



**UNITED STATES – ANTI-DUMPING AND COUNTERVAILING MEASURES
ON LARGE RESIDENTIAL WASHERS FROM KOREA**

RECOURSE TO ARTICLE 22.6 OF THE DSU BY THE UNITED STATES

DECISION BY THE ARBITRATOR

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CASES CITED IN THIS REPORT

Short Title	Full Case Title and Citation
<i>Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)</i>	Decision by the Arbitrator, <i>Canada – Export Credits and Loan Guarantees for Regional Aircraft – Recourse to Arbitration by Canada under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS222/ARB, 17 February 2003, DSR 2003:III, p. 1187
<i>EC – Bananas III (Article 21.5 – US)</i>	Panel Report, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Article 21.5 of the DSU by the United States</i> , WT/DS27/RW/USA and Corr.1, adopted 22 December 2008, upheld by Appellate Body Report WT/DS27/AB/RW/USA, DSR 2008:XIX, p. 7761
<i>EC – Bananas III (US) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS27/ARB, 9 April 1999, DSR 1999:II, p. 725
<i>EC – Bananas III (Ecuador) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS27/ARB/ECU, 24 March 2000, DSR 2000:V, p. 2237
<i>EC – Hormones (US) (Article 22.6 – EC)</i>	Decision by the Arbitrators, <i>European Communities – Measures Concerning Meat and Meat Products (Hormones), Original Complaint by the United States – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS26/ARB, 12 July 1999, DSR 1999:III, p. 1105
<i>Japan – DRAMs (Korea)</i>	Appellate Body Report, <i>Japan – Countervailing Duties on Dynamic Random Access Memories from Korea</i> , WT/DS336/AB/R and Corr.1, adopted 17 December 2007, DSR 2007:VII, p. 2703
<i>US – 1916 Act (EC) (Article 22.6 – US)</i>	Decision by the Arbitrators, <i>United States – Anti-Dumping Act of 1916, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS136/ARB, 24 February 2004, DSR 2004:IX, p. 4269
<i>US – Section 110(5) Copyright Act (Article 25)</i>	Award of the Arbitrator, <i>United States – Section 110(5) of the US Copyright Act – Recourse to Arbitration under Article 25 of the DSU</i> , WT/DS160/ARB25/1, 9 November 2001, DSR 2001:II, p. 667
<i>US – COOL (Article 22.6 – United States)</i>	Decisions by the Arbitrator, <i>United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 22.6 of the DSU the United States</i> , WT/DS384/ARB and Add.1 / WT/DS386/ARB and Add.1, circulated to WTO Members 7 December 2015
<i>US – Gambling (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS285/ARB, 21 December 2007, DSR 2007:X, p. 4163
<i>US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/EEC, 31 August 2004, DSR 2004:IX, p. 4591
<i>US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by Brazil – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/BRA, 31 August 2004, DSR 2004:IX, p. 4341
<i>US – Tuna II (Mexico) (Article 21.5 – US)</i>	Appellate Body Report, <i>United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 21.5 of the DSU by Mexico</i> , WT/DS381/AB/RW and Add.1, adopted 3 December 2015, DSR 2015:X, p. 5133
<i>US – Tuna II (Mexico) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 22.6 of the DSU by the United States</i> , WT/DS381/ARB, 25 April 2017
<i>US – Upland Cotton (Article 22.6 – US I)</i>	Decision by the Arbitrator, <i>United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS267/ARB/1, 31 August 2009, DSR 2009:IX, p. 3871
<i>US – Upland Cotton (Article 22.6 – US II)</i>	Decision by the Arbitrator, <i>United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 7.10 of the SCM Agreement</i> , WT/DS267/ARB/2 and Corr.1, 31 August 2009, DSR 2009:IX, p. 4083

MAIN EXHIBITS REFERRED TO IN THIS REPORT

Panel Exhibit	Title
KOR-5	Notice of Final Determination of Sales at Less Than Fair Value: Large Residential Washers from the Republic of Korea, 77 Fed. Reg. 75988 (Dec. 26, 2012)
KOR-7	AHAM Data Summary (2011-2017)
KOR-8	USITC Dataweb Annual Customs Value Query Screenshot
KOR-9	Notice of Preliminary Determination of Sales at Less Than Fair Value and Postponement of Final Determination: Large Residential Washers From the Republic of Korea, 77 Fed. Reg. 46391 (Aug. 3, 2012)
KOR-15	R. Hallren and D. Riker, An Introduction to Partial Equilibrium Modeling of Trade Policy, Economic Working Paper Series (Working Paper 2017-07-B), U.S. International Trade Commission, July 2017
KOR-17	C. Bown and M. Ruta (2008), "The Economics of Permissible WTO Retaliation", in The Law, Economics and Politics of Retaliation in WTO Dispute Settlement (eds. by C. Bown & J. Pauwelyn; 2010)
KOR-25	Large Residential Washers, Investigation No. TA-201-076 (Safeguard), USITC Publication 4745 (December 2017)
KOR-29	India – Measures Concerning the Importation of Certain Agricultural Products: Recourse to Article 22.6 of the DSU by India (DS430) – Methodology Paper of the United States of America
KOR-52	Impact of Armington Elasticities Based on Exhibit USA-19
KOR-69	Feenstra, Robert C., et al. "In Search of the Armington Elasticity", The Review of Economics and Statistics, 100(1), March 2018
KOR-70	Calculation of Exporters Subject to W-T Comparison Method
USA-2	Large Residential Washers from Korea and Mexico Inv. Nos. TA-701-488 & 731-TA-1199-1200 (1st Review), Samsung's Substantive Response to ITC Notice of Institution (February 1, 2018)
USA-4	LG Electronics' Notice of Intent to Participate and Substantive Response to Notice of Initiation of Sunset Review – Large Residential Washers from Korea (February 5, 2018)
USA-18	Linda Calvin and Barry Krisoff, "Technical Barriers to Trade: A Case Study of Phytosanitary Barriers and U.S.-Japanese Apple Trade", Journal of Agricultural and Resource Economics, 23(2):351-366 (1998)
USA-21 (BCI)	U.S. Customs and Border Protection Data on the Value of Imports from Korea that Were Subject to the U.S. Antidumping and Countervailing Duty Measures on LRWs from Korea for Each Year from 2011 to 2017, as Requested by the Arbitrator
USA-24 (BCI)	Memorandum to the File from David Goldberger and Rebecca Trainor re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Preliminary Determination Margin Calculation for LG Electronics Inc. and LG Electronics USA, Inc. (collectively, "LG") (July 27, 2012)
USA-28 (BCI)	Memorandum to the File from David Goldberger and Rebecca Trainor re: Antidumping Duty Investigation of Large Residential Washers from Korea, Final Determination Margin Calculation for LG Electronics Inc. (LGE) and LG Electronics USA, Inc. (LGEUS; collectively, "LG") (December 18, 2012)
USA-29 (BCI)	Memorandum to the File from Henry Almond and Kate Johnson re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Preliminary Determination Margin Calculation for Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Samsung") (July 27, 2012)
USA-33 (BCI)	Memorandum to the File from Henry Almond and Kate Johnson re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Samsung Final Determination Calculation Memorandum (December 18, 2012)
USA-35	Memorandum to Paul Piquado from Gary Tavernman re: Issues and Decision Memorandum for the Antidumping Duty Investigation of Large Residential Washers from the Republic of Korea (December 18, 2012)

ABBREVIATIONS USED IN THIS REPORT

Abbreviation	Description
AHAM	Association of Home Appliance Manufacturers
Anti-Dumping Agreement	Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994
Appellate Body Report	Appellate Body Report, <i>United States – Anti-Dumping and Countervailing Measures on Large Residential Washers from Korea</i> , WT/DS464/AB/R
BCI	Business Confidential Information
BEA	Bureau of Economic Analysis
CIF	Cost, Insurance, and Freight
CGE	Computable general equilibrium
DSB	Dispute Settlement Body
DPM	Differential Pricing Methodology
DSU	Understanding on Rules and Procedures Governing the Settlement of Disputes
GATT 1994	General Agreement on Tariffs and Trade 1994
GTAP	Global Trade Analysis Project
HS	Harmonized System
HTS	Harmonized Tariff Schedule of the United States
LG	LG Electronics Inc.
LRWs	Large residential washers
non-LRWs	All products other than LRWs
Panel Report	Panel Report, <i>United States – Anti-Dumping and Countervailing Measures on Large Residential Washers from Korea</i> , WT/DS464/R
RPT	reasonable period of time
Samsung	Samsung Electronics Co., Ltd.
SCM Agreement	Agreement on Subsidies and Countervailing Measures
Section 129 proceeding	Proceeding pursuant to Section 129(b) of the Uruguay Round Agreements Act, Public Law No. 103-465, 108 Stat. 4837, codified as United States Code, Title 19, Section 3538(b)
T-T	transaction-to-transaction
USCBP	United States Customs Border Protection
USDOC	United States Department of Commerce
USITC	United States International Trade Commission
<i>Washers</i> anti-dumping investigation	USDOC [A-580-868] Antidumping Duty Investigation of Large Residential Washers from the Republic of Korea
<i>Washers</i> countervailing duty investigation	USDOC [C-580-869] Countervailing Duty Investigation of Large Residential Washers from the Republic of Korea
WTO	World Trade Organization
W-T	weighted average-to-transaction
W-W	weighted average-to-weighted average
WITS	World Integrated Trade Solution

1 INTRODUCTION

1.1 Initial proceedings

1.1. The present arbitration proceedings arise in the dispute initiated by Korea concerning certain methodologies used by the United States in anti-dumping investigations and administrative reviews, as well as certain anti-dumping and countervailing measures imposed by the United States on imports of large residential washers from Korea.

1.2. On 26 September 2016, the Dispute Settlement Body (DSB) of the World Trade Organization (WTO) adopted the Appellate Body Report in this dispute together with the Report of the original Panel as modified by the Appellate Body.¹ The Panel and the Appellate Body found the measures at issue to be inconsistent with various provisions of the Agreement on Implementation of Article VI of the General Agreement on Tariffs and Trade 1994 (Anti-Dumping Agreement), the Agreement on Subsidies and Countervailing Measures (SCM Agreement), and the General Agreement on Tariffs and Trade 1994 (GATT 1994).²

1.3. On 13 April 2017, following referral to arbitration under Article 21.3(c) of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU), an arbitrator determined that the reasonable period of time (RPT) for the United States to implement the DSB's recommendations and rulings would expire on 26 December 2017.³

1.4. Considering that the United States had failed to comply with the recommendations and rulings of the DSB within the RPT, Korea requested authorization from the DSB, on 11 January 2018, to suspend concessions or other obligations in the goods sector under the GATT 1994 pursuant to Article 22.2 of the DSU. In its request, Korea sought to suspend "concessions and related obligations at an annual amount of USD 711 million with respect to the United States' non-compliance with 'as applied' recommendations and rulings on the washing machines from Korea." Korea further requested that this amount should be "adjusted by applying the annual growth rate of the washing machines market of the United States."⁴

1.5. In addition, Korea requested authorization "to suspend concessions and related obligations at an annual level based on a formula commensurate with the trade effects to be caused to exports from Korea other than washing machines by the United States' non-compliance with 'as such' recommendations and rulings." According to Korea, this request "is to reflect the possible nullification or impairment Korea will suffer if the 'as such' violation continues to exist and apply to other exports from Korea in the future."⁵

1.2 Request for arbitration and arbitration proceedings

1.6. On 19 January 2018, the United States communicated to the DSB its objection to Korea's proposed level of suspension of concessions or other obligations. At its meeting of 22 January 2018, the DSB took note that the matter raised by the United States had been referred to arbitration, as required by Article 22.6 of the DSU.⁶

1.7. The arbitration was undertaken by the original panelists, namely:

Chairperson: Ms Claudia Orozco

Members: Mr Mazhar Bangash
Mr Hanspeter Tschaeni

1.8. An organizational meeting was held on 14 February 2018 to discuss procedural aspects of the arbitration proceeding. After consulting with the parties, the Arbitrator adopted its Working

¹ Appellate Body Report and Panel Report, *Action by the Dispute Settlement Body*, WT/DS464/12.

² See Panel Report, *US – Washing Machines*, para. 8.1; and Appellate Body Report, *US – Washing Machines*, paras. 6.1-6.16.

³ Award of the Arbitrator, *US – Washing Machines (Article 21.3(c))*, para. 4.1.

⁴ Recourse to Article 22.2 of the DSU by Korea, WT/DS464/18.

⁵ Recourse to Article 22.2 of the DSU by Korea, WT/DS464/18.

⁶ Recourse to Article 22.6 of the DSU by the United States, WT/DS464/19.

Procedures and a timetable for the proceedings on 21 February 2018.⁷ The United States requested that working procedures be adopted for the protection of Business Confidential Information (BCI), and Korea agreed to the inclusion of BCI working procedures. The Arbitrator adopted Additional Working Procedures concerning BCI on 23 February 2018.⁸ The United States also requested that the Arbitrator's meeting with the parties be opened to other Members and the public.⁹

1.9. In accordance with the timetable and Working Procedures adopted by the Arbitrator, Korea submitted a communication explaining its methodology for calculating the proposed level of suspension (Korea's methodology paper) on 23 February 2018. The United States filed its written submission on 23 March 2018. Korea filed its written submission on 13 April 2018. The Arbitrator sent questions to the parties on 27 April 2018, and the parties provided written responses to these questions on 14 May 2018. The Arbitrator sent additional questions to the parties on 18 May 2018, to which the parties provided written responses on 25 May 2018.

1.10. The Arbitrator held its substantive meeting with the parties on 5 and 6 June 2018. Following a request by the parties to facilitate preparation for the meeting, the Arbitrator sent questions to the parties on 30 May 2018, to which the parties responded orally at the meeting. On 8 June 2018, the Arbitrator sent additional questions to the parties. The parties provided written responses to these questions on 21 June 2018 and submitted comments on each other's responses on 28 June 2018. The Arbitrator sent further questions to the parties on 20 August 2018 and requested the parties to provide their responses on 27 August 2018 and to comment on each other's responses by 29 August 2018. Following a request by Korea, the Arbitrator granted an extension time to the parties, and the parties submitted their responses on 29 August 2018 and provided comments on each other's responses on 3 September 2018.

1.3 Mandate of the Arbitrator

1.11. The United States objects to Korea's proposed level of suspension of concessions and related obligations, contending that the level is not equivalent to the nullification or impairment caused by the inconsistent measures.¹⁰

1.12. We begin by recalling that, pursuant to Article 22.4 of the DSU, "[t]he level of the suspension of concessions or other obligations authorized by the DSB *shall be equivalent* to the level of the nullification or impairment" (emphasis added). The mandate of the Arbitrator, as set out in Article 22.7 of the DSU, is as follows:

The arbitrator acting pursuant to paragraph 6 shall not examine the nature of the concessions or other obligations to be suspended but *shall determine whether the level of such suspension is equivalent to the level of nullification or impairment*. (emphasis added)

1.13. The meaning of the word "equivalence" "connotes a correspondence, identity or balance between two related levels, i.e. between the level of the concessions to be suspended, on the one hand, and the level of the nullification or impairment, on the other."¹¹

1.14. Thus, our task in these proceedings is to examine whether the level of suspension proposed by Korea is equivalent to the level of nullification or impairment sustained by Korea "as a result of the failure of the responding party to bring its WTO-inconsistent measures into compliance".¹² The burden of proving that the requirements of the DSU have not been met rests on the party challenging the proposed level of suspension.¹³ We also recall that "it is for each party to bring forward the

⁷ See the Arbitrator's Working Procedures in Annex A-1; a clerical error in the Working Procedures was corrected on 13 March 2018.

⁸ See Procedures of the Arbitrator Concerning Business Confidential Information, Annex A-2.

⁹ See below section 2.2 and Decision of the Arbitrator on the United States' Request for an Open Hearing, Annex D-1.

¹⁰ Recourse to Article 22.6 of the DSU by the United States, WT/DS464/19. This Arbitration does not involve any claim under Article 22.3 of the DSU.

¹¹ Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.1.

¹² Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 4.5.

¹³ See, for instance, Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 9; *US – 1916 Act (EC) (Article 22.6 – US)*, para. 3.2; *US – Gambling (Article 22.6 – US)*, para. 2.22; and *US – COOL (Article 22.6 – United States)*, para. 4.7.

elements to sustain the factual assertions it makes, and ... each party has a duty to collaborate in the establishments of facts".¹⁴

1.15. There is, however, "a difference between our task here and the task given to a panel".¹⁵ Should we find that Korea's determination of the level of suspension is not consistent with the DSU, our mandate would require us to go further and to make our own determination of the level of suspension we consider to be equivalent to the impairment suffered. We concur with a previous arbitrator that "[t]his is the essential task and responsibility conferred on the arbitrators in order to settle the dispute."¹⁶

1.16. In determining the level of nullification or impairment, previous arbitrators developed their own appropriate methodologies¹⁷, based either on elements of methodologies proposed by the parties¹⁸, or on an altogether different approach.¹⁹ Any determination of nullification or impairment, because it is based on assumptions, is necessarily a "reasoned estimate" relying on "credible, factual, and verifiable information".²⁰

1.17. Finally, it should be kept in mind that, pursuant to Article 22.8 of the DSU, the suspension of concessions or other obligations shall be "temporary" pending full implementation of the DSB's recommendations and rulings, or a mutually agreed solution. On this basis, previous arbitrators considered that the suspension of concessions or other obligations is to "induce compliance".²¹ Other arbitrators also observed that the concept of equivalence in Article 22.4 of the DSU means that obligations cannot be suspended in a "punitive" manner.²²

1.4 Order of analysis

1.18. This Decision is structured as follows. We address procedural matters in Section 2. We then turn to Korea's request for authorization to suspend concessions and other obligations. Korea divided its request between, on the one hand, the "as applied" measures, which relate to large residential washers (LRWs) from Korea, and, on the other hand, the possible future application of the "as such" measures on any product other than large residential washers (non-LRWs).²³ Mirroring Korea's request, we shall address these two parts of the request in turn, starting with LRWs in Section 3, followed by non-LRWs in Section 4. Our overall conclusion and decisions on the level of suspension of concessions or other obligations are contained in Section 5. Finally, we provide some concluding observations in Section 6.

2 PROCEDURAL MATTERS

2.1. In this section, the Arbitrator addresses two procedural matters arising in these proceedings. First, we briefly explain our treatment of BCI. Second, we address the United States' request that the substantive meeting be conducted as an open hearing.

¹⁴ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 2.24. See also Decisions by the Arbitrators, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 3.2; and *US – COOL (Article 22.6 – United States)*, para. 4.9.

