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Splintering South: Ecologically Unequal Exchange Theory in a Fragmented Global Climate[1]

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Abstract

The article examines the changing nature of politics in the United Nations climate negotiations through the lens of ecologically unequal exchange theory, focusing on the lead up to and aftermath of the 2015 Paris negotiations. We identify and discuss three areas of tension that have emerged within the G-77 coalition: tensions within the global semi-periphery, tensions between the semi-periphery and periphery, and tensions within the periphery. Together, these tensions challenge the main link of solidarity in the G-77 coalition: the idea that all countries in the global South share a common predicament in the global system, with the North solely to blame. Drawing upon this case, we offer three related insights to develop ecologically unequal exchange theory. First, theory and empirical work must better consider the role of the semi-periphery, and divisions within the semi-periphery, in reproducing ecologically unequal societies. Second, theory should account for how fragmentation between the periphery and semi-periphery may produce distinct challenges for peripheral states to resist governance forms which intensify ecologically unequal exchange. Third, theory should better account for the ways in which ecologically unequal exchange as mobilized as a collective action frame reflects and diverges from the real-world distribution of environmental goods and bads in the world system.

Keywords: Ecologically Unequal Exchange, Climate change politics, United Nations climate negotiations, 2015 Paris climate negotiations

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> The Poor are not asking for charity [but] for the need for us to co-operate on an equitable basis. Now the rich claim a right to regulate the development of the poor countries. And yet any suggestion that the rich compensate the poor adequately is regarded as outrageous (Malaysian Prime Minister, Dr. Mohathir Mohamad, 1992, p. 232, cited in Okereke 2006).

Malaysian Prime Minister, Dr. Mohathir Mohamad's speech at the 1992 Rio Earth Summit captures the main axis upon which the negotiations on climate change hinged for nearly two decades. Developing countries, who embraced an identity of the 'global South', stood against proposals by those in the 'global North' that did not recognize their rights to manage their own economies, the structural forms of inequality that inhibited their development, and their right to compensation for costs from dealing with climate change. This reflected a structural worldview, with roots in dependency and world-systems theories (Roberts and Parks 2006), which had in part been carried over and adapted from other historic platforms of developing countries, such as the New International Economic Order of the early 1970s (e.g. Krasner 1985; Rothstein 2015).

Scholarship on climate change has often characterized the politics regarding rights and responsibilities on greenhouse gas emissions as a struggle between states in the global North and global South (e.g. Gupta 1997; Roberts and Parks 2006). However, we argue here that given recent shifts in the contemporary world order and within the United Nations Framework Convention on Climate Change (UNFCCC), such analysis presents a static and no-longer accurate view of global environmental inequality. Scholarship also fails to clarify the alliances and conditions that structure possibilities for resistance. What is missing, we contend, is a nuanced understanding of the global South as a complex and changing set of relations reflecting shifts in the historic world order, and dynamics specific to the contemporary climate regime.

This weakness extends beyond works on climate change to the field of ecologically unequal exchange, which is the application of world-systems analysis to ecological relations between states and peoples. Scholarship on ecologically unequal exchange has largely focused on documenting the unequal distribution of environmental bads and goods in the world system (Hornborg 2001; Rice 2007; Jorgenson and Clark 2009; Shandra et al. 2009). Far less attention has focused on the historically specific political dynamics that shape the global governance of environmental inequality, including the implications of a politically and economically fragmented global South.

In this article, we ask, what do contemporary developments between global South states within the UNFCCC process reveal for theory about the governance of ecologically unequal exchange, and avenues for resistance? We identify and discuss three areas of tension that have emerged within the G-77 coalition since the pivotal climate negotiations in Copenhagen in 2009,

and which were solidified as part of the Paris Agreements in 2015. These include tensions within the global semi-periphery, tensions between the semi-periphery and periphery, and tensions within the periphery.[2] Through analysis of these tensions, we offer three important areas for improvements of ecologically unequal exchange theory. First, theory must better consider the role of the semi-periphery, and divisions within the semi-periphery, in reproducing ecologically unequal relations between societies. Second, theory should account for how fragmentation between the periphery and semi-periphery may produce distinct challenges for peripheral states to resist governance forms which intensify ecologically unequal exchange. Third, theory should better account for the ways in which ecologically unequal exchange as mobilized as a collective action frame aligns with or diverges from the real-world distribution of environmental goods and bads in the world system.

This analysis is informed by our 20 years of participant-observation research at the UN climate negotiations.[3] The article is organized in five steps. First, we discuss the relevant literature concerning the political dimensions of ecologically unequal exchange in global governance, particularly related to international climate change politics. Second, we outline how international climate politics were historically structured around particular ideas of inequality in the world system between the global North and South, how and why the old North–South alignments shifted in the pivotal negotiations in Copenhagen in 2009, and the major tensions in the global South relevant to the politics of ecologically unequal exchange during the post-Paris period. We conclude with discussion of what insights this analysis contributes to ecologically unequal exchange theory.

Ecologically Unequal Exchange as a Political Lens

Ecologically unequal exchange builds upon the Prebisch-Singer hypothesis which asserts that deteriorating terms of trade exist for countries that export raw materials (Prebisch 1950; Singer 1950). As a result, wealthy nations become richer by concentrating the benefits of these resources, while poor nations become further impoverished as their societies are transformed to deliver these resources to the developed nations at lowest price (Cardoso and Faletto 1979; Bunker 1985). As developed by the dependency or structuralist school, the global "periphery" was seen in a losing

[2] We describe the development of the zones of world systems theory (periphery, semi-periphery and core) below, and acknowledge that sometimes countries move in and out of these categories as they move up and down through the hierarchy of nations. While these are functional groups of nations, we also see these as a continuum from the most powerful and wealthy to the least developed countries. We refer to certain nations in each zone but do not base these categorizations on current empirical data; rather we utilize earlier world-system theory conceptualizations such as that of Terlouw (1993) (see Roberts and Grimes 2002).

