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Disciplining trade-distorting support to cotton in the US: an unresolved issue at the WTO negotiations

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Abstract Despite the higher cost of production, the developed country members of the World Trade Organization (WTO) like the United States (US) enjoy an artificial comparative advantage in the international cotton markets due to huge subsidies and entitlements at the expense of the poor farmers in developing countries. This paper critically examines the effects of various proposals in the WTO negotiations on the flexibilities to the US to support its cotton farmers. The paper finds that agreeing on any proposal, and implementing it, would considerably reduce the US policy space and benefit millions of developing country cotton farmers.

Keywords World Trade Organization (WTO), Agreement on Agriculture (AoA), Amber Box, Sustainable Development Goals (SDG), cotton subsidies

JEL codes F13, F14, F17, F51, Q17, Q18

Cotton plays a strategic role in agricultural development and poverty reduction. High levels of entitlements to the developed country-members of the WTO to provide trade-distorting support to their agricultural sector, in general, and their cotton sector, in particular, has been an issue of concern for millions of low-income and resource-poor farmers in developing and least developed country (LDC) members (Sharma et al. 2020a). The entitlements disastrously impact the agricultural growth, export earnings, and farm incomes of developing countries and LDCs, displacing them from the international market. Even two decades after the initiation of the Doha Round in 2001, the issue of reducing trade-distorting support to cotton has not been resolved.

Benin, Burkina Faso, Chad, and Mali—four poor African countries, also known as the Cotton Four countries or C4—demand reductions in trade-distorting cotton support in agriculture negotiations (WTO 2003; WTO 2017 a; WTO 2019; Sharma and Bugalya 2014). The C4 and other developing countries stress that cotton is crucial in achieving the Sustainable Development Goals (SDGs) related to poverty reduction and food security, and they have been urging the WTO members to work towards disciplining the domestic support to cotton (WTO 2017a).

The cost of production is much higher in the United States (US) than in the Global South, but the high level of domestic support under various Farm Acts since 1933 provides the US an artificial comparative advantage in the international cotton market. Between 1995 and 2020, cotton farmers in the US were provided subsidies worth USD 40 billion through several programmes (EWG 2020), such as price loss coverage, insurance premium subsidies, and market loss assistance.

Even at the start of the Uruguay Round negotiations in 1986, the cotton-specific support in the US was 85%

of the value of production (VoP) (WTO 1994 a), while the developing countries provided either negative or negligible support (WTO 1994 b). Not only that, the Uruguay Round negotiations allowed some developed countries to inflate their policy space to support their farmers in the future, too. It is a known fact that the founding members of the WTO used 1986–88 as the base period to determine their commitments to provide trade-distorting support in the future (Sharma 2016).

However, the Uruguay Round modalities allowed members to claim 'credit' in the form of additional domestic support entitlements for any voluntary reforms undertaken since 1986 (WTO 1993). The argument was that as some members had undertaken voluntary domestic reforms during the Uruguay Round negotiations (1986–94), they could claim credit in determining their trade-distorting entitlements (Paarlberg 1997). Taking advantage of this provision, instead of using 1986–88 as the base period—so that the base-level trade-distorting support would have been USD 21.03 billion—the US based its commitments on the trade-distorting support data of several products for 1986, so that the support was USD 23.88 billion. The Agreement on Agriculture (AoA) obligated the US to reduce the base-level trade-distorting support by 20%. It is due to the inflated base support that the US has currently been allowed to provide USD 19.10 billion trade-distorting support, rather than USD 16.81 billion, in the absence of credit taken during the Uruguay Round. These historical imbalances and special carve-outs have rewarded developed member countries with a substantial policy space. On the other hand, most developing country members were penalised for providing negligible trade-distorting support during 1986-88 by capping their future flexibilities at 10% of the VoP.

The US had taken credits for voluntary domestic reforms, and it was expected that the trade-distorting support would decline after 1995; instead, the trade-distorting support to cotton as a percentage of its VoP increased from 0.44% in 1995 to 74.16% in 2001. The US policy was criticized, especially after an Oxfam study (2002) concluded that cotton-specific subsidies in the US have resulted in 'cultivating poverty' due to its devastating impact on the gross domestic product (GDP), exports, prices, and livelihoods of poor farmers in the C4 countries. Other studies echo the sentiment (ICAC 2002; Sumner 2003; FAO 2004; Baffes 2004; Traoré 2007). Brazil successfully challenged the cotton-specific support measures of the US at the WTO through its dispute settlement body. The US made some changes to its support programmes through the Farm Acts since 2002, but its trade-distorting support to cotton continues to be substantial. Currently, the US is a top exporter of cotton; it exports over 80% of its production. It has consolidated its share in the international market, up from 28% in 1995 to 35% in 2020.

The developing countries are already at a disadvantage because landholdings are small, support is low, and safety nets are minimal or absent. Whereas cotton farmers in the US number 8,103 and their farm size averages 624 hectares, they number 9.8 million in India and their farm size averages 1.2 hectares (ICAC 2019). India exported 16.7% of its cotton output in 2019, whereas the US exported 80%. The average cost of cotton lint is significantly less in India than in the US. The cotton-specific trade-distorting support per farmer, based on the latest domestic support notifications, averages USD 117,493 in the US but only USD 26 in India. Such a huge difference in support has disastrous implications for poor developing countries, but the US has been building the narrative that cotton farmers in Africa suffer because of the domestic support that India provides its cotton farmers.

The C4 argue that eliminating subsidies would make cotton production profitable in the West and Central African countries and catalyse the reduction of poverty (WTO 2003). At the Cancun Ministerial Conference, 2003, the C4 called for a mechanism to phase out subsidies, but the call failed, because it was politically inconvenient for the US to commit to any reductions. After the Cancun debacle, the General Council Decision, also known as the July 2004 package, called for addressing the cotton issue ambitiously, expeditiously, and specifically within the agriculture negotiations.

The call was reaffirmed by the Hong Kong Ministerial Declaration (2005), which said that trade-distorting domestic support to cotton should be reduced more ambitiously and expeditiously than whatever general formula is agreed upon for reducing trade-distorting agricultural subsidies. The Declaration sought to eliminate export subsidies to cotton by 2006 and provide duty-free and quota-free market access to cotton exports from LDCs. As a result, the Revised Draft Modalities Text (Rev.4) on agricultural negotiations contained specific provisions to discipline trade-distorting support to cotton (WTO 2008).

