility necessary in the first place. These movements of capitals and of centers of growth produce uneven elevations in the profit surface. For example, concentrations of capital in certain points of production create high elevations in the profit surface. Different elevations, then, reflect differential profitability and developmental differences, that is, development and underdevelopment (Smith, 1990: 148–150).

Below I provide a series of visualizations in order to unpack Smith's spatial argument but also to elaborate on some implications left unexamined by him: the possibility of a global scale dimension of the seesaw dynamic and the role of socio-ecological contradictions in it. Considering this, his model can be interpreted in terms of Figures 1 and 2. In a global space where capitalist relations are dominant and capital mobility is unfettered, some places ('zones' in the figures) are developing, while others are *under*-developing (e.g. experiencing deindustrialization, relocation, unemployment, investment slowdown, capital flight).

As a high-profit zone, 'Zone B' in Figure 1 attracts capital and sees the relocation of industries within its boundaries. Meanwhile, low-profit zones such as 'Zone A' experience outflows or

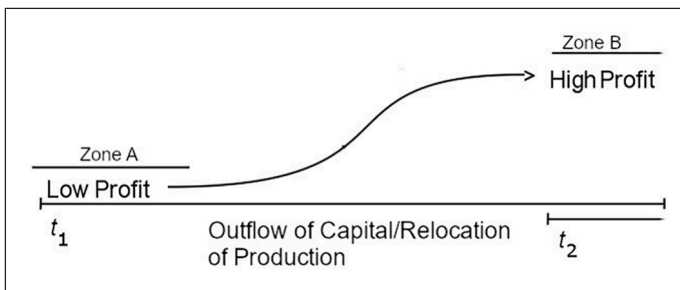


Figure 1. The profit surface from t_1 to t_2 .

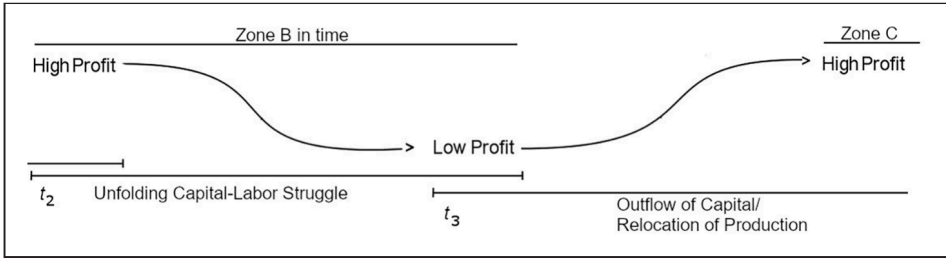


Figure 2. The profit surface from t_2 to t_3 .

relocations of capital. In time, however, the inherent contradictions of capitalism come into play. This is best explained by considering the temporal dimension (in this case represented by time points $t_1, t_2 \dots t_n$). From any given point in time, say t_1 , a low-profit zone begins to experience or is already experiencing an outflow or relocation of capital. Simultaneously, a high-profit zone is receiving inflows of capital or the establishment of new production infrastructure. This flow takes place in the diagram from t_1 to t_2 . Unfortunately for capitalists, all accumulation booms end. During the following period, from t_2 to t_3 , the high-profit zone transforms into a low-profit zone (see Figure 2). Now the zone that was absorbing capital because of its promise of high profits (‘Zone B’ in the diagrams) becomes itself subject to capital outflows in relation to a new high-profit zone (‘Zone C’ in Figure 2). This migration starts a new period, t_3 and onward, in the figure.