[3] This participant observation has included working directly with numerous policy NGOs and civil society networks and state delegations, particularly the Least Developed Countries negotiating group. Observational data was collected during network meetings, side events, press conferences, demonstrations, and policy interventions. The analysis is also informed by more than one hundred informal interviews and analysis of UNFCCC negotiations and related policy documents.

role in relation to the "centre" or "metropole," where wealthy countries drew resources and cheap labor from around the world to manufacture high-value products they could export back to the periphery.

The terms *core* and *periphery* were adopted and elaborated by North American sociologists in the world systems theory tradition (Wallerstein 2011; Chase-Dunn 1998). The terms speak to not only the international division of labor, but also the ways in which surplus value from the transnational production of goods and services is concentrated unequally across geographies. As Arrighi and Drangel (1985:12) argue, "Core activities are those that command a large share of the total surplus produced within a commodity chain and peripheral activities are those that command little or no such surplus." World system theorists then added a region to their conceptual apparatus that sat between the top and bottom countries: the semi-periphery, which represented the middle of the global division of labor, with both core and peripheral activities (Arrighi and Drangel 1985). The key characteristic of the semi-periphery was that it acted as a middleman between the core and the peripheral nations around it (Wallerstein 1979). These semi-periphery nations led the exploitation of the other countries in their regions to bring their resources to the world market, managing labor and investments there. In doing so, they developed decidedly bimodal or mixed economies, with extremely modern sectors and vast internal regions continuing to live in pre-modern conditions (Hecht et al. 1988).

World system theorists have long argued that while the structure of the world system has been relatively consistent over time, individual states can and do move up or down in the hierarchy (Arrighi and Drangel 1985:28). Arrighi and Drangel (1985) argue that semi-peripheral states seek to exploit distinct advantages of their position for gains in the world system. Specifically, they "resist peripheralization by exploiting their revenue advantage vis-à-vis peripheral states and their cost advantage vis-à-vis core states" (Arrighi and Drangel 1985:27). They point to domestic strategies related to managing their position in global commodity chains as the primary mechanisms through which they attempt to do this.

Notably absent from this discussion are strategies pursued by semi-peripheral states to maintain or enhance world system position through multilateral governance processes. That is, scholarly attention should be directed to how semi-peripheral states actively seek to change the rules of the global system through political action in multilateral fora.

Ecologically unequal exchange has built from understandings of structurally conditioned unequal exchange in commodities, pricing and labor, to unequal access by wealthy countries to natural resources, ecological well-being, and sink capacities in poor countries (Frey 2015; Hornborg 2001; Rice 2007; Jorgenson and Clark 2009; Shandra et al. 2009). For example, Rice (2007:43) defines ecologically unequal exchange as "the increasingly disproportionate utilization of ecological systems and externalization of negative environmental costs by core industrialized

countries and, consequentially, declining utilization opportunities and imposition of exogenous environmental burdens within the periphery." Counter to ideas of ecological modernization that posit a delinking of capitalist growth from environmental degradation in 'modernized' societies (e.g. Mol and Spaargaren 2000), ecologically unequal exchange scholars argue that ecological harm is externalized by wealthy countries onto poor ones, and ecological well-being is expropriated from them. Importantly, it is argued that these processes of inequality related to the environmental issues such as agriculture, mining and energy are sustained by global systems of governance and elite controlled networks, institutions, and organizations (Downey 2015).

Others have made the case that climate change is a case of ecologically unequal exchange, with peripheral countries not benefiting from the fossil-fuel intensive development of the core, while experiencing the ecological impacts first and worst. From this viewpoint, the disproportionate impacts and vulnerability in the periphery to climate change are understood as not merely a geographical anomaly, but as conditioned by a colonial history of unequal insertion into the world economy and uneven trade relations (Roberts and Parks 2006) as well as "double exposure" to climate vulnerability and the detriments of economic globalization (O'Brien and Leichenko 2000).

In terms of the role that the semi-periphery plays in ecologically unequal exchange theory, Burns et al. (2003:362) argues that a pattern may exist of "recursive exploitation", whereby a nation in the "semiperiphery is at a disadvantage to one in the core, yet is able to work exchanges in its favor when they involve the semiperiphery or periphery." In other words, due to their position within the world order, semi-peripheral states may be in a position to mediate some of their environmental burden by dumping it upon states with a less favorable position (Rice 2007). However, this capacity has not always been supported empirically; in the case of deforestation, semi-peripheral countries have experienced higher rates of deforestation than those at the periphery, likely attributed to a historical artifact, whereby peripheral countries were yet to experience similar levels of urbanization (Burns et al. 1997; Burns 2003 et al.; Jorgenson 2004). Studies have found that such relationships may vary by pollutant; for example, greenhouse gas emissions are linearly related to position in the world system hierarchy, whereas methane emissions tend to be heaviest in semi-peripheral countries (Burns et al. 1997; Jorgenson 2004). In terms of the impacts of climate changing emissions, the states that are most peripheral in the world system, such as the forty-nine Least Developed Countries, are far more vulnerable to climate-related disasters than the global average, despite contributing almost nothing to its cause (Ciplet et al. 2013a). We have not seen explicit comparisons of climate change vulnerability between peripheral and semi-peripheral states, but most categorizations place the poorest nations in the lists of the most vulnerable (see e.g. Roberts and Parks 2006). Still, limited attention has been devoted

to uncovering descriptive or causal relationships of ecologically unequal exchange between the semi-periphery and periphery, or even the core and semi-periphery.

Moreover, despite a growing literature discussing the empirical and theoretical dimensions of ecologically unequal exchange, there has been minimal attention to the contentious real-world political aspects of ecologically unequal exchange in practice, particularly as they take shape within changing global governance regimes. One recent exception is the work of Downey (2015), who analyzes the role of elite-controlled transnational networks in structuring global environmental inequality through governance institutions such as the World Bank, World Trade Organization, International Monetary Fund and corporate-controlled commodity chain networks. However, he gives limited consideration to divisions in the non-core, and to agency of elites outside the core.