These ministerial decisions were reaffirmed at the 9th Ministerial Conference, at Bali in 2013, and it was agreed to conduct bi-annual dedicated sessions to discuss the latest developments on market access, domestic support, and export subsidies for cotton. These dedicated sessions are covered under the agriculture negotiations. At the Nairobi Ministerial Conference, in 2015, members agreed on some important trade-related issues: developed country members, and developing country members declaring themselves in a position to do so, would grant duty-free and quota-free market access to cotton exports from LDCs by 1 January 2016; export subsidies to cotton would be eliminated; and development assistance for cotton in LDCs would be strengthened. However, nothing substantial happened on the domestic support front at the ministerial conferences at Nairobi or Buenos Aires, and the issue of disciplining trade-distorting support to cotton has not been resolved even 17 years after the sectoral initiatives of 2003.

Currently, the cotton issue is being discussed parallelly at the Committee on Agriculture Special Session (CoASS) for trade reforms in cotton and under the 'Director-General's Consultative Framework Mechanism on Cotton' with a focus on development assistance. Over the years, the WTO members have engaged in intense negotiations to discipline the cotton subsidies through the submission of technical proposals. These negotiations aim at curtailing the policy space for trade-distorting cotton support. Some of the relevant documents and proposals are the Rev.4 Modalities (WTO 2008) and the submissions by the C4 countries (WTO 2017a; WTO 2019), EU-Brazil (WTO 2017b), China-India (WTO 2017c), and Argentina (WTO 2017d). The US is a key player in the cotton trade, and it has significant policy space to provide cotton-specific trade-distorting support. This paper makes a modest attempt to examine the impact of these proposals on the flexibilities available to the US to support its cotton farmers in the future. The paper also traces the history of US cotton subsidies programmes and highlights some of the contentious issues related to the imbalances and asymmetries in the AoA.

Methodology

The AoA identifies domestic support measures under the Amber, Green, Blue, and Development boxes. The Green box measures are treated as the minimal trade-distorting, and these include general services and food subsidy and decoupled direct payments. The Blue box covers direct payments to farmers under the production-limiting programmes. Under the Green and Blue boxes all WTO members can provide unlimited support, subject to specific conditions.

Article 6.2 of the AoA allows developing countries to provide investment, and input subsidies generally available to low-income or resource-poor farmers without any financial limit. All other domestic support falls in the Amber box and is subject to strict financial limits. Product-specific and non-product-specific supports are the two main components of the Amber box. The product-specific Amber box covers market price support, price deficiency payments, and other budgetary support specific to a product. On the other hand, input subsidies (fertilizer, irrigation, and power subsidies) are covered under non-product-specific support. All members are allowed a minimum level of product and non-product-specific support within a *de minimis* limit. The limit for developing countries in a relevant year is 10% of the VoP of a product as the product-specific support and 10% of the VoP of the total agricultural sector as the non-product-specific support. For developed countries, the *de minimis* limit is 5%.

Only a few WTO members are entitled to provide Amber box support above the *de minimis* limit. The members who had given Amber box support above the *de minimis* limit in the base period 1986–88 can provide support beyond their applicable *de minimis* limit. Most of the developing countries did not provide Amber box support above their *de minimis* limit during the base period; therefore, their policy space is capped at the applicable *de minimis* level in the future too.

During the base period, the US had given USD 23 billion support to agriculture beyond the applicable *de minimis* limit of 5%. As per the AoA, the US had to reduce base bound Amber box, also called the base aggregate measurement of support (AMS), by 20% during 1995–2000. This resulted in the existing final bound AMS entitlement of USD 19 billion. In other words, the US can provide Amber box support above

Table 1 Overview of flexibilities to provide support to agriculture under different boxes

Members	Final bound AMS	De minimis limit (%)	Development box	Blue box	Green box
US	USD 19.10 billion	5	NA	Unlimited	Unlimited
EU	USD 81.32 billion*	5	NA		
Most Developing members	0	10	Unlimited		
China	0	8.5	NA		

Notes NA: Not applicable for select member; * 2019 exchange rate is used for the EU Final Bound AMS
Source Authors' compilation based on the AoA and members' domestic support notifications

the *de minimis* limit, but subject to the final bound AMS limit of USD 19 billion (Table 1).

Further, in the absence of a product-specific limit under the AoA, the US can use this additional entitlement to concentrate its trade-distorting support in a few products (Sharma 2020). The product-specific Amber box has become concentrated in corn, cotton, sugar, rice, soybean, and dairy products over the years. The AoA does not restrict the US to using its whole AMS entitlement to support its cotton farmers in any year.

Against this background, the existing policy space under the AoA is compared with new limits suggested in various proposals such as Rev.4, China-India, EU-Brazil, C4, and Argentina. Cotton-specific limits are projected under these proposals up to 2030. The VoP data is based on the domestic support notifications of the US during 1995–2017. The projections of VoP data are based on the compound annual growth rate between 1995 and 2017. Additionally, this study critically analyses cotton policy over various Farm Acts.

Evolution of US cotton policies under the WTO

The US is a significant player in the international cotton market. Its share in the global cotton production is 14.5%, but it captures 35% of the global exports. It exports 85% of its cotton output (Table 2).

Table 2 Global scenario of the cotton trade in 2020

Region	Production	Domestic consumption	Exports	Imports	Share of export in production (%)	Share of import in production (%)	Global export share (%)
	1,000 tons						
WORLD	117,204	112,835	41,722	41,752	35.6	35.6	100.0
US	17,064	2,517	14,600	3	85.6	0.0	35.0
Brazil	12,000	3,000	9,200	25	76.7	0.2	22.1
India	30,000	22,500	5,000	1,000	16.7	3.3	12.0
China	27,250	36,500	125	9,000	0.5	33.0	0.3
Pakistan	6,200	10,025	75	3,800	1.2	61.3	0.2
C4							
Benin	1,425	15	1,300	0	91.2	0.0	3.1
Burkina Faso	900	25	800	0	88.9	0.0	1.9
Mali	950	25	1,000	0	105.3*	0.0	2.4
Chad	330	10	225	0	68.2	0.0	0.5

Note *It is higher than 100% as the last year stocks were also exported.
Source Authors' compilation based on the estimates by the USDA for the year 2020 (https://apps.fas.usda.gov/psdonline/app/index.html#/app/home)

