

G20 Climate Change Governance: Performance, Prospects, Proposals

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Introduction

On June 2, 2017, U.S. president Donald Trump announced the intention of the United States to withdraw from the United Nations 2015 Paris Agreement on climate change. His move came just after the Group of Seven’s Taormina Summit on May 26-27. There, all G7 countries with the European Union had reaffirmed their commitment to the “swift implementation” of the Paris Agreement, while the United States explicitly did not. This unprecedented division meant that no G7-wide climate change commitments were made, a sharp contrast to the 12 produced at Japan’s G7 Ise-Shima Summit in 2016.

Trump then brought his strong skepticism about climate change to the next global summit, the Group of 20 in Hamburg, Germany, on July 7-8. The leaders of this broader, more diverse group, hosted by a highly committed and experienced Chancellor Angela Merkel, produced more commitments at the summit and more compliance with them than ever before. The following year, at the G20’s Buenos Aires Summit on November 30–December 1, 2018, the leaders’ met right after the release of a report from the Intergovernmental Panel on Climate Change (IPCC) and another from the U.S. government that both underscored the seriousness and urgency of the climate threat. In 2018, global carbon dioxide emissions surged to reach a new peak of 2.7%, their fastest pace in seven years. But few had high hopes for the 24th Conference of the Parties (COP24) to the United Nations Framework Convention on Climate Change (UNFCCC) in Poland starting on December 3, 2018. Thus many asked if Japan’s G20 Osaka Summit on June 28–29, 2019 could make and comply with the commitments needed to control compounding, catastrophic climate change.

The answer is critical. Strong commitments and compliance are essential to meet the Paris pledge to keep global temperatures from reaching unprecedented heights. As G20 members produce most of the world’s greenhouse gas emissions, they must take the global lead in climate change control. Compliance with the G20’s oft-repeated 2009 Pittsburgh Summit promise to phase out inefficient fossil fuel subsidies in the medium term — a deadline already long passed — could cut emissions 10% to 20%, according to the International Monetary Fund (IMF) (Coady et al. 2015). This could also prevent millions of premature deaths related to air pollution each year (World Health Organization 2016). Yet the G20 still provides \$444 billion annually for the exploration and production of fossil fuels for energy, four times more than renewable energy development receives (Bast et al. 2015). For the G20 to be an effective global governor, the precise, future-oriented, politically binding commitments proclaimed on paper by the most powerful leaders of the world’s most powerful countries from their sunny summit peak must be timely, well tailored and ambitious, and then complied with by their governments back home.

It is thus important to know how well G20 leaders have made and complied with their climate change, energy and other commitments since their summit's start in 2008, and how their compliance can be improved (Kirton and Kokotsis 2015). This study thus conducts a systemic analysis of the G20 Research Group's database on G20 commitments and compliance on climate change since the first G20 summit in 2008 through to its 10th in 2015, and a more detailed analysis of G20 performance at Hangzhou in 2016, Hamburg in 2017 and Buenos Aires in 2018. It offers seven key findings.

First, from 2008 to 2016 G20 summits made 53 precise, future-oriented, politically binding commitments on climate change in the collective documents they issued in the leaders' name.

Second, during this time compliance averaged a low 65% with the 22 commitments on climate change assessed for members' compliance (see Appendix A). Climate change ranked in the bottom five of all 18 G20 issue areas assessed for compliance. It ranked lower than the closely related issue area of energy at 73% and lower than the G20's overall compliance average of 71% (across all 191 commitments assessed).

Third, for the 2016 Hangzhou Summit, performance remained poor. Compliance with two climate and other energy commitments was low. Compliance with the commitment to phase out inefficient fossil fuel subsidies ranked last, on energy efficiency 14th and on climate change 10th. In contrast, overall compliance with the priority commitments across all was a substantial 72% at the halfway mark.

Fourth, at the 2017 Hamburg Summit, performance surged. Leaders made a new high of 529 commitments, including 22 on climate change and 43 in their "G20 Hamburg Climate and Energy Action Plan for Growth." Overall compliance across all subjects reached an unprecedented 87%. Compliance with the commitment on energy and energy efficiency was 80%, on climate resilience 83%, on waste reduction 90% and on sustainable energy 93%, for an average of a new peak of 87%.

Fifth, at the Buenos Aires Summit on November 30-December 1, 2018, performance was solid. Leaders made 86 commitments in their communiqué, including four on climate change. Among the 16 subjects, climate change ranked 10th with the number of commitments it received. Energy, with six commitments, ranked fifth. Climate and energy together thus had 10 commitments or 12% of the total.

Sixth, Japan's Osaka Summit on June 28–29, 2019, will do more on climate change than Buenos Aires did.

Seventh, G20 leaders can raise overall climate change compliance by using proven, low-cost accountability measures they directly control (Kirton and Larionova 2018). Invoking international law (notably the UNFCCC), having a preparatory G20 finance ministers' meeting that references climate change and holding many pre-summit ministerial meetings also help (Kirton, Kokotsis and Hudson 2018).

G20 Summit Compliance, 2008–2015

From 2008 to 2015, overall compliance across all issues with the 198 assessed priority commitments was 70%, or +0.40 on a three-point scale where -1 indicates non-compliance and +1 indicates complete or near-complete compliance (see Appendix A).

By year, compliance in the first half of the G20's life fluctuated widely, from a high of 75% from its 2008 Washington Summit to a low of 59% from its 2009 London Summit. However, after the 2011 Cannes Summit, compliance generally rose again and never fell below 68%.

By member, compliance was led by the United Kingdom at 86%, Germany at 84%, the European Union and Australia at 82% each, and Canada and France at 81% each (see Appendix B). Next came the United States at 77%, and Korea and Japan at 75% and 72%, respectively. In the middle stood the largest emerging economies of India at 69% and China close behind at 68%. Italy also had 68%. Brazil followed at 67%, then Mexico at 65%, Russia at 64% and South Africa at 62%. Finally, near the bottom were Turkey and Indonesia at 57% each, followed by the 2018 G20 summit host of Argentina at 53%. Saudi Arabia came last at just 51%.

By issue area, where at least five assessed commitments exist for each, compliance was led by macroeconomic policy at 80% and financial regulation at 75% (see Appendices C and D). With consistently high compliance on these two subjects, the G20 has fulfilled its first distinctive foundational mission of promoting global financial stability (Kirton 2013).

The G20, however, has struggled to fulfill its second distinctive foundational mission of making globalization work for all. Climate change, which harms the poorest first and foremost, averaged 65% compliance from 2008 to 2016. Overall compliance was even lower and not improving, with G20 development commitments at 66%, trade at 63%, and crime and corruption at 57% (see Appendices C1–C3). Indeed, since the 2012 Los Cabos Summit, compliance on reducing unemployment, including for youth and women, steadily decreased from 100% in 2012 to an all-time low of 45% in 2016 (see Appendices C-2 and D).