In Marxian fashion, Smith argues that the inflow of capital and the development of capitalist production itself trigger the processes that sooner or later undermine a given place’s attractiveness for business and cause a slowdown in development via disinvestment:

[T]he development of the productive forces in a given place leads to lower unemployment, an increase in the wage rate, the development of labor unions and so forth, all of which help lower the rate of profits and thus take away the very reason for development. (Smith, 1990: 149)

The cycle can then start anew as places undermined by the contradictions of capitalism become ripe again for a new wave of investment (Smith, 1990: 149–150).³ Ultimately, uneven development emerges as an outcome of the seesawing of capital between different zones in the profit surface—a process that, in turn, reflects the state of class struggles. Once completed, it is clear that this model implies a certain level of abstraction. Akin to Marx’s (1972) methodological note in the *Grundrisse*, the idea is to uncover, amid a concrete reality with multiple overlapping but often secondary determinations, the core determinations. These core instances are abstracted from the concrete totality but then help in retracing the socio-historical processes by delineating its main traits and tendencies. As the analysis revisits the concrete situation, it incorporates additional elements that, together with the basic determinations, constitute the socio-ecological whole as a rich totality—a totality now comprehended after the process of abstraction. For example, here the focus on the core determinations excludes some important obstacles to capital mobility. Mobile capital avoids certain low-cost areas because, for example, they suffer from reputational issues, they lack adequate infrastructure, property rights are uncertain, or their distance to core markets is not compensated by its lower costs (UNCTAD, 2020). In addition, oftentimes what moves from one area to another is not a discrete amount of money capital per se but rather there is a relocation of the accumulation center and thus a large proportion of investments (of various origins) gravitating to this new center—a messier process than what Smith’s model suggests. However, these are complicating factors that

do not challenge the validity of Smith's abstract but *core* insight that in the context of a geographically uneven profit surface, class dynamics can determine the direction of capitalist development. In this context, enhanced capital mobility means that capitalists have the 'strategic advantage'. Capital can avoid political controls or worker militancy by withdrawing investments from specific regions (Walker, 1978). Ultimately, while concrete physical and social spaces are far from resembling an abstract profit surface, this theorization can illuminate a real political problem confronted by the working class: capital's attempts to treat space as an abstract profit surface have been successful enough for it to maintain its domination (even in light of resistance by states and peoples) and its freedom to move to where profits are higher. The history of the world auto industry provides an early illustration of this process. Silver (2003) shows that since at least the 1960s, the auto industry, following successive waves of labor unrest, has seen its leading growth site constantly move to new areas. Capital responded to labor militancy and rising wages via automation, promotion of 'responsible' unionism, and, most importantly, relocation (Silver, 2003: 41–74). As profits decline even when automation and a weakening of unions take place, relocation remains a preferred tactic.

These waves of relocation and re-centering of various manufacturing industries are thus significantly shaped by the process outlined here: a previously high-profit zone becomes less and less profitable as the class struggle intensifies, labor costs rise and competitiveness in capitalist terms declines.⁴ We thus see a former high-profit zone transformed into a relatively low-profit zone because of the unfolding contradictions of capital. Going back to Figure 2, we can see this represented by the transition from t_2 to t_3 within a particular production zone. While Figure 1 emphasizes the outflow of capital from a lower profitability zone to a higher profitability one, the first part of Figure 2 describes the unfolding of the class relations that undermine profitability itself. In time, then, a previously promising zone undergoes profitability decline and, sooner or later, experiences the outflow or relocation of capital.

By the 1970s and 1980s, as post-World War II era capital controls and trade protections were eliminated, capitalist globalization expanded this geographical seesaw into new areas of world accumulation. Smith did not consider this evident at the time of publication of his book (Smith, 1990: 150–151). In a short piece published in 2011, however, Smith reconsidered his earlier argument and now saw the global extension of the seesaw dynamic as an accomplished fact. Nonetheless, he devoted only a few sentences to this question stating, without elaboration, that it was a local scale process that had 'ballooned' to global proportions (Smith, 2011: 262). Implicitly, the idea was that an important global change took place between the late 1970s and the 2000s. Indeed, as Robinson (2004, 2008, 2020) has argued, the expansion of capitalism after the 1970s crisis is of world-historical significance: most non-capitalist areas of the world were finally incorporated into a new, truly global, regime rooted in increasing international flows of capital and goods, growing global production networks and transnational capitalist formation. In this context, capital's seesaw went global and its associated spatial competition intensified as most countries implemented FDI-seeking and capital-friendly policies in order to navigate these new conditions. A global recasting of Smith's model can help illuminate the unevenness derived from these post-1970s conditions by examining capital mobility and its basic structural determinants. As I hinted at above, however, the profit surface identified by Smith (1990: 148) is shaped not only by the trajectory of class struggles and labor costs, the basic determinants he highlighted. It is determined also by the trajectory of socio-ecological processes (e.g. environmental regulations) and natural input costs. The role of nature in unevenness is rooted in the political ecology of accumulation (Moore, 2015a).