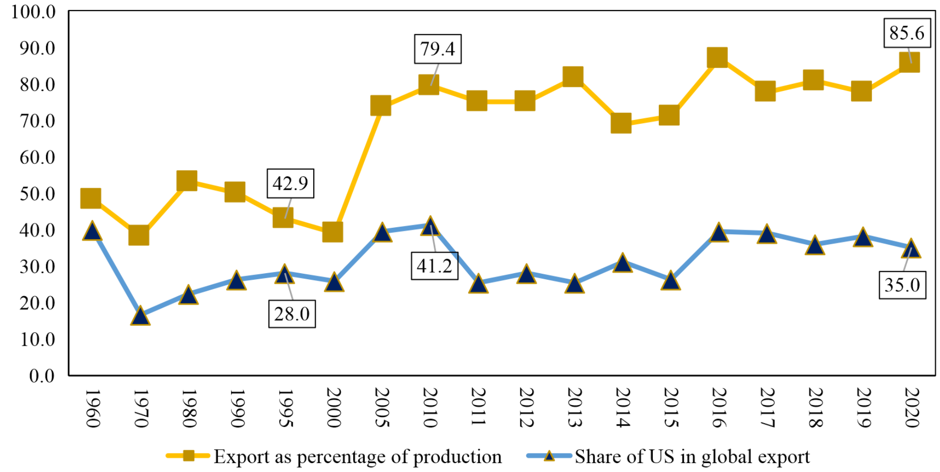

Figure 1 US cotton exports (1960–2020, %)

Source Authors' compilation based on the USDA database https://apps.fas.usda.gov/psdonline/app/index.html#/app/home

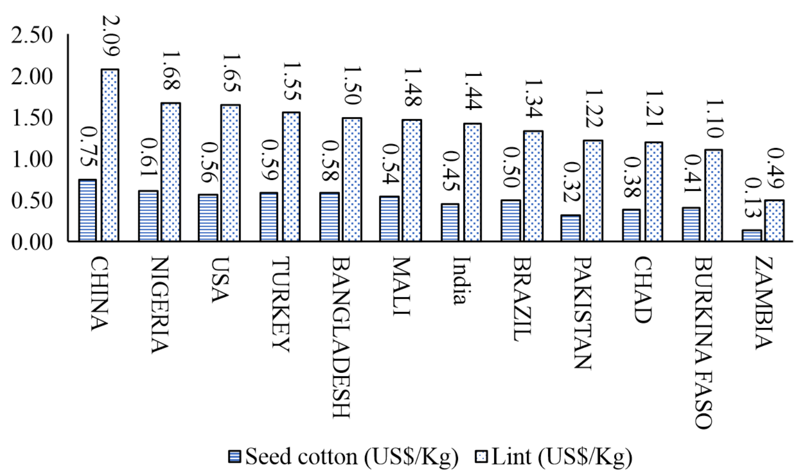

Figure 2 Cost of cotton production

Note National average for India is based on a simple average of various regions as reported in the International Cotton Advisory Committee (ICAC) Report 2020.

Source Authors' compilation from ICAC Report 2020

Brazil and the C4 also export a sizable proportion of their cotton output. India and China domestically consume a larger proportion of their cotton output. In 1995, the US exported 43% of its cotton output, which increased to 86% in 2020, raising its share in global cotton exports from 28% to 35% (Figure 1). Note that the cost of production of cotton lint per kg in the US is one of the highest in the world — USD 1.65 as against USD 1.34 in Brazil and USD 1.44 in India (Figure 2). Despite this, the US has been able to increase its share in the global market. To explore this issue, the US domestic cotton policy merits a discussion.

The US has been supporting its cotton farmers through several programmes under the Farm Acts. The first Farm Act—the Agricultural Adjustment Act (AAA), 1933, enacted in response to the low prices and farm incomes during the Great Depression of the 1930s—provided for price support to farmers in the form of a crop loan at a predetermined rate where the crop was the collateral. The farmers could choose to either repay the loan or forfeit the crop if the current prices ruled below the loan rate at the end of the loan contract (Cunningham 1996).

Since then, 18 Farm Acts have been implemented, the latest being the Agriculture Improvement Act of 2018. Gradually, the support to cotton farmers grew through market loans, deficiency payments, direct payments, and insurance subsidies. At the start of the Uruguay Round in 1986, the product-specific support to cotton was USD 2,348 million (WTO 1994 a), provided mainly through direct payments under price deficiency programmes; non-exempt direct payments comprising marketing loans, loan deficiency payments, and inventory protection payments; and other budgetary support, including storage and interest subsidies. This support amounted to 85% of the VoP, while most developing countries had provided support below the *de minimis* level during the same period. For instance, the cotton-specific support was (–) USD 1,084 million in India (WTO 1994 b) because the minimum support price (MSP) of the cotton was below the cotton-specific external reference price (ERP) during 1986–88.

For the founding members of the WTO, the base period for determining their Amber box commitments was 1986–88. During the Uruguay Round (1986-94), some developed countries had undertaken voluntary domestic reforms and sought credits or carve-outs for such reforms in the form of additional flexibilities in the negotiations. To take the credit of voluntary domestic reforms, the US used 1986 as the base period instead of 1986-88 (WTO 1994a). It resulted in inflated base for the Amber box support, permitting extra policy space to the US in the future also. The European Union and Japan also took advantage of this, that resulted in an ineffective reduction in trade-distorting support at the time of the establishment of the WTO (Paarlberg 1997). The additional flexibility due to credit can be gauged from the fact that the average product-specific support to cotton during 1986-88 was US$1702 as compared to US$ 2348 in 1986. This approach was applied to other products as well. The advantage of inflating the base AMS can be understood from the fact that higher the base AMS, higher is the policy space to provide Amber box support in the future. On the other hand, the developing countries did not take advantage of domestic reforms undertaken during the UR. For instance, even though India adopted economic reforms in 1991, no credit was given to India in the form of additional flexibilities to provide Amber box beyond the *de minimis* limit.

When the WTO was established in 1995, the cotton-specific Amber box support in the US was 0.44% of the VoP (Table 3); however, the US provided USD 901 million to cotton farmers as deficiency payments under the Blue box and, thus, the combined support was 12.81% of the VoP. Surprisingly, the deficiency payments were treated as Amber Box support in 1986 to inflate the AMS entitlement, whereas these were treated as Blue Box support after the WTO was established. This is a classic example of box-shifting without making any substantial change.

