ILLUSION IN CRISIS?
WORLD-ECONOMIC AND ZONAL VOLATILITY, 1975–2013

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Introduction

Throughout much of the twentieth century, nations engaged in a race for development that achieved massive social change, but differences between nations did not equalize. Inequality between nations remained relatively constant, yet, during this period, the validity of the developmental project was rarely questioned. Despite the failure of nations to “catch up,” the belief in the possibility persisted, creating what Arrighi (1990) termed the “developmentalist illusion.”

For Arrighi, the “developmentalist illusion” is the idea that catching up to the wealth levels of the core is possible for any and all states in the world-economy—when, in reality, they are running in place. By running in place,
states engage in a development project without a corresponding increase in relative positioning vis-à-vis wealthier states. This means that national development is often accompanied by industrialization, urbanization, and increases in human development—health, education, and general material conditions. These massive social changes create a perception of “catching up” to the conditions of the “first world” (core), yet their relative material gains are always slower than those of the wealthiest nations. The wealthiest nations remain one step ahead as they too continue to advance, materially and economically. The “illusion of development” is perpetuated, because—despite all of this—the nation-states still exist in the same relative position of exploitation. Because the ability to achieve long-term development for all, or even most, nation-states is impossible under a global economic system based on exploitation and exclusion (the “adding up” problem), the developmental idea is a logical fallacy—an illusion.

This “adding up” problem in the capitalist world-economy is based on the notion that all states do not face the same conditions for advancement in a system where the “relational processes of exploitation and relational processes of exclusion” (Arrighi 1990: 16) are continuously reproduced in new ways. This is a complementary duology of exploitation and exclusion, where core states use their position in the world wealth hierarchy to exploit semiperipheral and peripheral states in the world division of labor through a process of unequal allocation of resources and unequal reward for human effort (Wallerstein 1988; Arrighi 1990).

We provide an alternative lens to empirically examine the relative movement of world income differences over the past 40 years and offer an alternative understanding of the present political and social crises of the past decade by focusing on the volatility of relational income inequality. By sorting nation-states into their respective zones of the world-economy—via a method developed by Arrighi and Drangel (1986)—we track the movement within and between these zones across our temporal scope.

After demonstrating that movement between zones is negligible, we then calculate a volatility measure in each given year to determine the level of movement within each zone and the entire world-economy. We find distinct periods of high volatility concentrated in the semiperiphery and periphery (in the 1980s and 1990s respectively) and low volatility globally in the 2000s. We argue that these trends have striking implications for our understanding of the world-economy and the current period of social and political chaos.

**Measuring Differences in National Income**

The main dataset used in this research is the Gross National Income Per Capita (GNIPC) measure, using the foreign exchange Atlas method, provided by
the World Bank. We utilized GNIPC in order to measure the total income “accrued” by residents, including incomes transferred from abroad, rather than GDP, which measures incomes “produced” by residents. The World Bank’s data does not cover all countries for all years from 1975 to 2013. Since data was needed in every year in order for our ranking and analysis, data was interpolated and extrapolated using several methods which are described in depth in Appendix A. Only 14 countries’ data required alteration. In total, 5.3% of the data points were added, with 5% being the former USSR and 0.3% being other nations. After removing all countries with data points that could not be added with our methods, we were able to create a set of 126 countries with complete data throughout the period.

Data from the World Bank allows us to measure absolute differences between countries. We can understand income as a proxy for power and command over these resources (Bonini 2015). However, our analysis focuses on the positioning of nation-states in relation to one another. This presents us with a situation where absolute differences in wealth (or income over the long-run) do not matter. The amount of per capita income separating the rich, middle, and poor clusters in the hierarchy do not concern us as much as the fact that there is a difference between the rich, middle, and poor clusters. We again build from Arrighi (1990: 15), that capitalism [is] an evolutionary system in which the stability of the whole is premised on the perennial change in and of the parts. . . . The kinds of inputs, outputs, and techniques of production and distribution and the positions in networks of trade and resource allocation that endow states with differential capabilities to appropriate the benefits of the world division of labor are assumed to change continually as a consequence of the introduction and diffusion of political, economic, and social innovations.