¹⁵ Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 12.

¹⁶ Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 12.

¹⁷ See Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.115.

¹⁸ See Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.174.

¹⁹ Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, paras. 3.69-3.79.

²⁰ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.54. See also Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 41.

²¹ Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 6.3; and *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.7.

²² Decisions by the Arbitrators, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.8; and *US – Upland Cotton (Article 22.6 – US I)*, para. 4.109, referring to Decision by the Arbitrator, *EC – Bananas III (Article 22.6 – EC)*, para. 6.3.

²³ Recourse to Article 22.2 of the DSU by Korea, WT/DS464/18.

2.1 Working procedures on Business Confidential Information (BCI)

2.2. As indicated above, the United States requested that working procedures be adopted for the protection of BCI, and Korea agreed to the inclusion of BCI working procedures. The Arbitrator adopted Additional Working Procedures Concerning BCI (Additional Working Procedures) on 23 February 2018.²⁴

2.3. The Additional Working Procedures (i) define BCI for the purposes of these proceedings; (ii) provide that each party shall clearly indicate the presence of BCI in its submissions; and (iii) limit access to, and permissible use of, BCI submitted during the proceedings.²⁵

2.4. Paragraph 8 of the Additional Working Procedures provides that "[t]he Arbitrator will not disclose BCI, in its decision or in any other way, to persons not authorized under these procedures to have access to BCI". However, the Arbitrator may "make statements of conclusion drawn from such information". The parties shall be given an opportunity to ensure that all BCI has been redacted from the Decision prior to its circulation to the WTO Membership. This paragraph forms the "legal basis"²⁶ on which the Arbitrator has redacted statements of BCI from the public version of this Decision. Moreover, in order to prevent indirect disclosure of information identified as BCI by the parties, the Arbitrator does not disclose, in the public version of the Decision, certain figures in its calculations.

2.5. Accordingly, the text of the version circulated to Members is identical to the text of the confidential version issued to the parties, with the exception of passages that are redacted to protect BCI. Such passages have been replaced by "[[***]]". In drafting and redacting this Decision, the Arbitrator has striven to "ensure that the public version of [our Decision] circulated to all Members of the WTO is understandable".²⁷

2.2 The United States' request for an open meeting of the Arbitrator with the parties

2.6. At the organizational meeting held on 14 February 2018, the United States requested that paragraph 10 of the draft Working Procedures of the Arbitrator be modified to accommodate observation by other WTO Members and the public of the Arbitrator's meeting with the parties. In written comments submitted on 15 February 2018, the United States reiterated its request to open the meeting and Korea stated its opposition. On 16 February 2018, each party commented on the comments submitted by the other party. To seek further clarification on the parties' positions, the Arbitrator posed several questions on 8 March 2018, to which the parties responded on 13 March 2018. The parties were also invited to comment on the responses of the other party. The United States submitted written comments on 15 March 2018, while Korea declined to do so.²⁸ On 19 March 2018, the Arbitrator asked Korea an additional question that Korea answered on 21 March 2018.

2.7. On 5 April 2018, the Arbitrator communicated to the parties its decision declining the United States' request and confirmed that the Arbitrator's meeting with the parties would be conducted in closed session. The full decision of the Arbitrator, including the reasons, is contained in Annex D-1.

3 KOREA'S REQUEST PERTAINING TO LRWS ("AS APPLIED" FINDINGS)

3.1 Introduction

3.1. Our task under Article 22.7 of the DSU is to determine whether the level of suspension requested by Korea is equivalent to the level of nullification or impairment caused by the United States' continued non-compliance with the "as applied" recommendations and rulings concerning LRWs from Korea. To do so, we shall begin by determining an appropriate counterfactual, with regard to the anti-dumping and countervailing measures²⁹ that were the subject of the "as applied" findings,

²⁴ See Procedures of the Arbitrator Concerning Business Confidential Information, Annex A-2.

²⁵ Procedures of the Arbitrator Concerning Business Confidential Information, Annex A-2, paras. 1-6.

²⁶ Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 5.4.

²⁷ Appellate Body Report, *Japan – DRAMS (Korea)*, para. 279.

²⁸ Korea's communication to the Arbitrator (15 March 2018).

²⁹ The original dispute "concern[ed] the definitive anti-dumping and countervailing duties applied by the United States as a result of anti-dumping and countervailing duty investigations conducted by the USDOC concerning imports of LRWs from Korea." Korea challenged the following measures: the issues and decision

and also the time-frame, which form the basis of a calculation of nullification or impairment. We shall then calculate this level of nullification or impairment, which involves selecting an appropriate economic model and related data inputs.

3.2. Before turning to Korea's proposed level of suspension, we will address a request by the United States. Specifically, the United States requests the Arbitrator to make separate findings on the level of nullification or impairment resulting from the anti-dumping and countervailing duty measures.

3.3. For the United States, doing so "would inform and provide clarity to the parties in the case the United States achieves partial compliance prior to achieving full compliance, and possibly could result in the avoidance of some additional dispute settlement proceedings".³⁰ Korea objects, since there is no reason, in its view, to separate the amounts, as "[t]he impact of the anti-dumping and countervailing duty measures is cumulative".³¹ Further, Korea asserts that granting the United States' request "would be inconsistent with the objective of the Article 22.6 Arbitration, which is to induce the United States to bring its measures into compliance".³²

3.4. Having considered the parties' views, we have decided to separate the amounts of suspension for the anti-dumping and countervailing duty measures for the following reasons.

3.5. A single awarded amount – especially when Korea itself recognizes that the United States would undertake separate processes to reform the inconsistent anti-dumping and countervailing duty measures³³ – would risk a result contrary to the DSU. Article 22.8 of the DSU requires suspension to be "temporary", limiting application "until such time as the measure found to be inconsistent with a covered agreement has been removed, or the Member ... provides a solution to the nullification or impairment of benefits". Separating the awarded amount does not, as Korea implies, mean that the United States has achieved "partial compliance".³⁴ We make no such judgment – our mandate is to determine "equivalence". In this regard, we must ensure that the level of suspension is equivalent to the level of nullification or impairment without future knowledge of when the United States will reform its measures. Korea is, and will remain, entitled "to suspend concessions in the amount of nullification or impairment caused by the United States' non-compliance as it existed as of the end of the RPT", unless and until the United States complies with its WTO obligations.³⁵ Should the United States bring one or more of its measures into conformity, Korea would be entitled to continue to suspend concessions to the extent the remaining non-compliant measure nullifies and impairs benefits accruing to Korea. We also observe that Korea challenged the anti-dumping determinations and orders as well as the countervailing duty determinations and orders as separate measures.³⁶ An amount divided in two parts would maintain equivalence³⁷, provide guidance to the parties on the authority to suspend and the obligation to comply, and may limit the need for future recourse to dispute settlement proceedings.³⁸

memoranda for the anti-dumping and countervailing duty investigations; the final anti-dumping and countervailing duty determinations on LRWs; the anti-dumping and countervailing duty orders on LRWs; any other determination in the LRW anti-dumping and countervailing duty proceedings; and, the use of "zeroing" in the W-T comparison methodology as well as the *Nails II* methodology and DPM to determine the applicability of Article 2.4.2 of the Anti-Dumping Agreement. See Panel Report, *US – Washing Machines*, paras. 2.1 and 2.4.

³⁰ United States' comments on Korea's response to Arbitrator question No. 53, para. 7.

³¹ Korea's response to Arbitrator question No. 74(a), para. 60.

³² Korea's response to Arbitrator question No. 74(a), para. 60.

³³ Korea's response to Arbitrator question No. 54, para. 10.

³⁴ Korea's response to Arbitrator question No. 74(a), para. 60.

³⁵ Korea's response to Arbitrator question No. 74(b), para. 62. See also Article 22.8 of the DSU.

³⁶ See Request for the Establishment of a Panel by the Republic of Korea, WT/DS464/4.

³⁷ There is no mechanism in the DSU to adjust the level of suspension after the award has been made.

Article 22.7 of the DSU requires the parties "to accept the arbitrator's decision as final" and precludes "a second arbitration".

³⁸ We further note that, at the time of these Arbitration proceedings, the USDOC issued a final determination under Section 129 of the *Uruguay Round Agreements Act* with respect to the countervailing duty measures at issue in the underlying dispute. See United States' response to Arbitrator question No. 53, paras. 14-18; and Korea's response to Arbitrator question No. 53, paras. 1-3. Should that determination be examined in the context of an Article 21.5 proceeding and be found a "measure taken to comply", Korea's right to suspend with respect to the countervailing duty measures would lapse. Therefore, we consider separating the amounts of suspension would resolve potential ambiguities on the level of suspension, following an Article 21.5 determination, and diminish the need for future proceedings.

3.6. Therefore, we will separate the amounts of suspension authorized for the anti-dumping and countervailing duty measures in the award to Korea. Nonetheless, we emphasize that the obligation remains for the United States to come fully into compliance with all the recommendations and rulings adopted by the DSB.

3.2 Determination of the counterfactual and appropriate time-frame

3.2.1 Introduction

3.7. A counterfactual "refers to a hypothetical scenario that describes what would have happened in terms of trade flows had the responding party implemented the DSB recommendations and rulings".³⁹ This hypothetical is compared with the actual situation, as of the end of the RPT – where the Member has yet to come into compliance – in order to quantify the trade effect⁴⁰ caused by that Member's failure to comply.⁴¹ Not all Article 22.6 arbitrations have applied a counterfactual⁴², but, when one has been proposed, the parties have generally agreed on what it should be.⁴³

3.8. In this Arbitration, both Korea and the United States request to use a counterfactual as the basis for a calculation of the level of nullification or impairment for LRWs.⁴⁴ However, the parties disagree on what that counterfactual should be.

3.9. At this juncture, we recall that prior dispute settlement practice establishes that it is for the responding party – the United States – to determine how to implement the recommendations and rulings adopted by the DSB in order to come into compliance.⁴⁵ A counterfactual, by contrast, reflects a hypothetical compliance scenario: the arbitrator neither presumes which exact compliance scenario the responding party would take nor speculates which is the "most likely".⁴⁶

3.10. In assessing a counterfactual, the arbitrator in *US – Gambling (Article 22.6 – US)* explained that it should "reflect at least a plausible or 'reasonable' compliance scenario".⁴⁷ That arbitrator elaborated that the considerations of plausibility and reasonableness are connected to the nature and scope of benefits that are nullified or impaired by the measure at issue:

[T]o the extent that the estimation of the level of nullification or impairment requires certain assumptions to be made as to what benefits would have accrued, in a situation where compliance would have taken place, such assumptions should be reasonable, taking into account the circumstances of the dispute, in order for the proposed level of suspension to accurately reflect the benefits accruing to the complaining party that have actually been nullified or impaired.⁴⁸

³⁹ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.4.

⁴⁰ Generally, arbitrations carried out under Article 22.6 have relied on the "trade effect" of the inconsistent measure to assess the resulting level of nullification or impairment. However, in *US – 1916 Act (EC)*, the arbitrator looked to the measures' "economic effect", since no trade had occurred. See Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 5.58-5.63.

⁴¹ For example, in *US – Tuna II (Mexico)*, the Arbitrator assessed the level of nullification or impairment as "the difference between the value of trade (if any) in Mexican tuna products that occurred despite the WTO-inconsistent US measure ... and the value of trade that would have occurred ... had the United States complied". Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.3.

⁴² Counterfactuals have been used as a tool to determine the level of nullification or impairment in a number of 22.6 arbitrations to date. See, for example, Decisions by the Arbitrators, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 7.1; *EC – Hormones (US) (Article 22.6 – EC)*, para. 38; *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, paras. 3.21-3.22; *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.80; *US – Gambling (Article 22.6 – US)*, para. 3.61; *US – Upland Cotton (Article 22.6 – US I)*, para. 4.114; *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.231-4.233; *US – COOL (Article 22.6 – United States)*, para. 6.32; and *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.9.

⁴³ In *US – Gambling*, the parties did not agree on the counterfactual to be used. The arbitrator examined which of the counterfactuals proposed by the parties, if either, was appropriate. Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, paras. 3.16-3.19.

⁴⁴ See Korea's methodology paper, para. 4; United States' written submission, para. 23.

⁴⁵ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.4.

⁴⁶ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.26.

⁴⁷ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.27. See also Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.5.

⁴⁸ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.30.

3.11. This approach, as the arbitrator in *US – Gambling* described, was followed in other arbitrations.⁴⁹ In this Arbitration, both parties acknowledge that the level of nullification or impairment is to be measured in reference to "benefits".⁵⁰ Accordingly, a counterfactual that results in suspension in excess of the benefits that are nullified or impaired by the WTO-inconsistent measures would not be plausible or reasonable.⁵¹

3.12. Against this background, and in light of the parties' arguments, we will evaluate, in turn, Korea's proposed counterfactuals for the anti-dumping and countervailing measures at issue in the underlying dispute. If we find that Korea's proposed counterfactuals are not appropriate, we will determine alternatives.⁵²

3.2.2 Counterfactual for anti-dumping measures

3.2.2.1 Assessment of Korea's proposed counterfactual

3.13. According to Korea's proposed counterfactual, the United States would come into compliance when "the WTO-inconsistent measures are removed".⁵³ Korea clarifies that this scenario entails "termination"⁵⁴ or "withdrawal of the anti-dumping order that was issued as a result of the application of the W-T comparison methodology", one of the measures found to be inconsistent with the Anti-Dumping Agreement in the original proceeding.⁵⁵

3.14. The United States disagrees with Korea's proposed counterfactual because "termination of the measures goes beyond what the United States is obligated to do under the WTO Agreement".⁵⁶ According to the United States, the margin of dumping assigned to Daewoo in the LRW investigation is not the subject of any DSB recommendations, and, consequently, the United States is not required to terminate the anti-dumping measures on LRWs from Korea.⁵⁷ The United States considers that Korea's proposed counterfactual is not reasonable and could lead to a level of suspension that is in excess of the level of nullification or impairment.⁵⁸ For the United States, modification of the anti-dumping measures on LRWs, rather than termination of the measures, is the appropriate counterfactual in this dispute.⁵⁹

3.15. As the parties disagree on whether Korea's proposed counterfactual is a suitable means by which to measure the level of nullification or impairment, we must analyse whether withdrawal of the LRWs anti-dumping order, issued as a result of the application of the weighted average-to-transaction (W-T) comparison methodology, corresponds to the nature and scope of benefits that have been nullified or impaired by the anti-dumping measures found to be WTO-inconsistent "as applied".⁶⁰ We begin our analysis by identifying the benefits that have been nullified or impaired.⁶¹

3.16. We recall that the term "benefit" constitutes "an 'advantage' that is received (or legitimately expected), and it is this advantage that is being nullified or impaired."⁶² Not all "negative result[s]"

⁴⁹ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.30, referring to Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)* and Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*.

⁵⁰ United States' written submission, para. 18; Korea's written submission, para. 79.

⁵¹ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.27. For that reason, the arbitrator in *US – Gambling*, rejected a counterfactual that assumed Antigua would have access to all forms of remote gambling and betting services, because, in light of the circumstances of the dispute, such an assumed benefit was not reasonable. See *ibid.*, para. 3.49.

⁵² We follow the order of analysis in *US – Gambling*, the only prior Article 22.6 arbitration in which the parties disagreed on the appropriate counterfactual for the purpose of calculating the level of nullification or impairment. Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.19.

⁵³ Korea's methodology paper, para. 23.

⁵⁴ Korea's written submission, para. 23.

⁵⁵ Korea's response to Arbitrator question No. 65, para. 44; see also fn 29 above for a brief overview of the challenged measures.

⁵⁶ United States opening statement, para. 37.

⁵⁷ United States' written submission, para. 26.

⁵⁸ United States' response to Arbitrator question No. 2, para. 16.

⁵⁹ United States' written submission, paras. 26-27.

⁶⁰ See Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 3.45.

⁶¹ Decisions by the Arbitrators, *US – COOL (Article 22.6 – United States)*, para. 5.27; *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.35; *US – Gambling (Article 22.6 – US)*, para. 3.25.

⁶² Decision by the Arbitrators, *US – COOL (Article 22.6 – United States)*, paras. 5.15 and 5.16.

of an inconsistent measure are nullified or impaired benefits.⁶³ Echoing the arbitrator in *US – Section 110(5) Copyright Act (Article 25)*, "it is necessary to proceed with caution" and consider only the benefits that Korea could have expected, "in good faith and taking account of all relevant circumstances".⁶⁴ Those circumstances include the recommendations and rulings adopted by the DSB in the underlying dispute, which we consider "to the extent relevant to our assessment of whether [the complainant's] counterfactual accurately reflects the benefits accruing to it in this dispute".⁶⁵

3.17. As context, the first sentence of Article 2.4.2 of the Anti-Dumping Agreement provides that investigating authorities "shall normally" use one of two symmetrical comparison methodologies, either the weighted-average to weighted-average (W-W) or transaction-to-transaction (T-T) comparison methodology, to establish margins of dumping; otherwise, the second sentence provides that, when certain conditions are met, investigating authorities may resort to the "exception[al]"⁶⁶ asymmetric comparison methodology, the W-T comparison methodology.⁶⁷ In the underlying dispute, the USDOC in the anti-dumping investigation applied this W-T comparison methodology on the basis of a methodology (the *Nails II* methodology)⁶⁸, which the Appellate Body determined was not consistent with that subparagraph.⁶⁹ Specifically, the Appellate Body found that the USDOC did not properly establish the existence of a "pattern" of dumped prices and failed to provide a sufficient "explanation" that the standard comparison methodologies could not appropriately take into account the targeted dumping. The Appellate Body further found that the United States, having improperly resorted to a W-T comparison methodology, incorrectly conducted the W-T comparison itself by using zeroing.⁷⁰ The United States is under an obligation to bring these aspects, "as applied" in the *Washers* determination and connected proceedings, into conformity with Articles 2.4 and 2.4.2. However, by failing to do so by the expiry of the RPT, the United States' anti-dumping measures nullify and impair benefits that flow to Korea from Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement.⁷¹

3.18. The Appellate Body has explained that the concepts of "dumping" and "margin of dumping" are "exporter-specific concepts" and that dumping itself is "product-related ... in the sense that an anti-dumping duty is a levy in respect of the product that is investigated and found to be dumped".⁷² Anti-dumping duties have both a trade effect on the Member concerned and a direct impact on the company subject to the duty. Indeed, the parties have extensively debated such effects of the anti-

⁶³ Korea reads "nullification or impairment" to "cover[] any negative result of the WTO-inconsistent measure." And, for this reason, a counterfactual "should hypothesize elimination of the negative result". See Korea's comments on the United States' response to Arbitrator question No. 61, para. 32. We find this view incorrect, because it is nullification or impairment of a benefit – not any negative result of an inconsistent measure – for which a Member may seek suspension of concessions under Article 22 of the DSU. For this reason, prior arbitrators have declined to account for negative trade or economic effects in a calculation of nullification or impairment that did not flow from the nullified or impaired benefit. See, for example, Decisions by the Arbitrators, *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 5.73-5.77 (declining to include litigation costs incurred by EC entities under the 1916 Act); *US – COOL (Article 22.6 – United States)*, para. 5.27 (omitted Canada's and Mexico's losses from domestic price suppression in the calculation of nullification or impairment); and *EC – Bananas III (US) (Article 22.6 – EC)*, paras. 6.8 and 6.17-6.18 (excluded good and service inputs, in the production of bananas, in setting the level of suspension).