The information on cotton-specific support (Table 3) is based on subsidy data provided by the Environmental Working Group (EWG) and the domestic support notifications to the WTO. The cotton-specific support data based on domestic support notifications include only the product-specific support to cotton and does not include the support to cotton given under non-product-specific, Blue Box, and Green Box. The EWG database does not distinguish between these.

The level of support increased from 2.91% in 1995 to its peak at 88% in 2001. It was contrary to the spirit of voluntary domestic support reforms under the Uruguay Round, for which additional trade-distorting entitlement was given to the US. During 1995–2020, the US disbursed USD 40.10 billion as subsidies to cotton farmers through several programmes under different Farm Acts. Subsidies for crop insurance, counter-cyclical payments (CCP), direct payment, and commodity certificates, among others, accounted for a major share of this (Figure 3).

Oxfam (2002) highlighted that cotton subsidy in the US is ‘cultivating poverty’ in developing countries, by encouraging overproduction and export dumping, destroying the livelihoods of cotton farmers in the C4 and in other developing countries. The report estimated that African countries incurred a loss of over USD 301 million; the GDP fell 1% in Burkina Faso, Mali, and Benin, and export earnings dropped more than 8%, leading to a balance-of-payments crisis. If the subsidies are removed, US cotton production would fall 10% and world cotton prices would rise 26% (ICAC 2002). In the absence of domestic and export subsidies, the exports of US upland cotton would have declined 41.2% between 1999 and 2002 and the world price increased 12.6% (Sumner 2003). The FAO (2004)

Table 3 Product-specific support to cotton producers in the US

Year	EWG cotton subsidy data	WTO Product-specific support (PSS)	Value of production (VoP)	EWG as a % of VoP	PSS as a % of VoP
	Million USD			percent	
1995	212	32	7,281	2.91	0.44
1996	807	3	7,323	11.03	0.05
1997	745	466	6,811	10.93	6.84
1998	1,318	935	4,807	27.42	19.44
1999	1945	2,353	4,369	44.52	53.86
2000	2,068	1,050	4,928	41.95	21.30
2001	3,333	2,810	3,789	87.95	74.16
2002	1950	1,187	4,393	44.39	27.01
2003	2,551	435	6,296	40.52	6.91
2004	2,229	2,238	5,731	38.90	39.06
2005	3,696	1,621	5,695	64.90	28.46
2006	2,980	1,365	5,013	59.44	27.23
2007	2,541	208	5,197	48.91	4.00
2008	1,582	1,383	3,986	39.70	34.71
2009	2,264	368	4,457	50.80	8.27
2010	1,054	401	8,335	12.64	4.81
2011	1,366	894	8,399	16.26	10.65
2012	1,091	636	7,748	14.07	8.21
2013	938	574	6,246	15.02	9.18
2014	1,086	956	6,163	17.62	15.52
2015	935	853	4,922	19.01	17.33
2016	1,089	834	6,870	15.85	12.14
2017	665	952	8,134	8.18	11.70
2018	1,090	NA	NA	NA	NA
2019	672	NA	NA	NA	NA
Average (1995–2017)	1,671	981	5,952	28.08	16.48

Note Product-specific support and the VoP data based on domestic support notifications is available till 2017; NA = Not Available
Source Authors' compilation based on domestic support notifications of the US (https://www.wto.org/), and EWG farm subsidy database (https://farm.ewg.org/index.php)

confirms that excess supply induced by domestic subsidies had a depressing effect on the world price. Baffes (2004) finds that the overproduction of subsidized cotton in the US resulted in a 10% reduction in the world price, and Traoré (2007), too, arrives at a similar conclusion.

Under its Farm Act, 2002, the US had been supporting its farmers through CCPs, direct payments, and market loss assistance payments. Cotton also received export subsidies through marketing loan programmes, export credit guarantee programmes such as GSM 102–103, and user marketing payments. The issue of US cotton subsidies reached the WTO dispute settlement body when Brazil alleged that the US domestic support measures, export guarantees, and other measures were trade-distorting. The WTO Panel and the Appellate Body found that a few US domestic support measures and export subsidies had a depressing effect on international cotton prices, and that the direct payments did not satisfy the conditions of the Green Box. The Framework for a Mutually Agreed Solution ended the decade-long dispute, and the US abolished CCPs and

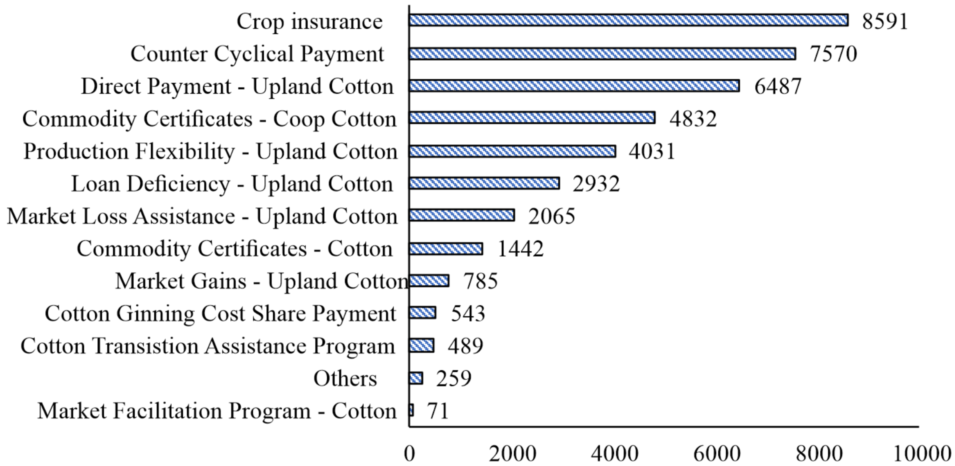

Figure 3 US cotton subsidies (various programmes, 1995–2020)
Source Authors' compilation based on EWG's farm subsidy database