Also steadily declining was compliance on energy. For the 2010 Seoul Summit it was 82% but plunged to an all-time low of just 10% in 2016. This was primarily due to the G20 members' failure to phase out their fossil fuel subsidies over the medium term while supporting the poor.

Hangzhou 2016

For the 2016 Hangzhou Summit, overall interim compliance with the 19 assessed priority commitments was substantial at 72% (see Appendix D).

Over time, this was lower than the 2015 Antalya Summit's final compliance of 77%, but on par with the 2014 Brisbane average of 71% and the 2013 St. Petersburg average of 72%. The G20 therefore still solidly kept the promises it made.

By member, compliance was led by Canada and Australia at 89% each and host China at 82%. In the middle came the European Union at 79%, the United States, Russia and United Kingdom at 76% each. Argentina and Mexico had 71%. At the bottom came Korea, Indonesia and Japan at 68% each, India at 66%, Saudi Arabia at 63%, Turkey at 61%, and Italy at 58%.

By issue, commitments most closely linked to the 2016 Hangzhou Summit's first theme of innovation had the highest compliance. The commitment to promote knowledge and technology transfer, in the issue area of information and communications technology, secured 100%. Implementation of the "G20 Guiding Principles for Global Investment Policymaking" had 98%, due to Argentina's partial compliance. Building tax capacity in developing countries, supporting

implementation of the “G20/OECD Principles of Corporate Governance” and working toward innovation-driven growth had 95%, 93% and 90%, respectively. Commitments to tackle terrorist financing and to lead in lowering the costs of trade had 85% compliance each. Macroeconomic policy — using monetary, fiscal and structural tools to achieve strong, sustainable and balanced growth — had 83%.

In the middle came advancing cooperation on base erosion and profit shifting at 75%, addressing forced migration at 73% and addressing climate change at 68%. Advancing implementation of the “G20 Anti-Corruption Action Plan 2017–2018,” finalizing the agreed financial sector reform agenda, and continuing the G20’s commitments to standstill and rollback protectionist measures until the end of 2018 all had 65%.

Near the bottom was promoting e-commerce with 63%, implementing intended national actions under the 2030 Agenda’s Sustainable Development Goals (SDGs) and improving energy efficiency at 60% each, and further developing employment plans for youth and female employment at 45%.

Dead last, at only 10%, was the energy commitment to “phase out inefficient fossil fuel subsidies that encourage wasteful consumption over the medium term, recognizing the need to support the poor.”

Hamburg 2017

At the 2017 Hamburg Summit, which was U.S. president Donald Trump’s first G20 one, leaders made a new high of 529 commitments overall (see Appendix J). These included 22 commitments on climate change, 43 in their separately released climate and energy action plan and another 55 in the closely related document on marine litter.

Overall compliance reached a new peak of 87% (see Appendix C-1). Compliance with the commitment on energy and energy efficiency was 80%, on climate resilience 83%, on waste reduction 90% and on sustainable energy 93%, for an average of 87%, or the same as the summit overall.

Buenos Aires 2018

The 13th G20 summit, taking place in Buenos Aires, Argentina, on November 30–December 1, 2018, took as its theme “Building Consensus for Fair and Sustainable Development” (Kirton 2018g). Leaders tackled a broad range of global challenges, starting with the three priority themes set a year before by the Argentinian host: infrastructure, jobs and food. The agenda embraced Argentina’s other priorities of strengthening financial governance, a strong sustainable financial system, a fair global tax system, climate change and environmental sustainability, clean energy, the empowerment of women, trade and investment cooperation, and the fight against corruption.

To produce agreement at the summit, Argentina relied heavily on a bottom-up strategy, under which leaders would largely endorse the work and the many commitments of the G20’s ministerial meetings for finance, foreign affairs, energy, agriculture, the digital economy, education and employment, trade and investment and health. They were enriched by input from the seven core civil society engagement groups: the Business 20 (B20), Labour 20 (L20), Think 20 (T20), Youth 20 (Y20), Civil 20 (C20), Women’s 20 (W20) and Science 20 (S20). In neither case was there a body dedicated to the environment and climate change.

On its eve, the severe crises that had arisen in recent months included the urgent threat of climate change. This was confirmed by the October IPCC report and the many deadly and destructive extreme weather events assaulting most G20 members during 2018.

On the summit's second day, the leaders' sherpas finally managed to produce a draft communiqué to recommend to their leaders for them to present at the end of their summit that afternoon (Stauffer and Squires 2018). On the highly divisive, key issue of climate change, the draft reportedly contained a reference that showed "no backtracking" from the language at the G20's Hamburg Summit in July 2017 (Garibian 2018).

Yet it remained for the leaders themselves to approve their sherpas' draft, during or after their morning working session on sustainable development, climate sustainability and climate change, or their working lunch on infrastructure and food security (Kirton 2018d). During the former they would also address reducing inequality and reviewing progress toward global sustainable development in accordance with the UN's 2030 Agenda. The working lunch would include connectivity, cleaner, more flexible and transparent energy systems and agricultural productivity to meet the dietary needs of the world's growing future population.

In the end, the Buenos Aires Summit was a solid success overall but a failure on climate change (Kirton 2018f, 2018e, 2018a) (see Appendices K and L). An advance came, most surprisingly, on climate change, where most had assumed that U.S. resistance would lead at best to only a short and general passage that might not even refer to the Paris Agreement or the work of the United Nations. The 31-paragraph communiqué contained three paragraphs and four commitments devoted to climate change and six other commitments on energy. The second and third paragraphs on climate change repeated the Hamburg Summit formula, first stating in paragraph 20 the complete commitment of 19 members to the Paris Agreement, and then in paragraph 21 stating that "the United States reiterates its decision to withdraw from the Paris Agreement." But paragraph 19, agreed to by all 20 members, stated: "We note the latest IPCC Special Report on the Impacts of Global Warming of 1.5 degrees centigrade ... We look forward to successful outcomes of the UNFCCC COP24 and to engage in the Talanoa Dialogue."

In this weak passage Donald Trump and all his colleagues failed to accept the science behind this UN report as well as its conclusions and recommendations. They merely acknowledged the existence of the report and its new 1.5°C target. Trump and his colleagues further agreed to work on December 3, when COP24 began, to write the rule book to implement the Paris Agreement, even if the United States was withdrawing from it. And by engaging in the Talanoa Dialogue, the G20 leaders implied they might accept more stringent climate change control commitments than the inadequate ones in the Paris Agreement itself. In all, it was a meaningful move toward climate change control, consistent in its direction with the stark warnings of the IPCC report.

Still there was much missing, notably the G20 summit commitments made consistently since Pittsburgh in 2009 "to phase our inefficient fossil fuel subsidies in the medium term." Moreover, the Buenos Aires additions remained massively inadequate to address the clear and present, potentially existential, danger of catastrophic climate change, as 2018 approached its end as the planet's fourth hottest year ever.