⁶⁴ Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, fn 43. While this arbitration was constituted under Article 25 of the DSU, the arbitrator was called to "determine the level of nullification or impairment of benefits", and, for that reason, we, like prior Article 22.6 arbitrators, consider this award relevant. *Ibid.* para. 1.1. See also Decisions by the Arbitrators, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.26; and *US – Gambling (Article 22.6 – US)*, fn 9.

⁶⁵ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.37. In addition, both parties consider the relevant recommendations and rulings adopted by the DSB to provide relevant guidance in the selection of a counterfactual. See Korea's response to Arbitrator question No. 4, para. 28; United States' response to Arbitrator question No. 4, para. 18.

⁶⁶ Appellate Body Report, *US – Washing Machines*, para. 5.18.

⁶⁷ Appellate Body Report, *US – Washing Machines*, para. 5.16.

⁶⁸ As the Appellate Body explained, the *Nails II* methodology is a methodology "to determine whether 'targeted dumping' was occurring and whether to use the W-T comparison methodology to determine dumping margins". Appellate Body Report, *US – Washing Machines*, para. 5.2.

⁶⁹ See Appellate Body Report, *US – Washing Machines*, para. 6.4.

⁷⁰ Appellate Body Report, *US – Washing Machines*, paras. 6.3-6.6 and 6.9.

⁷¹ See Decision by the Arbitrators, *US – COOL (Article 22.6 – United States)*, para. 5.11.

⁷² Appellate Body Report, *US – Stainless Steel (Mexico)*, para. 94.

dumping measures on LG's and Samsung's LRW exports to the United States⁷³, and, consequently, proposed methodologies using the dumping margins assigned to these Korean companies to calculate the value of Korean LRW exports, had the United States come into compliance with the DSB recommendations and rulings before the end of the RPT. Therefore, we consider that the denied benefits accruing to Korea may be measured by reference to Korean exporters of LRWs, namely LG and Samsung, which were assigned inappropriately established anti-dumping duty rates in the LRW final determination.⁷⁴

3.19. We observe that a similar approach was taken in *US – Section 110(5) Copyright Act*. The arbitrator, in that proceeding, first examined the nature of benefits that would have accrued to the European Communities had the United States brought its measures into conformity with certain provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights, concluding that the United States was obliged to make exclusive rights available to EC copyright holders.⁷⁵ For this reason, the arbitrator determined the relevant benefit to be realizable licensing royalties and, consequently, measured the level of EC benefits in terms of royalty income foregone by those EC right holders.⁷⁶

3.20. We note that the benefits accruing to Korea are not, as Korea seems to imply with its proposed counterfactual of withdrawal, that the USDOC would not assign an anti-dumping duty to any Korean exporter, but that the USDOC would *calculate* the margin underlying the duty for LG and Samsung in a manner consistent with Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement. Korea neither challenged the finding of injury in connection with the LRWs determinations nor the dumping margins established on other bases for other exporters.⁷⁷

3.21. Accordingly, we do not consider Korea's counterfactual scenario of withdrawal of the anti-dumping order to accurately reflect the nature of nullification or impairment of benefits accruing to Korea under the Anti-Dumping Agreement. Korea's proposal implies that *no* anti-dumping duty would be applied to any Korean exporter of LRWs. In our view, however, Korea could not reasonably expect that the benefits accruing under Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement – which concern the calculation of dumping margins for specific exporters – amount to termination of the entire anti-dumping order and duties assigned to all Korean exporters. Korea's position clearly exceeds the scope of those benefits.⁷⁸ In this regard, we agree with the United States that adopting Korea's counterfactual "could appear to assume that the Member concerned has obligations beyond what is reflected in the recommendations adopted by the DSB, which is for the Member to comply with WTO rules."⁷⁹

3.22. Relatedly, adopting Korea's approach of "withdrawal" of the entire order would risk determining a level of suspension in excess of the level of nullification or impairment, one that may be "punitive", as the United States observes.⁸⁰ Withdrawal of the anti-dumping order implies termination of duties imposed on all Korean exporters of LRWs⁸¹, regardless of whether the relevant

⁷³ See Korea's methodology paper, para. 27; United States' written submission, paras. 39-51; Korea's response to Arbitrator question No. 64, paras. 38-40; and United States' comments on Korea's response to Arbitrator question No. 64, paras. 34-36.

⁷⁴ See Notice of Final Determination of Sales at Less Than Fair Value: Large Residential Washers from the Republic of Korea, 77 Fed. Reg. 75988 (Dec. 26, 2012), (Exhibit KOR-5).

⁷⁵ Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, paras. 3.11-3.15.

⁷⁶ Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, paras. 3.18-3.19.

⁷⁷ United States' comments on Korea's response to Arbitrator question No. 55, para. 14.

⁷⁸ While we agree with Korea that the right to impose anti-dumping duties "is not absolute", we are not examining the United States' rights and obligations under the Anti-Dumping Agreement but the benefits accruing to Korea under that Agreement, for the narrow purpose of determining an appropriate counterfactual scenario. See Korea's response to Arbitrator question No. 65, para. 44.

⁷⁹ United States' response to Arbitrator question No. 2(c), para. 13.

⁸⁰ United States' response to Arbitrator question No. 2(c), para. 13. In *US – Gambling*, the Arbitrator emphasized "[i]n determining whether this proposed level is 'equivalent', we must take care to ensure that the proposed level of suspension is neither reduced to a level lower than the level of nullification or impairment of benefits accruing to the complaining party, such as to adversely affect that parties' rights, nor exceeds the level of nullification or impairment, such that it would become punitive." Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.24.

⁸¹ Nonetheless, Korea excludes Daewoo's margin, calculated on the basis of "adverse facts available", from its calculation of nullification or impairment. See Korea's methodology paper, para. 42. While the determination of the counterfactual and the calculation of nullification or impairment are analytically separate

margins are calculated under the W-W, T-T, or W-T comparison methodologies or under adverse facts available, as was the case with Daewoo.⁸² Daewoo was not subject to the DSB recommendations and rulings, as Korea notes, and should not be *de facto* subsumed in those recommendations and rulings by virtue of termination of Samsung's and LG's duties.⁸³ Therefore, a counterfactual scenario assuming that Daewoo's duty should be terminated with the withdrawal of the anti-dumping order would not be reasonable.

3.23. In addition, while in all, but one, prior Article 22.6 proceedings, the arbitrators determined termination of the measure to be the appropriate counterfactual, this practice does not dictate the result in this Arbitration, as Korea implies.⁸⁴ Like the arbitrator in *US – Gambling*, we do not consider that Article 3.7 of the DSU – which provides that the objective of dispute settlement proceedings is "usually" the withdrawal of the inconsistent measure – means that this is the only possible outcome.⁸⁵ In this case, "withdrawal" of the anti-dumping order would be a WTO-consistent outcome, but it is not one that reasonably reflects the scope of nullified or impaired benefits accruing to Korea and its LRW exporters.

3.24. To fulfil our mandate, we must ensure that the level of nullification or impairment is *equivalent* to the level of suspension. This is necessarily a fact-dependent exercise, where we "take account of the specific circumstances of this case."⁸⁶ We agree with the United States that it is not "reasonable" to assume that a Member would "take no action to address dumped imports", when Article VI of the GATT 1994 provides that dumping "is to be condemned if it causes or threatens material injury".⁸⁷ However, that action must be consistent with the Anti-Dumping Agreement, which, as the findings adopted by the DSB make clear, the United States' measures were not. Hence, the question we consider next is what alternative counterfactual would be plausible or reasonable.

3.2.2.2 Alternative counterfactual

3.25. The United States contends "that modification – not termination – of the U.S. antidumping duty measures of LRWs from Korea" is a plausible and reasonable counterfactual.⁸⁸ For the reasons explained above, we agree that a counterfactual of withdrawal of the anti-dumping duty measure is not appropriate. In this section, we will evaluate the United States' proposed alternative counterfactual, in which, applying a W-W comparison methodology, LG's margin is reduced from 13.02% to [[***]] and Samsung's margin is reduced to zero percent⁸⁹, resulting in a weighted-average anti-dumping duty of [[***]].⁹⁰

steps, the former serves as the basis of the latter. As such, Korea's calculation appears to be incongruous with a counterfactual approach of termination of the entire anti-dumping order.

⁸² See Notice of Final Determination of Sales at Less Than Fair Value: Large Residential Washers from the Republic of Korea, 77 Fed. Reg. 75988 (Dec. 26, 2012), (Exhibit KOR-05).

⁸³ Korea does not consider Daewoo to have a "role in determining the plausibility or reasonableness of the counterfactual", since it "was not subject to the Panel or Appellate Body proceedings". We disagree. Korea's comments on the United States' response to Arbitrator question No. 59(a), para. 30.

⁸⁴ See Korea's written submission, para. 23; Korea's response to Arbitrator question No. 2(c), para. 22.

⁸⁵ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.46. We note that under Article 3.7 of the DSU the preference, above all, is for a "solution mutually acceptable to the parties and consistent with the covered agreements".

⁸⁶ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.41.

⁸⁷ United States' comments on Korea's response to Arbitrator question No. 65, para. 40.

⁸⁸ United States' opening statement, para. 21. See also United States' written submission, paras. 24-30.

⁸⁹ United States' written submission, fn 24 and paras. 27-28; and United States' response to Arbitrator question No. 66(b), para. 51. The margins of dumping calculated for LG and Samsung under the W-W and W-T comparison methodologies appear in the final anti-dumping determination. See Memorandum to the File from David Goldberger and Rebecca Trainor re: Antidumping Duty Investigation of Large Residential Washers from Korea, Final Determination Margin Calculation for LG Electronics Inc. (LGE) and LG Electronics USA, Inc. (LGEUS; collectively, "LG") (December 18, 2012), (Exhibit USA-28) (BCI), p. 127; and Memorandum to the File from Henry Almond and Kate Johnson re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Samsung Final Determination Calculation Memorandum (December 18, 2012), (Exhibit USA-33) (BCI), p. 125.

⁹⁰ This [[***]] rate is a constructed figure that does not appear in any underlying investigation or determination. The United States derived this anti-dumping margin based on the W-W rate of [[***]] for LG, initially calculated by the USDOC in its preliminary determination, on the basis of "the calculation presented in Korea's methodology paper". The United States explained: "[t]hus, if Samsung's dumping margin changes to zero% and LG's dumping margin changes to [[***]], then $0 \times 0.31 + [[***]] \times (1-0.31) = [[***]]$." See United States' written submission, fn 24.

3.26. As in the previous section for Korea, we now consider the United States' counterfactual in terms of plausibility and reasonableness, for the purpose of calculating the level of nullification or impairment of benefits accruing to Korea.⁹¹

3.27. We observe that the USDOC calculated dumping margins for LG and Samsung using the W-W comparison methodology during the LRW investigation as part of its consideration whether to use the W-T comparison methodology.⁹² Thus, these counterfactual W-W margins proposed by the United States pre-existed and were not calculated for this Arbitration. Further, in the underlying dispute, the Panel and Appellate Body findings related exclusively to the invocation and application of the exceptional W-T comparison methodology.⁹³ Therefore, in the circumstances of this dispute, it would not be unreasonable or implausible to assume that compliance may have been achieved through the application of a normal comparison methodology, which would remove the source of inconsistency related to invoking and applying the exceptional comparison methodology.

3.28. To Korea, however, "replacing LG's calculated margin with a different margin that purportedly relies on the first sentence of Article 2.4.2 cannot be 'plausible' or 'reasonable' because it would require the Arbitrator to examine the WTO-consistency of a hypothetical scenario".⁹⁴ Korea also argues that "it cannot be assumed that the United States' application of the first sentence of Article 2.4.2 would be done in a WTO-consistent manner", requiring, instead, "a substantive determination that [the] hypothetical compliance measure would be WTO-consistent."⁹⁵ Korea further contends that it would not be legally possible to recalculate the dumping margins under the first sentence of Article 2.4.2 without first reforming the "as such" measures, citing the United States' explanation of its process to domestically implement the DSB's recommendations and rulings during the Article 21.3(c) proceedings.⁹⁶

3.29. We agree with Korea that our mandate precludes a substantive examination of a measure taken to comply with the DSB recommendations and rulings⁹⁷ – an issue for an Article 21.5 compliance proceeding.⁹⁸ We are not assessing the WTO-compatibility of compliance measures; rather, we are considering the reasonableness or plausibility of certain hypothetical counterfactual scenarios. Korea, however, appears to conflate this role of an Article 22.6 arbitrator with that of other WTO adjudicators. Moreover, our review, unlike that of an Article 21.3(c) arbitrator that concerns the establishment of the RPT, is necessarily divorced from actual implementation.⁹⁹ We decline "to make any specific finding or determination as to the exact circumstances ... and ... specific conditions"¹⁰⁰ on how the USDOC would come to apply a "normal[]" comparison methodology under the first sentence of Article 2.4.2 of the Anti-Dumping Agreement.¹⁰¹ A plausible or reasonable counterfactual scenario may or may not reflect the implementation options debated in the context of an Article 21.3(c) proceeding.¹⁰² We echo Korea's statement of caution that "what the United States could have done to implement the DSB's recommendations and rulings should not be

⁹¹ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.27. See also Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.5.

⁹² See Panel Report, *US – Washing Machines*, paras. 7.54-7.56.

⁹³ Specifically, the Panel and Appellate Body found that the USDOC did not properly establish the conditions for using the "exception[al]" W-T comparison methodology and, further, that the United States improperly applied that W-T comparison methodology by applying the methodology to non-pattern transactions and using zeroing. See Panel Report, *US – Washing Machines*, paras. 8.1.a.i, iii, xiv, and xv; and Appellate Body Report, paras. 6.2-6.11. Korea does not appear to disagree with this interpretation of the findings.

⁹⁴ Korea's response to Arbitrator question No. 55, para. 19. See also Korea's response to Arbitrator question No. 2(a), para. 14.

⁹⁵ Korea's response to Arbitrator question No. 55, para. 16.

⁹⁶ Korea's response to Arbitrator question No. 54, paras. 6-8.

⁹⁷ See, for example, Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 7.4.

⁹⁸ Korea's response to Arbitrator question No. 60(b), para. 30.

⁹⁹ An Article 21.3(c) arbitrator, by contrast, must determine "the period of time that is reasonable in light of the particular circumstances of a dispute", which "requires consideration of how that Member proposes to implement under its municipal law." Award of the Arbitrator, *US – Washing Machines (Article 21.3(c))*, paras. 3.7 and 3.8.

¹⁰⁰ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.59.

¹⁰¹ Korea suggests that for an arbitrator to accept the United States' counterfactual, it would have to assume that the USDOC had revisited its decision to apply the W-T comparison methodology, based on the application of rules (i.e. the *Nails II* test or DPM) that may have changed since the final anti-dumping determination, and reached a different decision. Korea's response to Arbitrator question No. 55, para. 18.

¹⁰² Assumptions made by the Article 21.3(c) arbitrator may inform, but do not drive, the choice of a counterfactual. See Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.60.

conflated with the appropriate counterfactual for the purposes of calculating the level of nullification or impairment."¹⁰³

3.30. Hence, we consider that the application of a "normal[]" comparison methodology, under the first sentence of Article 2.4.2 of the Anti-Dumping Agreement, is a reasonable and plausible scenario – reflecting the benefits expected to accrue to Korea. We turn, next, to whether the W-W margins, determined for LG and Samsung in the original underlying investigation – and, consequently, the weighted-average anti-dumping duty rate of [[**]] – represent a suitable proxy for the duties that would exist if a "normal[]" comparison methodology had been applied and thus may be used to calculate the level of nullification or impairment. To do so, we clarify that we are not assessing the WTO-consistency of a measure but determining the appropriateness of a figure by "rely[ing], as much as possible, on credible, factual and verifiable information."¹⁰⁴

3.31. In the course of the anti-dumping investigation on LRWs from Korea, the W-W margins were disclosed to LG and Samsung.¹⁰⁵ While the Government of Korea did not receive such disclosure during the anti-dumping investigation, it had an opportunity to comment on those rates in this Arbitration proceeding, following the United States' submission of the underlying calculation memoranda, for the preliminary and final determinations, as exhibits.¹⁰⁶ The Arbitrator posed several questions to Korea regarding those rates in relation to the United States' proposed counterfactual involving the use of the W-W comparison methodology. However, Korea did not bring any issues to the Arbitrator's attention that would indicate that the figures submitted by the United States are not credible or factual.¹⁰⁷ Given these factual circumstances, and recalling that the W-W dumping margins were calculated for reasons unrelated to this Arbitration, we consider the W-W margins to be "credible, factual, and verifiable" to base a calculation of the level of nullification or impairment.

3.32. In light of the foregoing, we consider that a counterfactual scenario in which the USDOC applied a "normal[]" comparison methodology, under the first sentence of Article 2.4.2 of the Anti-Dumping Agreement, would reflect a reasonable scenario in which the United States complied with the recommendations and rulings of the DSB and that the weighted-average anti-dumping duty rate, calculated under the W-W comparison methodology, of [[**]] is a credible, factual, and verifiable figure to base our calculation of nullification or impairment.

3.33. Having analysed and determined the appropriate counterfactual for the anti-dumping measures, subject to the "as applied" recommendations and rulings, we turn now to do the same for the countervailing duty measures.

3.2.3 Counterfactual for countervailing duty measures

3.2.3.1 The parties' positions

3.34. Korea seeks to apply a counterfactual scenario whereby the United States terminates the countervailing duty measures to comply with the recommendations and rulings adopted by the DSB – the same counterfactual Korea proposes with regard to the anti-dumping measures.¹⁰⁸ For Korea,

¹⁰³ Korea's response to Arbitrator question No. 55, para. 19.

¹⁰⁴ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.54.