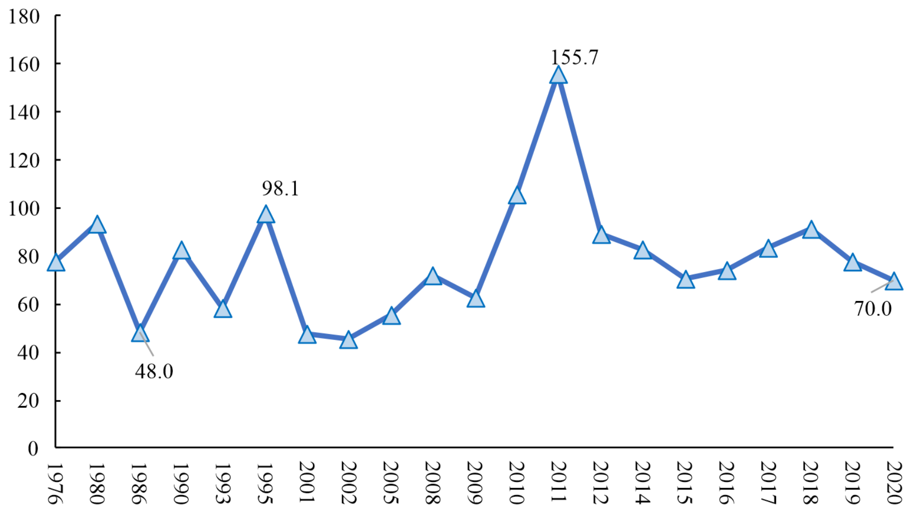

Figure 4 International cotton prices (Cotlook 'A' index[1]) (cents/pound)
Source National Cotton Council of America

direct payments under the Farm Act, 2014 (Townsend 2015).

A few other aspects of the US domestic support policy for cotton are worth mentioning. Besides the direct payments under Farm Act 2002, cotton farmers were supported through CCPs, a kind of price deficiency payment under which the government set target prices for different products, including cotton. In case the market price of the product fell below the target price, certain producers would be eligible for payments based on the formula provided in the 2002 and 2008 Acts. The target price for each product was different, and so the US should have considered these payments product-specific support (Ratna, Das, and Sharma 2011), but although the WTO members raised this question at several meetings of the Committee on Agriculture the US notified CCP as non-product-specific support under the Amber Box, arguing that these payments were based on a fixed period and deliberately ignoring the fact that these payments were related to the current market prices of specific products.

[1] It is based on the average of the cheapest 5 prices from a selection (numbering 18 at present) of the principal upland cottons traded internationally.

Table 4 An overview of the cotton sector in selected members

Description	Unit	USA	India	China[2]	C-4
Farmers	Number	8,103	9,801,538	8,586,200	1,017,294
Average cotton farm size	Hectare	624.7	1.2	0.4	0.7 to 4.8
Average cost of lint	USD /Kg	1.65	1.44	2.09	1.10 to 1.48
Average cost of seed cotton	USD /Kg	0.56	0.45	0.75	0.38 to 0.54
Notified cotton support*	Million USD	952.05	261.41	2,535.03^	0
Per farmer notified support	USD	117,494	27	295	0
Notified support as a % of VoP	%	11.70	2.37	21.32	0
Flexibility for cotton-Amber box (2020)	% of VoP	228^^	10	8.5	10

Note *Notified support of US, India, and China is for, respectively, 2017, 2018, and 2016. ^ China has started a Blue box programme from 2017 onwards. ^^Equal to final bound AMS as a percentage of cotton VoP.
Source Authors' calculation based on ICAC (2020); domestic support notifications

During the Doha Round negotiations, interestingly, the US wanted to shift the CCPs to the Blue Box to expand their policy space (Das and Sharma 2011) and demanded that the definition of the Blue Box be expanded to include CCPs as product-specific Blue Box payments (Sharma et al. 2020b). Paradoxically, CCPs were treated as non-product-specific support under the Amber Box, whereas a carve-out was sought to treat these payments as product-specific in the Blue Box. As CCPs were treated as non-product-specific support, the notified product-specific support to cotton was understated between 2002 and 2014 (Table 3).

The US took some steps to reform its cotton sector. The Farm Act, 2014, eliminated direct payment and CCP programmes and introduced price loss coverage (PLC) payments, a CCP-like programme. The PLC programme did not cover cotton farmers; they continued to be entitled for support under the market loan payment programme. The Farm Act, 2014 supported cotton farmers through highly subsidized insurance programmes like the Stacked Income Protection Plan (STAX) and other federal insurance policies; even these programmes had a depressing impact on the international cotton prices (Lau et al. 2015).

As the international cotton prices declined, the US introduced new programmes to protect its cotton farmers. Under the Cotton Ginning Cost Share (CGCS) programme, USD 3.26 billion was spent in 2016. The Farm Act, 2018 covered seed cotton by PLC. The Market Facilitation Program aimed to compensate farmers from losses arising out of the US–China trade war. Amidst the COVID-19 pandemic, cotton farmers were entitled for assistance under the Coronavirus Food Assistance Program.

Instead of reforming its cotton sector, the US has been challenging domestic support measures in other countries to get market access for its highly subsidized cotton. Through a counter-notification, the US alleged that India is providing massive support to its farmers. However, the reality is opposite. India has more than 9 million cotton farmers with an average cotton farm size of 1.2 hectares. On the other hand, the total number of farmers in the US are 8,103 with an average cotton farm size of 624 hectares. Over and above, per farmer cotton-specific Amber box is only USD 27 in India as compared to USD 117,494 in the US (Table 4).

The US has the flexibility to provide support up to 238% of the cotton VoP in 2020 due to its AMS entitlement, whereas the developing countries are capped at 10%. In the Amber box the per farmer support for cotton is much higher than support for other crops in the US. In 2017, the average per farmer Amber box support in the US was USD 7,489 as compared to USD 117,494 for cotton. In India the product-specific support to cotton as a percentage of VoP has always been below the *de minimis* limit, and despite this the average cost of production of cotton lint and seed cotton

[2] The cotton-specific support was well beyond its de minimis limit in 2016, and China eliminated the cotton-specific Amber Box support and started the cotton-specific Blue Box programme in 2017.

is less than that in the US. The US support to its cotton farmers makes international cotton trade unfair and uneven because millions of low-income, resource-poor cotton farmers in developing countries who lack adequate safety nets (Sharma 2014) are extremely vulnerable to the price fluctuations caused by the entitlements of the developed country members of the WTO to provide support beyond the *de minimis* limit.