The 2019 Osaka Summit's Climate Change Agenda

As the G20's 2018 Buenos Aires Summit ended and Japan's 2019 presidency began, the prospects were promising that it would do more to control climate change at its summit in Osaka in June 2019.

Toward the end of the Buenos Aires Summit on December 1, 2018, Japanese prime minister Shinzo Abe outlined to his fellow leaders, in Japanese and the watching media and public, his seven priorities for the Osaka Summit (Kirton 2018c). They were, first, promoting free trade; second, science and technology innovation to solve social problems and foster a human-centered society, with an emphasis on women, youth and people with disabilities; third, infrastructure for development; fourth, global health.

The fifth was climate change. Abe said it was essential to enhance environmental and economic growth together. This would mean creating a good circular economy-environment system, and having the private sector invest in it to bring it to life. This environmental priority would include acting against marine plastic pollution and supporting marine biodiversity. A related priority was energy.

The sixth priority was aging populations. The seventh was promoting the SDGs and international development.

A more detailed set of priorities had been prepared by mid November for the finance track (Kirton 2018b). Its first theme was the global commons for shared growth, starting with engines for shared growth. The first component was quality infrastructure investment, the second universal health coverage and the third resilience against natural disasters. This included widely broadening disaster risk financing and insurance, such as the Pacific Catastrophic Risk Assessment and Financing Initiative and the Caribbean Catastrophic Risk Insurance Facility.

To help Japan deliver this agenda, it is holding eight ministerial meetings — four before the summit and four afterward. As announced on July 20, 2018, they are as follows:

- May 11–12: agriculture ministers, Niigata
- June 8–9: finance ministers and central bank governors, Fukuoka
- June 8–9: ministers responsible for trade and the digital economy, Tsubuka, Ibaraki Prefecture
- June 15–16: ministers responsible for energy transitions and the global environment for sustainable growth, Karuizawa, Nagano Prefecture
- September 1–2: labour and employment ministers, Matsuyama, Ehime Prefecture
- October 19–20: health ministers, Okayama
- October 25–26: tourism ministers, Kutchan, Hokkaido Prefecture
- November 22–23: foreign ministers, Nagoya, Aichi Prefecture

Of particular importance is the joint ministerial on energy and the environment, to be held two weeks before the summit itself.

The Osaka Summit's Prospective Success in Climate Change Control

There are further reasons to predict that the Osaka Summit will take more action on climate change and the energy transition than the 2018 Buenos Aires Summit did, given the probable state of the conditions on key variables that have propelled recent G20 performance on climate change.

First, Japan is highly vulnerable to climate shocks from oceanic events and sea-level rise as a country with its political and financial capital and all its major cities on its coastline. The memory of the flooding and closure of the Osaka airport in 2018 and the 2011 Fukushima tsunami provide a vivid message of what damage such shocks can do. The most recent scientific evidence suggests that most G20 members will be increasingly affected by such deadly and expensive climate shocks by June 2019. In addition, unlike Argentina, Japan will have no diversionary financial shock.

Second, the multilateral organizational failure of the United Nations, its UNFCCC and COP will grow, as four years after the Paris Agreement and summit the G20's post-Paris relief and resulting "leave it to the UN" instinct will decline.

Third, Abe, like Merkel, leads a country with high relative capability, making Japan the fourth-ranked power in the G20 and the world.

Fourth, Abe, like Merkel, has hosted successful G7 summits and Japan, unlike Turkey and Argentina, is a member of participant in the annual democratically devoted G7 summits as is the United States. Abe brings high political cohesion from home.

Fifth, Trump's announced withdrawal from the Paris Agreement and the other members' preoccupation with implementing it without him will diminish, as he becomes a reduced political force after the new U.S. House of Representatives starts work, the results of the Mueller investigation are released and the 2020 presidential election campaign season begins in earnest, including the question of who will be the Republican Party's presidential nominee. With the leaders of Russia and Saudi Arabia seeking to compensate for their bad behaviour over Crimea and the Khashoggi murder respectively, the arrival of climate-denying Brazilian president Jair Bolsonaro will have little force.

Sixth, Japan, like Germany but unlike Argentina in 2018, China in 2016 and Turkey in 2015, is a member of the Organisation for Economic Co-operation and Development (OECD). OECD membership tends to increase compliance with G20 commitments and may have a broader (if yet unassessed) performance-enhancing effect. The OECD serves the G20 as an informal secretariat, and its analytical orientation and outreach deepen the G20's position as the club at the hub of a global network.

Seventh, Japan is mounting many ministerial meetings, including one for environment ministers, during its year as host. Such ministerials prove to have a compliance-enhancing effect. They may have a yet unexplored broader performance-enhancing effect too.

Conclusion: Improving Compliance to Control Climate Change

Climate

Despite these promising prospects for Osaka, to actually control the compelling threat of climate change, G20 compliance must be, and can be, improved. Active interventions are needed to do so, as the G20's existing cadence will not produce the required results.

From 2008 to 2015, overall compliance with the 22 climate change commitments assessed was only 66%, well below the all issue average of 70% (see Appendix E). Climate change compliance ranked 14 among all 18 issue areas (see Appendix F).

There was no reliable trend over time. Compliance with the one commitment assessed from London 2009 was 45% (see Appendix G). The one from Pittsburgh 2009 was higher at 93%. The three from Toronto 2010 averaged 71%. The four from Seoul 2010 were 53%. The three from Cannes were 71% and the three from Los Cabos 80%. The three from St. Petersburg 2013, however, saw the lowest compliance ever, plunging to 42% before Brisbane 2014 bounced back to 73%.

By member, climate compliance was led by Germany at 89%, the United Kingdom at 87%, Australia at 84%, France at 82% and the European Union at 81%. In the middle are Korea at 79%, Canada 75%, the United States 73%, and Japan and Mexico each at 71%, China at 64%, Indonesia at 62%, and Italy at 60%. At the bottom sit India at 57%, Brazil at 55%, South Africa at 48%, Argentina at 45%, Russia at 41%, Turkey at 36% and, finally, Saudi Arabia at 22%.

By issue, compliance with the 11 commitments on the UNFCCC or international law was 70% (see Appendix E). On green growth, compliance averaged 73%. On climate finance, compliance was just 50%.

This pattern is consistent with the finding that the catalyst of international law — UNFCCC and its legal instruments — induced higher climate compliance, even if in overall G20 commitments a reference to international law decreased compliance. This may be because the UNFCCC connotes its secretariat, which serves as the core international organization in the field of climate change. Building the UNFCCC Secretariat as a full-strength international organization, rather than promoting the Paris Agreement as a piece of international law, could thus be what the Hamburg Summit do. Authorizing a G20 environment ministers meeting would be useful too.

Energy

Energy compliance tells a similar tale. Overall compliance with the 16 energy commitments assessed for compliance from 2008 to 2015 averaged 73%, for a ninth-place rank (see Appendices F and H).