While the specific “inputs, outputs, and techniques of production” change, grow, and evolve, the position of these parts remains relatively constant. Because of this, we are concerned solely with the position of a country as a part in the system—the position of a country in the world wealth hierarchy. This position is only important vis-à-vis the position of other countries, and, through this lens, the absolute changes have limited value. Therefore, we use this relative positioning of countries (vis-à-vis other countries) as a tool to understand the organization of and movement within the wealth hierarchy over the past four decades.

This approach utilizes the concept of rankings to complement, rather than supplant, previous research on hierarchy in the world-economy. By providing information about the terminal endpoint of the distribution of national economies, rankings provide an alternative lens to the relative differences in world-economic stratification in its relationship to a finite number...
of possibilities. In this way, information about national economic well-being can be interpreted as a relative measure vis-à-vis the entire distribution of the world-economy. In essence, the upper bound of rankings is limited by the number of countries employed in the rankings and not the theoretically infinite valuation of absolute income.

**Clustering in Zones**

Following Arrighi and Drangel’s method for delineating the boundaries of the zones of the world-economy, we determine boundaries for the core, semiperiphery, and periphery as follows: For each selected year, data was arranged by GNIPC from the smallest to the largest value. In order to collapse the interval between countries, as well as remove a significant right-skew, the GNIPC values were transformed using a log of base 10. This not only improves the interpretability of information, but also allows for a better visual presentation and inspection of the data distribution. The logged values were then truncated to an interval of one-tenth in order to consolidate the number of independent variables for plotting.

For each country, the share of the world’s population was then calculated. This population was divided by the aggregate to calculate a percentage share of the world population that each country holds. Next, the population shares of countries with the same truncated log value were aggregated. A three-interval moving average was then taken in order to smooth the erratic spikes and dips in the distribution caused by populous states. This method was repeated for each year in order to classify boundaries of the core-semiperiphery-periphery hierarchy.

These zonal distinctions are theorized to represent relative measurements, where the greater the level of income, at market-based exchange rates, the greater the marginal rewards of labor to citizens of a state. This reflects both the world division of labor in economic activities and the highly skewed share of benefits in that division.

For our analysis, we utilized the 1992 distribution of logged Gross National Income (GNI) per capita. We use this particular year to identify zonal boundaries due to previous research which identifies 1992 as the global distribution most similar to a trimodal distribution (Pasciuti and Silver 2015). The distribution of ranks was then classified into core, semiperiphery, and periphery based on these zonal boundaries. Since the goal of classifying these countries into a zone is not to permanently position them there, but rather to show relative movement over time, the selection of a single distribution does not affect the outcome so long as the boundaries are kept constant; in addition, multiple iterations of our processes show that changing the base year does not alter our findings.
Arrighi and Drangel used the local minima between the modes as boundaries, and when there was more than one local minimum, they deemed all countries that fell between the minima to belong to a “perimeter of the core” and a “perimeter of the periphery” (Arrighi and Drangel 1986: 64). Because we are interested in the temporal changes in the hierarchical location of states, we decided to split the perimeter between the core and the semiperiphery. As such, those countries with a logged GNIPC value of 3.8 went to the semiperiphery and those with a 4.0 went to the core. We decided that those countries in the 3.9 block would be labeled semiperipheral. Therefore, these zonal boundaries were established: the periphery includes all countries with log GNIPC values from 2.2 to 2.9; the semiperiphery from 3.0 to 3.9; and the core from 4.0 to 4.7.