In Marx's (1976, 1981) writings, while fixed capital represents the tools and means workers use to produce commodities, circulating capital represents the natural substratum of accumulation, that

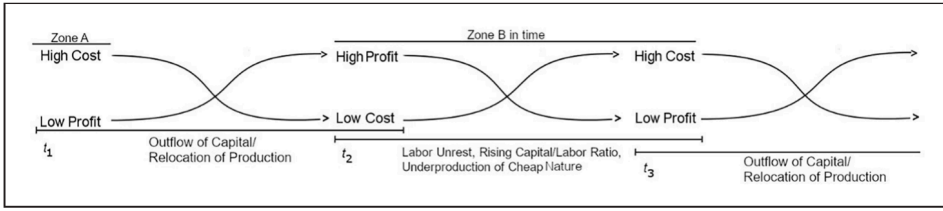


Figure 3. The profit surface in time.

is, the energy and materials that fuel and feed the production process. Considering this, in addition to comparatively inexpensive labor, Moore (2010, 2015a) shows that, at the systemic scale, the capitalist class needs access to circulating capital on the cheap in order to maintain long-run profitability. Any political and social action that reduces access to cheap natural inputs or increases the costs of its use has the potential to erode profitability by increasing the direct or indirect cost of circulating capital (this tendency usually unfolds in counterpoint to the overproduction of fixed capital that pulls profitability down in the standard Marxist account described in, for example, Lipietz, 1986; Shaikh, 1999). For example, regulations that place caps or fees on emissions of pollutants associated with fossil fuels can induce rising costs by forcing the use of costlier substitutes or imposing pollution abatement spending. These actions reduce access to—or increase the cost of the use of—cheap inputs. Directly or indirectly, they create a relative underproduction of low-cost circulating capital (Moore, 2015a). Unless there are compensatory cuts in the costs of labor or fixed capital, the *underproduction of cheap inputs* combines with capitalism’s historical tendency to replace workers with fixed capital to increase overall production costs. In short, the rising cost of circulating capital can put downward pressure on profitability (Marx, 1981: 317–338; Moore, 2015a: 91–109; Ortiz, 2020). There is, then, a potential dialectical combination of labor unrest and underproduction of cheap nature that determines the trajectory of costs and profits. Capital implements recurrent spatial fixes by relocating to, or expanding in, regions that combine both low-cost labor and lower environmental protection costs. These fixes create an uneven geography of accumulation (Harvey, 1999, 2003; Werner, 2016). This dynamic can be visualized if we expand the diagrams presented above. In this context, what one observes is an uneven profit surface that raises or declines depending on the combination of labor *and* environmental costs. The inclusion of the trajectory of costs (as expected by the theory), and its mirroring of the profit surface, is represented in Figure 3.

The flows of capital and the spatially differential growth in investment are influenced by many overlapping factors, including exchange rate fluctuations, reputational issues, variations in property protections, available infrastructure, and distance to core markets. A structural account like the one derived from Smith’s model and Moore’s framework, however, says that, given a minimum level of productivity and prior development, capital’s seesaw ultimately gravitates around the profit-determining instances of labor costs and the costs of appropriating of nature. In the following section, I use this perspective to offer a tentative empirical illustration of the overall argument. I begin with a general description of the contemporary links that exist between environmental regulations, wages, and FDI. Afterward, I discuss two concrete examples of capital mobility and spatial competition at work. I first describe the relocation of polluting industries to the Global South—namely, the pollution haven phenomenon. This discussion emphasizes the perspective of mobile capital and its search for cheap nature. Following that, I shift the focus to SEZ, a strategy where cheap labor and lax regulatory environment are combined in order to adapt to capital’s capacity to seesaw from place to place.