By member, energy compliance was led by France at 91%, Korea at 88%, the United Kingdom and Mexico at 85% each, and the United States, India and Brazil at 82% each (see Appendix H). Next came China at 78%, followed by Germany and Italy at 74% each, and Japan at 69%. At the bottom sat the European Union at 67%, Russia, South Africa and Indonesia at 66%, Canada and Argentina at 63%, Turkey at 50%, and Saudi Arabia at 47%. It is noteworthy that U.S. energy compliance at 82% substantially exceeded its climate compliance at 73%.

By issue, compliance was highest with the seven clean or renewable energy commitments at 88% (see Appendix I). Compliance with the one energy security commitment was 73%. With the seven

commitments to phase out inefficient fossil fuel subsidies in the medium term, while providing support to the poorest, compliance was only 58%, with a declining trend. The Osaka Summit should thus concentrate on making commitments on the first two subjects and do so in ways that in practice control climate change.

Yet given the importance of ending fossil fuel subsidies as an instrument for controlling climate change, improvement rather than abandonment is required here. This quest starts with the three factors that help explain the low compliance with the fossil fuel subsidy commitment. First, the catalyst of a multiyear timetable is present, as “medium term” refers to a three- to five-year timeline. Overall, commitments that include a multiyear timetable tend to have lower compliance. Second, even when a country took some steps to phase out some fossil fuel subsidies, they failed to provide targeted support for the poorest in the process, preventing a higher score. Third, the political language of “inefficient” allows some members to claim its particular subsidies are not inefficient.

The Osaka Summit should thus set a series of one-year timetables for incremental improvement, rather than a single multiyear one that allows countries to delay action in the immediate or short term. It should, as part of its development, broader SDGs or Africa agenda, create a fund for supporting the poorest as they transition from once subsidized fossil fuels to initially subsidized renewable ones, in ways that create jobs in all contributing G20 members as well as the recipient countries. It should then remove the word “inefficient” from its fossil fuel subsidy commitment. It should also institutionalize G20 energy ministerial meetings, and develop its high-level energy principles from 2014 into a world sustainable energy organization that could serve as the core international organization to be invoked in this field (Kirton 2015).

Beyond lies an additional list of initiatives needed to substantially control climate change (see Appendix M). More work is needed to identify how G20 summits can commit to them in ways that induce compliance and that produce the required results on time.

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Appendix A: G20 Compliance by Issue Area and Summit

Issue area	Overall		2008 Washington		2009 London		2009 Pittsburgh		2010 Toronto		2010 Seoul		2011 Cannes		2012 Los Cabos		2013 St. Petersburg		2014 Brisbane		2015 Antalya	
	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#
Microeconomics	+1.00 100%	1/10 10%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+1.00	1/2 50%	-	0/6	n/a	n/a
Infrastructure	+0.95 98%	1/36 2.8%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+0.95	1/28 3.6%	n/a	n/a
Terrorism	+0.73 87%	2/16 12.5%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-	0/1	n/a	n/a	+0.73	2/12 16.7%
Migration	+0.60 80%	1/7 14.3%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+0.60	1/4 25%
Macroeconomics	+0.60 80%	23/403 5.7%	+0.75	1/6 16.7%	+0.35	1/15 6.7%	+0.70	1/28 3.8%	+0.74	3/14 21.4%	+0.66	3/29 10.3%	+0.46	3/91 3.4%	+0.68	4/71 5.6%	+0.60	3/66 4.5%	+0.40	3/34 8.8%	+0.70	2/21 9.5%
Labour and employment	+0.55 78%	16/100 16%	n/a	n/a	-0.05	1/4 25%	-	0/3	n/a	n/a	-	0/4	+0.48	2/8 25%	+1.00	1/18 5.6%	+0.72	6/29 20.7%	+0.63	2/16 12.5%	+0.33	4/10 40%
International taxation*	+0.56 78%	2/	-	0/	-	0/	-	0/	-	0/	-	0/	-	0/	-	0/	+0.35	1/	-	0/	+0.79	1/
Health	+0.50 75%	5/38 13.2%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+0.53	4/33 12.1%	+0.40	1/2 50%
Development taxation**	+0.51 76%	4/	-	0/	-	0/	-	0/	-	0/	+0.40	2/	-	0/	-	0/	+0.50	1/	+0.40	1/	+0.85	1/
Financial regulation	+0.50 75%	20/271 7.4%	+0.54	3/59 5.1%	-0.05	1/45 2.2%	+0.45	2/23 8.7%	+0.10	1/12 8.3%	+0.61	4/24 16.7%	+0.71	3/38 7.9%	+0.36	3/18 16.7%	+0.35	1/20 5.0%	+0.70	1/7 14.3%	+0.79	1/8 12.5%
Energy	+0.45 73%	16/105 15.2%	n/a	n/a	n/a	n/a	+0.43	4/16 25%	+0.45	1/1 100%	+0.64	3/14 21.4%	+0.61	3/18 16.7%	+0.58	1/10 10%	+0.55	1/19 5.3%	+0.23	2/16 12.5%	-0.35	1/3 33.3%
Food and agriculture	+0.39 70%	6/64 9.4%	n/a	n/a	n/a	n/a	-	0/3	+0.20	1/2 50%	-	0/2	+0.55	2/36 5.6%	+0.35	1/4 25%	+0.80	1/11 9.1%	n/a	n/a	-0.10	1/3 33.3%
Development	+0.31 66%	47/193 24.4%	+0.80	1/4 25%	+0.15	2/15 13.3%	+0.10	3/9 33.3%	+0.35	3/8 38%	+0.31	23/23 100%	+0.33	2/17 11.8%	+0.78	3/10 30%	+0.04	4/50 8.0%	+0.28	3/20 15%	+0.28	3/20 15%
Climate change	+0.31 66%	23/53 43.4%	n/a	n/a	-0.10	1/3 33.3%	+0.86	1/3 33.3%	+0.42	3/3 100%	+0.05	4/8 50%	+0.38	3/8 38.0%	+0.59	3/5 60%	-0.17	3/11 27.2%	+0.51	5/7 71.4%	-	0/3
IFI reform	+0.30 65%	7/120 5.8%	n/a	0/14	n/a	0/29	+0.05	1/11 9.1%	+0.90	1/4 25%	-0.10	1/16 6.3%	+0.30	2/22 9.1%	n/a	0	+0.20	1/5 20%	n/a	0/4	+0.85	1/2 50%
Trade	+0.26 63%	14/133 10.5%	+0.27	3/5 60%	+0.50	1/14 7.1%	+0.05	1/6 16.7%	+0.15	1/9 11.1%	-0.05	1/17 5.9%	+0.25	1/15 6.7%	+0.25	1/10 10%	-0.35	1/12 8.3%	+0.25	1/9 11.1%	+0.60	3/14 21.4%
Gender	+0.21 61%	6/6 100%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+0.46	2/2 100%	n/a	n/a	+0.14	4/4 100%	n/a	n/a
International cooperation	+0.15 58%	2/		0/		0/		0/		0/	+0.05	1/	+0.25	1/		0/		0/		0/		0/