WTO cotton negotiations and the US policy space

The WTO members have submitted several proposals to curtail the existing flexibilities of the members under the AoA to provide domestic support. Some of these proposals are cotton-specific, while others are related to general agriculture but have implications for domestic support to cotton. It is due to the high policy space that some countries can provide huge support to their cotton farmers (Wise and Sharma 2015). For instance, as per the WTO notifications, the US had provided support of 74.2% of the VoP in 2001. Except in 1995, 1996, and 2010, the product-specific support to the US cotton farmers was always above its applicable *de minimis* limit of 5%. The US can provide that much support without breaching its commitments because its AMS entitlement is USD 19 billion.

Before analysing the impact of various proposals on the policy space of the US, it is important to examine its existing policy space under the AoA. The US can provide cotton-specific Amber box support up to either the *de minimis* limit (5%) or final bound AMS (USD 19 billion), whichever is higher. Assuming that the US is concentrating its final bound AMS entitlement only in cotton, the policy space for the US will be up to USD 19 billion, which amounted to 235% in 2017 and is predicted to be 208% in 2030 of the cotton VoP. The potential policy space to provide Amber box support to cotton was 235% of the VoP (Figure 5) whereas as per the latest notifications the notified cotton-specific Amber box support was only 11.70% in 2017. Disciplining these expansive flexibilities to reduce trade-distorting support remains one of the contentious issues in the cotton negotiations.

Pursuing the mandate of the General Council Decision (2004) and the Hong Kong Ministerial Conference (2005), various proposals and modalities were submitted and discussed to address the cotton subsidies ambitiously, expeditiously, and specifically within the agriculture negotiations. The cotton issue was specifically dealt in the Draft Modalities Text of agriculture negotiations, which were the result of intense discussions and consultations among the members during the Doha round. To address the issue of cotton-specific domestic support, the 4th Revised Draft Modalities Text for agriculture (Rev.4) (WTO 2008) provides the following reduction formula:

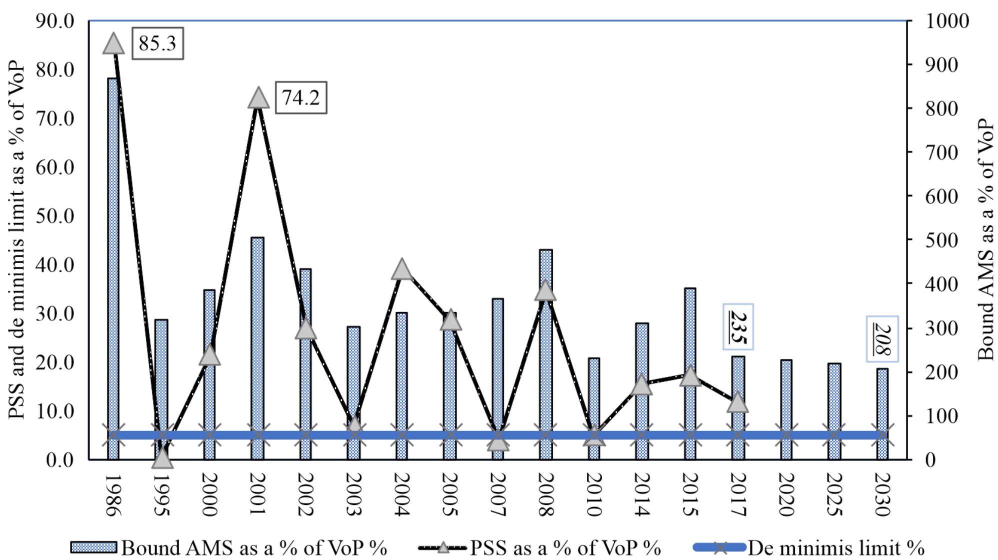

Figure 5 Trend in product-specific support (PSS) and final bound AMS entitlement as a percentage of the VoP of cotton
Source Authors' calculations

Rc= Rg + [((100-Rg) *100)/3*Rg]

where

Rc = applicable cotton-specific reduction and

Rg = general AMS reduction rate.

Para 13 (b) of the Rev.4 provides that Rg would be 60% for those members whose final bound total AMS is USD 15–40 billion. The US has a final bound total AMS of USD 19 billion; therefore, the applicable Rg would be 60%. It implies that the cotton-specific reduction rate (Rc) for the US would be 82.22% (Table 5). This reduction rate (Rc) would be applicable on the average cotton-specific AMS from 1995 to 2000 for developed member countries. The average cotton-specific AMS was USD 806[3] million during this period; therefore, after applying the prescribed reduction rate, the cotton-specific limit would have been USD 143 million.

Additionally, the Text fixes the *de minimis* limit of developed countries at 2.5% of their VoP, instead of the existing 5%; therefore, the upper limit to provide the cotton-specific Amber box would be higher, or USD 143 million. The Rev.4 *de minimis* limit (2.5%) was higher than the prescribed applicable cotton AMS in the US—except in 2008, 2009, and 2015— (Figure 6); in other words, the Rev.4 significantly reduces the

Table 5 Determination of cotton-specific AMS limit under the Rev.4

S.N.	Description	Amount
A	Final bound AMS (Million USD)	19,103.00
B	General AMS reduction (Rg%)	60.00
C	Applicable cotton-specific reduction for USA (Rc%)	82.22
D	Base year average cotton AMS (1995–2000) (Million USD)	806.00
E = D*82.22%	Reduction (Million USD)	663.00
F = D-E	Product-specific final cotton AMS (Million USD)	143.00
G	Proposed de minimis limit (%)	2.50