**Country Movement Within and Between Zones**

To understand relative movement within these zones, we ranked the countries from 1 to 126 (where 1 is given to the country with the highest GNI per capita and 126 is given to the lowest). The zones were then delineated based on the method described above, with the following result using the actual rankings in 1992: the core consists of those countries with the ranks of 1 to 28, the semiperiphery 29 to 76, and the periphery 77 to 126. We maintain these boundaries as temporally constant throughout.
By ranking, we show each country’s relative position in the wealth hierarchy over time. Changes in position in the hierarchy are representative of changes in ability to reap rewards from the world distribution of labor. Country ranks are graphed from 1975 to 2013. Figure 6.2 shows the rank movement of the countries in the semiperiphery. The second graph (Figure 6.3) depicts only the countries that permanently entered or exited the semiperiphery over this time period. The dotted lines represent the boundaries of the zone; all countries are classified based on their 1992 zonal positions.4

Figure 6.2 clearly illustrates that, within the semiperiphery, countries are moving consistently throughout the period; the image is one of almost consistent chaos. Yet, in Figure 6.3, we isolate only the exceptional cases (countries that entered or left a zone and remained there for at least five years). Here, only ten countries that were in the semiperiphery in 1992 entered or left the zone over the entire time period, making real zonal change a rare event. For example, Thailand and Hungary (marked as lines A and C respectively) enter the semiperiphery and remain in the zone for the rest of the period. Alternatively, El Salvador (marked as line B) enters the zone in 1992, remains for a while, but then falls back into the periphery by the end of our period.

Thus, the data suggest that there is a significant amount of movement within zones, where countries are changing relative position in the world-economy every year. But these changes are, generally speaking, small intervals. Throughout our time period, the average movement per country per year was

![Figure 6.2 Rank Position of Semiperipheral Countries](image-url)
1.69 ranks. Despite this constant movement, from 1975 to 2013, only 21 countries (or 16.67%) permanently transitioned between zones. Change was more prominent in the semi periphery, where approximately 20% of countries transitioned, while approximately 14% transitioned in the core or periphery.5

Table 6.1 highlights one of the central features of our analysis: the stunning lack of trans-zonal movement. While there is constant shifting of countries’ rank over time, the overall lack of trans-zonal movement shows the fallacy of the “catching up” development paradigm. As stated previously, with this constant “running in place,” in conjunction with the developmental project of material and social improvement, nations have an illusion of development. Their movement vis-à-vis others in their respective zones creates the perception of hierarchical change, while only minor back-and-forth shifts are the reality. Given this, the failure to develop and the illusion of development are not two separate realities but rather parts of the same whole—the central feature of the world-economic hierarchy. We have shown empirically the failure to develop (Table 6.1).6 We now seek to show the persistence of the

![Figure 6.3 Rank Position of Semiperipheral Countries, Without Stable Countries](image-url)

**Table 6.1 Organic, Perimeter, and Exceptional Countries by Zone**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Organic Number</th>
<th>Organic Percent</th>
<th>Perimeter Number</th>
<th>Perimeter Percent</th>
<th>Exceptional Number</th>
<th>Exceptional Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td>23</td>
<td>82.14%</td>
<td>1</td>
<td>3.57%</td>
<td>4</td>
<td>14.29%</td>
</tr>
<tr>
<td>Semiperiphery</td>
<td>34</td>
<td>70.83%</td>
<td>4</td>
<td>8.33%</td>
<td>10</td>
<td>20.83%</td>
</tr>
<tr>
<td>Periphery</td>
<td>42</td>
<td>84.00%</td>
<td>1</td>
<td>2.00%</td>
<td>7</td>
<td>14.00%</td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>78.57%</td>
<td>6</td>
<td>4.76%</td>
<td>21</td>
<td>16.67%</td>
</tr>
</tbody>
</table>
logical fallacy, the “illusion of development,” through an empirical measure of volatility in the world wealth hierarchy.