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Issue area	Overall		2008 Washington		2009 London		2009 Pittsburgh		2010 Toronto		2010 Seoul		2011 Cannes		2012 Los Cabos		2013 St. Petersburg		2014 Brisbane		2015 Antalya		
	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	Score	#	
Crime and corruption	+0.14 57%	7/78 9.0%	-	0/3	n/a	n/a	+0.25	2/3 66.7%	-0.20	1/3 33.3%	+0.45	1/9 11.1%	-	0/5	-0.10	1/7 14.3%	+0.15	1/33 3.0%	-	0/4	+0.15	1/4 25%	
ICT	+0.10 55%	1/49 2.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	+0.10	1/2 50%
Africa***	-0.08 46%	8/34 17.6%	n/a	n/a	+0.30	2/2 100%	0	2/3 66.7%	-0.05	1/1 100%	-	/2	-0.45	1/5 20%	-	/5	-0.25	1/3 33.3%	-	/4	0	1/5 20%	
Overall	+0.40 70%	198/1835 10.8%	+0.50	8/95 8.4%	+0.17	6/129 4.7%	+0.31	16/128 12.5%	+0.36	15/61 25%	+0.34	41/153 26.8%	+0.47	22/282 7.8%	+0.54	19/180 10.6%	+0.37	23/281 8.2%	+0.43	26/205 12.7%	+0.42	22/113 19.5%	

Notes:

ICT = information and communications technologies; IFI = international financial institution.

N=198

Score = average compliance

= number of commitments assessed of the total number made on that issue at that summit, with percentage

n/a = not applicable, no commitment was made

dash = no commitment was assessed

blank = data not available

*International taxation: taxation was added as a new G20 core issue area in 2016. At Hangzhou nine international taxation commitments were made. Prior to 2016, commitments on international taxation were primarily categorized under financial regulation. Total commitments referencing international taxation is not available. Compliance on international taxation is not double counted under financial regulation.

**Development taxation: four of the 45 assessed commitments on development referenced taxation. Total commitments made on development taxation is not available. Compliance with these four commitments is included in the Development issue area data.

***Africa: six assessed commitments referenced Africa. Five were categorized under development and are included in Development's data. One was categorized under international financial institutional (IFI) reform as it included ensuring the African Development Fund was well financed. It is included in the IFI Reform data. Source for the number of commitments made on Africa (for N=193, not updated for N=198) = The G20's Governance of Africa-Related Issues, 2008-2016

Overall: No data is double counted in the overall average or the overall summit score

Appendix B: G20 Compliance by Member, 2008–2015

Member	Average compliance	
United Kingdom	+0.71	86%
Germany	+0.67	84%
European Union	+0.63	82%
Australia	+0.63	82%
Canada	+0.61	81%
France	+0.62	81%
United States	+0.53	77%
Korea	+0.50	75%
Japan	+0.44	72%
India	+0.37	69%
China	+0.36	68%
Italy	+0.36	68%
Brazil	+0.34	67%
Mexico	+0.30	65%
Russia	+0.27	64%
South Africa	+0.23	62%
Turkey	+0.14	57%
Indonesia	+0.13	57%
Argentina	+0.05	53%
Saudi Arabia	+0.02	51%
Overall average	+0.40	70%

Appendix C-1: G20 Compliance with Hamburg Priorities

Hamburg Theme	Hamburg Priority	Issue area	G20 compliance		Germany's compliance	
Building resilience	Strengthening economic resilience	Macroeconomic policy	+0.60	80%	+0.90	95%
	Strengthening the international financial architecture	Reform of international financial institutions	+0.36	68%	+0.86	43%
	Further developing financial markets	Financial regulation	+0.50	75%	+0.80	90%
	Making taxation fair and reliable internationally	International taxation	+0.56	78%	+1.00	100%
		Development taxation	+0.51	76%	+1.00	100%
	Deepening cooperation on trade and investment	Trade	+0.26	63%	+0.64	82%
Enhancing and improving employment	Labour and employment	+0.55	78%	+0.81	91%	
Improving sustainability	Protecting the climate	Climate change	+0.31	66%	+0.78	89%
	Advancing sustainable energy supply	Energy	+0.45	73%	+0.47	74%
	Making progress on implementing Agenda 2030	Development	+0.31*	66%	+0.68	84%
	Seizing the opportunities of digital technology	Information and communications technologies	+0.10	55%	0	50%
	Promoting health	Health	+0.53	77%	+1.00	100%
	Empowering women	Gender	+0.21	61%	+0.33	67%
Assuming responsibility	Addressing displacement and migration	Migration/refugees	+0.60	80%	+1.00	100%
	Intensifying the partnership with Africa	Africa	+0.10*	55%	+1.00	100%
	Combating terrorist financing and money laundering	Terrorism	+0.73	87%	+1.00	100%
	Fighting corruption	Crime and corruption	+0.14	57%	-0.29	36%
	Improving food security	Food and agriculture	+0.39	70%	+0.17	59%
Average	n/a	n/a	+0.41	71%	+0.63	82%

Source: g20.utoronto.ca Priorities of the 2017 G20 Summit, G20 Germany 2017 Hamburg

Notes: n/a = not applicable

Dash = issue area is already accounted for

*=Includes duplicate data. Three development commitments referenced Africa and are accounted for in both issue areas, one IFI reform commitment referenced Africa and is accounted for in both issue areas

Average does not include any duplicate data

Appendix C-2: G20 and German Compliance with Trend

Issue area	Germany's compliance		Germany's trend	G20 compliance		G20 trend
	Score	Percentage		Score	Percentage	
Africa	+1.00	100%	0	+0.10*	55%	0
Migration/refugees	+1.00	100%	0	+0.60	80%	0
Health	+1.00	100%	0	+0.53	77%	0
Terrorism	+1.00	100%	0	+0.73	87%	0
International taxation	+1.00	100%	0	+0.56	78%	0
Development taxation	+1.00	100%	0	+0.51	76%	0
Macroeconomic policy	+0.90	95%	0	+0.60	80%	0
IFI reform	+0.86	93%	0	+0.36	68%	0
Financial regulation	+0.80	90%	0	+0.50	75%	0
Labour and employment	+0.81	91%	0	+0.55	78%	-1
Climate change	+0.78	89%	0	+0.31	66%	0
Development	+0.68	84%	0	+0.31*	66%	0
Trade	+0.64	82%	0	+0.26	63%	0
Energy	+0.47	74%	0	+0.45	73%	-1
Gender	+0.33	67%	0	+0.21	61%	0
Food and agriculture	+0.17	59%	0	+0.39	70%	0
ICT	0	50%	0	+0.10	55%	0
Crime and corruption	-0.29	36%	0	+0.14	57%	0
Average	+0.67	84%	0	+0.40	70%	0

Notes:

ICT = information and communications technologies; IFI = international financial institution.