Source Authors' calculation based on domestic support notifications and Rev.4

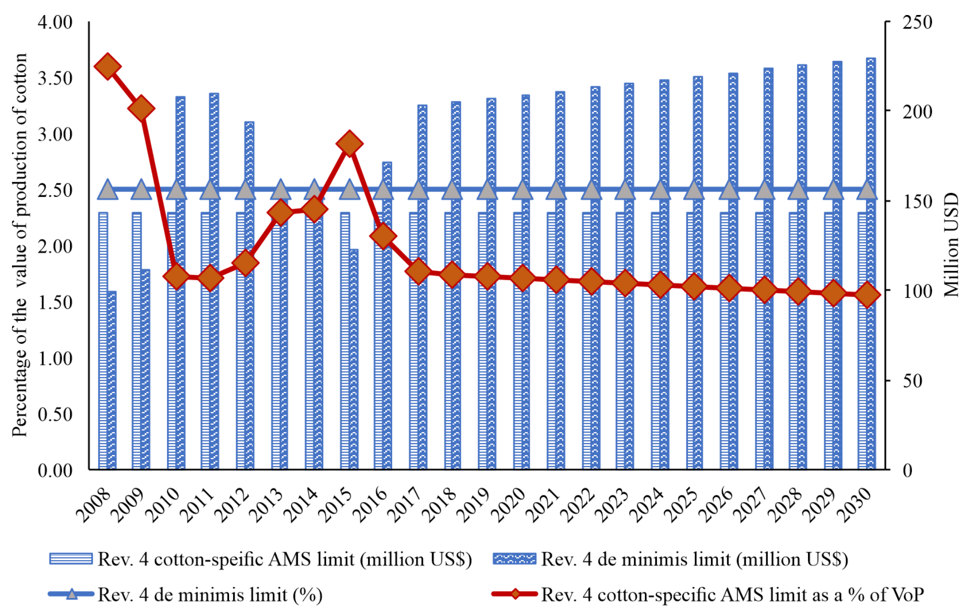

Figure 6 Comparison of cotton-specific AMS and proposed de minimis limit (2.5%) under Rev.4
Source Authors' calculation

[3] The cotton-specific support was below the de minimis level in 1995 and 1996. The average cotton-specific AMS during the 1995–96 is computed by considering the cotton-specific support inclusive of de minimis support during 1995–2000.

Table 6 Applicable reduction rate in the base OTDS based on final bound AMS

Members	Final bound AMS (billion USD)	Total reduction %
Developed	>40	90.0
	15–40	80.0
	<15	70.0
Developing	With Final bound AMS entitlement	60.0

Source Authors' compilation based on WTO document TN/AG/GEN/46

policy space available to the US to support its cotton farmers. Further, the Text prescribes that Blue box cotton-specific measures be limited to 33% of the cotton-specific AMS limit emanating from the application of the reduction formula. Therefore, the product-specific Blue box limit for the US would be USD 47.66 million. However, the member-countries failed to achieve consensus on the modalities due to divergent views and interests.

The C4, the sponsors of the sectoral initiative on cotton, submitted many proposals over the years to contain the cotton-specific support. In 2017, the C4 suggested an overall trade-distorting support (OTDS) limit that covers the support under the AMS, Blue box, and *de minimis* limit (WTO 2017a). The base OTDS for cotton is determined as the arithmetic average of the amounts notified by members for cotton in the Amber and Blue boxes from 2009 to 2013. The base OTDS would be reduced by the rates determined by the final bound AMS entitlement of a member (Table 6).

Given the final bound AMS of USD 19 billion, the base OTDS would be reduced by 80%. The US did not provide any Blue box support between 2009 and 2013; therefore, the base OTDS, calculated as the arithmetic average of the cotton-specific Amber box support, amounts to USD 575 million. After the applicable reduction of 80%, the final cotton-specific OTDS limit would be USD115 million. The proposal suggests that both developed and developing countries refrain from providing a cumulative of AMS and Blue box support beyond the applicable *de minimis* limit and that member countries not provide direct payments to cotton producers under the Green box.

Another proposal by the C4, in 2019, suggested that the base value of cotton support be reduced over the 2021–2025 period (Table 7) (WTO 2019). The base value of support to cotton was to be calculated by the arithmetic average of the Amber box amounts notified by the member countries over the previous three years. The proposal recommended that the AMS level be lower or equal to the applicable *de minimis* level under the AoA; the cumulative amount of the AMS level and the Blue box support should not exceed the applicable *de minimis* limit; and, like the 2017 proposal, that member countries avoid trade-distorting cotton-specific Green box support. The final bound AMS of the US is USD 19 billion; therefore, the applicable reduction rate for cotton subsidies would be 40%, and the US would need to reduce the base cotton AMS by 8% per annum over the 2021–2025 implementation period. The average cotton AMS for the previous three years (2015–17) was USD 880 million, which needs to be reduced to USD 527 million over 2021–2025. This proposal implies that, 2025 onwards, the US should limit AMS

Table 7 C4 proposal on reduction and implementation period to reduce cotton subsidies

Members	Final bound AMS billion USD	Total reduction %	Implementation period (2021–2025) Reduction per annum %
Developed	> 2	40.0	8
	1 to 2	35.0	7
	< 1	30.0	6
Developing	With final bound AMS entitlement	26.7	

Source Authors' compilation based on WTO document TN/AG/GEN/49/Rev.1

support to USD 527 million, and it should limit the cumulative support under the Amber and Blue boxes to 5% of the cotton-specific VoP.

The EU-Brazil proposal, submitted by the EU, Brazil, Colombia, Peru, and Uruguay in 2017 (WTO 2017 b), called for addressing cotton subsidies ambitiously, expeditiously, and specifically. This proposal has other elements, like establishing an OTDS limit for agriculture and provisions related to public stockholding for food security purposes. For cotton, the proposal seeks to limit all trade-distorting support by [W%]. The numerical value of W would be determined based on the consensus. In this paper, we assume W = 2.5%, 5%, or 7.5% of the cotton VoP. At 2.5%, the US must undertake substantial cuts in its policy space. On the other hand, at W= 7.5%, the US would not have to cut its *de minimis* limit; rather, it would gain 2.5 percentage points in lieu of sacrificing its final bound AMS entitlement. At W = 5%, the US would be allowed to provide cotton-specific support up to the *de minimis* level.

The China-India proposal (WTO 2017 c), too—although not specific to cotton—sought to eliminate the AMS entitlement for developed member countries by capping their product-specific support to agriculture, including cotton, to the applicable *de minimis* level (5%).

In 2017, Argentina proposed an OTDS limit for agriculture that would cover the *de minimis* and AMS support (WTO 2017d); it proposed, also, an overall limit on Amber box support for cotton, including *de minimis* support, at [X%] of the cotton VoP. The OTDS limit for developed member countries would be determined as the higher of the following:

Option A: Double the member's *de minimis* percentage of its average value of total agricultural production during the 2011–2015 period; and

Option B: 110% of the average cotton-specific notified Amber box support by the member country for the most recent three notified years at the date of adoption.

It is interesting to apply the provision of Argentina's proposal for determining the OTDS limit for agriculture and examine its impact on the US policy space to provide Amber box support to cotton. Based on these provisions, the cotton-specific overall limit for the US would be USD 968 million; this limit on the US to provide Amber box support would remain in the future (Table 8).