**Assessing Zonal Volatility**

Illustrating the illusion of development requires moving beyond an analysis of individual, national rank movements, and it requires understanding volatility of both the zones of the world-system and the world-economy as a whole. Technically, volatility is the fluctuation of countries’ rank movements within each zone of the world-economy. Conceptually, aggregating these fluctuations allows us to measure volatility as the magnitude of rank movement within the world wealth hierarchy, relative to other countries. We have therefore created measures of cumulative fluctuation in the world-economy as a whole—what we have termed “world-economic volatility”—and in its constitutive zones—what we have termed “zonal volatility.” Since our central theoretical premise is that relative positioning in the hierarchy of wealth indicates the ability to extract unequal rewards and unequal opportunities, taken together, these measures compile a more complete picture of the world-economy and allow us to identify and analyze change and stability in the world-system.

By calculating the aggregate expected movement within the world-economy per year and then placing it as a ratio of actual movement per year, we are able to create a timeline of percent movement deviated from expected movement over the course of the analyzed period. The formula was a simple ratio calculation:

\[
\frac{\text{Actual Movement} - \text{Expected Movement}}{\text{Expected Movement}}
\]

*Actual Movement* is the sum of the absolute value of rank change for every country for every year. *Expected Movement* is global average movement per country per year. The resulting percentage is the deviation from average movement for the world-economy in each given year. The values were then smoothed by taking a three-period moving average to allow for better interpretation. Figure 6.4 shows zonal volatility, the percent deviation from the global average movement per country per year by each of the three zones.

What is resoundingly clear from this measure is that the core has significantly less than average volatility throughout the period. While this is no doubt interesting, it is unsurprising; we expect volatility in the zones where “catching up” is an active goal—or rather, where the illusion of development is preeminent. Yet even in these zones, what is most striking is not the level of relative economic volatility present in much of the period, but the lack of relative movement over the past 10 years. We will explore the historical significance of these points, beginning with the late 1970s.
Generally speaking, the semiperiphery indicated high volatility from 1976 through the early 1990s, with a brief aberration in the mid-1980s. We interpret this volatility primarily through the lens of the massive debt crisis and subsequent IMF response. This period, especially in Latin America, is known as the “Lost Development Decade” because of the significant socio-economic declines states experienced—not only in absolute terms, but also vis-à-vis other states. Two examples which manifest this dynamic clearly are Chile and Mexico. In the postwar period (1950s through 1970s), through massive government spending and policies of import substituting industrialization (ISI), the two countries experienced exceptional growth (Hirschman 1968). In 1981, our analysis shows both countries declining in relative position to other countries, consistent with the debt crisis. By 1982, Latin America as a whole was holding debt at 50% of their collective GDP and at more than 300% of their collective exports (Bértola and Ocampo 2012). In 1982, Mexico defaulted on its debt payments, and others followed suit. By 1985, 38 countries were forced to reschedule their debt payments globally, of which 16 were Latin American countries (Sachs and Williamson 1986). These trends are clearly illustrated in our data as the “newly industrializing nations” steadily lose ground relative to other nations. We generally point to this process of system crisis, debt, and decline throughout the semiperiphery to explain the overall high level of volatility captured during this period and ultimately the “running in place” that left many countries in the same relative position at the end of the 1980s as they had been in the 1970s, even as their absolute level of income changed.
Conversely, newly industrializing countries in East Asia did not follow the same rise and decline pattern of their Latin American counterparts. Most notably, the East Asian Tigers (South Korea, Singapore, Taiwan, and Hong Kong) which had been rapidly growing since the 1960s, due to an interesting mix of neoliberal policies and state intervention in markets. It is important to note it here to show that many factors, not solely zonal collapse due to a debt crisis, led to the high volatility during the 1980s.

For example, South Korea experienced significant growth from the 1960s onward, which many attribute to the implementation of liberal export-oriented industrialization (EOI) (Castells 1991). In our analysis, South Korea steadily rose in the ranking of the world wealth hierarchy, crossing the entire semiperipheral zone between 1978 and 1992 before flattening out along our zonal boundary from 1992 onward.