Preliminary Empirical Illustrations: Pollution Havens and SEZs

Although consistent evidence across nation-states is difficult to find when examining the issues at hand, available data reasonably fits with the overall theoretical picture outlined above—especially for the case of labor-intensive manufacturing. First, there is a correspondence between wage levels and environmental regulation costs, or, in Moore’s (2015a) words, between cheap labor and cheap nature. Take, for example, the index of Environmental Policy Stringency (EPS) published by the Organization for Economic Cooperation and Development (OECD). It covers both OECD member nations and so-called BRICS countries (Brazil, Russia, India, China, and South Africa). The index combines a number of environmental policy instruments—pollution and emissions taxes, pollution and emissions limits, subsidies for green energy, feed-in tariffs for clean energy generation, research and development budgets, and so on—into one measure of overall policy stringency within a nation’s boundaries. It measures stringency in terms of a policy’s imposition of a cost on environmental degradation or air pollution. The index ranges from the lowest stringency level (0) to the highest (6). In light of the discussion of Moore’s (2010, 2015a, 2015b) concept above, this index can be interpreted as an *inverse* of access to cheap nature: key EPS elements such as the existence of a carbon tax or emission limits, for example, register the imposition of an *additional* cost on the use of fossil energy (the principal circulating capital in the global economy). This simple ‘operationalization’ of Moore’s concept, of course, tactically reduces his nuanced discussion to an indicator that is far from encompassing the rich historical totality implied in the concept of cheap nature (see Moore 2015a). Nonetheless, just like development economists’ use of GDP per capita as proxy for ‘development’ or Marxists’ use of the profits to fixed capital ratio as a representation of Marx’s ‘rate of profit’, the loss of some complexity is worth it because these indicators provide a tentative empirical footing for further elaborations. With this caveat in mind, I argue that as the EPS index raises in value, it signifies that the appropriation of nature and environments via carbon-intensive and pollution-intensive production becomes costlier. It either imposes a rising cost in the use of cheap circulating capital or forces the transition to potentially expensive alternatives. A low EPS, on the contrary, signifies the availability of cheaply appropriated nature—at least in the context of access to, and consumption of, fossil fuels. Considering this, Figure 4 predictably suggests that there is a relationship between cheap nature and cheap labor. Taking the average of the 1990–2012 EPS index for 23 countries (17 OECD countries and the 6 BRICS countries) and plotting it vis-à-vis 2012 minimum wages one notes a clear divide (see Figure 4).

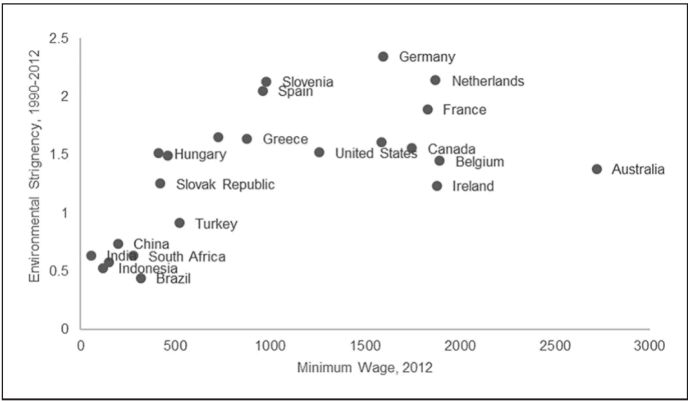


Figure 4. Relationship between wages and environmental regulations.
Sources: Data from ILO (2021) and OECD (2021).