As for resistance to global environmental inequality, numerous studies highlight forms of resistance by peripheral states and civil society actors to the disadvantageous rules in global governance regimes on issues such as forests (Schroeder 2010; Ciplet 2014), biodiversity (Escobar 1998; Shiva 1996), waste (Okereke 2006), and climate change (Pettit 2004; Terry 2009; Roberts and Parks 2009; Ciplet 2014, 2015; Ciplet et al. 2015). However, few studies have explicitly linked these politics of resistance and the forms that they take in particular historical periods to conceptions of ecologically unequal exchange. What focus does exist in the literature has identified ecologically unequal exchange politics as hinging largely on an axis between North and South. Notably, Roberts and Parks (2006) argued at length that the roots of the G77 coalition unity in the UNFCCC politics lay across many issues far beyond the climate talks: in these nations' lack of access to meaningful participation in the global order, the deep inequity in their well-being compared to the wealthy nations, and their agenda for Third World solidarity. Several scholars have also identified the emergence of the concepts of "ecological debt" and "climate debt", informed by world systems analysis and conceptions of ecologically unequal exchange, as frames of resistance adopted by peripheral states and civil society groups in the negotiations since 2000 (Bond 2010; 2012; Klein 2010; Roberts and Parks 2007, 2009; Ciplet 2015; Pickering and Barry 2012; Botzen et al. 2008; Chatterton et al. 2013). This perspective argues that the global North should remunerate the global South for a debt as the result of disproportionate polluting of the global atmosphere and its unequal consequences.

We have also pointed to changing dynamics within the world system relevant to the UNFCCC process, most notably, the hegemonic competition between the U.S. and China and its implications for international cooperation on climate change (Roberts 2011; Ciplet et al. 2015). While discussing the increasingly prominent role of emerging powers such as China, India, Brazil and South Africa in the negotiations in Copenhagen and Cancun, Hurrell and Sengupta (2012:463) caution that it is important not to "underplay the continued relevance of understanding climate

change within the North-South frame." We agree. This frame is still a major axis in the negotiations. However, it is far from the only one now of relevance. While scholars have brought attention to the shifting power between wealthy states and rising economic and "emissions powers" in the semi-periphery, much less attention has been directed to what this and other developments mean to unity in the global South and to the reproduction of inequality in global environmental governance.

The Old World Climate Order

The Group of 77 and China (G77) is a bloc of developing nations now numbering over 134 countries. As Vihma (2010:4) put it, the G77 is "a product of the North/South divide and the political economy of the late 20th Century. It is broadly based on a 'self-definition of exclusion' from world affairs." That is, the vast global South, consisting of all of Latin America, Africa, and nearly all of Asia, felt that they had been left behind over decades of efforts at economic development and globalization (Najam 2005; Roberts and Parks 2006). Brought into the world economy through colonial conquest and continuing to be dependent on the production and export of minerals and agricultural products whose prices fluctuated wildly or tended to go downward, they saw themselves as trapped in structurally disadvantaged positions. These are the underlying forces that held the coalition together until Copenhagen in 2009, despite their diverging material interests.

At the beginning of the climate negotiations in the early 1990s, the G-77 was a largely reactive coalition because of its suspicion of the environmental negotiations as an agenda of the industrial countries. Poorer nations expressed that green concerns were a ruse to keep them poor, a conscious or unconscious effort by the wealthy nations to keep the poor nations from usurping their place atop the global hierarchy (Roberts and Parks 2007; Gupta 1997). The G-77 shared interests in pressuring the historically wealthy or developed countries (what are called "Annex 1" countries in the negotiations) to act according to their historical responsibility for having created the problem and their capabilities to address it (their wealth). Developing countries also advocated to maintain their own sovereignty from outside intervention (especially from limits on their ability to pursue national economic development), and for the provision by wealthy countries of adequate funds and the most modern technologies to help them deal with climate change.

Addressing climate change means reducing consumption of cheap fossil fuels and switching to what have historically been more expensive sources of renewable energy like wind and solar; it also can mean not clearing rain forests to create farmland to expand the national economy, and so on. For this reason, the G-77's initial approach to this new agenda was wait and see, learn and react, or resist and reject (Najam 2005). If they were to address climate change and other environmental concerns, they needed to be compensated for lost economic gains and helped with

new green technologies. When it came time to draft the UN Framework Convention on Climate Change (UNFCCC) before the 1992 Rio Earth Summit and later as part of the 1997 the Kyoto Protocol, the G-77 and China succeeded in their goal of avoiding responsibility for making emission reductions.

To be clear, the G-77, which incorporates the periphery and semi-periphery nations, has never been a homogenous bloc, or one without conflict (see Vihma et al. 2011). A key tension in the group from the start has been between the Alliance of Small Island States (AOSIS) and the Organization of the Petroleum Exporting Countries (OPEC). At the first meeting of the COP in Berlin in 1995, when a majority of G-77 countries supported binding reductions of emissions, OPEC advocated against them, even for the industrial countries (fearing they might be next). The G-77 took stands against any taxes on carbon, insisting instead that they should be compensated for lost business since measures to respond to climate change would severely affect their economies by slashing their ability to sell oil. The idea of compensation of oil producers for lost revenue is enshrined in Article 4.8 of the Convention, which included special consideration for economic vulnerability to climate change response measures.

As for AOSIS, since the beginning of the climate negotiation process in 1989, this negotiating bloc was very active in attempting to insert binding commitments for greenhouse gas emissions reduction under the newly established Intergovernmental Negotiating Committee. AOSIS was particularly active in demanding ambitious, science-driven, legally binding emissions reductions targets and compensation funding for climate impacts. The group was the first to propose a draft text during the Kyoto Protocol negotiations calling for cuts in carbon dioxide emissions of 20 percent from 1990 levels by 2005 (Earth Negotiations Bulletin 1995). The group demanded the establishment of an international insurance pool for climate victims; it took ten years just to get loss and damage on the agenda in Cancun in 2010 and another 3 years just to begin a work programme to research the issue.