In the 1990s, the semiperiphery remains volatile but the level of volatility declines. Instead, it is the periphery that emerges as the most volatile area of the world-economy through the massive growth of other Asian nations, especially India and China. But in addition to the rise of China and India (and others in Asia, such as Indonesia and Sri Lanka), we also see decrease (and then, sometimes, recovery) of countries in Central Asia, such as Armenia, Azerbaijan, and Turkmenistan. This is due to the collapse of the Soviet sphere, after which all of Central Asia experienced a dismal period of economic decline until approximately 1997 (ADBI 2014).

Understanding hierarchical change in the world-system during the late twentieth century, without discussing the rise of China and India, would be highly problematic. Undoubtedly, their rise has caused more ink to be spilled

![Figure 6.5 Ranking of South Korea, Mexico, and Chile, 1975 to 1992](#)
on the subject of development than anything else in the past two decades. The
trends presented in our data follow the predominant narrative that China and
India rose relative to other nation-states throughout the 1990s and, at least
in the case of China, continued to rise through our most recent data (Arrighi
2007, 2009; Hung 2009; Korzeniewicz and Moran 2009). The emergence of
these states, along with a general overall rise of the rest of East Asia, plays a
critical role in the volatility of the periphery in the 1990s.

And while the data—both our zonal volatility measure and our coun-
try rankings—match our general historical understanding for the 1980s and
1990s, the data from approximately 2000 to 2013 is more complicated. As
demonstrated in Figure 6.8, both the semiperiphery and the periphery decline
to generally hover around average movement during the last decade of our
analysis. This is slightly counter to the general understanding of the period—
that the 2000s were characterized by the rise of China (and the rest of the
BRICS) in a challenge to Western (core) dominance within the world wealth
hierarchy.

But, taking a look at the rank positions of the BRICS throughout the
entire period presents a different picture. With the exception of China (and,
to a small extent, Brazil), the BRICS begin to level off in their relative rise
through the hierarchy following the turn of the century. China is the only
“major mover” left vis-à-vis other nations. And, further, given the decline of
both the semiperipheral and peripheral zones’ volatility during this decade, it
appears to be one of the few “major movers” of the period at all.

This presents an anomaly in the understanding of the contemporary
period of the world-system—the crisis of US hegemony. During a period of

Figure 6.6 Ranking of Selected Peripheral Countries, 1986 to 2002
increasing challenges to US dominance, this lack of volatility in the world-system appears to imply a stabilizing world order. We are thus left with a seemingly contradictory dynamic, where the country and zonal data conflict with our a priori understanding of the political and social chaos now engulfing the world-system.
World-Economic Volatility: A Perspective on Crisis?

Therefore, we return to our global measure of world-economic volatility to understand if the individual and zonal trends are indicative of a world-systemic change. This cumulative measure of the rank movement of all nations, regardless of zonal positioning, takes the entire world-economy as a singular unit of analysis across time. This measure, presented in Figure 6.9, matches the trends of zonal volatility presented above.

Here we can clearly decipher three striking features. The first two features are “waves” of volatility from the 1970s to the mid-1980s and from the late 1980s to the mid-1990s. We have already established that the two early waves did not fundamentally alter the world wealth hierarchy, constituting the “running in place” phenomenon. As we have shown in Figure 6.4, the first wave was concentrated in the semiperiphery, while the second was concentrated in the periphery—and, as we show in Table 6.1 and Figures 6.2 and 6.3, neither wave accomplished fundamental hierarchical restructuring or trans-zonal movement.

The third feature is not a “wave” but is the stunning decrease of volatility from the mid-1990s to the present. This is not surprising, as we have previously established that both semiperipheral and peripheral volatility declined to below average around the turn of the century. Further, individual countries, such as the BRICS, which were thought to have been rising in the wealth
hierarchy during this period, in reality failed to significantly move vis-à-vis other countries.

So what does this mean for our understanding of the world wealth hierarchy? Primarily, it leads to a return to our initial foundation—that, despite significant absolute changes in wealth and income since the turn of the twentieth century, the position of nation-states vis-à-vis other nation-states has remained mostly static. This is occurring despite the continued rise of China. This reality reinforces our understanding of the developmentalist illusion: while some countries (e.g., China) are able to continue to rise and “develop,” the hierarchy—the economic organization of the world-system—remains stable overall.