While there is some noticeable spread among advanced capitalist countries, there is a clear clustering of BRICS countries at the bottom left of the figure (Turkey, a semiperipheral nation, is close to this grouping). For the 1990–2012 period, the BRICS (and Turkey) all have an average EPS of less than 1. In contrast to Global North nations where variations in wage levels and environmental regulations abound (always, however, above Global South norms), BRICS countries have lower wages *and* lower environmental regulation costs—both of which they combine with rising labor productivity among their massive working classes, especially China and India (ILO, 2021). Not coincidentally, BRICS countries, together with other Southern exporters like Mexico and Vietnam that also offer lower wages and less stringent regulations, are among the top recipients of global FDI (UNCTAD, 2019, 2020). This is especially true in the case of labor-intensive manufacturing fueled by polluting energy sources. In this sector, the combination of low wages and less stringent regulations provides a competitive advantage and a pull factor for capital. Below, I elaborate on this by looking first at how the search for cheap nature contributes to the relocation of pollution-intensive manufacturing from North to South.

In fact, during early capitalist globalization, Global South countries were targeted not only for their cheaper labor but also for their cheaper nature. In the 1970s, Mandel (1978: 134–135) noted that corporate ideologues argued in favor of relocating some industries to the Third World because of the added benefit of transferring pollution to zones outside the advanced economies. More systematically, a growing literature on ‘pollution heavens’ suggests that lower costs are indeed a significant driver of manufacturing relocation to less environmentally stringent zones (see Ben-David et al., 2020; Cole and Elliott 2005; Cole et al., 2014, 2017; Doytch and Uctum, 2016; Hanna, 2010; Levinson and Taylor, 2008; UNCTAD, 2022). Interestingly, this literature emerged out of the same neoclassical framework—namely, that rooted in the notion of ‘comparative advantage’—that in the past advocated in favor of pollution havens. And there is still debate in this field with regard to the conditions that need to exist for pollution outsourcing to take place and the extent to which this outsourcing is occurring. On the whole, however, it suggests that, as Smith’s (1990) and Moore’s (2015a) arguments imply, investments gravitate to places that have a *competitive* advantage because they can produce the same commodity at an absolutely lower labor and environmental regulation cost. In actually existing capitalism, when possible, industries relocate specific segments of their production to less environmentally stringent regions to avoid pollution abatement costs or simply lose out to competition as cheaper imports increasingly replace higher cost production (Cole and Elliott, 2005; Levinson and Taylor, 2008). This research has found, for example, that large Japanese firms that confront rising costs due to pollution abatement expenditures outsource pollution-intensive segments of their production to suppliers located in less regulated, lower cost spaces (Cole et al., 2014). For the US case, there is evidence that Clean Air Act regulations have already resulted in increased foreign investments by US multinationals while also accounting for significant employment reductions in sectors experiencing high environmental regulation costs (Hanna, 2010; Walker, 2011).

On the flip side, recipients of these mobile investments experience exacerbated exploitation and environmental degradation. These are not unintended outcomes but key elements in capital’s seesaw. Mexico’s experience, before and after the North American Free Trade Agreement, shows that cheap labor *and* less forceful environmental regulations were factors in US and transnational capital migration to the country’s maquiladora regime (Moody, 1997; Robinson, 2008: 106–110; Rabet, 2011). China’s growth has been fueled not only by the exploitation of labor but also by unsustainable levels of various harmful emissions. Foreign investment searching for lower costs is both attracted by, and has contributed to, this situation (Cole et al., 2011; Malm, 2016: 327–366). These various cases of the pollution haven effect at work show that capital’s capacity to seesaw saw it escape not only labor unrest and higher wages, as Silver (2003) shows, but also the higher energy

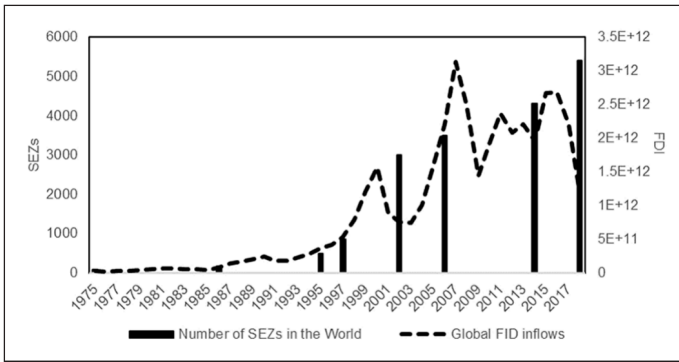


Figure 5. Special economic zones and FDI, 1975–2018.