¹⁰⁵ Both parties confirmed that LG and Samsung received various disclosure materials during the anti-dumping investigation. See United States' response to Arbitrator question No. 70(b), paras. 60-63; and Korea's response to Arbitrator question No. 70(a), paras. 49 and 51.

¹⁰⁶ See Memorandum to the File from David Goldberger and Rebecca Trainor re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Preliminary Determination Margin Calculation for LG Electronics Inc. and LG Electronics USA, Inc. (collectively, "LG") (July 27, 2012), (Exhibit USA-24) (BCI); United States' response to Arbitrator question No. 70(b), para. 68. See also Memorandum to the File from David Goldberger and Rebecca Trainor re: Antidumping Duty Investigation of Large Residential Washers from Korea, Final Determination Margin Calculation for LG Electronics Inc. (LGE) and LG Electronics USA, Inc. (LGEUS; collectively, "LG") (December 18, 2012), (Exhibit USA-28) (BCI); Memorandum to the File from Henry Almond and Kate Johnson re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Preliminary Determination Margin Calculation for Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Samsung") (July 27, 2012), (Exhibit USA-29) (BCI); and Memorandum to the File from Henry Almond and Kate Johnson re: Antidumping Duty Investigation of Large Residential Washers (Washing Machines) from Korea, Samsung Final Determination Calculation Memorandum (December 18, 2012), (Exhibit USA-33) (BCI).

¹⁰⁷ See, for example, Korea's response to Arbitrator question Nos. 15 and 70.

¹⁰⁸ Korea's methodology paper, para. 4; Korea's written submission, para. 23.

only this scenario would leave "no doubt" that the WTO-inconsistent measures have been brought into conformity.¹⁰⁹ Korea further considers this counterfactual to be consistent with Article 3.7 of the DSU, which provides for withdrawal as the "'first objective' short of a mutually agreed solution", and also with past Article 22.6 proceedings, "where arbitrators have found that an appropriate counterfactual is one where the WTO-inconsistent measure is removed as of the expiration date of the RPT."¹¹⁰ For these reasons, Korea contends that its counterfactual "is both reasonable and plausible."¹¹¹ Korea proposes the reduction of the countervailing duty to 0.00% for Samsung.¹¹²

3.35. The United States agrees to a "conservative" 0.00% duty "for the purposes of this analysis" but not to a counterfactual of termination, since "a variety of potential measures could be taken to comply with the DSB's recommendations relating to certain aspects of the U.S. countervailing duty measure[s]".¹¹³ Further, the United States observes that Daewoo was assigned a countervailing duty rate based on the application of facts available, which was not subject to the recommendations and rulings adopted by the DSB.¹¹⁴ This suggests that "termination ... is not required."¹¹⁵ However, the United States only implies that, in its view, an appropriate alternative counterfactual would be "Samsung's countervailing duty rate being re-determined and changed to zero".¹¹⁶

3.2.3.2 Assessment

3.36. Korea and the United States consider that an appropriate counterfactual would result in a 0.00% countervailing duty rate applied to Samsung, but disagree on what hypothetical scenario would generate such an outcome. We are guided by considerations of plausibility and reasonableness, which connect to the benefits that have been nullified or impaired by the countervailing duty measures determined to be inconsistent "as applied". We therefore begin our analysis by identifying those benefits that Korea would have expected, "in good faith and taking account of all relevant circumstances", with reference to the recommendations and rulings adopted by the DSB.¹¹⁷

3.37. In brief, the Panel found certain aspects of the USDOC's determinations – namely, that certain Korean tax programmes benefiting Samsung constituted specific subsidies – to be inconsistent with Article 2.1(c) of the SCM Agreement. That provision enables an investigating authority "to find that subsidies are *de facto* specific when they result in the 'granting of disproportionately large amounts of subsidy to certain enterprises'"¹¹⁸; however, the USDOC failed to conduct "the required relational analysis of the amount of subsidy received by Samsung" and to account for two mandatory factors referred to in Article 2.1(c).¹¹⁹ In addition, the Appellate Body determined that how the USDOC calculated the amount of subsidy to Samsung under those programmes was inconsistent with the United States' obligations under Article 19.4 of the SCM Agreement and Article VI:3 of the GATT 1994.¹²⁰

3.38. Based on the foregoing, we understand that the relevant benefits accruing to Korea under Articles 19.4 and 2.1(c) of the SCM Agreement and Article VI:3 of the GATT 1994 relate to the way subsidization was determined to exist and the calculation of the amount of subsidization. In this sense – and as the Appellate Body indicated – the USDOC's determinations resulted in the imposition of a countervailing duty on Samsung that was "in excess" of the subsidy found to exist.¹²¹ However, there were no claims raised, before the Panel, or findings, adopted by the DSB, related to LG and Daewoo. Korea, therefore, could only reasonably expect the United States to have fulfilled its obligations under the SCM Agreement and GATT 1994 in a scenario wherein these inconsistencies,

¹⁰⁹ Korea's written submission, para. 23.

¹¹⁰ Korea's written submission, para. 23.

¹¹¹ Korea's written submission, para. 23.

¹¹² Korea's methodology paper, paras. 35, 39, 43, and 44. See also Korea's written submission, para. 27; and Korea's response to Arbitrator question No. 59(b), para. 25.

¹¹³ United States' written submission, para. 30.

¹¹⁴ United States' written submission, para. 30.

¹¹⁵ United States' written submission, para. 30.

¹¹⁶ The United States implies that the counterfactual should entail the reduction of the countervailing duty rate to zero only for Samsung. United States' response to Arbitrator question No. 59(a)(i), para. 32.

¹¹⁷ See Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, fn 43.

¹¹⁸ Panel Report, *US – Washing Machines*, para. 7.233.

¹¹⁹ Panel Report, *US – Washing Machines*, paras. 7.244, 7.250, and 7.255.

¹²⁰ Appellate Body Report, *US – Washing Machines*, paras. 6.14-6.16.

¹²¹ Appellate Body Report, *US – Washing Machines*, paras. 5.253 and 5.284.

regarding the determination and calculation of the rate of subsidization, were removed for Samsung. Hence, we consider it appropriate to measure the benefit accruing to Korea by reference to Korean exporters of LRWs.

3.39. We agree with the United States that an appropriate counterfactual would not be termination of the entire LRW countervailing duty order because this would involve termination of the order in respect to LG and Daewoo, in addition to Samsung. The WTO-inconsistencies identified by the Panel and Appellate Body did not relate to the USDOC's determinations for the former two companies. Thus, Korea's counterfactual would exceed the scope of benefits accruing to it under the SCM Agreement and the GATT 1994. In this regard, we refer to our reasoning on the anti-dumping measures, which we consider to be equally relevant.

3.40. Instead, a counterfactual in which Samsung's rate is re-determined consistently with Articles 19.4 and 2.1(c) of the SCM Agreement and Article VI:3 of the GATT 1994 would be reasonable and plausible, reflecting the scope of benefits that accrue to Korea under those provisions.¹²² We note that the parties agree that a 0.00% rate assigned to Samsung would be an appropriate counterfactual rate. We, like the parties, accept that the rate assigned to Samsung should be 0.00% for the calculation of nullification or impairment in this Arbitration.¹²³

3.41. In light of the foregoing, and for the purpose of the counterfactual, which assumes a WTO-compliant determination of the subsidization amount, we consider the value of zero to be a reasonable proxy in the calculation of the level of nullification or impairment.¹²⁴

3.2.4 The appropriate time-frame

3.42. We now examine the time-frame that forms the basis of the calculation of the level of nullification or impairment.

3.43. There is no rule in the DSU prescribing the time-frame to determine the level of nullification or impairment. Past Article 22.6 arbitrations which were preceded by Article 21.5 proceedings have used the one-year period immediately following the expiry of the RPT as a basis for the calculation.¹²⁵ The parties in this Arbitration agree that 2017 – the year in which the RPT ended – should be the time period to calculate the level of nullification or impairment¹²⁶ and propose the use of data inputs prior to the expiry of the RPT.¹²⁷ We agree and will calculate the level of nullification of impairment with reference to 2017, except as explained further in section 3.3.4 below.

3.3 Proposed models for assessing the level of nullification or impairment

3.3.1 Introduction

3.44. In the preceding sections, we identified the appropriate counterfactuals for, respectively, the anti-dumping and the countervailing measures at issue in the underlying dispute, as well as the

¹²² United States' response to Arbitrator question No. 59(a)(ii), para. 34.

¹²³ In this regard, we note that, for one of the two measures countervailed, the inconsistency related not to the amount of subsidy but to the failure of the United States to properly determine whether the subsidy was specific and, hence, countervailable at all. With respect to the other subsidy, the United States has not proffered, and we do not otherwise have any basis to consider, what rate of subsidization might have been found to exist had the United States properly allocated the subsidy. See Appellate Body Report, *US – Washing Machines*, paras. 6.14-6.16.

¹²⁴ We find further confirmation for our conclusion in the recommendations and rulings adopted by the DSB. In the underlying dispute, the challenged countervailing duty measures related to whether certain subsidies were specific, i.e. whether they were countervailable, and to the application of the countervailing duty, not to the *calculation* of the rate of subsidization. See Appellate Body Report, *US – Washing Machines*, paras. 6.12-6.16. Hence, just as these recommendations and rulings adopted by the DSB differ with respect to the "as applied" findings for the countervailing duty and anti-dumping measures, so do the counterfactual approaches.

¹²⁵ See Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 37; *US – Upland Cotton (Article 22.6 – US II)*, para. 4.118; and *US – COOL (Article 22.6 – United States)*, para. 6.32.

¹²⁶ See Korea's written submission, para. 23; United States' written submission, para. 23; Korea's response to Arbitrator question No. 6, para. 36; and United States' response to Arbitrator question No. 6, para. 25.

¹²⁷ See, for instance, Korea's methodology paper, Appendix A; United States' written submission, paras. 55 and 122; and United States' response to Arbitrator question No. 75, para. 79.

time-frame, which together form the basis for the calculation of the level of nullification or impairment with respect to LRWs. We now turn to that calculation.

3.45. Both parties propose to quantify the level of nullification or impairment by using an economic model.¹²⁸ In broad terms, an economic model is a system of equations that represents complex processes in a simplified form.¹²⁹ This mathematical expression can, *inter alia*, predict or simulate, the effects on trade flows that result from a change in an aspect of trade policy.¹³⁰ Prior arbitrators have accepted, with or without modification, economic models to calculate the level of nullification or impairment.¹³¹ We will do the same.

3.46. We will first describe the parties' proposed models and the objections raised by the parties before determining, whether either model is suited to this dispute and should be used as the basis for our calculations. Finally, we will resolve issues affecting the calculations on which the parties differ significantly. These include the magnitude of the demand, supply, and substitution elasticities, the size of the LRW market, and the amount of United States' LRW imports from Korea.

3.47. However, we first address an issue raised by the United States on the level of nullification or impairment.

3.3.2 Whether the Arbitrator should conclude that the level of nullification or impairment is zero

3.48. While the United States has proposed an economic model to calculate the level of nullification or impairment, it nonetheless argues that "the correct level of nullification or impairment is zero". According to the United States, "reducing or terminating the U.S. antidumping and countervailing duty measures on LRWs from Korea following the expiration of the RPT would not result in any increase in the value of exports of LRWs from Korea to the United States".¹³² The United States cites evidence "in the form of numerous public statements made by Samsung and LG" that those companies discontinued and shifted production from Korea to other countries¹³³ – decisions that "were not made in response to the imposition of the U.S. antidumping and countervailing duty measures."¹³⁴ Korea contests this evidence and the conclusions that may be drawn therefrom.¹³⁵ In Korea's view, the United States "provides no credible basis to argue that Korea's level of nullification or impairment is zero".¹³⁶ We consider that the United States has not provided sufficient evidence that permits the Arbitrator to quantify the level of nullification or impairment as zero as explained below.

3.49. First, and despite a specific request from the Arbitrator, the United States declined to submit any empirical (or econometric) evidence, relying instead entirely on Samsung's and LG's statements.¹³⁷ According to the United States, such evidence "is not necessary."¹³⁸ We, however, have to "estimate the nullification and impairment caused by [the inconsistent measure] (and

¹²⁸ See Korea's methodology paper, para. 24; and United States' written submission, para. 67.

¹²⁹ See R. Hallren and D. Riker, *An Introduction to Partial Equilibrium Modelling of Trade Policy*, Economic Working Paper Series (Working Paper 2017-07-B), U.S. International Trade Commission, July 2017, (Exhibit KOR-15), p. 3.

¹³⁰ See R. Hallren and D. Riker, *An Introduction to Partial Equilibrium Modelling of Trade Policy*, Economic Working Paper Series (Working Paper 2017-07-B), U.S. International Trade Commission, July 2017, (Exhibit KOR-15), p. 3.

¹³¹ We, like the arbitrator in *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, "see the option of using economic models in Article 22.6 arbitrations as creating an opportunity to ensure full cooperation from the parties and, hence, more precise and credible results where the alternative may be to choose between simplistic and perhaps irreconcilable approaches." Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.79.

¹³² United States' written submission, para. 31.

¹³³ United States' written submission, paras. 39-40.

¹³⁴ United States' response to Arbitrator question No. 5, para. 19.

¹³⁵ See Korea's written submission, paras. 38-40.

¹³⁶ Korea's written submission, para. 41.

¹³⁷ United States' response to Arbitrator question No. 20, para. 65.

¹³⁸ Specifically, the United States did not consider empirical or econometric evidence to be necessary, since the statements made by Samsung and LG, alone, "indicated clearly their investor-based decisions and future intentions to move production to the United States, which reflect that the companies lack both the interest and the ability to resume production of LRWs in Korea for export to the U.S. market." United States' response to Arbitrator question No. 20, para. 65.

presumed to exist pursuant to Article 3.8 of the DSU)" by "focus[ing] on trade flows" to "estimate trade foregone".¹³⁹ We cannot undertake such an estimate without a "meaningfully quantified" amount of nullification or impairment, even if that amount is allegedly zero.¹⁴⁰ As in *US – 1916 Act (EC) (Article 22.6 – US)*, where the European Communities only provided examples of litigation costs to include in the level of nullification or impairment, the United States has similarly only provided unsubstantiated statements.¹⁴¹ We decline to infer from a selection of private companies' statements the entire trade effect of the United States' measures as this would be speculative. Consequently, on the basis of this evidence alone, we cannot conclude that the level of nullification or impairment is zero.¹⁴²

3.50. Second, the United States refers to findings by the United States International Trade Commission (USITC), in the context of a safeguard investigation, that LG and Samsung will "replace most of their imports of LRWs with domestically produced LRWs" as support that those companies shifted production for reasons other than the imposition of anti-dumping and countervailing duties.¹⁴³ However, Korea argues that, in that same exhibit, the USITC also noted that "[d]uring the period of investigation, LG and Samsung shifted production of LRWs for the U.S. market from Korea and Mexico to China around the time that Commerce imposed antidumping and countervailing duty orders on LRWs from Korea and Mexico".¹⁴⁴

3.51. Finally, we note that the United States itself has submitted a calculation of nullification or impairment, using 2017 data, the result of which is not an insignificant sum and certainly not zero.¹⁴⁵

3.52. For these reasons, we disagree with the United States that the level of nullification or impairment of benefits accruing to Korea is zero. Accordingly, we now determine the appropriate model to calculate the level of nullification or impairment.

3.3.3 Models

3.3.3.1 Korea's proposed model

3.53. To calculate the level of nullification or impairment, Korea, drawing upon work by Bown and Ruta (2009), proposes to use a static partial equilibrium model, which assumes that LRWs are perfect substitutes and that there are only two LRW suppliers to the United States market, namely Korea and the United States.¹⁴⁶ As applied in this case, a static partial equilibrium model refers to an economic (simulation) model that analyses a single market, ignoring linkages with other markets

¹³⁹ Decision by the Arbitrator, *EC – Hormones (Canada) (Article 22.6 – EC)*, para. 42.

¹⁴⁰ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.77.

¹⁴¹ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 5.75 and 5.77.

¹⁴² The United States also argues that Article 3.8 of the DSU "plainly provides for the possibility that the Member concerned may rebut the presumption of the existence of nullification or impairment". United States' written submission, para. 33. While the United States is correct in observing that the *level* of nullification or impairment "can be addressed in an Article 22.6 proceeding", it is not correct to also assert that the presumption of nullification or impairment itself may be rebutted in the manner it advocates. *Ibid.* There is a difference between *no* nullification or impairment and a level of nullification or impairment of zero. Rather, "the presumption, under Article 3.8 of the DSU, that a breach of an obligation under a WTO covered agreement constitutes a case of nullification or impairment of trade benefits, is different from the determination of the precise level of such nullification or impairment, which is an exercise conducted under Article 22 of the DSU, in cases when a complaining party has requested authorization to suspend concessions or other obligations." Panel Report, *EC – Bananas III (Article 21.5 – US)*, para. 8.11. It is a panel that "deals with the establishment of the existence of nullification or impairment". Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.24. The United States appears to conflate the two – the *existence* of and the *level* of nullification or impairment – in its reasoning.

¹⁴³ United States' response to Arbitrator question No. 16, para. 43, citing Large Residential Washers, Investigation No. TA-201-076 (Safeguard), USITC Publication 4745 (December 2017), (Exhibit KOR-25), p. 78.

¹⁴⁴ Large Residential Washers, Investigation No. TA-201-076 (Safeguard), USITC Publication 4745 (December 2017), (Exhibit KOR-25), fn 349. See Korea's written submission, para. 39.

¹⁴⁵ See below, section 3.4.

¹⁴⁶ Korea's methodology paper, paras. 22 and 29, referring to C. Bown and M. Ruta (2008), "The Economics of Permissible WTO Retaliation", in *The Law, Economics and Politics of Retaliation in WTO Dispute Settlement* (eds. by C. Bown & J. Pauwelyn; 2010), (Exhibit KOR-17); Korea's written submission, paras. 43 and 46; and Korea's response to Arbitrator question No. 89, para. 103.

because those linkages are presumed to be negligible. In this model, the response is assumed to occur instantaneously or to not affect subsequent periods, as may be the case in other models.

