

The Political Economy of Ecology: Prospects for Transforming the World Economy at Rio Plus 20

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Abstract

This article assesses the prospects for advancing to a green economy at Rio Plus 20 through the perspective of international political economy writings on economic transformations and regime governance. In order to achieve robust investment in revolutionary new technologies a clear international political project is required that provides a common purpose, clear regulatory and legal rules, and formal organisational efforts for resource mobilisation, compensation of losers, and enforcement. It concludes with an appraisal of efforts underway to create the political foundation for a green economy, suggesting the creation of a new international organization for green technology innovation, and assigning the United Nations Environment Programme (UNEP) to environmental science assessment.

The next act in the slow transition to a more sustainable world will occur next year, at the UN Conference on Sustainable Development (UNCSD), to be held in Rio de Janeiro in June 2012 (Rio Plus 20). So far, progress in preparing the Conference, and the broader transition for which it is designed to promote, remains disappointing. Ban Ki-Moon's recent invitation for 'bold new ideas' does not reflect well on the existing pool of policy ideas. Nor does it bode well for the Conference.

This essay describes the process and broader project with which the UN governance efforts are directed, appraises the political impediments to progress in developing sustainable industry, reviews the policy efforts developed so far, and concludes with a few suggestions about how to build support for transforming the world economy at Rio Plus 20 through new institutions.

Progress to date

The United Nations General Assembly (UNGA) authorized Rio Plus 20 in March 2010 through Resolution 64/236 (A/Res/64/236). Preparatory work for the Conference has been underway for a year, guided by the UN Department of Economic and Social Affairs (DESA) office in New York. After the first preliminary preparatory committee meetings (78 of March & 16–18 of May 2010 in New York), the first intersessional meeting (10–11 January 2011 in New York) and the failed UNCSD meeting in May 2011, discussions have been quite impoverished in terms of imagination and passion, with few imaginative

initiatives or indications of leadership coming from governments. If Rio Plus 20 is to succeed, the fall 2011 session of the UN General Assembly will have to develop a clearer roadmap for it.

Rio Plus 20's formal agenda, (<http://www.uncsd2012.org/rio20/>) while still preliminary, has three major components. It calls for efforts to accelerate the shift to a green economy; reforms in international environmental governance, largely focused, so far, on UNEP reform; and the institutional framework for sustainable development.

Rio Plus 20's underlying goal is to advance the transition to a green economy (United Nations General Assembly 2010; Pfund 2011; United Nations Department of Economic & Social Affairs 2011). While the outlines remain dim, such a concept clearly encompasses shifting as much economic activity to forms that are more energy efficient, pollute less, and are carbon neutral. This involves both hardware components – new technologies and sectors – and also software components – embracing policies that encourage greener production and remediation while reversing policies that encourage unsustainable polluting and energy inefficient activities.

The green economy is a challenging prospect for developing the next global large scale socioeconomic system, because its proponents aspire to create a new political ecology of development: one that is organized around an intersecting set of new environmentally friendly technologies and that engage a global policy network of private and public actors involved in the green technology sector. This goal is no less than seek-

ing to create a new large scale technological system, akin to past dominant technological institutions that defined epochs: (Held, McGrew et al., 1999; McNeill, 2000; McNeill and McNeill, 2003; Osterhammel and Petersson 2005; Young, Berkhout et al. 2006) stable historical periods that manifest stable political and technological orders and distinctive ecological footprints. Such a change from current economic institutions and industrial practices will only occur through the broader transformative processes of creative destruction analyzed by Joseph Schumpeter (Schumpeter, 1942), Karl Polanyi (Polanyi, 1944) and scholars of innovation studies (Dosi, Freeman et al., 1988; Nelson, 2005; Mazzucato, 2011).

The political foundations for such a transformation have not been adequately considered or addressed in the Rio Plus 20 preparations, and this article focuses in part on the process by which the political ecology for a new green political economy may be pursued.