Sources: Data from UNCTAD (2019) and World Bank (2021).

and pollution abatement costs implied in stricter environmental regulations. Rather than challenging this, political elites in countries and localities around the world have sought to *adapt* to this dynamic.

Adaptation has meant the rise of dominant strategies that, in the mold of Mexico's maquiladoras, mobilize both cheap nature and cheap labor in order to ride the upswing of capital's seesaw. The historic increase in the number of Special Economic Zones—increasing from 79 in 1975 to 5,400 in 2018 (UNCTAD, 2019)—is the best illustration of such a strategy (see Figure 5). Pollution havens and SEZs are distinct phenomena. However, the two are historically contemporaneous and roughly refer to the intertwined processes of capital mobility and spatial competition. In fact, considering the overall traits surveyed below, most SEZs can be described as labor-intensive pollution havens by design. These zones—usually, clearly delimited geographical areas within a country—represent an accumulation strategy fitting with the new global context. These zones seek to attract mobile capital by offering a lax regulatory framework, special tax regimes, and, most importantly, pools of cheap labor without significant rights (Ávila Romero and Ávila Romero, 2020; Robinson, 2008: 104–106; Slobodian, 2023). While there are important secondary factors—proximity to markets, previous level of industrialization, and protection of property rights, as noted above—the basic fact remains that a significant supply of low-cost labor remains a main attraction for foreign capital and the dominant trait in most SEZs in the world (Frick et al., 2019; UNCTAD, 2019: 190). In fact, as Figure 5 suggests, there is a historical correlation between the dramatic spread of mostly labor-intensive SEZs and the equally historic growth of FDI flows (which grew from around 25 billion US dollars in 1975 to a peak of more than 3 trillion in 2007).

In general terms, the spread of labor-intensive SEZs around the world traces an uneven seesawing of its center of growth. Its contemporary form emerged in a few prefigurative cases, like the case of Puerto Rico's 1940s industrialization program (Pantojas García, 1990; Robinson, 2008: 106; Slobodian, 2023: 67). With an entire territory that functioned as a country-wide SEZ under US imperial sovereignty (Pantojas García, 1990: 4–6), Puerto Rico inaugurated a model of foreign-financed, labor-intensive and export-led industrialization that has become a key aspect of the globalization era (Robinson, 2008: 104–126; Slobodian, 2023). This model was quickly replicated in other small economies such as Hong Kong and Singapore (Slobodian, 2023: 67). By the 1970s and 1980s, however, Puerto Rico's growing labor organization and higher wages—and, one might add, precocious environmental movement (Berman Santana, 1997)—led to declines in manufacturing employment as firms relocated to other lower-wage zones in the Caribbean and East Asia (Grosfoguel, 2003: 58–59, 87).

With the onset of capitalist globalization in the 1970s, when trade and capital flows were liberalized, the model re-centered on, and was perfected by, East, South, and Southeast Asia (UNCTAD, 2019: 140). While the center of growth continues to move, because of its scale, today China is still home to more than half of all SEZs and East Asia contains three-quarters of the world's zones (UNCTAD, 2019: 141–144). Nonetheless, after its maturation in Asia, SEZ growth reemerged in Latin America in the 1980s and 1990s (Robinson, 2008: 106–112). Not coincidentally, this was in the context of Latin America's debt crisis, the concomitant collapse in wages, and the dismantling of inward-looking developmentalist policies. Since the 1990s, areas of Africa and West Asia have emerged as recent centers of SEZ growth (Adunbi, 2022; Slobodian, 2023; UNCTAD, 2019). In the cases of Latin America and Africa, it is notable that part of inflowing capital investment now originates from previous centers of SEZ growth such as China and South Korea (Adunbi, 2022; Robinson, 2008: 116; UNCTAD, 2019: 149–150). While there are other factors at work, the SEZ growth frontier seems to seesaw toward areas with lower labor costs and more precarious environmental conditions.