The compulsion of AOSIS was obvious. The group's forty-four members are spread across the South Pacific, Indian Ocean, and the Caribbean, Africa, the Mediterranean, and the South China Sea. AOSIS's unity comes from the fact that more than nearly any other countries, their physical survival as states is at stake due to steadily accelerating sea-level rise from climate change. The first report of the Intergovernmental Panel on Climate Change (IPCC), published in 1990, indicated an ominous development: sea-level rise due to climate change would condemn many low-lying areas to be submerged. In this effort, AOSIS found a willing partner in the EU, which, being influenced by public opinion and strong social movements, also showed great interest in controlling greenhouse gases from the beginning. Yet small island developing countries continued to stand behind G-77 statements and positions in the negotiations, which were generally for slowing the progress of aggressive climate treaties. Even those nations with quibbles about this

position did so because their voice was so easily ignored when they spoke alone: if they could get some of their positions into G-77 statements, they had some chance of influencing a treaty.

Later in Bali in 2007, with the end of the first commitment period of the Kyoto Protocol in sight, the G-77 stood strong in negotiating a successor treaty that maintained a structurally divided view of the world. Most central, the Bali text cemented different expectations for the developed and developing countries—"a Bali firewall" that would be defended for years by many developing countries (Smith 2010; Ciplet et al. 2015). Nowhere did the Bali action plan describe whether or how countries might move from one group to another, either up or down. Nor was there clarity on how a scientifically adequate solution might be met, or clear rules for compensation for countries losing revenue from reducing their emissions sharply.

The New World Climate Order in Copenhagen

It wasn't until the pivotal negotiations in Copenhagen in 2009 that the G-77 would dramatically splinter. Perhaps most devastating to the unity of the G-77 was the formation of the coalition of Brazil, South Africa, India, and China, known as BASIC, in October 2009, just before the Copenhagen conference. At the time of their collaboration, these countries were highly diverse in their interests. Their economic base, energy infrastructure, and emission levels all varied greatly, as did the nature of their states and their approaches to making and meeting greenhouse gas emissions reduction goals. Nevertheless, the key moment at Copenhagen was when President Barack Obama of the United States joined with leaders of the BASIC coalition to draft their own climate deal, which completely set aside the existing negotiating texts. The draft mentioned the goal of keeping global mean temperatures under 2 degrees' Celsius rise, but avoided any binding emissions reduction targets to achieve that and any mention of the time when perilously rising emissions must peak (Ciplet et al. 2015).

Most crucially, the Copenhagen Accord that they drafted entirely shifted the approach taken by the global community in the face of climate change. The earlier Kyoto Protocol approach was top down, with binding national commitments based on levels of emissions and capabilities of countries (usually understood to be roughly their level of income per capita). The Copenhagen approach that the United States and BASIC put forward was entirely voluntary and bottom up, with nations pledging and reviewing their own choice on what emissions reductions they would undertake.

China and the United States, a rising and a declining hegemon that together emitted about 40 percent of all greenhouse gases on Earth, consciously avoided a time frame for a midterm emissions reduction target (Roberts 2011). The bold move at Copenhagen showed the ascendant power of the BASIC group and its ability to work directly with the United States and to cut their G-77 colleagues and the EU out of the decision making. The way the Copenhagen Accord was

cobbled together was unprecedented, for heads of state and governments rarely get directly engaged in, let alone lead, international climate change negotiations. The Accord was quickly brought to a hand-picked group of twenty-eight countries to rubber-stamp, with almost no time to review it thoughtfully and no opportunity to revise it (Ciplet et al. 2015). In this group of twenty-eight were nearly all the wealthy OECD countries and just one representative from each of the developing world regions: Africa, Latin America, AOSIS, and Asia.

The new voluntary nationally-determined approach in the Copenhagen Accord faced strong resistance from numerous leaders of peripheral states on both procedural and content grounds. The final all-night plenaries at Copenhagen were fiery, with a few feisty speeches by the countries willing to risk upsetting the global order and the ire of major aid and investment players, the United States and China. This accord and work by Mexico to formalize them in the 2010 Cancun Agreements paved the way for a bottom-up, voluntary approach to international mitigation that was adopted as part of the Lima Agreements in 2014 and the Paris Agreements in 2015, in which countries all brought their "Intended Nationally Determined Contributions" (pledges), or INDCs. During this period the G-77 coalition further fractured along several lines. A series of new coalitions also emerged within the global periphery, some with competing identities and interests.

Splintering South: Three Fissures in the G-77

Tensions between the Periphery and Semi-Periphery

Since Copenhagen, the terms of what constitutes the 'global South' has been under contention. One emergent tension within the G-77 has been between state coalitions such as the Least Developed Countries and the Alliance of Small Island States (AOSIS) on the one hand and rising industrial powers in BASIC on the other, especially about who should be required to commit to emissions reductions within the new Nationally Determined Contribution (NDC) framework solidified in Paris. The moral force of a peripheral nation's extreme vulnerability to climate change is now often pitted against the need for development in emerging economies. For example, at one of the key informal meetings in the 2011 Durban negotiations, in response to the Indian environment minister's statement arguing for their right to development for meeting basic needs, the delegate Karl Hood from Grenada, representing AOSIS, reportedly retorted, "While they develop, we die; and why should we accept this?" (Roberts 2011).

Indeed, it is no longer possible to solely or primarily blame the global North for rising emissions. Developing countries now outpace developed countries in current carbon emissions (Center for Global Development 2015). The clear majority of projected emissions growth in the next two decades is expected in developing, not developed countries (Energy Information Administration 2013). In 2007, China surpassed the United States as the largest current global polluter, but remained far behind in terms of its cumulative historical emissions (Vidal and Adam

2007). But this is changing too. China surpassed the United States around 2015 or 2016 in terms of cumulative emissions (Doyle 2015), and has already overtaken the European Union in emissions per capita (McGrath 2014).