+1 = upward compliance over time

-1 = downward compliance over time

0 = no trend

*=Includes duplicate data. Three development commitments referenced Africa and are accounted for in both issue areas, one IFI reform commitment referenced Africa and is accounted for in both issue areas

Average does not include any duplicate data

Appendix C-3: G20 Compliance with Trend

Issue area	G20 Compliance		G20 trend
Terrorism	+0.73	87%	0
Migration/refugees	+0.60	80%	0
Macroeconomic policy	+0.60	80%	0
International taxation	+0.56	78%	0
Labour and employment	+0.55	78%	-1
Health	+0.53	77%	0
Development taxation	+0.51	76%	0
Financial regulation	+0.50	75%	0
Energy	+0.45	73%	-1
Food and agriculture	+0.39	70%	0
IFI reform	+0.36	68%	0
Climate change	+0.31	66%	0
Development	+0.31*	66%	0
Trade	+0.26	63%	0
Gender	+0.21	61%	0
Crime and corruption	+0.14	57%	0
Africa	+0.10*	55%	0
ICT	+0.10	55%	0
Average	+0.40	70%	0

Note: ICT = information and communications technologies; IFI = international financial institution.

Appendix D: 2016 Hangzhou Summit Interim Compliance Scores

		Argentina	Australia	Brazil	Canada	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	South Africa	Turkey	United Kingdom	United States	European Union	Average		
1	Macroeconomics: Growth	0	+1	+1	+1	+1	0	+1	+1	0	+1	+1	+1	+1	+1	+1	+1	0	+1	-1	0	+0.65	83%	
2	Innovation	+1	+1	+1	+1	+1	+1	+1	+1	0	+1	+1	0	0	+1	+1	0	+1	+1	+1	+1	+1	+0.80	90%
3	Development: Tax administration	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	+1	+1	+1	+1	0	+1	+1	+1	+1	+1	+1	+0.90	95%
4	Corruption	+1	+1	+1	+1	+1	0	0	0	+1	0	0	+1	-1	0	0	-1	-1	+1	+1	0	+0.30	65%	
5	Energy: Fossil fuel subsidies	0	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	-1	-1	-1	-0.80	10%
6	Climate change	+1	+1	0	+1	+1	+1	0	0	+1	-1	0	0	+1	-1	0	-1	0	+1	+1	+1	+1	+0.35	68%
7	Trade: Antiprotectionism	0	+1	0	+1	+1	0	0	0	0	0	0	+1	+1	+1	-1	0	0	0	0	+1	+1	+0.30	65%
8	Trade: E-commerce	0	+1	-1	+1	+1	+1	0	+1	+1	0	-1	0	0	+1	-1	+1	0	0	0	0	0	+0.25	63%
9	Sustainable development	+1	+1	+1	+1	+1	+1	0	-1	+1	-1	0	-1	0	+1	0	0	0	-1	+1	-1	+1	+0.20	60%
10	Labour and employment: Gender	-1	0	-1	+1	-1	0	0	0	-1	0	0	0	-1	0	0	0	0	+1	0	+1	+1	-0.10	45%
11	Migration and refugees	+1	0	+1	+1	0	0	+1	0	0	+1	+1	0	0	0	0	0	+1	0	+1	+1	+1	+0.45	73%
12	Financial regulation: Terrorism	+1	+1	-1	+1	+1	+1	+1	0	+1	+1	0	+1	0	+1	+1	0	+1	+1	+1	+1	+1	+0.70	85%
13	Technologies and innovation	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1.00	100%
14	Financial regulation	0	+1	0	0	0	0	+1	+1	0	0	0	0	0	0	+1	0	0	+1	0	+1	+1	+0.30	65%
15	Taxes: Base erosion and profit shifting	0	+1	0	0	0	+1	+1	0	0	0	+1	+1	+1	+1	0	0	0	+1	+1	+1	+1	+0.50	75%
16	Energy: Energy efficiency	0	+1	0	+1	0	+1	+1	-1	0	-1	+1	+1	+1	0	0	0	-1	0	0	0	0	+0.20	60%
17	Trade: Trade costs	0	+1	+1	+1	+1	+1	+1	+1	+1	0	+1	0	+1	0	+1	+1	0	0	+1	+1	+1	+0.70	85%

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18	Investment	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+0.95	98%
19	Corporate governance	+1	+1	+1	+1	+1	+1	+1	+1	0	+1	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+0.85	93%
	Average	+0.42	+0.79	+0.32	+0.79	+0.63	+0.58	+0.58	+0.32	+0.37	+0.16	+0.37	+0.37	+0.42	+0.53	+0.26	+0.21	+0.21	+0.53	+0.53	+0.58	+0.45	72%	
		71%	89%	66%	89%	82%	79%	79%	66%	68%	58%	68%	68%	71%	76%	63%	61%	61%	76%	76%	79%	+0.72		

Appendix E: Climate Change Compliance by Component Subject

Member	Average compliance	United Nations Framework Convention on Climate Change	Green growth	Climate finance	Green Climate Fund
Germany	+0.77	+0.82	+0.80	+0.67	+0.75
United Kingdom	+0.73	+0.73	+0.60	+0.83	+1.00
Australia	+0.68	+0.82	+0.60	+0.50	+0.50
France	+0.64	+0.64	+0.40	+0.83	1.00
European Union	+0.62	+0.80	+0.60	+0.33	0
Korea	+0.57	+0.40	+0.60	+1.00	+1.00
Canada	+0.50	+0.64	+0.60	+0.17	0
United States	+0.45	+0.64	+0.40	+0.17	0
Japan	+0.41	+0.45	+0.40	+0.33	+0.50
Mexico	+0.41	+0.64	+0.40	0	+0.25
China	+0.27	+0.45	+0.60	-0.33	-0.75
Italy	+0.23	+0.10	+0.80	-0.17	0
India	+0.19	+0.45	+0.60	-0.83	-1.00
Indonesia	+0.14	0	+0.40	+0.17	0
Brazil	+0.09	+0.27	+0.60	-0.67	-1.00
South Africa	-0.05	-0.10	+0.20	-0.17	-0.25
Argentina	-0.11	-0.13	+0.40	-0.50	-0.50
Russia	-0.18	+0.18	-0.20	-0.83	-1.00
Turkey	-0.28	0	+0.20	-1.00	-1.00
Saudi Arabia	-0.56	-0.71	0	-0.50	-0.50
Average	+0.29	+0.39	+0.45	0	-0.05