3.54. In Korea's perfect substitutes model, demand for United States' and Korean LRWs depends on the price of the product.¹⁴⁷ The higher the price of LRWs, the lower the demand for LRWs, where the elasticity of demand measures the responsiveness of demand to a change in price. LRWs are supplied by both United States' manufacturers and Korean exporters. The higher the price of LRWs the greater the supply, where the elasticity of supply measures the responsiveness of supply to a change in price. Further, in that model, WTO-inconsistent anti-dumping and countervailing duties are applied to Korean LRWs.¹⁴⁸

3.55. Based on its model, Korea derives the following formula to calculate the level of nullification or impairment at the end of the RPT¹⁴⁹:

Level of nullification or impairment at the end of RPT =

(price changes by terminating the application of the second sentence of Article 2.4.2 and CVD) x

(the import share of washing machines from Korea to the United States in 2011) x

(price elasticity of demand + price elasticity of supply) x

(the entire import value of washing machines to the United States in 2017) x

(1 + growth rate)^t

t = number of years from the year of USDOC's investigation/review based on non-compliance

3.56. Korea justifies the use of the perfect substitutes model by noting that it is based on academic literature, was used in prior arbitrations to calculate the level of nullification or impairment¹⁵⁰, and was proposed by the United States itself in the DSU Article 22.6 arbitration in *India – Agricultural Products*.¹⁵¹ Applying this model, Korea calculates that the level of nullification or impairment with respect to Korea's imports of LRWs into the United States, at the expiry of the RPT, amounts to USD 711 million.¹⁵²

3.57. The United States challenges Korea's justifications for the model – as well as the appropriateness of the model itself. In this regard, the United States considers that Korea uses "the wrong type of partial equilibrium model"¹⁵³ because it is "based on two flawed assumptions": (i) the United States and Korea are the only two countries that produce and sell LRWs in the United States' market, and (ii) there is perfect substitution between LRWs imported from Korea and United States' LRWs and, implicitly, no substitution at all between imports from Korea and non-subject imports.¹⁵⁴

3.58. With respect to the first assumption, the United States submits that Korea's proposed perfect substitutes model, which "'assume[s] that the world is composed of ... two countries only' and that 'export supply and import demand are entirely determined by the domestic conditions in the

¹⁴⁷ Korea's methodology paper, para. 33.

¹⁴⁸ Korea's methodology paper, para. 35.

¹⁴⁹ Korea's methodology paper, para. 34.

¹⁵⁰ Korea's methodology paper, para. 28 and fn 23. Korea referred in particular to *US – Upland Cotton II* and *US – Tuna II (Mexico)*. With respect to the latter, Korea claimed that in *US – Tuna II (Mexico)*, the United States itself proposed a partial equilibrium perfect substitutes model.

¹⁵¹ See Korea's responses to Arbitrator question No. 77(a), para. 68; and *India – Measures Concerning the Importation of Certain Agricultural Products: Recourse to Article 22.6 of the DSU by India (DS430)* – Methodology Paper of the United States of America, (Exhibit KOR-29).

¹⁵² Korea's methodology paper, paras. 5, 25, 39, 40.

¹⁵³ United States' written submission, para. 7.

¹⁵⁴ United States' response to Arbitrator question No. 22, para. 70.

respondent's and the complainant's markets", is incorrect.¹⁵⁵ Referring to Korea's methodology paper, the United States contends that "LRWs are imported into the United States from more than a dozen countries".¹⁵⁶

3.59. As to the second assumption, the United States argues that the assumption of perfect substitutability is contradicted by public submissions made by Korean producers of LRWs and by the findings of United States' authorities in a global safeguard investigation conducted in 2017, which reported that consumers view imported and domestic LRWs as imperfect substitutes.¹⁵⁷

3.60. Further, the United States criticizes the robustness of Korea's perfect substitutes model, which, according to the United States, is sensitive to variations in the values of demand and supply elasticities. In its comments on Korea's response to a question by the Arbitrator, the United States explains that it conducted a sensitivity test on Korea's model, presenting different calculations of the level of nullification or impairment that would result by incorporating the low, median, and high estimates of supply and demand elasticities put forward by Korea.¹⁵⁸ The United States showed that these changes in the values of the elasticities resulted in changes in the calculated level of nullification or impairment ranging from 16.5% to 19.9%.¹⁵⁹

3.61. The United States also criticizes Korea's formula to calculate the level of nullification or impairment using the perfect substitutes model. It characterizes the formula proposed by Korea as "incorrectly specified or simply [] not founded on any theoretical basis".¹⁶⁰ The United States also observes that the formula it proposed in its methodology paper in *India – Agricultural Products* differs from Korea's formula. This is because, according to the United States, the economic model in that arbitration estimates "the change in consumer demand due to a change in price (when the measure is removed) plus the change in domestic producer supply due to a change in price (when the measure is removed)" and "[t]he sum of these two changes in demand and supply is equivalent to the change in imports".¹⁶¹ The United States argues that Korea's proposed formula, instead, "purports to estimate the change in consumer demand based on Korea's imports" which "is not equivalent to estimating the change in consumer demand based on the level of consumption".¹⁶² Similarly, Korea's model "purports to estimate the change in domestic producer supply based on Korea's imports" which the United States argues "is not equivalent to estimating the change in domestic supply based on the level of production".¹⁶³

3.62. Korea responds to each of the United States' arguments as follows.¹⁶⁴ First, as a justification for examining only the trading relationship between Korea and the United States, Korea argues that "this dispute addresses the impact of the U.S. measures on its trade in LRWs with Korea and, while there may be imports from other countries, these factors are of no consequence to the dispute."¹⁶⁵ Second, as to the United States' criticism about Korea's model assuming perfect substitutability, Korea responds that a simulation is not required to account for all external factors that could impact its results.¹⁶⁶ Korea submits that the USITC found "that domestic and imported LRWs were in fact substitutable, and made an affirmative injury determination on that basis."¹⁶⁷ Finally, Korea reiterates that the formula in its perfect substitutes model is similar to that proposed by the United States in *India – Agricultural Products*.¹⁶⁸

¹⁵⁵ United States' written submission, para. 59, citing C. Bown and M. Ruta (2008), "The Economics of Permissible WTO Retaliation," in *The Law, Economics and Politics of Retaliation in WTO Dispute Settlement* (eds. By C. Bown & J. Pauwelyn; 2010), (Exhibit KOR-17), p. 157.

¹⁵⁶ United States' written submission, para. 59.

¹⁵⁷ United States' written submission, paras. 60-61.

¹⁵⁸ United States' comments on Korea response to Arbitrator question No. 78(a), para. 67.

¹⁵⁹ United States' comments on Korea response to Arbitrator question No. 78(a), para. 67.

¹⁶⁰ United States' response to Arbitrator question No. 28(a), para. 102.

¹⁶¹ United States' comments on Korea's response to Arbitrator question No, 76, para. 53.

¹⁶² United States' comments on Korea's response to Arbitrator question No, 76, para. 54.

¹⁶³ United States' comments on Korea's response to Arbitrator question No, 76, para. 54. See *India – Measures Concerning the Importation of Certain Agricultural Products: Recourse to Article 22.6 of the DSU by India (DS430) – Methodology Paper of the United States of America*, (Exhibit KOR-29).

¹⁶⁴ Korea's written submission, paras. 46-49.

¹⁶⁵ Korea's written submission, para. 46.

¹⁶⁶ Korea's written submission, para. 46.

¹⁶⁷ Korea's written submission, para. 48.

¹⁶⁸ Korea's response to Arbitrator question No. 28(a), paras. 90-91.

3.3.3.2 United States' proposed model

3.63. The United States submits that the correct approach to calculate the level of nullification or impairment would be to use an Armington model, in which products are differentiated by source countries and where consumers view products from different countries as imperfect substitutes.¹⁶⁹ For the United States, the level of nullification or impairment suffered by Korea as a result of the WTO-inconsistent anti-dumping and countervailing duty measures "would be no more than [***]" and "\$2.32 million" per year, respectively.¹⁷⁰

3.64. The Armington model, proposed by the United States, accounts for imports from countries other than Korea¹⁷¹, and, as the United States notes, the effect of the reduction or removal of the WTO-inconsistent anti-dumping and countervailing duties applied to LRWs will depend on the substitutability between (i) the domestic like product (LRWs from the United States), (ii) subject imports (LRWs imported from Korea that are subject to the anti-dumping and countervailing duties), and (iii) non-subject imports (LRWs imported from countries other than Korea).¹⁷² Consumers, according to the United States, "substitute between each variety at a constant rate ... [by] the 'Armington elasticity', which tells us how sensitive consumers are to changes in the prices of the three varieties".¹⁷³

3.65. The United States refers to the global safeguard investigation conducted by the USITC in 2017 as evidence that consumers view LRWs as imperfect substitutes. This study reported that "[c]onsumers view imports and the domestic product as imperfect substitutes", and further found that "there is a moderately high degree of substitutability between domestically produced LRWs and imported LRWs".¹⁷⁴ The United States also refers to public submissions made to the USITC by Korean producers of LRWs, which state that all LRWs are sold under brand names in the United States' market, and brand perception is but one of several important non-price factors that drive purchasing decisions.¹⁷⁵

3.66. In the United States' model, aggregate demand for LRWs depends on the price index for LRWs.¹⁷⁶ The price index of LRWs can be considered a weighted average price of the different LRWs that make up the United States market. The higher the price index of LRWs, the lower the aggregate demand for LRWs. The elasticity of aggregate demand measures the responsiveness of aggregate demand to a change in the price index by one percent. In the model, aggregate demand for LRWs breaks down into demand for United States LRWs, Korean LRWs, and other foreign LRWs. Demand for each depends on the ratio of LRW price to the price index. United States' consumers consider these LRWs as imperfect substitutes, where the elasticity of substitution measures the degree of substitutability. The supply of each category of LRWs depends on the ratio of the LRW price to the price index, where the elasticity of supply measures the responsiveness of supply to a change in price. Finally, the United States' model assumes that only Korean imports are subject to anti-dumping and countervailing duties.¹⁷⁷

3.67. Korea criticizes the use of the Armington model for "rel[ying] on several extreme assumptions".¹⁷⁸ Korea notes that the model "assumes that, in any one country, each industry produces only one product and that this product is distinctly differentiated from the product of the same industry in any other country".¹⁷⁹ It argues that, "since there is no comparative advantage in an Armington model, gains from trade cannot be due to increasing specialization", which is a standard source of gains in international trade.¹⁸⁰ Further, Korea claims that the standard Armington assumption — that the number of varieties of a product is fixed — ignores one of the possible benefits of trade liberalization, namely, an increase in product variety and in consumer and producer

¹⁶⁹ United States' written submission, paras. 6-7.

¹⁷⁰ United States' written submission, paras. 7, 123, and 125-126.

¹⁷¹ United States' written submission, para. 62.

¹⁷² United States' written submission, para. 62.

¹⁷³ United States' written submission, para. 68.

¹⁷⁴ United States' written submission, para. 60.

¹⁷⁵ United States' written submission, para. 61.

¹⁷⁶ United States' written submission, paras. 68-73.

¹⁷⁷ United States' written submission, para. 70.

¹⁷⁸ Korea's written submission, para. 51.

¹⁷⁹ Korea's written submission, para. 53.

¹⁸⁰ Korea's written submission, para. 51.

choice.¹⁸¹ Korea explains that the small country assumption, i.e. the assumption that changes in the demand for and supply of a product in a country will not have an impact on the world market price of the product, cannot be made in an Armington model.¹⁸² According to Korea, in an Armington model, "[e]ach country is large in the sense that its demand and supply affect prices of the goods it trades".¹⁸³ Consequently, "unilateral reductions in trade barriers by one country lead to a troublingly large worsening in its terms of trade".¹⁸⁴ Furthermore, Korea argues that the Armington model has never been applied in previous Article 22.6 arbitrations.¹⁸⁵

3.68. Korea also questions the robustness of the Armington model proposed by the United States. Korea calculated the level of nullification or impairment under this model for various scenarios and showed that increasing the elasticity of substitution from the low value 3 to the median value 4, increases the calculated level of nullification or impairment by 37%, and, further, changing the elasticity of substitution from the median 4 to the high value 5 results in a 23% increase in the calculated level of nullification or impairment.¹⁸⁶ Korea contends that the level of nullification or impairment can fluctuate by 60% depending on the value of the elasticity.¹⁸⁷

3.69. The United States provides a number of counter-arguments to Korea's criticisms.¹⁸⁸ It notes that the Armington assumption that each country produces only one good is used in many other computable general equilibrium (CGE) models with international trade.¹⁸⁹ The United States submits that whether there is comparative advantage and gains from trade through increased specialization is not relevant, since "Korea has not demonstrated that Korea has a comparative advantage over the United States in the production of LRWs".¹⁹⁰ The United States explains that its model accounts for "different varieties of the product by incorporating the elasticity of substitution".¹⁹¹ It acknowledges that in the Armington model, a country always has market power. However, the United States also points out that Korea is not a small country in the United States' LRW market, so it is correct to assume that it has market power.¹⁹²

3.3.3.3 Assessment of the models proposed by the parties

3.70. The parties have proposed different partial equilibrium models to calculate the level of nullification or impairment – a perfect substitutes model by Korea and an Armington model by the United States. While we observe that the perfect substitutes model could be considered a special case of the Armington model¹⁹³, the two differ in respect of the assumption of "substitutability" of products – whether or not products of different origin may be viewed as perfect substitutes for one another. Specifically, the perfect substitutes model assumes that goods are perfectly substitutable and the elasticity of substitution approaches infinity. By contrast, in the Armington model, products are not assumed perfect substitutes, and the degree of substitutability is quantified by the elasticity of substitution. In examining these two models, we will consider whether this assumption, along with other features of the models, fits the circumstances of this case.¹⁹⁴

3.71. We shall address (i) whether LRWs are homogenous goods and characteristics of the United States' LRW market; (ii) the formula for calculating the level of nullification or impairment in the perfect substitutes model; (iii) the sensitivity of the model calculations to the values of the elasticities; (iv) the modelling approach followed in previous WTO arbitrations; and, (v) the evidence on the elasticity of substitution provided by the parties.

¹⁸¹ Korea's written submission, para. 53.

¹⁸² Korea's written submission, para. 53.

¹⁸³ Korea's written submission, para. 53.

¹⁸⁴ Korea's written submission, para. 53.

¹⁸⁵ Korea's written submission, para. 55.

¹⁸⁶ Korea's response to Arbitrator question No. 78(b), para. 77.

¹⁸⁷ Korea's response to Arbitrator question No. 78(b), para. 77, referring to Impact of Armington Elasticities Based on Exhibit USA-19, (Exhibit KOR-52).

¹⁸⁸ United States' response to Arbitrator question No. 23(a), paras. 76-85.

¹⁸⁹ United States' response to Arbitrator question No. 23(a), para. 77.

¹⁹⁰ United States' response to Arbitrator question No. 23(a), para. 81.

¹⁹¹ United States' response to Arbitrator question No. 23(a), para. 82.

¹⁹² United States' response to Arbitrator question No. 23(a), para. 83.

¹⁹³ See Arbitrator question No. 26.

¹⁹⁴ We follow the approach of prior arbitrations. See, e.g. Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 5.2.

3.3.3.3.1 Whether LRWs are homogenous goods and characteristics of the United States' LRW market

3.72. We observe that the parties have differing views on whether LRWs may be considered homogenous goods (i.e. goods that may be considered perfect substitutes). Korea justifies the assumption of perfect substitutability of Korean and United States' LRWs by arguing that a simulation is not required to take into account all external factors that could impact the results.¹⁹⁵ Korea claims that the United States' investigation authorities found that United States' and Korean LRWs were substitutable and made affirmative injury determinations on that basis.¹⁹⁶ Korea maintains that the degree of substitutability is sufficiently high to "support the use of the perfect substitutes model over the Armington model".¹⁹⁷ The Arbitrator agrees with Korea that, if there is evidence to support Korea's claim of a sufficiently high level of substitutability between Korean and United States' LRWs, one can defend the use of a perfect substitutes modelling framework, since a simulation cannot take into account all external factors. We shall return to this matter when we discuss the issue of the elasticity of substitution (see section 3.3.3.3.5 below).

3.73. We note that the United States' LRW market appears imperfectly competitive, with a small number of firms supplying the market, as shown in the overview of market shares in Appendix C to Korea's Methodology Paper.¹⁹⁸ For example, in 2017, the year in which the RPT ended, the four biggest companies (Whirlpool, Samsung, LG, and GE) collectively held more than 83% of United States' market.¹⁹⁹ Furthermore, the LRWs supplied by those firms are highly differentiated, branded consumer products.²⁰⁰ Korea acknowledges that it is not aware of evidence to support the claim that "all LRWs sold in the United States are homogeneous products that are considered perfect substitutes by consumers".²⁰¹

3.74. In addition, we observe that another feature of the United States' LRW market is that there are other countries besides Korea that supply LRWs. Korea supports confining its analysis to two countries by arguing that this proceeding addresses the impact of the United States' measures on LRW trade, and specifically, the demand in the United States' market and supply in the Korean market. While "[t]here may be imports from other countries that influence the demand structure in the U.S. market, ... these external factors are of no consequence in this proceeding."²⁰² According to Korea, "[t]he Arbitrator cannot be tasked with determining the impact of all outside variables that may impact the results of the simulation."²⁰³ Korea also submits that, "[g]iven that the proceeding does not involve LRWs from other countries, it is plausible and reasonable that the model used to calculate the level of nullification and impairment only examines the relationship between the two markets."²⁰⁴

3.75. On these aspects, the Arbitrator agrees with Korea. The Arbitrator did, in fact, pursue this issue with the United States in the context of its proposed Armington model.²⁰⁵ In the model, United States' LRW producers and other LRW exporters have the same supply and substitution elasticities. Therefore, it would not matter when calculating the level of nullification or impairment if other foreign LRW exporters were treated as a separate region or taken together with United States' producers. The United States agrees that, "in this situation, treating the United States and third countries as separate regions or treating them as one combined region leads to the same outcome for Korea, given a reduction of anti-dumping and countervailing duties for Korea in the U.S. market for LRWs."²⁰⁶ Thus, the fact that Korea confines its model to the trade relationship only between itself and the United States does not render the use of the perfect substitutes model inappropriate in this proceeding.

¹⁹⁵ Korea's written submission, para. 48.

¹⁹⁶ Korea's written submission, para. 48.

¹⁹⁷ Korea's response to Arbitrator question No. 27(a)(b), para. 88.

¹⁹⁸ Korea's methodology paper, Appendix C.

¹⁹⁹ Korea's methodology paper, Appendix C.

²⁰⁰ Korea's methodology paper, Appendix C.

²⁰¹ Korea's response to Arbitrator question No. 27(a)(b), para. 87.

²⁰² Korea's written submission, para. 46.

²⁰³ Korea's written submission, para. 46.

²⁰⁴ Korea's written submission, para. 46.

²⁰⁵ Arbitrator question No. 24.

²⁰⁶ United States' response to Arbitrator question No. 24, para. 88.