In response to this new reality, there has also been a notable shift in messaging among the poorest countries, which are now beginning to call for a more sophisticated and historically relevant differentiation of responsibility between states, including those in the South. In 2015, prior to the Paris Negotiations, the Least Developed Countries negotiating group's official submission written by Nepal argued that the new framework should take "full account of current socio-economic realities" and be a single regime "applicable to all" (Nepal 2015:1). They argued that over the past 20 years the economic conditions in the world had considerably evolved, leading to changes between countries, including the current annexes of the Convention (Nepal 2015:4). Specifically, they called for "allowing some differentiation for developed countries, emerging economies, middle-income countries, the most vulnerable and the least developed countries based on agreed criteria" (Nepal 2015:1). While this may sound like a common-sense proposal, it is a stark departure from supporting proposals that maintain a rigid "North-South" divide that was enshrined in the Bali Firewall in 2007.

A new negotiating group called the Independent Association of Latin American and Caribbean Countries (AILAC), which officially launched itself in 2012 at the Doha negotiations, has also taken positions that challenge earlier G-77 convention (Ciplet et al. 2015). AILAC is notable in that it largely embraced the new voluntary "pledge and review" approach to emissions reductions, while several coalitions such as the LDCs and the AOSIS were still demanding a second commitment period of the Kyoto Protocol. The coalition, made up of Colombia, Costa Rica, Chile, Peru, Guatemala, and Panama, with the support of the Dominican Republic, viewed itself as being a bridge between conflicting North-South interests in the negotiations, and sought to encourage a more ambitious agreement by committing to action themselves. Specifically, the AILAC countries decided to stop waiting for emissions reductions or financial support from wealthy countries like the United States, and launch an ambitious case for low-carbon development at home and abroad. This decision was a major break from G-77 solidarity.

AILAC has downplayed the class-based identity of global South which is embraced by many peripheral states in the negotiations as structurally disadvantaged and deserving of compensation. They have instead focused on how developing countries can take responsibility themselves. For example, Peru made the first formal pledge for emission reductions by a Latin American country in 2015. As former Costa Rican advisor Monica Araya told El País, "[The negotiations are] always told as a battle of North versus South … but each time this explains less and less of what's happening" (Méndes 2013). She continued, "There is an alliance of countries that want all nations to take on binding obligations, and that the negotiations process is adapting to a changing world"

(Friedman 2013a). Isabel Cavelier, a former negotiator for Colombia said in 2012, "We think we can show the world that we are developing countries, we have a lot of problems at home, but we are ready to act. If we can show that we can take the lead, and we're not waiting for the rest of the world, then we can [set] an example" (Friedman 2013b). AILAC negotiators are quick to point out that its positions do not undermine the core positions of the G-77 on equity, but they emphasize a more flexible interpretation of countries having to act according to their historical responsibility for climate change (CBDR+RC), to encourage all countries to commit to reducing their emissions.

A further fracture within the G-77 between the peripheral and semi-peripheral states occurred when, three days before the end of the Paris negotiations, a "high-ambition coalition" emerged in Paris, comprised of 79 African, Caribbean, AILAC and Pacific countries, along with the European Union and later the United States and Brazil, but without the other major global South powers, including China and India. The coalition formed in secrecy prior to the negotiations, and called for a legally binding agreement, a long-term goal on global warming commensurate with science, a review mechanism to assess emissions commitments, a unified system for tracking countries progress on meeting their goals, and eventually, a more ambitious emissions target of 1.5 Celsius temperature change (Mathiesen and Harvey 2015). Several of these demands contradicted the expressed interests of China and India. A previous "high ambition" coalition that crossed the North-South divide had come together in Durban in 2011 between members of the LDCs, AOSIS and the EU, at that point, to achieve a second commitment period of the Kyoto Protocol.

Tensions within the Semi-Periphery

In addition to rifts between the periphery and semi-periphery within the G-77 coalition, there are also many relevant tensions within the semi-periphery itself. The rising industrialized states are a very diverse group in terms of their emissions, economic activities, regional relations, and energy possibilities. For example, Turkey has the second-highest energy consumption growth after China and is dependent upon Russian and Iranian oil and gas and has plans to double its coal power capacity in the next four years (Friedman 2015). Brazil, for its part, depends far more on hydroelectricity and biofuels to power its growth. This makes Brazil far more efficient than many other states in its economic class in terms of carbon emissions per unit of GNP. From a climate perspective, Brazil's main concern is to definitively control deforestation, which has been its largest source of its carbon dioxide emissions since the late 1980s. However, its commitment to lower its carbon emissions appears to be weakening (Edwards and Roberts 2015). Clearly, one should not assume that these two countries, or other rising or middle-income economies, will share the same positions in the post-Paris period, in which all are responsible for taking mitigation action, but have discretion on what forms their own commitments should take. Their distinct

characteristics and interests uniquely shape their positions in regards to structures of ecologically unequal exchange in the world system.

While much could be written about fragmented interests between numerous countries that occupy this middle position in the global class structure and division of labor, here we focus on two of the major players, China and India. While they are often grouped together, China and India are in very different situations, and have taken decidedly different approaches in the contemporary negotiations, including in the Paris talks.

China has been more willing than India to take mitigation action commensurate with the demands of AOSIS and the LDCs, including providing financial assistance. China in the 1990s and early 2000s was very different from China today. Economically, its 7 to 10 percent annual growth and state-led capitalist transition has rocketed the nation to the highest levels of economic power. By some measures, China has just surpassed the United States and is now the world's largest economy, it is the workshop of the world in manufacturing, and it already is the holder of the world's greatest currency reserves and of other nations' debt (Katz 2014; Schiavenza 2014). China has increasingly seen climate negotiations as an important area of foreign policy to show that it is capable of addressing global problems and as an avenue for asserting leadership among developing countries (Chayes and Kim 1998). For this reason, China from the beginning worked for a united "G-77 and China" strategy (Economy 1997), perceiving its own role as speaker for the group (Heggelund 2007).