The Australia-New Zealand proposal (WTO 2017 e) provides for a similar limit; the only difference is the coverage of components. The overall limit under the Argentina proposal covers only Amber box support, whereas the Australia-New Zealand proposal stringently encompasses all the elements of Article 6, which includes the Amber, Blue, and Development boxes. The US, a developed member country, is not entitled to Development box support; however, its flexibility to provide Blue box support to cotton would be capped by the overall limit of USD 968 million.

The Rev.4 Text would cap the cotton-specific limit of the US at USD 143 million or at the reduced *de minimis* limit of 2.5%, whichever is higher, and have a very restrictive impact. The C4 proposal of 2017 has the lowest cotton-specific limit; however, the US would have the policy space to provide support up to the *de minimis* level of 5%. The C4 proposal seeks not only to cap the trade-distorting support under Amber and Blue boxes but also to bar direct payments to cotton farmers under the Green box. The China-India proposal, along with the EU-Brazil proposal (W=5%), would cap the Amber box support to the existing applicable *de minimis* limit of 5%.

Argentina's proposal provides the US the largest policy space of all by fixing the Amber box limit at USD 967

Table 8 Determination of the cotton-specific OTDS limit under the Argentina proposal

Option A	Million USD	Option B	Million USD
A1: Average VoP (2011-15)	6,696	B1: Average Article 6 support (2015-17)	880
A 2: Double of de minimis limit	10%	B2: Limit of B1	110%
A3 = A1*A2: OTDS limit (A)	670	B3= B1*B2: OTDS limit (B)	968
Cotton-specific OTDS limit is higher of option A or B = USD968 million			

Source Authors' calculations as per WTO document no. JOB/AG/120

Table 9 Impact of various proposals on the policy space of the US to provide cotton-specific domestic support

Description	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
VoP (million $)	8,368	8,447	8,527	8,608	8,690	8,772	8,855	8,939	9,024	9,110	9,196
De minimis limit (million $)	418	422	426	430	434	439	443	447	451	455	460
Bound AMS million $	19,103	19,103	19,103	19,103	19,103	19,103	19,103	19,103	19,103	19,103	19,103
Bound AMS as % of cotton VoP	228	226	224	222	220	218	216	214	212	210	208
A. Revised Draft Modalities Text (Rev.4) ^											
Rev. 4 Cotton limit (Million $	143	143	143	143	143	143	143	143	143	143	143
Rev.4 *De minimis* limit (2.5%)	209	211	213	215	217	219	221	223	226	228	230
B. C-4 proposal (TN/AG/GEN/46)											
Overall limit	115	115	115	115	115	115	115	115	115	115	115
limit as a % of VoP	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2
De minimis limit (5%)	418	422	426	430	434	439	443	447	451	455	460
C. C-4 proposal limit (TN/AG/GEN/49/Rev.1)											
Overall limit	809	739	668	598	528	528	528	528	528	528	528
limit as a % of VoP	9.7	8.7	7.8	6.9	6.1	6.0	6.0	5.9	5.8	5.8	5.7
D. EU-Brazil Proposal (JOB/AG/99)											
W = 2.5%	209	211	213	215	217	219	221	223	226	228	230
W = 5.0%	418	422	426	430	434	439	443	447	451	455	460
W = 7.5%	628	634	640	646	652	658	664	670	677	683	690
F. India-China Proposal (JOB/AG/102)											
Limit = 5 % of VoP	418	422	426	430	434	439	443	447	451	455	460
G. Argentina Proposal (JOB/AG/114) *											
Limit (million $)	967	967	967	967	967	967	967	967	967	967	967
Limit as a % of VoP	11.6	11.4	11.3	11.2	11.1	11.0	10.9	10.8	10.7	10.6	10.5

Notes ^ The limit would be higher of reduced de minimis limit or cotton-specific support limit as determined in Rev.4

*Argentina proposal is a fixed reference period model under which the overall limit would be fixed in monetary value and does not change in monetary terms with the VoP.

Source Authors' calculations

million for the future; as a percentage of the VoP, the limit remains over 10% during the 2020–2030 period, and the US can provide Blue box support and also direct payments under the Green box. Overall, under all proposals, the US policy space to provide Amber box support between 2020 and 2030 varies between 2.5% and 11.6% of the cotton VoP, and this decline will help cotton farmers in the C4 and other developing countries prosper (Table 9).

Conclusions

The US has a high level of entitlements under the AoA, and it uses its entitlements to provide its cotton farmers trade-distorting support. Between 1995 and 2020, the US cotton subsidies amounted to USD 40.1 billion. Clearly, in the international cotton market, it is not the 'survival of the fittest' but rather the 'survival of the financially fattest'. The multilateral rules have been ineffective in disciplining the US cotton subsidies. By taking credits for its voluntary reforms during the Uruguay round (1986–88), the US inflated its AMS entitlement and provided cotton-specific Amber box support at more than 74% of the VoP without breaching its commitments under the AoA, whereas the policy space of developing member countries is capped at 10%.

The US treated deficiency payments as Amber box payments during the Uruguay Round negotiations to inflate its policy space for the future, but as Blue box payments in 1995, thus against the spirit of the AoA. The US also circumvented the Amber box provisions by notifying CCPs as non-product-specific support rather than product-specific support. This shift within the Amber box was one of the reasons for the sharp decline in notified product-specific support to cotton farmers from 2002 onwards. During the Doha Round, surprisingly, the US attempted to broaden the definition of Blue box to categorize the same programme as product-specific Blue box support. This is a classic example of intra-box and inter-box shifting of the same programme to evade effective reductions in the policy space to support cotton farmers.

The expansive US policy space lets it provide more than 200% of the VoP as cotton-specific Amber box payments. The developing countries, in general, and the C4, in particular, demand steep reductions in the cotton-specific policy space of developed countries, and over the years they have submitted and discussed many modalities and proposals—such as Rev.4, C4, EU–Brazil, India–China, and Argentina. These proposals, our results show, would limit the US policy space to provide cotton-specific support to 2.5–11.6% of the VoP between 2020 and 2030. Sadly, the US is not constructively engaging in cotton negotiations; rather it is challenging the domestic support policies of developing countries to gain market access for its massively subsidized cotton. Disciplining the US policy space is a prerequisite for the prosperity of poor cotton farmers in the developing world and a litmus test of success for 12th WTO Ministerial Conference at Kazakhstan in 2021.

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