3.3.3.3.2 Formula for calculating the level of nullification or impairment in the perfect substitutes model

3.76. We concur with the United States that the correct formula under the assumption of perfect substitutability, which envisages just two suppliers to the United States' LRW market and an infinite export supply, would be as follows:

$$\text{Level of nullification or impairment (change in imports)} = \text{Percentage change price} \times \text{Price elasticity of demand} \times \text{Value of demand for washing machines in the United States} \\ - \text{Percentage change price} \times \text{Price elasticity of supply} \times \text{Value of domestic supply}^{207}$$

3.77. We observe that this formula is also documented in academic literature.²⁰⁸ By definition, the demand elasticity measures the responsiveness of demand to the change in price and the supply elasticity measures the responsiveness of supply to the change in price. Hence, to determine the change in demand for LRWs that arises from a change in duty, the demand elasticity must be multiplied with the demand for LRWs and the change in price. Similarly, to determine the change in the supply of LRWs in the United States arising from a change in duty, the supply elasticity must be multiplied with the supply of LRWs and the change in price. The sum of these two changes in demand and supply is equivalent to the change in imports.

3.78. In contrast, Korea's proposed formula calculates the change in imports resulting from the removal of the WTO-inconsistent duty by multiplying the sum of the demand elasticity and supply elasticity with imports of LRWs and the change in price. Korea's approach is not supported by academic literature or practice in applying the perfect substitutes model.

3.3.3.3.3 Sensitivity of the model calculations to the values of the elasticities

3.79. The parties tested the sensitivity of the models with respect to values of the elasticities.²⁰⁹ This testing involved changing the value of a given elasticity (or elasticities) used in the model by a small amount to see how much the model's calculation of the level of nullification or impairment would change as a result. Such testing is useful when evaluating an economic model as one is never certain about the values of the elasticities used therein. Given this possible imprecision in the values of the elasticities, one would favour an economic model that does not generate large differences in calculation results to small changes in assumption about the value of an elasticity, all things being the same. Thus, a model in which the calculated level of nullification or impairment varies far less would be considered more robust and therefore better than the other model.

3.80. Korea showed that the level of nullification or impairment of the Armington model can fluctuate by 60% depending on the value of the elasticity of substitution used, within the range of 3 to 5.²¹⁰ The United States, for its part, showed changes in the calculated level of nullification or impairment ranging from 16.5% to 19.9% in the perfect substitutes model.²¹¹ We note that, using the yardstick of robustness, neither the perfect substitutes nor the Armington model appears to do very well, although the Armington model seems to show greater sensitivity in calculation results.

3.3.3.3.4 Economic models used in previous WTO arbitrations

3.81. We next turn to the use of economic models in previous WTO arbitrations. Korea asserts that a partial equilibrium model was employed in *US – Upland Cotton (Article 22.6 – US II)*²¹², *US – Tuna II (Mexico)*, and *US – COOL*, and that the United States proposed the same model in *India –*

²⁰⁷ United States' response to Arbitrator question No. 28(b), para. 109.

²⁰⁸ See United States' response to Arbitrator question No. 28(a), para. 102, referring to Linda Calvin and Barry Krisoff, "Technical Barriers to Trade: A Case Study of Phytosanitary Barriers and U.S.-Japanese Apple Trade", *Journal of Agricultural and Resource Economics*, 23(2):351-366 (1998), (Exhibit USA-18).

²⁰⁹ See Korea's response to Arbitrator question No. 78; and United States' comments on Korea's response to Arbitrator question No. 78.

²¹⁰ Korea's response to Arbitrator question No. 78(b), para. 77.

²¹¹ United States' comments on Korea's response to Arbitrator question No. 78(a), para. 67.

²¹² Korea's methodology paper, fn 22; Korea's written submission, fn 51.

Agricultural Products.²¹³ Korea also notes that the Armington model has not been employed in previous arbitrations.²¹⁴

3.82. While it is a fact that the Armington model has not yet been employed in an Article 22.6 arbitration, we observe that the choice of the model was driven by the circumstances of each case. Arbitrators in previous disputes chose and adapted models to accommodate the characteristics of the market or product(s) at issue and the nature of the WTO-inconsistent measure. For example, as noted by Korea, in the *US – Upland Cotton (Article 22.6 – US II)* case, the arbitrator used a partial equilibrium model.²¹⁵ However, in *US – Tuna II (Mexico)*, the arbitrator employed a model which reflected the assumption that the relevant product was differentiated into canned yellowfin tuna and canned generic tuna, and that consumers were willing to pay a price premium for canned yellowfin tuna.²¹⁶ Similarly, in *US – COOL*, the arbitrators employed a multi-market econometric model, in which different segments of the livestock market were distinguished (i.e. feeder cattle, fed cattle, feeder pigs, and fed hogs) and in which the parameters used to calculate the level of nullification or impairment had to be estimated.²¹⁷ Accordingly, we disagree with Korea's assertion that the same partial equilibrium perfect substitutes model it proposes in this proceeding was also used in *US – Tuna II (Mexico)* and *US – COOL*. In the current Arbitration, if the evidence before the Arbitrator suggests that LRWs are imperfectly substitutable products, then the Arbitrator must choose an economic model that best reflects these product and market characteristics.

3.83. Finally, we fail to see how the model proposed by the United States in another Article 22.6 arbitration, in and of itself, is relevant to the Arbitrator's selection of the appropriate model in the current proceeding.²¹⁸ We also disagree with Korea's related argument that because, to date, no Article 22.6 arbitrator has applied the Armington model, this model is not applicable in the current dispute.

3.3.3.3.5 Evidence on the elasticity of substitution

3.84. The final issue before us is the evidence the parties provided on the elasticity of substitution, which can be defined in the circumstances of this case as the percentage change in the ratio of demand for Korean LRWs and United States' LRWs given a one percentage change in the ratio of those products' prices. This metric reflects how easily consumers would switch from a Korean LRW to a United States' LRW (or vice versa) when price changes. The substitutability between United States' and Korean LRWs – and hence the size of the elasticity of substitution – has an important bearing on the calculated level of the nullification or impairment. This is because, for a given level of tariff, the more United States' and Korean LRWs are substitutable, the larger the adverse impact on Korean exports becomes, and, hence, the higher the level nullification or impairment to Korea.

3.85. Perfect substitutes model could be considered one end of a continuum (in which the elasticity of substitution approaches infinity and the products are perfect substitutes) and zero substitutability (in which the elasticity of substitution is zero and there is no substitution between the products) at the other end – with most goods falling in between (elasticity of substitution between 0 and infinity).

3.86. The United States proposed a value of 4 for the elasticity of substitution. It based this estimate on a USITC study concerning a global safeguard investigation of LRWs, which found that the elasticity of substitution was likely to be in the range of 3 to 5.²¹⁹ The United States selected the median of this range, 4, for the value of the elasticity of substitution.

²¹³ India – Measures Concerning the Importation of Certain Agricultural Products: Recourse to Article 22.6 of the DSU by India (DS430) – Methodology Paper of the United States of America, (Exhibit KOR-29).

²¹⁴ Korea's written submission, para. 55.

²¹⁵ Korea's methodology paper, para. 28, referring to Decision by the arbitrator in *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.2, and 4.124-4.130.

²¹⁶ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 6.6-6.12.

²¹⁷ Decision by the Arbitrator, *US – COOL (Article 22.6 – United States)*, para. 5.62.

²¹⁸ We also observe that the decision of the arbitrator in *India – Agricultural Products (Article 22.6 – India)* had not been circulated at the time this Decision was drafted.

²¹⁹ United States' written submission, para. 110, referring to Large Residential Washers, Investigation No. TA-201-076 (Safeguard), USITC Publication 4745 (December 2017), (Exhibit KOR-25).

3.87. The Arbitrator asked the United States whether it had econometric evidence to underpin this value of 4.²²⁰ The United States clarified that the estimates in the USITC report were not based on any econometric estimates but on responses by purchasers, producers, and importers to questionnaires concerning the LRW market, as well as arguments made by interested parties.²²¹ The Arbitrator also noted the previous academic work by Broda and Weinstein (2006) that estimated elasticities of substitution for a wide range of United States' products and inquired how the United States' proposed value of the substitution elasticity compared with estimates from Broda and Weinstein.²²² The United States explained that its proposed value of the elasticity of substitution was from a very recent USITC study and for the specific product at issue.²²³ In contrast, the estimates available from this academic work were several decades old and covered a product category broader than the specific product at issue. Thus, "it is preferable, and more reasonable", in the United States' view, to use the value from the USITC report.²²⁴

3.88. The Arbitrator compared the value of the elasticity of substitution from Broda and Weinstein to the value proposed by the United States. The estimate for subheading 8450.20.0090 from this academic study was 1.63, which is lower than the United States' proposed value of 4 and would suggest even more limited substitutability than that claimed by the United States. If this estimate from the literature were used in an Armington model instead of the value of 4, all other things being held constant, the resulting level of nullification or impairment would be lower than the United States' calculation.

3.89. For its part, as Korea maintains that its partial equilibrium model is appropriate, it did not provide an estimate of the elasticity of substitution.²²⁵ Notwithstanding Korea's objection to the use of the Armington model, the Arbitrator requested Korea to provide the Arbitrator with alternative estimates of the elasticity of substitution for LRWs.²²⁶ In its reply, Korea informed the Arbitrator that "[t]his information is not readily available, nor is Korea aware of any agency or institution that conducts this type of analysis"; rather, "to obtain this information, Korea must likely seek assistance from an economic consulting agency".²²⁷ At the same time, in its comments to Korea's answers to the same question, the United States identified a recent academic study that provided estimates for the substitution elasticity of LRWs ranging from 2.2 to 4.3.²²⁸ The United States argues that these estimates of the substitution elasticity are lower than, or within the range of, the substitution elasticity of 4 initially proposed.²²⁹

3.90. As we have noted before, the perfect substitutes model is a special case of the Armington model, with an elasticity of substitution that approaches infinity. Any evidence that Korea could provide to show that the elasticity of substitution of LRWs is a very large number or, at least, is significantly greater than 4 would speak in favour of the perfect substitutes model. As we observed above, one could defend the use of a perfect substitutes modelling framework if Korea could have provided evidence to support its claim of a sufficiently high level of substitutability between Korean and United States' LRWs since a simulation cannot account for all external factors. However, Korea has been unable to cite any studies or provide any other evidence to support such a finding.

3.91. Instead, the Arbitrator finds that the United States has provided various sources of information on the elasticity of substitution that support a value of 4. For this reason, we determine that the weight of the evidence provided by the parties on the elasticity of substitution supports the United States' claim that the Arbitrator should use the Armington model for LRWs in this proceeding.

²²⁰ Arbitrator question No. 39.

²²¹ United States' response to Arbitrator question No. 39, para. 129.

²²² See Arbitrator question No. 39. The previous academic work that the Arbitrator referred to was C. Broda, and D. Weinstein, "Globalization and the Gains from Variety", *The Quarterly Journal of Economics*, 2006, 121, pp. 541-585.

²²³ United States' response to Arbitrator question No. 39, para. 131.

²²⁴ United States' response to Arbitrator question No. 39, para. 131.

²²⁵ Korea's written submission, para. 73.

²²⁶ Arbitrator question No. 78.

²²⁷ Korea's response to Arbitrator question No. 78(a), para. 74.

²²⁸ United States comments on Korea's response to Arbitrator question No. 78(a), para. 68. The recent study is A. Soderbery, "Estimating Import Supply and Demand Elasticities: Analysis and Implications", *Journal of International Economics*, 96(1), May 2015: pp. 1-17.

²²⁹ United States comments on Korea's response to Arbitrator question No. 78(a), para. 68.

3.3.3.4 Arbitrator's conclusion on the economic model

3.92. Our analysis of the aforementioned issues leads us to conclude that the Armington model is more appropriate in this Arbitration for the following reasons.

3.93. First, Korea has not demonstrated that LRWs are homogenous products. Further, the fact that LRWs are branded products recognized worldwide and that the United States' market for LRWs is dominated by a handful of companies weighs in favour of the use of an Armington model, rather than a perfect substitutes model. Consumers are likely to have brand loyalty and may not be willing to switch to a competitor unless there is a sufficiently large reduction in the price charged by that competitor. If products were perfect substitutes, consumers would only be loyal to the lowest-priced product and would switch immediately to a competing product offered at a better price. Second, Korea's formula in the perfect substitutes model is incorrectly specified and would not result in the calculation of the correct level of nullification or impairment. Third, the fact that the Armington model has not been employed thus far in Article 22.6 proceedings does not preclude its use in the current Arbitration if, as is the case here, the evidence before the Arbitrator suggests that LRWs are imperfectly substitutable products. Finally, the empirical evidence provided by the United States points to an elasticity of substitution of 4 – and not a larger value – further confirming the appropriateness of the Armington model. Korea did not provide any evidence to show that the elasticity of substitution of LRWs is significantly greater than 4.

3.94. In sum, we agree with the United States and conclude that the Armington model is the most appropriate choice to calculate the level of nullification or impairment in this Arbitration. The following set of equilibrium equations defines the Armington model:

$$E = \kappa P^{1+\varepsilon} \quad (1)$$

$$P = \left(\sum_{i=1}^J \omega_i^{-\sigma} (p_i (1+t))^{1-\sigma} \right)^{\frac{1}{1-\sigma}} \quad (2)$$

$$m_i = \omega_i^{-\sigma} (p_i (1+t))^{-\sigma} P^{\sigma-1} E \quad (3)$$

$$x_i = \lambda_i p_i^{\eta} \quad (4)$$

$$m_i = x_i \quad (5)$$

3.95. Equation (1) represents total demand in the importing country with E expenditures and P the price index. P is defined in equation (2) as a weighted sum over the prices from the different sources. Equation (3) is the import demand equation, with m_i the quantity imported, p_i the export price and t the ad-valorem duty rate. Equation (4) is the export supply equation and equation (5) is market equilibrium, with export supply equal to import demand. ε is the demand elasticity in the domestic market, η is the export supply elasticity, and σ is the substitution elasticity between goods from different sources.

3.3.4 Values of the parameters and data to be used in the model

3.3.4.1 Introduction

3.96. In this section, we will discuss the inputs required for the Armington model and the data sources appropriate to derive the values of these inputs. We note that the Armington model requires information about the size of the LRW market in the United States and the value of LRW imports from Korea, as well as demand, supply and substitution elasticities of LRWs to calculate the level of nullification or impairment.

3.3.4.2 Demand elasticity

3.97. Both Korea and the United States have proposed the value of -0.55 for the demand elasticity for LRWs in the United States' market. Korea refers to a report published by the USITC in the 2017 Large Residential Washers from China Investigation, as its source for this estimate, as does the United States; the -0.55 figure is the mid-point or average of the range of -0.3 to -0.8 reported in that USITC determination.²³⁰ The United States cites the same report and similarly takes the mid-point of the estimated range.²³¹

3.98. In light of the foregoing, we agree with the parties that a value of -0.55 for demand elasticity is appropriate.

3.3.4.3 Supply elasticity

3.99. In addition to the demand elasticity, the Armington model requires information on the magnitude of the supply elasticity. Korea uses an estimate of 7 for the supply elasticity for LRWs, which is the median of the range of 6 to 8 found in the January 2017 USITC Large Residential Washers from China Investigation.²³² The United States argues for a supply elasticity of 6, the median of the range of 4 to 8, which comes from the December 2017 report published at the conclusion of the USITC's global safeguard investigation of LRWs.²³³

3.100. Both parties have relied on the reports of USITC trade remedy investigations of LRW imports for their proposed values of the supply elasticity. However, the United States relies on a more recent report of the USITC for its proposed value of 6 for the supply elasticity.²³⁴ Thus, as this estimate relies on more recent information collected by the USITC, we find the value proposed by the United States more appropriate and, therefore, will use it in our determination of the level of nullification or impairment.

3.3.4.4 Elasticity of substitution

3.101. In section 3.3.3.3.5, we examined the evidence provided by the parties on the value of the elasticity of substitution. We note that while Korea did not provide any estimate, the United States provided various sources of information on the elasticity of substitution that support a value of 4. We will therefore employ the value of 4 for the elasticity of substitution in the Armington model for calculating the level of nullification or impairment.

3.3.4.5 Size of the LRW market

3.102. The parties agree that the data provided by the AHAM²³⁵ could be used to estimate the size of the LRW market, but disagree on how to break down the market into LRW and non-LRW segments.²³⁶ Korea claims that the AHAM data on the United States' "clothes washers" industry as a whole represents the size of the LRW market.²³⁷ Based on this information, Korea claims the size of the LRW market to be USD 4.648 billion in 2017.²³⁸ The United States argues that "clothes washers" may capture more than "LRWs", therefore it would be necessary to adjust the AHAM data so that it is a better estimate of the size of the LRW market.²³⁹ The United States proposes that a

²³⁰ Korea's methodology paper, para. 36, referring to Large Residential Washers from China, Investigation No. 731-TA-1306 (Final), USITC Publication 4666 (January 2017), (Exhibit KOR-18).

²³¹ United States' written submission, para. 111.

²³² Korea's methodology paper, para. 36.

²³³ United States' written submission, para. 108; and Large Residential Washers, Investigation No. TA-201-076 (Safeguard), USITC Publication 4745 (December 2017), (Exhibit KOR-25).

²³⁴ United States' written submission, para. 108.

²³⁵ AHAM describes itself as "the leading voice for the home appliance industry" which "helps manufacturers bring efficient, high-performing home appliances into the homes of consumers in the United States, Canada and around the world." Among its members are LG Electronics, Samsung Electronics America, Inc. and Whirlpool Corporation. See Association of Home Appliance Manufacturers, <<https://www.aham.org/AHAM/AuxAboutAHAM>> and <<https://www.aham.org/AHAM/AuxCurrentMembers>>, accessed on 15 October 2018.

²³⁶ Korea's methodology paper, para. 17; and United States' written submission, para. 102.

²³⁷ Korea's methodology paper, paras. 17, 37, and 46.

²³⁸ Korea's methodology paper, paras. 17, 37, and 46.