Past examples include the mercantilist and war prone world order of the 15–17th centuries, 19th century free trade, European peace and imperialism, and the interdependent international political economy since World War II. The technological underpinnings of the mercantilist epochs included a gold and silver based economy combined with developments in maritime technology. The Industrial Revolution of the 19th century was underpinned by reliance on fossil fuels for energy production, and further improvements in maritime and land based transportation and communication that facilitated high-volume long distance trade and resulted in the economic expansion and European peace of the late 19th century. More recently global technological developments in shipping technology, micro processing and communications have been key. Some national examples include railroads, and the interstate highway system in the US (Smil, 2006). In turn, technological systems of each epoch created robust networks of influential economic players, as well as institutionalized economic and political paradigms that promote the economic structures associated with these actors.

We know as social scientists that innovations are not just hardware or infrastructure. They are part of socio-technical systems and are embedded in social institutions. They embody organisational fields of actors with a common purpose and resources (Dimaggio and Powell, 1983; Powell and P. J., 1991; Dingwerth, 2009). Technologies are also social networks and systems (Arthur 2009; Dosi, Freeman et al., 1988; Freeman 2008; Nelson 2005; Steill, Victor et al., 2002). Not only does technological change have large scale political consequences, it rests on profound political and social foundations. Technologies are embedded in social structures (LaPorte, 1975; La Porte, 1991; Ruggie, 2008). The actors are key agents in promulgating dominant policy paradigms popular during the epoch.

The impulse behind the green economy project at the UN is to help develop the networks of and for green technologies, so that there will be both producers and consumers of the new systems. Brian Arthur has theorized this type of industrial and innovative economics in terms of the network effects enjoyed from positive network externalities from technological innovations, (Arthur, 2009) but which have to be encouraged by public policy because the markets are initially too small. Thus initial public institutional decisions, such as at Rio Plus 20, help generate a set of self-reinforcing path dependent processes that will help promote developing a green economy. For instance, a solar economy requires not just commercially competitive photovoltaics, but also the willingness of electric utilities to integrate their output into the grid, and the concurrent adoption of such cognate technologies as meters, as well as regulatory oversight and access to lithium and rare earths. As more economic actors become included in the policy and technological network, incentives for technology standards may flip from a race to the bottom to a race to the top, as economic rewards from competition become increasingly attractive.¹

Given the long life span of fixed capital stock, accelerating a shift to new greener capital stock and infrastructures requires a broad set of guidelines to focus investors' resources into activities that will yield rewards only in the long term. They need legal and regulatory incentives for such long term commitments, as well as public encouragement. They need confidence about their intellectual property rights, arbitration arrangements in case of investment disputes, and confidence in the existence of a long term market and its performance. The social infrastructure providing such guidance comes from state policies: a strong legal system, clear regulatory practices (which may include subsidies) and promotion of common social beliefs or paradigms that legitimize the technological systems and associated social systems.

Promoting a green economy requires a massive effort (Ausubel and Sladovich, 1989; Weizsacker, Hargroves et al., 2009; Kerr, 2010). The International Energy Agency's (IEA) World Energy Outlook 2009 suggests that a 14 per cent reduction in energy consumption from 2012 Kyoto limits is needed by 2030 to keep atmospheric carbon concentrations at 450 parts per million (International Energy Agency, 2011). A 450 ppm goal may be technically feasible with existing technologies, albeit at a high cost. Such costs might decline over time as markets expand and production becomes cheaper.

More ambitious green goals are not yet feasible with available technologies, and we still need a massive innovation push to create these green technologies (Pacala and Socolow, 2004; Weizsacker, Hargroves et al., 2009). Recent Intergovernmental Panel for Climate Change

(IPCC) estimates suggest that the cost of transitioning to renewables over the next 20 years could run to US\$15 trillion (Harvey, 2011). McKinsey estimated in 2009 that the cost would be on the order of US\$500 million per year worldwide by 2030 (McKinsey & Company, 2009). Others put it in the range of US\$1–2.5 trillion (UNEP, 2011).

These estimates are really just informed guesses. While high, they are not extravagant. UNEP suggests the cost would be roughly 2 per cent of global GDP per year (UNEP, 2011). Still, these estimates are only for the climate change part of the green economy formulation, so the green economy costs are probably higher. Recent studies emphasize the large gap between current investments in green technologies and the investments needed to achieve a more sustainable future (Pew Research Center, 2011; World Bank, 2010). One estimate is that investment in renewable energy was US\$211 billion in 2010 (UNEP program, 2011).

The political paradox is that many of these sectors and industries, while potentially generating social benefits, are too small to command the necessary governmental attention for their growth (Pfund, 2011).