Across all of these cases, SEZs still capture disproportionate shares of FDI (UNCTAD, 2019: 179–180). This continuing primacy seems paradoxical in light of most zone's disappointing results. First, while receiving disproportionate shares of FDI, many zones grow at a *slower* rate than the national economy in which they are located (Frick et al., 2019). Second, SEZs, which employ around 100 million people globally, have been shown to undermine workers' rights, increase exploitation, and perpetuate gendered divisions of labor (ILO, 2017; Sklair, 1991; UNCTAD, 2019: 184; Werner, 2016). Third, SEZs often develop on the basis of dispossession of local lands in order to establish economic practices that waste resources and cause new forms of pollution that are difficult to manage (Adunbi, 2022; Ávila Romero and Ávila Romero, 2016, 2020; FIAS, 2008: 41; Furlong y Zacula and Netzahualcoyotzi Luna, 2020; UNCTAD, 2019: 187–189). In addition, as the continuing concern with their contribution to pollution and waste indicates, they still function as pollution havens. Finally, notwithstanding calls for high-tech and sustainable zones, in most countries labor-intensive SEZs represent the largest share of their host country FDI inflows and of export output (UNCTAD, 2019).

Counterintuitively, SEZs' growth continues. Figure 5 shows that SEZs keep on growing even when the global pool of FDI has contracted in recent years. As UNCTAD (2019: 130) reports, this phenomenon indicates that as the volume of investments contracts the pressure to compete for this declining pool is *stronger* than before. In other words, SEZs expand as available FDI shrinks because political elites around the world still see cheap labor, lax enforcement of environmental regulations, and overall capital-friendly policies as their best bet in the spatial competition for mobile capital. Thus, instead of triggering a race toward the creation of new strategies, declining FDI pools have instead fueled the race to construct more SEZs. This set of circumstances shows that, notwithstanding its shortcomings, SEZ-led accumulation is still a dominant strategy of adaptation implemented at various scales in the search for policies that fit best with capital's seesaw. Since the 1970s, with the onset of globalization, Global North Capital has sought pollution havens with low-cost labor in order to seesaw away from higher wages and stronger environmental regulations. On the flip side, states' response has been strategies that reinforce capital's capacity to evade challenges. The historically contemporaneous proliferation of pollution havens and SEZs, then, suggests that capital's capacity to seesaw from place to place—and its underside of spatial competition—constitutes an important structuring process of contemporary uneven development.

These brief empirical illustrations suggest that Smith's theorization—especially when put in a global and ecological perspective (Moore, 2010, 2015a)—can explain key spatial aspects of contemporary uneven development. As capitalist relations of production are generalized in the globalization era, pollution havens and labor-intensive SEZs show that capitalist growth traces, albeit

imperfectly, a process similar to the one described by Smith: successive movements from zones with higher labor and environmental costs to lower cost, higher profit zones. The process is increasingly global and is driven not only by labor unrest but also by socio-ecological factors. While a specific amount of money capital cannot be traced in these movements, the center of gravity of accumulation and of capital flows—especially in labor-intensive and pollution-intensive industries—does indicate that investment goes to where, given a reasonable level of prior development and productivity, labor and nature are cheaper (Moore, 2015a). This is not, of course, an iron law of history. While the main state response has been to adapt to capital's dominance, sustained waves of global labor unrest and environmentalist pressure could help create the conditions for a different, more sustainable regime. Unfortunately, at least in the short run, this seems unlikely.

Conclusion

As Neil Smith argued, mobile capital's freedom to seesaw from high-cost, low-profit regions to lower-cost, higher-profit ones can be an important driver of uneven development that unfolds in tension with the structures of unequal exchange. As capital gained more freedom of mobility in light of liberalization policies ascendant during the globalization era, regional blocs, nation-states, and local jurisdictions sought to adapt to the new conditions by becoming 'territorially competitive' (Brenner and Wachsmuth, 2012). The dynamic and consequences of spatial competition are particularly evident in the proliferation of pollution havens and SEZs. These two phenomena, central in the global manufacturing sector, suggest that a significant share of global capital is still attracted by lower labor and environmental regulation costs. This paper argued, however, that this is inherently contradictory. Competitive combinations of cheap labor and nature degrade local conditions, at least in the short run. In the long run, these traits are competed away as local tensions emerge, while other zones implement similar strategies at lower costs. In any case, continuing pollution haven proliferation and SEZ growth show that competition on the cheap is still the dominant accumulation strategy in capitalist globalization (Moore, 2015a).