²³⁹ United States' written submission, para. 102.

lower estimate, such as 70% or 60% of the AHAM total "clothes washers" market value, should be used for the size of the LRW market to ensure that the level of suspension does not exceed the level of nullification or impairment.²⁴⁰

3.103. To assist the Arbitrator in determining the size of the LRW market, the parties agreed to submit a joint request to AHAM for a breakdown of the "clothes washers" market into the LRW and non-LRW segments. The United States subsequently reported to the Arbitrator that AHAM had stated that it did not have the data with the breakdowns specified by the United States and Korea, i.e. the definition of LRWs for the purposes of the United States' anti-dumping and countervailing duty measures.²⁴¹

3.104. The Arbitrator asked the parties what criteria could be used to adjust the AHAM data to reflect only the value of the LRW market.²⁴² Korea responded that "[t]he portion of imports that are subject to the anti-dumping and countervailing duties among total imports of washing machines can be used as a proxy to adjust AHAM data to reflect the size of the LRW market".²⁴³ Specifically, Korea proposed to adjust the AHAM data by "using the 10-digit HTS subheadings that were subject to the anti-dumping and countervailing duties as identified in Exhibit USA-21".²⁴⁴ Using this criterion and applying it to data from 2011 to 2017, Korea calculates the size of the LRW segment to be 96% of the total washing machines market as reflected in the AHAM data.²⁴⁵ The United States proposed as a criterion the share of United States' imports of LRWs out of the total value of all United States' imports of washing machines. Based on this criterion, the United States estimates that relevant LRWs account for no more than 80% of the total value of the washing machines market as reported by AHAM.²⁴⁶

3.105. We find the criterion proposed by the United States more convincing. First, the United States' proposed criterion is more comprehensive as it takes imports of LRWs and washing machines from all countries into account, while Korea's criterion only takes imports from Korea into account. Second, and in our view more importantly, the United States' proposed criterion is more suitable to the question at hand, as it calculates the share of imports of LRWs out of total value of washing machines imports. At best, Korea's proposed criterion suggests that a large portion of Korea's washing machine exports to the United States are LRWs, but the criterion offers little or no useful information about other foreign exporters of washing machines to the United States, let alone the entire washing machine market in the United States. Thus, we shall use the criterion proposed by the United States to adjust the AHAM data, and we determine the size of the LRW market to be USD 3,718.4 million (which is 80% of the total value of the washing machines market as reported by AHAM).

3.3.4.6 Amount of LRW imports

3.106. There are three main differences in how the parties calculate the amount of LRW imports from Korea based on the Harmonized Tariff Schedule (HTS) subheadings in the "Scope of the Investigation" section of the LRW final determination.²⁴⁷ These differences relate to (i) the identification of LRWs at the 6-digit or 10-digit HTS²⁴⁸ subheading; (ii) whether certain tariff subheadings, under which products subject to the anti-dumping and countervailing duty measures may also enter, are to be included; and (iii) Korea's claim that, for the purpose of calculating the level of nullification or impairment, one should apply Korea's share of United States' LRW imports in 2011, the year before the WTO-inconsistent duties were adopted, to the total amount of United States' imports of LRWs in 2017.

²⁴⁰ United States' written submission, para. 102.

²⁴¹ United States' response to Arbitrator question No. 87.

²⁴² Arbitrator question No. 81.

²⁴³ Korea's response to Arbitrator question No. 81, para. 83.

²⁴⁴ Korea's response to Arbitrator question No. 81, para. 83.

²⁴⁵ See Arbitrator question No. 81.

²⁴⁶ United States' comments on Korea's response to question No. 81, para. 79.

²⁴⁷ Notice of Final Determination of Sales at Less Than Fair Value: Large Residential Washers from the Republic of Korea, 77 Fed. Reg. 75988 (Dec. 26, 2012), (Exhibit KOR-5), p. 75989.

²⁴⁸ The Harmonized System (HS) classifies goods by six-digit codes. The United States classifies imports on the basis of a 10-digit classification system, the Harmonized Tariff Schedule (HTS). Notably, an HTS code shares the same beginning six digits as an HS code. As the United States' investigating authorities' final determinations contain inputs to calculate the level of suspension, we will refer to HTS codes.

3.107. With respect to the first issue, Korea calculates the value of United States' imports of LRWs from Korea in 2017 by first determining the total value of United States' imports of LRWs from all sources at the HTS 6-digit subheading.²⁴⁹ The United States uses data at the HTS 10-digit subheading (i.e. subheading 8450.20.0090 for 2011-2014 and subheadings 8450.20.0040 and 8450.20.0080 for 2015-2017) instead of the 6-digit subheading.²⁵⁰ Korea notes that the difference between using the 6-digit and 10-digit subheadings is not significant, amounting to only a 2.1% difference in the volume of imports in 2017. Thus, Korea would not oppose reverting to the 10-digit subheading, should the Arbitrator seek to use 10-digit subheadings to determine import volume.²⁵¹ Hence, we shall use 10-digit, rather than 6-digit, subheadings.

3.108. With respect to the second issue, Korea and the United States disagree on whether to include the HTS subheadings 8450.11.0040, 8450.11.0080, 8450.90.2000, and 8450.90.6000. While the United States acknowledges that products subject to the United States' anti-dumping and countervailing duty measures may enter under these subheadings, they primarily cover products outside the scope of the measures at issue in the underlying dispute.²⁵² In particular, the United States claims that HTS subheadings 8450.11.0040 and 8450.11.0080 generally cover "Machines, each of a dry linen capacity not exceeding 10 kg" and are smaller residential washing machines, which would be outside the scope of the measures.²⁵³ The United States further notes that HTS subheadings 8450.90.2000 and 8450.90.6000 generally cover "Parts: Tubs and tub assemblies" and "Other".²⁵⁴ The United States submits that the scope of its anti-dumping and countervailing duty measures includes "certain subassemblies used in large residential washers," not all "parts" are included in the scope.²⁵⁵ While the United States acknowledges that "it is possible that some LRWs or subassemblies subject to the measures may be entered into the United States under these subheadings", the United States considers that "it would not be appropriate to include the entire value of goods entered under these subheadings in the value of U.S. imports of LRWs."²⁵⁶

3.109. Korea notes that the USDOC's determination identified subheadings 8450.11.0040, 8450.11.0080, and 8450.90 as possible subheadings under which LRWs can enter.²⁵⁷ Korea argues that it is not unreasonable to include these subheadings in the calculation of import value since excluding these subheadings would understate the amount of LRW imports.²⁵⁸

3.110. Given that the United States' authorities are responsible for applying anti-dumping and countervailing duties, and for collecting data on the value of imports, the Arbitrator requested the United States to provide data on the value of imports from Korea with respect to the tariff lines on which anti-dumping duties were collected each year from 2011 to 2017.²⁵⁹ This would allow the Arbitrator to determine what the appropriate tariff subheadings should be for the purpose of calculating the amount of LRW imports. The United States provided the requested data to the Arbitrator in Exhibit USA-21.²⁶⁰ This data, collected by the United States Customs and Border Protection (USCBP), is on a fiscal year basis, from 1 October of the previous year to 30 September of the current year.²⁶¹ The document shows that, during fiscal years 2011 to 2017, anti-dumping and countervailing duties were collected by United States authorities from Korean companies (LG and Samsung) on the following tariff subheadings: 8450110040, 8450110080, 8450200040, 8450200080, 8450200090, 8450902000 and 8450906000.

²⁴⁹ See Korea's methodology paper, Appendix D and USITC Dataweb Annual Customs Value Query Screenshot, (Exhibit KOR-8).

²⁵⁰ United States' written submission, para. 80.

²⁵¹ Korea's written submission, para. 61.

²⁵² United States' written submission, para. 83.

²⁵³ United States' written submission, para. 84.

²⁵⁴ United States' written submission, para. 86.

²⁵⁵ United States' written submission, para. 86.

²⁵⁶ United States' written submission, para. 86.

²⁵⁷ Korea's written submission, para. 62.

²⁵⁸ Korea's written submission, para. 62.

²⁵⁹ See Arbitrator question No. 33.

²⁶⁰ The United States submitted the data as business confidential information, as the data include company-specific import statistics. See United States' response to Arbitrator question No. 33, para. 116, referring to U.S. Customs and Border Protection Data on the Value of Imports from Korea that Were Subject to the U.S. Antidumping and Countervailing Duty Measures on LRWs from Korea for Each Year from 2011 to 2017, as Requested by the Arbitrator, (Exhibit USA-21) (BCI).

²⁶¹ For example, fiscal year 2011 corresponds to the period from 1 October 2010 to 30 September 2011.

3.111. On the basis of this document, the Arbitrator finds that these seven tariff subheadings are the appropriate subheadings to determine the amount of United States' imports of LRWs from Korea.

3.112. The Arbitrator notes that the data in Exhibit USA-21 is on a fiscal year basis while the reference period is based on a calendar year. Thus, the Arbitrator cannot use this data for calculating the level of nullification or impairment. Instead, the Arbitrator will obtain quarterly trade data on these tariff subheadings from USITC Dataweb and then construct an estimate of LRW imports for the corresponding calendar year. Furthermore, mindful of the United States' comment that it would not be appropriate to include the entire value of goods entered under these subheadings to determine the value of United States' imports of LRWs, the Arbitrator shall apply a correction factor to the import data from USITC Dataweb. For each tariff subheading, the correction factor is calculated by taking the ratio of LRW imports reflected in Exhibit USA-21 to the value of imports obtained from USITC Dataweb. The detailed calculations are described in Annex C-1.

3.113. The Arbitrator further notes that the import data provided by Korea and the United States do not reflect the CIF (cost, insurance and freight) value.²⁶² The data from USITC Dataweb used by the parties reflect "General Imports" (General Customs Value)²⁶³ rather than "General CIF Imports Value".²⁶⁴ To calculate the level of nullification or impairment, it is necessary to take the CIF value of imports as the price faced by consumers of imported LRWs includes not only the anti-dumping and countervailing duties but also the cost of landing these products in the United States.

3.114. The third, and only remaining, issue is whether to use Korea's 2011 or 2017 import share to determine the value of LRW imports from Korea in 2017 to calculate the level of nullification or impairment. As discussed above, we recall that the appropriate reference period to determine nullification or impairment is, as Korea agrees, the year in which the RPT ended. For this reason, the United States proposes to use the actual LRW imports from Korea in calendar year 2017.²⁶⁵ However, Korea proposes to use as a starting point its share of United States imports of LRWs in 2011 as this figure reflects trade that is "untainted" by the WTO-inconsistent measures.²⁶⁶

3.115. The Arbitrator agrees with Korea that the calculation should take into account "the impact of the WTO-inconsistent measure on the market that has led to the market taking on characteristics as they exist at the end of the RPT".²⁶⁷ The imposition of higher duties or more trade-restrictive measures, or the maintenance of these measures for a prolonged period of time, is likely to cause trade to fall more severely. Using this diminished level of trade in the calculation may lead to a severely reduced estimate of the level of nullification or impairment. It would appear to be counterintuitive that Members imposing higher duties or more trade restrictive measures would be subject to a lower level of suspension of concessions. Further, in the circumstances of this proceeding, relying exclusively on data at the end of the RPT could lead to the perverse effect that the longer an inconsistent measure affects the trade of a Member, the lower the resulting calculated level of suspension of concessions would be. For this reason, the Arbitrator rejects the United States' proposal to use the actual LRW imports from Korea in calendar year 2017.

²⁶² CIF means the value of the goods imported, and includes the costs of freight and insurance up to the port or place of entry into the country of importation. The valuation shall be made in accordance with Article VII of GATT 1994 and the Agreement on the Implementation of Article VII of GATT 1994 as contained in Annex 1A to the WTO Agreement. For more information, see World Customs Organization, <<http://www.wcoomd.org/en/Topics/Origin/Instrument%20and%20Tools/Comparative%20Study%20on%20Preferential%20Rules%20of%20Origin/Specific%20Topics/Study%20Topics/DEF>>, accessed 18 October 2018.

²⁶³ General customs value is the value of general imports as appraised by the U.S. Customs Service. This value is the price actually paid or payable for merchandise when sold for exportation, excluding U.S. import duties, freight, insurance, and other charges incurred. The value of General Imports measures the total physical arrivals of merchandise from foreign countries, whether such merchandise enters consumption channels immediately or is entered into bonded warehouses or Foreign Trade Zones under Customs custody. See United States International Trade Commission Dataweb, <<https://dataweb.usitc.gov/scripts/prepro.asp>>, accessed 30 October 2018.

²⁶⁴ The general CIF value represents the landed value of the merchandise. It is computed by adding "Import Charges" to the "Customs Value" and excludes U.S. import duties. United States International Trade Commission Dataweb, <<https://dataweb.usitc.gov/scripts/prepro.asp>>, accessed 30 October 2018.

²⁶⁵ United States' written submission, paras. 88 and 89. See also Correct U.S. Import Value of LRWs, Queried by the United States Using USITC DataWeb, by Country and by HTS Code, (Exhibit USA-9).

²⁶⁶ Korea's response to Arbitrator question No. 30, para. 100.

²⁶⁷ Korea's response to Arbitrator question No. 6, para. 36.

3.116. However, the Arbitrator does not accept Korea's proposed use of the 2011 import share for the calculation of the level of nullification or impairment. This is because Korea's proposed use of the 2011 import share as an input into a model that simulates the trade flow response to a change in tariff gives rise to a double counting problem. This improperly inflates the calculated level of nullification or impairment. In its methodology paper, Korea projected the 2011 import share onto the level of total United States imports of LRWs in 2017, assuming that Korea's 2011 share would have remained constant, were it not for the WTO-inconsistent anti-dumping and countervailing measures. Korea argues that its proposed adjustment follows the arbitrator's approach in *EC – Hormones (US) (Article 22.6 – EC)*.²⁶⁸ There is, however, a crucial difference in the approach followed in that arbitration with what Korea is proposing in the current proceeding. In *EC – Hormones (US)*, the projected level of imports served as the arbitrator's calculation of the counterfactual level of imports by the European Communities. In the current Arbitration, Korea proposes to use its projected value of what its imports would have been in 2017 absent the WTO-inconsistent measures, as a further input into an economic model that would then calculate how LRW imports from Korea would increase if the WTO-inconsistent measures were removed. As the United States has argued, such an approach leads to a double counting of the level of nullification or impairment.²⁶⁹

3.117. In light of the foregoing, we have developed a third alternative approach, which is described in the next section.

3.4 The Arbitrator's own determination of the level of nullification or impairment

3.118. Following our discussion above, we shall calculate the level of nullification or impairment using the Armington model, with an elasticity of substitution of 4. For the other parameters of the model, we will use a demand elasticity of -0.55 and a supply elasticity of 6. The size of the LRW market in 2017 is estimated to be 80% of the figure provided by AHAM for that year, which comes to USD 3,718.4 million. We recall that the counterfactual rates of the anti-dumping and countervailing duties are [[***]] and 0%, respectively.²⁷⁰ As explained in the previous section, the Arbitrator declines to use both the actual level of LRW imports from Korea in 2017 as proposed by the United States, and Korea's proposal to construct a market share for 2017 based on Korea's 2011 import share. Instead, the Arbitrator will calculate a trade figure for 2017 that accounts for the depressing effect of the WTO-inconsistent duties applied in 2012 on Korea's share of the United States' LRW market.

3.119. The Arbitrator, thus, proceeds along the following lines. First, the Arbitrator uses the Armington model to calculate what LRW imports from Korea and the market share of Korea in the United States' LRW market would have been when the WTO-inconsistent anti-dumping and countervailing rates of, respectively, 11.86% and 0.58% were applied in 2012. The Arbitrator uses this adjusted market share, which reflects the effect of the WTO-inconsistent duties, and applies it to the total United States' market of LRWs in 2017. The second and final step involves applying the Armington model to determine the level of imports of Korean LRWs if duties were reduced to the counterfactual rates of [[***]] for the anti-dumping duty and 0% for the countervailing duty, both of which correspond to the counterfactual scenario determined by the Arbitrator.

3.120. Applying this procedure to the WTO-inconsistent anti-dumping duties, we obtain the following results:

- i. In the first step, the calculation shows that United States' imports of Korean LRWs fall from USD [[***]] million in 2011 to USD [[***]] million in 2012 as a result of the WTO-inconsistent anti-dumping duties. Correcting the share of Korean LRWs in the United States' LRW market results in a decrease in market share from [[***]] in 2011 to [[***]] in 2012. Projecting this 2012 market share to the 2017 market share gives an estimated amount of imports of Korean LRWs of USD [[***]].
- ii. In the second step, the model calculation shows that imports of Korean LRWs rise by USD 74.40 million, from USD [[***]] million to USD [[***]] million at the end of the

²⁶⁸ Korea's written submission, para. 66.

²⁶⁹ United States' comments on Korea's response to Arbitrator question No. 63, para. 28.

²⁷⁰ See paras. 3.32 and 3.41 above.

RPT, assuming that the United States has come into compliance with the rulings and recommendations of the DSB, as in the counterfactual scenario.

3.121. Turning now to the case of the WTO-inconsistent countervailing duties, and applying the same procedure, we obtain the following results:

- i. In the first step, the calculation shows that United States' imports of Korean LRWs fall from USD [***] million in 2011 to USD [***] million in 2012 as a result of the WTO-inconsistent countervailing duties. Correcting the share of Korean LRWs in the United States' LRW market results in a decrease in market share from [***] in 2011 to [***] in 2012. Projecting this 2012 market share to 2017 market share gives an estimated amount of imports of Korean LRWs of USD [***] million.
- ii. In the second step, the model calculation shows that imports of Korean LRWs rise by USD 10.41 million, from USD [***] million to USD [***] million at the end of the RPT, assuming that the United States had come into compliance with the rulings and recommendations of the DSB as in the counterfactual scenario.

3.122. On the basis of the Arbitrator's findings on the appropriate economic model to use for LRWs, reference period, counterfactual anti-dumping and countervailing duties, values of the elasticities and other relevant economic variables, the Arbitrator determines that the level of nullification or impairment caused by the WTO-inconsistent anti-dumping and countervailing duty measures at the end of the RPT amounts to USD 74.40 million and USD 10.41 million, respectively. The calculations are set out in Annex C-1.

3.5 Korea's request to adjust the level of suspension annually

3.5.1 Introduction

3.123. Korea requests the inclusion of a "growth rate" to adjust the level of suspension annually. According to Korea, the level of nullification or impairment it suffers will "increase in proportion to the growth in the U.S. washing machines market."²⁷¹ For this purpose, Korea initially proposed that the Arbitrator use a fixed growth rate of 5.8%²⁷² but, in response to questions, clarified that it "does not object to the use of the actual growth rate to calculate the level of future suspension".²⁷³ The United States opposes any inclusion of a "growth rate", because imports of LRWs from Korea to the United States are expected to decline "irrespective of the growth rate of the U.S. washing machines market".²⁷⁴ In response to a question by the Arbitrator, the United States contends that a growth rate, if at all relevant to the determination of the level of nullification or impairment, would need to be based on actual growth projections rather than an average of prior years' growth rates.²⁷⁵ According to the United States, however, "an approach to the application of a variable level of nullification or impairment that takes into account actual updated data" and is calculated annually by applying the Armington model "would be far more accurate than the approach proposed by Korea".²⁷⁶ Both parties acknowledge that the level of nullification or impairment may be adjusted in the future. However, the parties do not agree on a mechanism to adjust the level of suspension.