China is heavily investing in renewable and nonrenewable energy resources and infrastructure development in Asia, Africa, and Latin America. Unlike countries in the West, it is reported to have declined to make its investments conditional based on government reform, which makes it popular among a wide group of states (Alessi 2012). China is also a contributor of climate-related finance to many developing countries, particularly in Africa and Latin America. It seems likely that China's involvement as an investor and donor is responsible for some of the recipient countries' supportive responses to Chinese positions and leadership in climate change negotiations (Edwards and Roberts 2015).

Importantly, in November 2014, China agreed to a joint announcement with the United States to mitigate climate change, representing an important political breakthrough and for China a move beyond simplified notions of a North-South divide in responsibility. It also showed China's self-identification alongside a superpower, not making joint announcements with its BASIC or other G-77 partners. China also made major commitments to development assistance and investment (Hart et al. 2015; Khor 2015).

Thus, China went into the pivotal Paris negotiations, attempting to assume a position of global leadership, rather than that of merely an antagonist to the process. The Paris negotiations could have gone off the rails in the final minutes as the United States objected to key wording in the final

document; China was reported to have stuck by the United States and not the G-77. But rather than fully distancing itself from its supposed peer group in the South, in Paris, China's President Xi Jinping, continued to attempt to align with the interests of the weaker countries in the G-77, to call on wealthy states to scale up their climate finance and provide stronger support to developing countries (Mauldin 2015).

However, China's mitigation actions may fall far short of being adequate, due to its enormous net footprint and relatively high per capita emissions, and its hesitance in abandoning its fossil fuel infrastructure. In addition, China's climate assistance may take the shape more of colonialism, as it gathers up land and resources in Africa and Latin America for biofuels, and uses its own companies to construct massive infrastructure projects. China's investments do not likely match a vision of compensation for damages based on ideas commensurate with "climate justice." Overall, while many commended China's action in the recent negotiations, others have been critical of the country's scale of ambition, the mechanisms of transparency in the country to achieve its stated goals, the scale of recent investments in fossil fuel infrastructure, and its underreporting of previous emissions.

As for India, in recent years, the country has come under increased risk of becoming diplomatically isolated due to the size of its economy and its emissions (now the world's third largest emitter) (Guardian 2014), despite its very low emissions per capita (ranked 147th among all countries in the world) (Guardian 2013).[4] In fact, India's per capita emissions are less than a third of China's. India walks a very interesting line in the climate negotiations. On the one hand, it has attempted to bolster itself as a major world leader with aspirations for a seat on the UN Security Council and a greater role in international financial institutions like the World Bank and the International Monetary Fund. On the other hand, it is a very poor country ranked 143rd in the Human Development Index, with 300 million people without access to electricity, that must appease national interests for meeting basic development needs, which many argue would be compromised by any limits on its emissions.

In the lead-up to the Paris negotiations, India often fought against being subject to limits on its growth and strongly advocated for "differentiation" in terms of responsibility for action. Coming into Paris, India put forward a more ambitious INDC than some expected.[5] However, unlike China, India had been unwilling to promise to peak its emissions in the future. India's pledge

[4] Ranking in per capita emission assessed using 2010 data.

[5] India pledged to reduce its emissions intensity per unit of GDP 33 percent to 25 percent from 2005 levels by 2030, to receive about 40 percent of its power from non-fossil sources by 2030, and to enhance afforestation. It also announced a target to develop 100 GW of solar power capacity by 2022, launched a solar power alliance to increase solar production in the developing world, and has implemented a per ton tax on coal that is a direct subsidy to renewables.

also came with a price tag of $2.5 trillion and a call to the international community to support its clean energy program and to help it to adapt to climate change between 2015 and 2030, in addition to seeking finance from the private sector (Sinha 2015). While its target for solar power is ambitious, it simultaneously set a target for coal production of 1.5 billion metric tons by 2020. Thus, India seems largely unwilling to commit to not developing its huge coal reserves, unless it is compensated for its behavior. In this sense, India may find itself in direct competition for climate finance resources with much smaller peripheral nations.

Additionally, unlike the LDCs and AOSIS, despite its high vulnerability to climate impacts, India has been reluctant to commit to a 1.5 degree C limit on temperature change, playing a part in a group called the Like-Minded Developing Countries, and it has largely resisted movements toward reporting and transparency. In the Paris negotiations, in addition to continuing to demand differentiation between actor-groups in the agreement, India (like China) came under fire for standing against a rigorous five-year review of INDCs, supported by countries in the periphery. While India will increasingly represent a major global economy, political force and net polluter, it is still comparable in many ways in terms of overall poverty, vulnerability, and emissions per capita to many LDCs. Still, it opposed several key positions of the LDC group.

A core practical concern is India's extreme vulnerability to climate change impacts, such as its dependence on glacier-fed water supplies from the Himalayas, its vast populations on semiarid lands with scarce irrigation, and its dense population in the coastal belt vulnerable to sea-level rise and intensifying monsoons. In monetary terms, the issue is clearly salient: the Indian government claims that 3 percent of its GDP is already being spent on adaptation to climate change impacts, and it will need $206 billion to cover related costs for the period of 2015-2030 (India 2015).

Overall, in the post-Paris period there is no longer a unifying position between the semi-peripheral states in the G-77 of maintaining the North-South divide enshrined in the Bali Agreements. In this context, the often competing and complex identities of China and India, along with those of other countries that occupy the middle of the global division of labor, may lead to increasing tensions within the G-77. This will likely take the form of an inability within the coalition to agree on ideas of equity, responsibility, differentiation, and accountability for climate action within the global order in the coming years.