Lessons from past UN conferences and economic transitions

There is a long legacy of global conference diplomacy since the seminal 1972 United Nations Conference on the Human Environment (UNCHE) at Stockholm (Kaufmann 1988; Putnam and Bayne 1987; Willetts 1989). UNCHE was the first global political conference to focus on global environmental concerns and helped set the subsequent political agenda. Few conferences have yielded meaningful outputs that galvanized widespread state responses. Prior successful large scale international environmental conferences – such as Stockholm 1972 and Rio 1992 – enjoyed public support, a well developed agenda with deliverable treaties and policy proposals, and the absence of major power political cleavages (Haas, 2002). While the third condition seems to be satisfied for Rio Plus 20, the first two are not. Governments and publics are preoccupied by the Arab Spring, restoring financial health, the war in Afghanistan, and terrorism. Public opinion surveys routinely reveal that publics are seriously concerned about global warming, but are unwilling to make serious sacrifices in order to deal with it (Dunlap, Gallup et al., 1992; Dunlap, Gallup et al., 1993; Dunlap and York, 2008; World Bank, 2010). Nor does a green economy or alternative vision of structuring modern industrial society resonate widely (Leiserowitz, Kates et al., 2006; The World Bank, 2010).

Moreover, the planning secretariats for Stockholm and Rio were deliberately located outside New York, in order to access a wider array of policy networks and ideas.

We also have lessons from the past about broader economic transitions on par with those envisioned by the green economy idea. While there are national level institutional requirements, there are also international requirements in order for states to coordinate their policies in pursuit of global public goods through creating international regimes that included new technological systems. Past successful technological transformations akin to the green economy – such as the Industrial Revolution in early 19th century England, the spread of free trade in the 1870s, and the reconstruction of Europe and the world economy in the aftermath of World War II – rested on social innovations that successfully removed protectionists from influencing or retarding international efforts to promote free trade. In the past, these systems were created through a process of lock in and hand tying – committing to political processes and technologies that would be irreversible and yield positive returns to scale. The US and other governments adopted explicit political deals which privileged domestic and transnational constituencies associated with the broader purpose. For instance, the US has given free traders the privileged high ground through fast track authority (Haggard, 1988) and in creating the International Trade Commission (Goldstein, 1986). The international community has supported the general legalization of the WTO (Goldstein, Kahler et al., 2000). These have all been essentially social and political institutional techniques that have promoted the broader technical project of reducing barriers to trade at the international level (Helleiner, 1994; Abdelal, Blyth et al., 2010).

The International Atomic Energy Agency (IAEA) and coordinated efforts to prevent nuclear proliferation while promoting civilian nuclear energy is another example of institutional design that favors one group of actors (states in countries with nuclear exporting capabilities and nuclear power plant manufacturers), while establishing institutional barriers to another group (nuclear proliferation minded states and terrorists) (Schiff, 1983; Scheinman, 1987).

In particular, international regimes rested on a widely shared common purpose, political support by a transnational network of influential actors, and strong treaty obligations and international organizations capable of coordinating national policies (Ruggie, 1983; Helleiner, 1994).

Each of these previous epochs rested on a number of interconnected foundations: a common guiding purpose; legal regimes that coordinated and constrained national behavior; complementary national institutions that conferred political influence on those who were most closely associated with the international arrangements; financial support for the new enterprises; distributive arrangement to satisfy market losers (such as General Agreement on Tariffs and Trade (GATT) escape clauses, and International

Monetary Fund (IMF) support for balance of payments deficits under fixed/managed exchange rate mechanisms); and a set of arrangements intended to facilitate the enforcement of collective commitments.

In the Industrial Revolution these efforts primarily took the form of national level institutions: a new capitalist belief that commerce was good and that there were mutual gains from trade, the rule of law, a supportive centralized bureaucratic state, and public support for science and technology training and innovation, as well as the gold standard to provide stable financing and economic stability. The post World War II period, which was characterized by a move to foreign sources for economic growth, rested on shared norms that trade was preferable to war, a common set of rules and procedures intended to foster trade liberalization, while also providing mechanisms to insure those with trade deficits from suffering excessive domestic economic harm. In addition, there were real sources of finance to support investment and innovation.