While I offered a tentative empirical picture, my discussion has been primarily theoretical. Future research could provide more systematic empirical treatment of the issues raised here in order to test further the validity of Smith's model. Moreover, my argument referred mainly to labor-intensive, pollution-intensive forms of manufacturing. While this is still a leading sector in the global economy, the theorization proposed here might not be applicable to other core sectors of global production. One case in point is extractive industries. Future elaborations could address the question of whether there is a seesawing of capital between different sites of material extraction on the basis of class dynamics, the state of environmental politics, and additional geopolitical factors relevant in, for example, global energy markets. Alternatively, such discussions might show that the theory lacks explanatory power for those cases, confirming its limitations in addressing some dimensions of the global economy.

That said, even within the limited scope of this article, one thing is clear. The radical liberation of capital from post-World War II constraints has produced a global regime that is centered on the combination of *maximum* freedom for capital, commodification of *all* global labor and nature, and *unfettered* spatial competition among places. In the absence of significant regulation by means of democratic planning and some decommodification of labor and nature, that combination is destined to reproduce unevenness and unsustainability. This is evident even in recent attempts to engineer a seesawing back to spaces deindustrialized by decades of spatial competition on the cheap. For example, provisions found in Trump's Tax Cuts and Jobs Act of 2017 represent a recent iteration of the strategy surveyed above. The act contains an 'Opportunity Zones' program that seeks to attract capital to US areas affected by decades of disinvestment and deindustrialization.

Under this provision, investors can defer payment of their capital gains taxes by investing their profits in deindustrialized or generally depressed areas, that is, where unemployment is highest, wages are lower and people's capacity to resist is being exhausted. If successful, programs like this one would represent an engineered seesawing back of mobile capital. In a symbolic turn of events, Puerto Rico—where the 1940s industrialization program prefigured modern SEZs—is the US jurisdiction most covered by Opportunity Zones. Ninety-eight percent of the island's territory qualifies for the program. It seems, then, that the logic of adaptation to the conditions of capital mobility and spatial competition is still the dominant one even in places where such an approach has led to ultimately undesirable results. After decades of offering cheaper labor, easily appropriated natural environments, and generally lower taxes than the United States, Puerto Rico remains poorer than the poorest of US states, Mississippi.

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Notes

1. The process just described can resemble a 'race to the bottom'. Nonetheless, as Silver's (2003; Silver and Zhang, 2008) and Zhang's (2023) works show, the empirical fact of worker resistance leading to concessions by capital and the state in leading sites of capital relocation prevents a 'race to the bottom' from being the only possible outcome.
2. One limitation of this focus on manufacturing is that the question of other core sectors in global trade and production—for example, energy and raw materials extraction—are left unexamined here. As I note in the conclusion, there might be a seesawing dynamic specific to those sectors. I suggest it as a potential avenue for future research.
3. Smith's model implies that a new wave of accumulation can happen after an area has been disciplined by disinvestment and underdevelopment. However, each new accumulation cycle, of course, starts at higher levels of total world-ecological tension, suggesting a secular trend toward diminishing opportunities for accumulation on the cheap (Moore, 2015a). This is clearest in the case of climate change. As global manufacturing relocated to lower-cost zones (e.g. China and India), *world* carbon emissions grew even when emissions declined in deindustrializing places (e.g. the United Kingdom).
4. Of course, here and throughout, I am referring to unit labor costs—cost per unit of output. Technically, higher productivity in the North could compensate for its higher wages. Manufacturing relocation trends show that the North–South productivity gap is not sufficiently large to compensate for the North's higher wages.

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