Tensions within the Periphery

Finally, there are important emerging tensions that may serve as wedges to solidarity within the global periphery in the negotiations and which make the ecologically unequal exchange discourse more difficult to maintain. First, there are potential tensions among peripheral states in the post-Paris context in terms of the extent to which actors maintain radical class-based demands concerning differentiation and compensation, or rather, embrace more fluid, pragmatic or reformist

ideas in UN climate politics (see, for example, discussion of the AILAC coalition above). Although the eighty nations in AOSIS and the LDCs are highly vulnerable to climate change, the postures and positions of the individual countries often differ substantially across the groups. The particular states take varying stances on whether to challenge the positions of OPEC and BASIC, for example, often depending on the particular areas of conflict and who is chairing the groups. For example, the island states Tuvalu and the Maldives have gained attention for being far more ambitious and aggressive in their stances than have Saint Lucia or Samoa. Like the economically more powerful states in BASIC and OPEC, many LDC countries also pursue both bilateral and minilateral diplomacy with single countries or smaller groups to promote their individual and group interests (Khan 2013).

One issue where there has been some contention among peripheral states has been on their approach to the issue of loss and damage, which includes some form of help for those climate impacts that cannot be readily adapted to. Having been raised since the early 1990s by AOSIS, this issue first found great unity in the 2012 and 2013 Doha and Warsaw negotiations when peripheral states came together in coalitions (including the LDCs, AOSIS, the African Group, and the Central American Integration System, as well as the broader G-77), arguing for the establishment of a distinct loss and damage mechanism in the Convention. However, the specifics of this mechanism have been more controversial. While some actors, and particularly some states in AOSIS, have continually demanded that compensation and liability be a cornerstone of demands related to the loss and damage framework, other states have viewed this demand as either polarizing or unrealistic, and instead have focused on other less radical aspects of the program such as data management, research, and climate refugee legality. For example, as a concession to developed states such as the United States, the LDCs agreed to language in the Paris decision text for loss and damage that explicitly excluded compensation or liability of developing countries (Vanhala and Hestbaek 2016). However, countries like Tuvalu which are particularly threatened by rising seas and other catastrophic climate disasters are unlikely to give up the fight for compensation. This difference may serve as a wedge between peripheral states in terms differential exposure to loss and damage events, and differing positions on the issue in future negotiations.

Second, competition over scarce adaptation and other climate finance resources has been a wedge between peripheral states in recent years (Ciplet et al. 2013b), and may intensify. The figures are stark: over ninety countries and their people have contributed an almost negligible amount to the problem of climate change, but they are already being hit first and hardest by the impacts, and they face these disasters with the least capacity to adapt to the changes (Kasperson and Kasperson 2001; Intergovernmental Panel on Climate Change 2007, 2013; Roberts and Parks 2006). As Desmond Tutu put it in 2008, a system of "adaptation apartheid" is already developing in the form of increasing investments in protections against climate-related disasters in industrial

countries, while efforts in the most vulnerable countries have always been grossly underfunded (Tutu 2008).

The $30 billion in finance that wealthy states promised in Copenhagen for developing countries during the 2010-2012 period were not delivered as promised. In addition, there is limited evidence that a scale-up to the promised $100 billion a year by 2020 is taking place (Ciplet et al. 2015). There are many measures and much debate on both the supply and demand for adaptation aid (e.g. Adaptation Watch 2015; Ciplet et al. 2011; Oxfam America 2012), but the United Nations Environment Program (2014) estimates that by 2025 or 2030 an estimated $150 billion of funding is needed to support adaptation to climate change in developing countries but current amounts of truly new public funds are still probably below $10 billion a year (Oxfam International 2016).

If such support is not dramatically scaled up, with new and substantial commitments during the next rounds of negotiations, states that are disproportionately vulnerable to climatic instability are likely to become more vocal in their demands for compensation, including for climate impacts that cannot be readily adapted to, such as rising seas. Importantly, the periphery may witness intensified infighting over designations of vulnerability in order to access the scarce existing public funds (Ciplet et al. 2015). This infighting could extend to the broader G-77 as conditions worsen and funds remain scarce.

While this may undermine efforts at collective organizing by peripheral states to address ecologically unequal exchange and remuneration for climate debt, this fragmentation is not inevitable. Notably, a coalition called the Climate Vulnerable Forum emerged as part of a conference in the Maldives in 2009. The Climate Vulnerable Forum was a key actor in Paris working to ensure that the 1.5 degree temperature target was included in relevant agreements. It is possible that the Climate Vulnerable Forum can be a vehicle for vulnerable states to maintain strong collective demands across diverse negotiating blocs for climate finance demands.

Conclusion: Insights for Ecologically Unequal Exchange Theory

Existing conceptions of ecologically unequal exchange have provided very limited understanding of the distinct and nuanced political dynamics which shape how environmental inequality is governed globally. This has major implications for our understanding of the reproduction of inequality at a global scale, suggesting that the distribution of goods and bads in the global system are not merely the result of trade relations or military domination, but also interactions in the political realm of multilateral institutions. The case of the contemporary UNFCCC points to three main insights for a theory of ecologically unequal exchange governance and resistance.

First, the analysis suggest that ecologically unequal exchange theory must better consider the role of the semi-periphery in reproducing ecologically unequal governance forms. Existing scholarship has almost completely neglected the strategies employed by semi-peripheral states to

maintain or enhance their relative ecological privilege in global environmental governance. The implicit underlying assumption has long been that the North is solely to blame for governance structures that support ecologically unequal exchange. However, in contemporary UNFCCC politics, semi-peripheral states have played a pivotal role in undermining robust mitigation efforts—particularly measures that would place limits on their own development aspirations. They have accomplished this by first dominating the G-77 bloc's positions and then later building alliances outside of the G-77 coalition to shirk their own responsibility to mitigate their emissions. By transporting carbon pollutants across national borders and becoming top-ranked nations in inflicting climate instability on the poorest and most vulnerable countries, these semi-peripheral actors are in effect creating a new ecologically unequal exchange. They have buffered themselves against resistance to their continued emissions by supporting the demands of peripheral states on issues such as climate finance, loss and damage against the global North, and (reluctantly) a target of 1.5 degrees Celsius for maximum global average temperature change. A common characteristic of the BASIC group is that each nation is a regional power at risk of alienating many neighbors as it attempts to reach the world stage as a global leader (on Brazil, see Edwards and Roberts 2015). One could argue that their actions in the area of climate politics suggest that each is diminishingly concerned about alienating their regional neighbors and the rest of the G-77.