Political challenges

It remains difficult to mobilize support behind the green economy. The concept lacks consensus amongst technical elites; political support remains weak, and the opportunities for building meaningful alliances amongst constituencies at Rio remains blocked by the conference's weak agenda.

The 'green economy' concept remains contested (Berkeley Round Table on the International Economy, 2011; Preparatory Committee for the United Nations Conference on Sustainable Development, 2011). It is hard to define what actually constitutes a green economy. Efforts so far have largely looked at terrestrial industrial complexes, without attending to maritime industries (the 'blue economy'). North-South differences are evident on whether the focus should be on new technologies that foster a smaller ecological footprint, or those that also generate employment in the developing world. Even the underlying notion remains difficult to pin down. Should any technology be deemed green if it provides outcomes that are superior to present conditions – such as nuclear energy's contribution to fighting climate change, or desalination's promise for fighting the water crisis? Or are some technologies insufficiently green because they have other detrimental environmental effects, as nuclear energy's safety problems, waste storage issues, and proliferation effects remain of concern, as does the heavy energy draw for desalination plants.

While promoted as an aspiration in popular literature (Esty and Winston, 2009; Hawken, Lovins et al., 1999; Schmidheiny, 1992; Weizsacker, Hargroves et al., 2009), there is as yet few academic or popular writings that

clearly explains or defines the green economy, or how to transition to it. Without such intellectual focal points – such as the role played by the Limits to Growth in the early international environmental movement – it remains difficult to mobilize action around such a new campaign project.

Industrial ecology (Graedel and Allenby, 2002) and industrial metabolism (Ayres and Simonis, 1994) are highly suggestive work by engineers that track the systemic effects of key technologies, but lack a political foundation on how to build the support for a complex social ecology of sustainable production. To the extent that policy paths are discussed, all seem to agree on the need to focus on generating innovation for green technologies, popularizing and commercializing existing candidates and also building up their social cachet to expand demand.

National governments cannot yet agree amongst themselves on the hue of green technologies. Some governments support an ambitious green economy approach, anticipating that their economies are likely to benefit from a new epoch of green technology: including Japan, South Korea, Germany, China, and possibly Brazil. Others are ambivalent – such as the US and Russia – in large part because of the divided nature of their industrial sector which continues to rely heavily on fossil fuels and on manufacturing products for fossil fuel technology. Still others, such as India and many in the developing world, fear that new goods embodying new technologies will be more competitive than their exports, that they may not enjoy cheap access to the new technologies, and that the new technologies may not contribute to job creation in their societies. For this latter group of countries a green technology is one that is environmentally friendly and also generates jobs (Preparatory Committee for the United Nations Conference on Sustainable Development, 2011). To the extent that national political goals shape international economic discussions, these countries are clear that they would like some degree of technology transfer and market management at the international level.

In the absence of agreement on a common vision of a green economy, UN delegates have agreed that Rio Plus 20 will rely on the existing UN framework of sustainable development. Sustainable development itself has had a rocky history (Clark and Munn, 1986; Lele, 1991; Neumayer, 2010). Given the difficulties of establishing best practices for environmental protection, economic development, and social justice; much less cementing their interconnections, the current approach is to either rely on the 1992 Rio documents for legal precedent, or to treat sustainable development as a reflective process rather than a canonical set of policies. Neither approach provides a helpful foundation for developing political consensus by or at Rio Plus 20.

More fundamental is the tension between a green economy and sustainable development itself. How do green technologies fit in with the three pillars of sustainable development: environmental protection, economic development, and social justice? Is the green economy merely part of the environmental protection pillar? How can, and should it be connected to the other two pillars? While parts of each agenda overlap – such as green jobs contributing to fighting poverty, poverty reduction stimulating demand for and investment in new technologies, and green technologies promoting the broader goal of environmental protection – the overall agendas and frames obscure more pragmatic gains that could be achieved by focusing on green technologies themselves. By judging green technology by all three pillars of the sustainable development pillar much time will be lost. By focusing on the politically less powerful justification of environmental protection rather than economic efficiency time and support for green technologies will be lost.