Appendix F: Commitments and Compliance by Issue Area, 2008–2016 by Rank

Issue area	Total commitments assessed of total made		Compliance	
			Score	Percentage
Microeconomics	1 of 10	10.0%	+1.00	100
Infrastructure	1 of 36	2.8%	+0.95	98
Terrorism	2 of 16	12.5%	+0.73	87
Macroeconomics	23 of 402	5.8%	+0.60	80
Migration and refugees	1 of 7	14.3%	+0.60	80
Labour and employment	16 of 100	16.0%	+0.55	78
Health	4 of 38	10.5%	+0.53	77
Financial regulation	20 of 271	7.4%	+0.50	75
Energy	16 of 106	15.1%	+0.45	73
Food and agriculture	6 of 64	9.4%	+0.39	70
Gender	5 of 6	83.3%	+0.41	71
Reform of international financial institutions	5 of 120	4.2%	+0.34	67
Development	45 of 193	23.3%	+0.32	66
Climate change	22 of 53	42.0%	+0.29	65
Trade	14 of 133	11.0%	+0.26	63
International cooperation	2 of 39	5.1%	+0.15	58
Crime and corruption	7 of 78	9.0%	+0.14	57
Information and communication technologies	1 of 49	2.0%	+0.10	55
Total/Average	191 of 1,863	10.4%	+0.41	71

Appendix G: Climate Change Compliance by Summit, 2009–2014

	Average		2009 London	2009 Pittsburgh	2010 Toronto	2010 Seoul	2011 Cannes	2012 Los Cabos	2013 St. Petersburg	2014 Brisbane
	Germany	+0.77	89%	0	+1.00	+0.33	+0.75	+1.00	+1.00	+1.00
United Kingdom	+0.73	87%	0	+1.00	+0.67	+0.50	+1.00	+0.67	+1.00	+0.75
Australia	+0.68	84%	0	+1.00	+0.67	+0.50	+1.00	+1.00	0	+1.00
France	+0.64	82%	0	+1.00	+0.33	0	+1.00	+0.67	+1.00	+1.00
European Union	+0.62	81%	+1.00		+1.00	+0.50	+0.33	+0.67	0	+1.00
Korea	+0.57	79%	+1.00		+0.67	-0.25	+1.00	+1.00	0	+1.00
Canada	+0.50	75%	0	+1.00	+0.33	+0.50	+0.33	+0.67	0	+1.00
United States	+0.45	73%	0	+1.00	+0.33	+0.50	0	+0.67	+0.33	+0.75
Japan	+0.41	71%	0	+1.00	+0.33	0	+0.33	+0.33	+0.33	+1.00
Mexico	+0.41	71%	0	+1.00	0	+0.25	+0.67	+0.67	-0.33	+1.00
China	+0.27	64%	+1.00	+1.00	+0.67	0	+0.33	+1.00	-1.00	+0.25
Indonesia	+0.23	62%	0	0	0	0	+0.33	+0.33	0	+0.25
Italy	+0.19	60%	0		+0.67	-0.25	+0.33	0	+0.33	+0.25
India	+0.14	57%	-1.00	+1.00	+0.67	+0.25	0	+1.00	-0.67	-0.25
Brazil	+0.09	55%	-1.00	0	+0.67	+0.50	+0.33	+0.67	-1.00	-0.25
South Africa	-0.05	48%	0		0	-0.50	0	+0.67	-0.33	0
Argentina	-0.11	45%	-1.00		+1.00	-0.67	0	+0.33	-1.00	+0.25
Russia	-0.18	41%	-1.00	+1.00	0	-0.25	-0.33	+0.33	-1.00	0
Turkey	-0.28	36%	-1.00	1.00	0	-1.00	0	+0.50	-1.00	0
Saudi Arabia	-0.56	22%	0		-1.00	-1.00	+0.67	-0.33	-1.00	-0.50
Average	+0.29	65%	-0.10	+0.86	+0.42	+0.05	+0.42	+0.59	-0.17	+0.46

Appendix H: Energy Compliance by Summit, 2009–2015

	Average		2009 Pittsburgh	2010 Toronto	2010 Seoul	2011 Cannes	2012 Los Cabos	2013 St. Petersburg	2014 Brisbane	2015 Antalya
France	+0.81	91%	+1.00	+1.00	+0.67	+0.67	+1.00	+1.00	+1.00	0
Korea	+0.75	88%	+0.75	+1.00	+1.00	+1.00	+1.00	0	+0.50	0
United Kingdom	+0.69	85%	+0.50	+1.00	+1.00	+1.00	+1.00	+1.00	+0.50	-1.00
Mexico	+0.69	85%	+0.75	+1.00	+0.67	+1.00	+1.00	+1.00	+0.50	-1.00
United States	+0.63	82%	+1.00	0	+0.67	0	0	+1.00	+1.00	+1.00
India	+0.63	82%	+0.50	-1.00	+0.67	+1.00	+1.00	+1.00	+0.50	+1.00
Brazil	+0.63	82%	+0.25	+1.00	+1.00	+1.00	+1.00	+1.00	+0.50	-1.00
China	+0.56	78%	+0.75	0	+0.33	+1.00	+1.00	+1.00	0	0
Germany	+0.47	74%	+0.67	+1.00	+0.33	+0.67	0	+1.00	0	0
Italy	+0.47	74%	+0.33	+1.00	+1.00	+0.67	0	0	0	0
Australia	+0.44	72%	+0.25	+1.00	+1.00	+1.00	+1.00	-1.00	0	-1.00
Japan	+0.38	69%	+1.00	+1.00	+0.67	0	0	0	0	-1.00
European Union	+0.33	67%	0	-1.00	+1.00	+0.67	+1.00	+1.00	+0.50	-1.00
Russia	+0.31	66%	-0.25	0	+1.00	+0.67	+1.00	+1.00	0	-1.00
South Africa	+0.31	66%	+0.25	+1.00	+1.00	+0.67	+1.00	0	-1.00	-1.00
Indonesia	+0.31	66%	+0.50	0	0	+0.67	0	+1.00	+0.50	-1.00
Canada	+0.25	63%	+0.25	0	+1.00	0	0	0	0	0
Argentina	+0.25	63%	+0.25	0	+0.33	+0.33	0	0	0	+1.00
Turkey	0	50%	+0.33	0	-0.33	0	0	+1.00	0	-1.00
Saudi Arabia	-0.07	47%	-0.50	+1.00	+1.00	0		0	0	0
Average	+0.45	73%	+0.43	+0.45	+0.64	+0.61	+0.58	+0.55	+0.23	-0.35

Appendix I: Energy Compliance by Component Subject

	Fossil fuel subsidies	Energy security	Clean/renewable energy
France	+0.71	+1.00	+1.00
Korea	+0.71	+1.00	+0.71
United Kingdom	+0.29	+1.00	+1.00
Mexico	+0.43	+1.00	+0.86
United States	+0.43	+1.00	+1.00
India	+0.29	0	+1.00
Brazil	+0.43	0	+0.86
China	+0.14	0	+1.00
Germany	-0.14	+1.00	+1.00
Italy	+0.14	+1.00	+0.83
Australia	+0.14	0	+0.71
Japan	0	+1.00	+0.86
European Union	-0.17	0	+0.86
Russia	0	0	+0.71
South Africa	+0.43	0	+0.29
Indonesia	0	+1.00	+0.43
Canada	-0.14	0	+0.86
Argentina	0	0	+0.57
Turkey	-0.50	0	+0.43
Saudi Arabia	-0.20	0	+0.14
Average	+0.16	+0.45	+0.75