However, we have shown that due to the highly diverse economic and environmental positions among semi-peripheral states, ecologically unequal exchange theory should also be cognizant of the ways in which the semi-periphery, and its defined interests in regime politics, are not monolithic. To be sure, thus far, developing states as a group have committed through their climate plans to more emissions reductions during the 2020-2030 period than that of wealthy states, despite their significantly lower historical responsibility and ability to respond to the problem (Oxfam International 2015). But there are actors that are doing considerably more and less of their 'fair share' to address the problem, as well as those that will be more or less vulnerable to the immediate consequences of warming climate.

Second, increasing fragmentation of defined interests between peripheral and semi-peripheral states may produce distinct challenges for peripheral states to resist governance forms which intensify ecologically unequal exchange. In this case, the changing landscape of major emitters in the global South—including countries like China, India, Brazil, Mexico, Turkey and South Korea—has made it increasingly difficult for peripheral states to simply go along with the conventional wisdom that the North is solely or primarily responsible for taking action on climate change. We have discussed how in contemporary UNFCCC politics, peripheral state coalitions such as AOSIS, AILAC, and the LDCs have called for proposals that challenge a North-South binary for mitigation responsibility. At times, they have also formed alliances that cut across the North-South divide,

such as "the Axis of Ambition" coalitions they formed with the European Union in the negotiations in 2011 and 2015.

There is the distinct possibility that the main discursive underpinnings of demands for remuneration of the "climate debt" owed by the global North to the global South will have to be adapted to the changing emissions context. The post-Paris institutional conjuncture requires that all states take mitigation and adaptation action. This change opens new discursive opportunities to pressure not only wealthy states on the adequacy of their actions, but also major rising polluters in the global South. It seems likely that as the poorest and most vulnerable states will experience increasingly intense climate disasters which are not of their own making, including the disappearance of whole territories under rising seas, that demands for compensation for climate debt will extend to other major polluters in the South, particularly if these states are unable or unwilling to commit to ambitious mitigation action or to fulfill their pledges within their INDCs. These tensions will also be amplified if there are not robust measures of accountability and transparency to ensure that actions outlined in INDCs are being fulfilled in practice – an issue upon which there is no agreement within the G-77.

However, such efforts of resistance from the global periphery come with major risks. There are also compelling reasons for why, even in this changing ecological and political context, peripheral states may be unwilling to take a stand against their larger and more economically developed allies within the G-77. Most notably, peripheral states would likely find less leverage in the negotiations against wealthy states on key issues such as climate finance and loss and damage without the support of their more economically, politically, and militarily strong semi-peripheral allies in the G-77 coalition. The increasingly strong financial aid and investment ties between China and states throughout Africa and Latin America also make public betrayal of conventional South-South ideals of solidarity potentially costly and presents structural obstacles to resistance (Ciplet et al. 2015).

A more complex reality of the perpetrators of ecologically unequal exchange also has the potential to create further divisions among peripheral states, weakening their collective leverage for unified demands. Competition for scarce adaptation, mitigation, and loss and damage resources in a warming world may also lead to increased infighting among those most in need of support. India's own call for international support of $2.5 trillion for its INDC may further intensify tension between this rising semi-peripheral state, and between coalitions such as the Like-Minded Developing Countries and BASIC on the one hand, and the LDCs and AOSIS on the other. Such tensions may be offset by efforts for collective demands to address vulnerability, in groups such as the Climate Vulnerable Forum.

Given these challenges facing peripheral states, we pose a third challenge for ecologically unequal exchange theory going forward: it is important to analyze the ways in which unequal

ecological exchange as mobilized as a collective action frame diverges from or conforms with the real-world distribution of environmental goods and bads in the world system. Specifically, in this context, even in a highly-fragmented and increasingly multi-polar world system in which the biggest growth in climate pollution is in the global South, a simple North-South axis of political organization and identity may maintain utility and dominance for many global South state actors and coalitions. In the immediate term, peripheral states, given their structural and political weaknesses, may continue to make calculated decisions to play nice with their big friends in the South. This stance may be taken despite the risks that inadequate mitigation action by semi-peripheral countries poses to climate vulnerability in the periphery.

It may be in the nature of capitalism to accelerate fragmentation in the conditions of nations and to create unequal costs and benefits through broad systems of unequal exchange, both economic and ecological. But it seems that geopolitically, there will be times when nations choose to simplify their solidarity groups along North-South lines, and other times when they do not. This alignment may be the only one that functions to allow effective struggles for redistribution of economic benefits from those at the top of the global hierarchy. However, in the case of the unequal distribution of impacts of carbon pollution, such alignments may be highly contrary to the interests of those at the very bottom of the distribution, the most vulnerable.

In sum, we have argued that tensions within the G-77 coalition in the UN climate negotiations will largely influence the forms that struggles against ecological inequality in the world system take in the post-Paris period. These tensions point to the need for ecologically unequal exchange scholarship to move beyond primarily documenting the problem of unequal global material flows, to nuanced empirical exploration of the shifting political dimensions within the world system and specific governance contexts that shape opportunities for transformation. Such analysis that does take the real-world politics of resistance to ecologically unequal exchange seriously, and the politics of global climate justice in particular, should carefully consider the complex relationships and points of fragmentation within the strategic organization and identity of the global South.

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