Regardless of the conceptual hook employed, neither sustainable development nor the green economy yet command widespread public support or recognition in major countries, while a number of major economies included green technology sectors in their financial stimulus packages of 2008–2010 (Barbier, 2011; Berkeley Round Table on the International Economy, 2011).² The World Bank in its 2010 World Development Report laments declining government budgets for R&D in various energy efficiency and carbon reducing sectors, falling from over 20 per cent of government R&D in industrialized countries in 1980 to under 10 per cent in 2007 (World Bank, 2010). Even 25 years after the Brundtland Commission Report, sustainable development remains more of a vague aspiration than a common project. It is widely invoked discursively, but without adequate resources. Environment (and sustainable development) remain local realities for most people, rather than global. Surveys routinely show that the 'environment is experienced at the local level and that citizens express more concern with local issues than global ones' (Eurobarometer, 2008).

The agenda for Rio Plus 20 lacks the kind of negotiation arithmetic (Haas, 1980; Sebenius, 1983) needed to create a broad constituency on behalf of the green economy. The green economy part is too weakly developed to generate a broad base, and the institutional reform elements for the environment and sustainable development lack the breadth to be able to meaningfully expand the supporters for a green economy. Concretely, the constituency for the green economy remains small, and the institutional reform components do not add sufficiently to the base. The institutional components are presented sufficiently narrowly as to appeal only to a few UN insiders.

Institutional considerations and proposals

The institutional part of the Rio Plus 20 agenda remains disconnected from the broad ambitious purpose of the Conference. Discussions have revolved around two topics: environmental governance and Institutional Framework for Sustainable Development (IFSD). Neither is directly related to the green economy component of the agenda. So far, environmental governance has received more attention than the IFSD. These discussions are disjointed because they address two somewhat unrelated topics: how to deal with UN system wide questions about institutions for *sustainable development* and specific questions about the role of the United Nations Environment Programme (UNEP).

Prior experience with effective global governance, reviewed in the first part of this article, suggests that in order to achieve robust investment in revolutionary new technologies, a clear international political project is required that provides a common purpose, clear regulatory and legal rules, formal organisational efforts for resource mobilization, compensation of losers, and enforcement.

IFSD suggestions to date include the usual tired UN bromides of ECOSOC and UNCSD reform. Alternatively, the Chilean president of the UNGA is pressing for a greater role of the General Assembly in guiding sustainable development governance. A more ambitious Brazilian proposal calls for a new umbrella organization for sustainable development. The first three ideas are too weak and modest to advance the prospects of a green economy. The other is promising, but insufficiently elaborated, particularly in terms of the relationship between sustainable development and a green economy.

Institutional reform talks have focused heavily on the future of UNEP. To some extent this is a matter of the tail wagging the dog, as UNEP is best positioned to work on environmental problems, rather than the broader scope of sustainable development and the green economy. Discussions about UNEP's future have followed a tortuous path for nearly 14 years. At a meeting in Espoo, Finland in November 2010, ideas for UNEP's future role in environmental governance were summarized in five non exclusive options, which have been forwarded to the Rio preparations for resolution [UNEP/CGIEG.2/2/2]:

- Focus on scientific matters
- Cluster existing multilateral environmental agreements before (MEAs)
- Upgrade UNEP to a UN agency (UNEO)
- Maintain the existing UN organizational structure and seek to streamline UNEP's relationships with other bodies (such as UNDP)
- Create a new centralized World Environment Organization (WEO) that is responsible for all MEAs and able to advocate for environmental protection at the WTO

UNEP reform should be kept separate from sustainable development and green technology frames. UNEP's strength has been within its original mandate for scientific monitoring and research and early warning. While developing a large body of international law, the successful multilateral environmental agreements or regimes are largely self-supporting now, and lumping them with the unsuccessful ones would just drag them down. UNEP would best serve as the environmental science hub in the sustainable development constellation of institutions as a free standing UN Agency. It would seek to provide general monitoring and state of the art understandings about the health of major global ecosystems, as well as working with existing functional scientific assessment institutions, such as the IPCC. In order to help publicize its findings, the executive director head could be elevated to a high commissioner for the environment.

As always, the old Maurice Strong injunctions that 'the policy is the process', and 'form should follow function' are useful guides for organizational design (Ivanova, 2007; Ivanova, 2010). The underlying political need is to organize and consolidate constituencies behind a green economy.