The striking feature then, is not that the global picture matches the constituent parts, but that the lack of global volatility is unprecedented in the past five decades. Taken in a broader temporal scope, the overall historical dynamics, presented above, draw a fascinating picture of change and present a new lens through which to assess the contemporary crises: of the ability to develop, of the illusion of development, and of the world-system as a whole.

Here we return to our theoretical starting points, the failure to develop and the illusion of development. As outlined by Arrighi (1990), we have based our assumptions of the perpetuation of a world wealth hierarchy on the premise that the world-economy is characterized by the provision of unequal rewards and unequal opportunities to nations. Relative position in the world wealth hierarchy correlates with greater benefits and opportunities for nations to attain higher incomes and remain ahead of others in the distribution of wealth. Moreover, the idea, inherent in various versions of modernization theory, that catching up to the development of the core is possible for any and all states, and that movement within world-economic zones represents the ability to develop, generates a logical fallacy, an illusion of development. Therefore, we reiterate our thesis that the failure to develop and the illusion of development are parts of the same whole—the central feature of the world-economic hierarchy.

We claim that this central feature corresponds with the perpetuation of a stable hegemonic system. Although there was movement within the wealth hierarchy, the overall distribution and structure of the world-economy remained constant despite volatility. This is clear in our data from the 1970s through the 1990s, where trans-zonal mobility was absent (the failure to develop) and volatility was present (the illusion of development). When these conditions were present in the latter half of the twentieth century, US hegemony was perpetuated.

However, from the late 1990s through the present, volatility has substantially declined while trans-zonal movement is still absent. We theorize that the failure to develop without the illusion of development characterizes the contemporary form of hegemonic crisis and fundamentally distinguishes it
from the earlier period. The lack of volatility since the early 1990s breaks the illusion of development and undermines the global institutional conditions created for the perpetuation of US hegemony. This does not equate with a fundamental change in the position of wealth held by core nations, the economic dominance and exploitation of the world-system, but rather signifies the social, political, and ideological crisis of US hegemony, where US leadership is being challenged.

In this way, we may understand the current global dissonance and the blatant challenging by BRICS and other nations, such as the creation of a new development bank, or multilateral institutions in the realm of international trade and military intervention, as manifestations of the crisis of global institutional conditions. Wealthier nations still use their position in the world-economy to economically exploit and exclude weaker nations, but without these conditions—without the illusion of development—the economic organization of the world-system has been laid bare for what it truly is: crass exploitation.

This conclusion fits with our understanding of hegemonic transitions. Silver and Arrighi (2011: 59) argued that “[i]n the past, declining powers lost their ability to maintain the necessary global institutional conditions before rising powers had the capacity or inclination to take over the role of leader.” If we understand the contemporary period of world history as the period of declining US power, the decrease in volatility can be understood as the quandary of the US-organized world-system. As the illusion of development has collapsed and the global institutional conditions supporting US hegemony have deteriorated, the current state of the world-system is characterized by financial, geopolitical, and social chaos.

Notes

1. This analysis builds from Arrighi and Drangel (1986), who also found negligible transzonal movement for the early period of our analysis, and who developed “mobility tables” to understand the “running in place” phenomenon in the semiperiphery (Arrighi and Drangel 1986: Appendix III).
3. Our tests were run on the data with the countries in the 3.9 block in the core, and the overall results are not different.
4. Similar trends exist in the core and peripheral zones as well, but were excluded for space. They can be found in Appendix C: http://krieger.jhu.edu/arrighi/wp-content/uploads/sites/29/2016/06/Illusion-in-Crisis_Appendices.pdf
5. A list of countries in each of these distinctions can be found in Appendix B, available at http://krieger.jhu.edu/arrighi/wp-content/uploads/sites/29/2016/06/Illusion-in-Crisis_Appendices.pdf
6. See also Pasciuti and Silver (2015); Korzeniewicz and Moran (1997).
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