Appendix J: Hamburg Summit Performance

	Domestic political management	Deliberation		Direction setting				Decision making		Delivery		Development of global governance	
	# compliments	Words		Human rights	Democracy	Financial stability	Global-ization	Commitments		Implementation awareness reference	# catalysts	Inside	Outside
		#	%					#	%				
Counterterrorism	0	1,431	4%	3	2	1	1	23	4%	4	+5	3	22
Leaders' statement	0	5,422	16%	5	0	7	17	107	20%	1	+1	5	50
Hamburg Action Plan	0	6,997	20%	2	0	29	12	46	9%	8	+1	31	66
Climate and Energy Action	0	4,020	12%	0	0	0	6	43	8%	4	-1	16	19
2030 Agenda	0	5,882	17%	0	0	4	17	182	34%	1		21	37
Marine litter	0	2,048	6%	0	0	0	0	55	10%	2	0	3	10
G20 Africa Partnership	3	1,571	5%	0	0	1	1	2	0%	2	0	2	9
Rural youth employment	1	3,354	10%	0	0	0	0	46	9%	1	-1	1	12
eSkills for Girls	1	2,140	6%	1	0	0	7	25	5%	1		2	6
Women's entrepreneurship	0	1,881	5%	0	0	0	0	0	0%	1	0	0	3
Total	5	34,746	100%	11	2	42	61	529	100%	25	+3	84	234

Notes:

N/A = not applicable. Only documents issued at a summit in the leaders' name are included.

Domestic political management: participation by G20 members and at least one representative from the European Union and excludes invited countries; compliments are references to full members in summit documents.

Deliberation: documents collectively released in the leaders' name at the summit.

Direction setting: number of statements of fact, causation and rectitude relating directly to open democracy and individual liberty.

Decision making: number of commitments as identified by the G20 Research Group.

Delivery: scores are measured on a scale from -1 (no compliance) to +1 (full compliance, or fulfilment of goal set out in commitment). Figures are cumulative scores based on compliance reports.

Development of global governance: internal are references to G20 institutions in summit documents; external are references to institutions outside the G20.

Appendix K: G20 Summit Performance, 2008–2018

	Grade	Domestic political management			Deliberation			Direction setting				Decision making	Delivery		Development of global governance			
		Attendance	# compliments	% members complimented	# days	# documents	# words	Stability	Inclusion	Democracy	Liberty	# commitments	Compliance	# assessed	Internal		External	
															# references	Spread	# references	Spread
2008 Washington	A-	100%	0	0%	2	2	3,567	16	2	10	2	95	75%	8	0	4	39	11
2009 London	A	100%	1	5%	2	3	6,155	29	6	9	0	129	57%	7	12	4	120	27
2009 Pittsburgh	A-	100%	0	0%	2	2	9,257	11	21	28	1	128	67%	15	47	4	115	26
2010 Toronto	A-	90%	8	15%	2	5	11,078	47	32	11	1	61	68%	15	71	4	164	27
2010 Seoul	B	95%	5	15%	2	5	15,776	66	36	18	4	153	67%	41	99	4	237	31
2011 Cannes	B	95%	11	35%	2	3	14,107	42	8	22	0	282	74%	22	59	4	247	27
2012 Los Cabos	A-	95%	6	15%	2	2	12,682	43	23	31	3	180	77%	19	65	4	138	20
2013 St. Petersburg	A	90%	15	55%	2	11	28,766	73	108	15	3	281	69%	24	190	4	237	27
2014 Brisbane	B	90%	10	40%	2	5	9,111	10	12	1	0	205	72%	26	39	4	42	12
2015 Antalya	B	90%	0	0%	2	6	5,983	13	22	0	2	198	71%	23	42	4	54	11
2016 Hangzhou	B+	95%	7	25%	2	4	16,004	11	29	34	5	213	73%	24	179	4	223	19
2017 Hamburg	B+	95%	5		2	10	34,746	42	61	2	11	529	87%	17	84		234	
2018 Buenos Aires	B-	95%			2	2	13,515					86						
Total	N/A	N/A	68	N/A	26	60	180,747	403	360	181	32	2,454	N/A	229	887	44	1,850	238
Average	N/A	95%	5.67	19%	2	4.62	13,903	33.58	30	15	3	205	71%	20	74	4	154	22

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Notes:

N/A = not applicable. Only documents issued at a summit in the leaders' name are included.

Grade is based on a scoring scheme created by John Kirton, as follows: A+ Extremely Strong, A Very Strong, A-Strong, B+ Significant, B Substantial, B-Solid, C Small, D Very Small, F Failure (including made things worse). available at <http://www.g20.utoronto.ca/analysis/scoring.html>.

Domestic political management: participation by G20 members and at least one representative from the European Union and excludes invited countries; compliments are references to full members in summit documents.

Deliberation: duration of the summit and the documents collectively released in the leaders' name at the summit.

Direction setting: number of statements of fact, causation and rectitude relating directly to open democracy and individual liberty.

Decision making: number of commitments as identified by the G20 Research Group. 2018 is excluded from the cumulative average

Delivery: scores are measured on a scale from -1 (no compliance) to +1 (full compliance, or fulfillment of goal set out in commitment). Figures are cumulative scores based on compliance reports. 2017 is excluded from the cumulative average.

Development of global governance: internal are references to G20 institutions in summit documents; external are references to institutions outside the G20; engagement groups are references to engagement groups. Spread indicates the number of different institutions mentioned.

Appendix L: G20 Buenos Aires Commitments in the G20 Leaders' Declaration

Issue	Number of Commitments	Percentage of Commitments
Macroeconomics	11	12.5
Digital economy	11	12.5
Labour and employment	9	10.2
Financial regulation	9	10.2
Gender	6	6.8
Energy	6	6.8
Reform of international financial institutions	6	6.8
Crime and corruption	5	5.7
Food and agriculture	4	4.5
Human rights	4	4.5
Climate change	4	4.5
Terrorism	3	3.4
Health	3	3.4
Development	2	2.2
Infrastructure	1	1.1
Migration/refugees	1	1.1
Total	86	100

Note: Compiled by Brittany Warren on December 1, 2018. Does not include the "Buenos Aires Update: Moving Forward the G20 Action Plan on the 2030 Agenda for Sustainable Development."

Appendix M: Initiatives for G20 Climate Change Control

Initiative

Energy

Enhance energy efficiency
End fossil fuel subsidies
Reinforce renewables
Shift subsidies
Cut methane
Kill coal (for electricity)

Climate Change

Price carbon

Food and Agriculture

Finish food waste
Promote plant food
Diminish desertification
Grow trees

Process

Generate gender equality
Empower indigenous people