Normative consensus

The Conference urgently needs to develop a normative consensus behind the green economy. To the extent that this is possible in the next six months, work on a popular book summarizing knowledge about the green economy could help. Ongoing research on state of the art understandings may contribute to a robust consensus.

Achieving consensus may require some grand bargain with the developing world, along the lines of earlier proposals that linked environmental commitments with financial transfers (Speth, 1992). Rather than sustainable development the Millennium Development Goals (MDGs) may provide better traction for yielding positive negotiation arithmetic.

Formal international institutional supports

A serious effort needs to be made to stimulate and coordinate innovation in green technology. The private sector cannot do it alone. A new international organization could help coordinate and stimulate national R&D in green technologies. Relationships with the World Trade Organization (WTO) would have to be developed in order to address potential intellectual property rights (IPR) and trade discrimination issues from government activities. Clearly such an organization would have to involve private sector participation, as well as civil society and the scientific community.

Joint participation by the private sector with sovereign states is necessary in order to properly mobilize technological innovation and financing. This point should be clear to governments who recognize the benefits of stimulating such large scale economic changes.

There are many existing institutional models for how such a diverse constituency can be represented at the international level. Actor groups can serve an advisory role as permanent observers, as was the case with the UN Commission on Transnational Corporations. Non-state actors can be participants, with voting rights along with states, although in a minority position, such as in the International Union for the Conservation of Nature (IUCN). Non-state actors can also serve in a junior position on national delegations, as with the International Legal Organization (ILO). International product standards can be developed through joint efforts by national standards bodies and the private sector, such as by the International Standards Organization (ISO). Other models could even include a bicameral structure through a reconstituted UN Trusteeship Council, with one legislative body representing non state actors.

The organization could also help collect and diffuse information about new technologies through a central clearinghouse, thus improving the information available to markets for adopting such new technologies. It could also help with oversight by overseeing the extensive ensemble of existing private and public/private certification schemes, and highlighting the ones that provide the most benefits (Abbott and Snidal, 2009). By recommending best practices for green labels it would help bolster consumer confidence and widen market demand.

Conclusion and future prospects

The current political bottleneck is because the green sector is still too small to be able to wield significant political influence. By encouraging green companies and providing incentives for green sectors, current companies that are on the fence would become more active supporters of such a technological system. For instance, such manufacturing giants as GE Westinghouse and Siemens could be powerful advocates for a new green order. At the moment the long term incentives for such firms are not yet clear, as they will produce the energy producing and energy using technology for a brown or a green future. The plausible existing sectoral supporters for a green technological order are: the reinsurance industry, some venture capitalists, solar, wind and hydro producers. However, they remain too small to be able to effectively advocate for a new order.

A related political concern is trying to bolster the political influence of governmental bodies that are responsible for the environment and clean energy. The current problem is that such bodies remain fairly new

and small relative to more established interests within national bureaucracies. Thus, it is difficult for them to advocate effectively on behalf of greener technologies against older and better established domestic economic interests, such as the revenue collecting concerns of the treasury and the commercial support concerns of the commerce department. International organizations and organised intergovernmental discussions serve the function of bolstering the domestic influence of the units that are involved in international coordination.

But the core reality is that we need a political realignment to promote investment and innovation in green technologies. Rio Plus 20 should mobilize these economic actors who stand to gain from a new green technological system within a new UN body responsible for promoting green R&D worldwide.

Before meaningful support for such large scale changes and the UN Conference can occur, we must stimulate the involvement of organized networks of actors engaged in the green economy project, including finance, development and trade ministries; as well as a wide variety of non-state actors including clean energy firms, manufacturing, insurance, and investment capitalists. Again, suitably far sighted governments should recognize the appeal of committing broader institutional resources to the green economy project. The OECD, any of the major economies, or even private philanthropies including major foundations and the Clinton Global Initiative could sponsor such an initial meeting to remove impediments to progress at Rio Plus 20.

Rio plus 20 remains a window towards a more sustainable future. The EU has suggested that the Conference should be seen as a beginning, rather than an end. An assessment of its outcome should rest on whether the prospects for a green economy look rosier on 7 June than on 2 June.

Notes

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1. My thanks to an anonymous reviewer for this point.
2. The green economy accounted for the following percentages of overall stimulus packages: China 33%, USA 12%, EU 60%, S Korea 78%, although these remain relatively small parts of overall macroeconomic policies.

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