3.124. Our task in this Arbitration is to determine a level of suspension that is "equivalent" to the level of nullification or impairment sustained by Korea. Yet, as the arbitrator in *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)* observed, "the requirement of Article 22.4 is simply that the

²⁷¹ Korea's methodology paper, para. 6.

²⁷² Korea's methodology paper, paras. 25 and 46. Korea used the statistics published by AHAM as a measure of the total market size of LRWs in the United States. The AHAM statistics for the years 2011 to 2017 suggest that the market has been growing by 5.8% on average, although growth in any given year has varied between 0.4% and 14.3%.

²⁷³ Korea's response to Arbitrator question Nos. 42 and 44, paras. 114 and 116-117.

²⁷⁴ United States' written submission, paras. 116 and 121.

²⁷⁵ United States' written submission, para. 120.

²⁷⁶ United States' response to Arbitrator question Nos. 43, 44 and 45, paras. 137, 139, and 144.

two levels be equivalent" and, as long as the two levels are equivalent, it is possible to adjust these levels "provided such adjustments are justified and unpredictability is not increased as a result".²⁷⁷

3.125. With these criteria in mind, we turn to examine whether the circumstances of the present Arbitration justify the inclusion of a growth rate to adjust the future level of suspension, as proposed by Korea, or whether annually re-running the economic model with updated data, as suggested by the United States, is appropriate.

3.126. We note, first, that there is no exact precedent for the adjustment of the future level of suspension based on a growth rate, as Korea proposes. Korea cites to the decisions by the arbitrators in *US – Gambling* and *EC – Bananas III (Ecuador) (Article 22.6 – EC)* as precedential support for its proposal to incorporate a growth rate.²⁷⁸ Neither case, however, applied a growth rate in the manner Korea suggests in this Arbitration. The growth rate, in *US – Gambling* and *EC – Bananas III (Ecuador)*, accounted for anticipated market size or volume of exports, respectively, to calculate, in both arbitrations, a single fixed level of nullification or impairment.²⁷⁹ In contrast, in this Arbitration, the level of nullification or impairment as of the end of the RPT is known and serves as the baseline for which future adjustment is being requested by Korea.

3.127. We also recall that, as explained by the arbitrator in *US – 1916 Act (EC)*, "it is necessary to rely only on credible, verifiable information, and not on speculation" in calculating the level of nullification or impairment.²⁸⁰ In our view, Korea has not demonstrated whether or how growth in the United States' LRW market can be used as a proxy for Korea's share of imports in this market. Rather, the evidence submitted by Korea demonstrates that Korea is not the only exporter of LRWs to the United States.²⁸¹ We see no basis to infer whether growth in the United States' LRW market necessarily predicts growth in Korea's share in this market and, relatedly, whether market growth would be in proportion to the level of imports from Korea.²⁸²

3.128. Moreover, the evidence submitted by Korea does not support its proposal to incorporate a fixed growth rate of 5.8% for the adjustment of nullification or impairment for each year thereafter. Based on the evidence on record, it is neither clear nor verifiable whether using the AHAM data (if made available) to derive a fixed growth rate of the United States' LRW market would, in fact, predict growth of Korea's export share in the United States LRW market. A fixed growth rate assumes that the state of the United States' LRW market will remain constant; however, the evidence provided by Korea demonstrates that the growth rate of the United States' LRW market has varied each year during 2011-2017.²⁸³ In this regard, we observe that it would be equally unavailing to account for growth with "actual updated data", since it is not certain whether such data for the United States' LRW market would be publicly available each year (be it from AHAM or another source), and whether this actual growth rate would be an appropriate predictor for, or is in proportion to, Korea's share of imports in the United States' LRW market.

3.129. Based on the foregoing, we find that the circumstances in the present Arbitration do not merit the inclusion of a growth rate, whether fixed or actual, in the United States' LRW market in the calculation of nullification or impairment.

3.130. We now turn to the United States' proposal according to which a "variable level of suspension" would be possible if the Arbitrator employed the United States' proposed economic

²⁷⁷ Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 4.20. That arbitrator also observed that maintaining equivalency between the level of suspension and the level of nullification or impairment serves to ensure that the "cost of the violation" remains that same and, thus, that the "incentive to comply" does not decrease. *Ibid.*, para. 4.25. Similarly, in *US – 1916 Act (EC)*, the arbitrator awarded a variable level of suspension, since the monetary value of judgments or settlement agreements under the 1916 Act, which constituted nullification or impairment suffered by the EC, could vary each year. Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 5.58-5.63.

²⁷⁸ Korea's response to Arbitrator question No. 40, paras. 109-110.

²⁷⁹ See Decisions by the Arbitrators, *US – Gambling (Article 22.6 – US)*, paras. 3.186-3.189; *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, paras. 169 and 173.

²⁸⁰ Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.63.

²⁸¹ See Notice of Preliminary Determination of Sales at Less Than Fair Value and Postponement of Final Determination: Large Residential Washers From the Republic of Korea, 77 Fed. Reg. 46391 (Aug. 3, 2012), (Exhibit KOR-9). See also Korea's methodology paper, Appendix 4.

²⁸² Korea's methodology paper, para. 6.

²⁸³ AHAM Data Summary (2011-2017), (Exhibit KOR-7).

model and applied it each year with updated data.²⁸⁴ While we have largely accepted the United States' model, re-running the model each year with updated data may have the effect that the longer a Member delays implementation, the lower the level of nullification or impairment, and the lower the value of suspension. This would diminish the incentive for the United States to implement, therefore, not inducing compliance.²⁸⁵ On this basis, we do not agree with the United States' proposal for the adjustment of the level of suspension.

3.131. In light of the foregoing, we find that neither party's approach provides for an appropriate mechanism to adjust the level of suspension in this Arbitration.

3.132. In our view, one way to ensure that the real value of the level of suspension is maintained over time is by adjusting for inflation. When asked by the Arbitrator about its views on adjustment using the inflation rate, Korea stated that it "does not object to the Arbitrator's proposal of using the rate of inflation", and notes that this alternative does not "correlate to the actual growth rate of the industry".²⁸⁶ In contrast, the United States opposed such an approach, submitting that "there is no connection between the size of the LRWs market (or changes in level of imports of LRWs) and the rate of inflation".²⁸⁷

3.133. In our view, adjustment based on inflation is not a mechanism to adjust the size of the LRW market or the level of imports but a means to maintain the real value of the annual level of suspension authorized by the Arbitrator in this case. Moreover, adjustment based on inflation does not increase unpredictability, as maintaining the real monetary value of the amount of suspension is different from updating the level of suspension based on changes in the size of the LRW market in the future, which neither the Arbitrator nor the parties can predict.

3.134. In light of the foregoing, we conclude that the initial level of suspension of concessions authorized to Korea, may be adjusted for inflation on an annual basis.

3.5.2 Annual adjustment of the level of nullification or impairment based on the inflation rate

3.135. Following from our discussion and conclusion above, we turn to determine (i) the price index to be used to calculate the rate of inflation for the purpose of making the annual adjustment of the level of nullification or impairment, and (ii) how to implement this adjustment.

3.136. The price index should be one whose product coverage matches LRWs as closely as possible and which also corresponds to prices received by producers. We note that the United States government agency responsible for measuring price changes in the economy is the Bureau of Labor Statistics. Among other indices, it maintains the producer price index which measures the average change over time of the selling prices domestic producers receive for their output. Based on these data, the Federal Reserve Bank of St Louis²⁸⁸ has developed a subindex of the producer price index for household appliance manufacturing. This subindex includes household laundry equipment and would therefore fit the requirements for a price index measuring prices received by producers and whose product coverage matches as closely as possible LRWs.²⁸⁹

3.137. Thus, for the purpose of making annual adjustments to the level of nullification or impairment, Korea shall use the producer price index for household appliance manufacturing published by the Federal Reserve Bank of St Louis.²⁹⁰ The exact title and ID of this data series are:

²⁸⁴ United States' response to Arbitrator question No. 43, para. 137.

²⁸⁵ Decisions by the Arbitrators, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.3; *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, para. 76; *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, para. 3.105; *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 5.4, 5.7-5.8; *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.74; and *EC – Hormones (US) (Article 22.6 – EC)*, para. 39.

²⁸⁶ Korea's response to Arbitrator question No. 80, para. 82.

²⁸⁷ United States' response to Arbitrator question No. 80, paras. 85-86.

²⁸⁸ The Federal Reserve Bank of St. Louis is a part of the United States Federal Reserve central bank system that is composed of 12 independent regional Reserve banks and the Board of Governors in Washington, D.C.

²⁸⁹ Federal Reserve Bank of St Louis, <<https://fred.stlouisfed.org/series/PCU33523352>>, accessed 15 October 2018.

²⁹⁰ The Federal Reserve Bank of St Louis maintains one of the most comprehensive online economic databases known as "FRED" for Federal Reserve Economic Data.

"Producer Price Index by Industry: Household Appliance Manufacturing" and "PCU33523352", respectively.²⁹¹

3.138. The Arbitrator finds that the level of nullification or impairment suffered by Korea because of the United States' WTO-inconsistent measures in a particular year can be determined by a formula based on the level of nullification or impairment at the end of the RPT, as noted above, plus the changes in the inflation rate for the relevant year:

$$\text{NOI}_{t+1} = \text{NOI}_t * (1 + \text{inflation}_t), \quad \text{where } t = 1, 2, \dots$$

$$\text{NOI}_1 = \begin{cases} \text{USD 74.40 million for the WTO-inconsistent anti-dumping duties; and} \\ \text{USD 10.41 million for the WTO-inconsistent countervailing duties} \end{cases}$$

3.139. Here the variable NOI_{t+1} refers to the level of nullification or impairment in year $t + 1$; NOI_t is the level of nullification or impairment in year t , the previous year; inflation_t is the rate of inflation in calendar year t as measured by the producer price index for household appliance manufacturing. The time period "1" refers to the first year that the suspension of concessions would be applied and must be equal to USD 74.40 million for the WTO-inconsistent anti-dumping duty measures and USD 10.41 million for the WTO-inconsistent countervailing duty measures, which are the levels of nullification or impairment at the end of the RPT calculated by the Arbitrator.

3.140. Korea shall be entitled to impose suspension of concessions or other obligations in the amount of USD 74.40 million for the WTO-inconsistent anti-dumping duty measures and USD 10.41 million for the WTO-inconsistent countervailing duty measures during the first year following the date of DSB authorization ("t=1"). In subsequent years following the date of DSB authorization, and if the United States has not fully complied with the DSB recommendations and rulings, Korea shall be entitled to increase the value of its level of suspension by a percentage corresponding to the United States' price inflation rate from the preceding calendar year. This is to be calculated by comparing the value of the index in December of year t with its value in December of the previous year.²⁹²

3.141. The following example illustrates how to implement this adjustment. Assume that Korea obtains DSB authorization to impose suspension of concessions or other obligations on the United States at a level of (i) USD 74.40 million for the WTO-inconsistent anti-dumping duty measures and (ii) USD 10.41 million for the WTO-inconsistent countervailing duty measures, beginning in August 2019. Korea may, therefore, impose this level of suspension of concessions or other obligations from August 2019 until July 2020. For the subsequent period, from August 2020 to July 2021, Korea may increase the level of suspension by a percentage corresponding to the change in the producer price index for household appliance manufacturing during the preceding calendar year (i.e. 2019). This is to be calculated by comparing the value of the index in December 2019 with its value in December 2018.²⁹³ For the purpose of making this calculation, the latest version of this index published as of July 2020 shall be used. If the index changed by 5% in calendar year 2019, then Korea may impose a level of suspension of concessions or other obligations equivalent to (i) USD 78.12 million for the WTO-inconsistent anti-dumping duty measures and (ii) USD 10.93 million for the WTO-inconsistent countervailing duty measures, 5% more than the amount authorized in 2019.

3.142. Accordingly, the level of suspension of concessions by Korea to the United States must not exceed, in US dollars, the amount resulting from the yearly application of this formula.

²⁹¹ Federal Reserve Bank of St Louis, <<https://fred.stlouisfed.org/series/PCU33523352>>, accessed 15 October 2018.

²⁹² The rate of inflation in calendar year t is to be calculated as follows: (Value of the producer price index for household appliance manufacturing in December of year t - Value of the producer price index for household appliance manufacturing in December of year $t-1$) / Value of the producer price index for household appliance manufacturing in December of year $t-1$.

²⁹³ The rate of inflation in calendar 2018 is to be calculated as follows: (Value of the producer price index for household appliance manufacturing in December 2019 - Value of the producer price index for household appliance manufacturing in December 2018) / Value of the producer price index for household appliance manufacturing in December 2018.

3.6 Conclusion

3.143. The Arbitrator determines that the level of nullification or impairment caused by the measures at issue on Korea at the end of the RPT is (i) USD 74.40 million for the WTO-inconsistent anti-dumping duty measures and (ii) USD 10.41 million for the WTO-inconsistent countervailing duty measures.

3.144. In the years following the date of DSB authorization, Korea shall be entitled to increase the value of its level of suspension by a percentage corresponding to the United States' rate of price inflation from the preceding calendar year.

4 KOREA'S REQUEST PERTAINING TO NON-LRWs ("AS SUCH" FINDINGS)

4.1 Introduction

4.1. We now address Korea's request pertaining to the suspension of concessions or other obligations for products from Korea other than LRWs (non-LRWs). Korea has requested authorization for a formula, to annually estimate the level of suspension of concessions with respect to the DSB's "as such" recommendations and rulings.²⁹⁴

4.2. Korea considers that the United States' failure to implement the rulings and recommendations adopted by the DSB encompasses "all Korean imports that are subject to U.S. anti-dumping proceedings in which the comparison methodologies found to be 'as such' inconsistent with the [Anti-Dumping Agreement] continue to be used"²⁹⁵, and, consequently, has requested authorization to suspend concessions based on an annual level of nullification or impairment caused by the United States' application, in future administrative reviews and investigations, of the differential-pricing methodology (DPM) and use of zeroing in the W-T comparison methodology on non-LRWs, subsequent to the expiration of the RPT.²⁹⁶ To suspend concessions and related obligations, Korea proposes to use a formula – the same applied to estimate the level of nullification or impairment for LRWs – albeit the precise data inputs remain undefined.²⁹⁷

4.3. We examine Korea's request by first determining the appropriate counterfactual and time-frame that form the basis of the calculation of the level of nullification or impairment, before turning to the calculation itself.

4.2 The appropriate counterfactual and time-frame for Korea's request pertaining to non-LRWs

4.2.1 Counterfactual

4.2.1.1 The parties' positions

4.4. Korea proposes a counterfactual whereby the United States "ceased to use" the WTO-inconsistent "as such" measures in future anti-dumping proceedings.²⁹⁸ While the United States originally did not propose a counterfactual for the "as such" measures²⁹⁹, during the substantive meeting, and in its responses to questions thereafter, it concurred with Korea that the appropriate counterfactual would be a scenario in which the United States "ceased to use DPM and zeroing when applying the W-T comparison methodology".³⁰⁰

²⁹⁴ Korea's methodology paper, paras. 49-51.

²⁹⁵ Korea's methodology paper, para. 7.

²⁹⁶ Korea's methodology paper, para. 49.

²⁹⁷ Korea's methodology paper, paras. 49 and 93.

²⁹⁸ Korea's methodology paper, para. 23.

²⁹⁹ In its written submission, the United States argued that Korea's proposed suspension for non-LRWs "is contrary to the DSU." United States' written submission, para. 130. The United States further declined to provide "additional views ... concerning what would be the correct manner to assess the level of nullification or impairment for the 'as such' inconsistent measures at issue in this dispute." United States' response to Arbitrator question No. 51(b), para. 161.

³⁰⁰ See United States' opening statement, para. 19; and United States' response to Arbitrator question No. 66(b), paras. 49-50.

4.5. However, the parties' views differ on the meaning of "ceased to use". According to Korea, this would amount to "removal" of the inconsistent measures, after the expiry of the RPT.³⁰¹ Therefore, if the USDOC were to use "DPM and zeroing when applying the W-T comparison methodology in a proceeding", Korea notes that this "would invalidate the dumping margins calculated in that proceeding, regardless of whether the USDOC applies the WTO-consistent methodology to one or more of the examined companies."³⁰² The United States, by contrast, considers it "reasonable and plausible to assume that the USDOC would apply the 'normal[]' W-W comparison methodology".³⁰³ Hence, the parties disagree, in fact, on the appropriate counterfactual. Their positions are the same as for the counterfactual applicable to calculate the level of nullification or impairment for LRWs, as are their supporting arguments and counterarguments. We therefore refer to our discussion in section 3.2 above.

4.6. The parties raise additional issues, specific to the "as such" measures, which we address in the following sections. We will follow the same order of analysis as we undertook to evaluate an appropriate counterfactual with respect to LRWs. We will first examine Korea's proposed counterfactual of "removal", and, if we find that this proposed counterfactual by Korea is not appropriate, we will then determine an alternative.

4.2.1.2 Assessment of Korea's proposed counterfactual

4.7. We first evaluate whether Korea's counterfactual accurately reflects the level of nullification or impairment of benefits accruing to Korea. As discussed above, we must identify those benefits by reference to the DSB's recommendations and rulings.³⁰⁴

4.8. In this regard, the Appellate Body determined that the DPM was "as such" inconsistent with Article 2.4.2 of the Anti-Dumping Agreement³⁰⁵ and the application of the W-T comparison methodology with zeroing was "as such" inconsistent with Articles 2.4 and 2.4.2, for reasons similar with respect to the "as applied" findings. Accordingly, we recall our analysis of the benefits accruing to Korea in the counterfactual section pertaining to LRWs, in paragraph 3.30, and the reasoning developed, above, related to Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement. There, we stated that Korea would expect the USDOC to appropriately identify and address targeted dumping in a WTO-consistent manner. In "taking account of all relevant circumstances"³⁰⁶, we consider that Korea's expectation of benefits accruing under Article 2.4.2 of the Anti-Dumping Agreement would be the same for the DPM³⁰⁷, which is the analytical framework for deciding whether the application of the exceptional W-T comparison methodology is valid, and with regard to the future application of the W-T comparison methodology.³⁰⁸

4.9. We do not agree that a counterfactual of removal of an entire anti-dumping order, in each instance of the application of DPM, would accurately reflect the scope of benefits that accrue to Korea under Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement. We refer to our reasoning above in section 3.2.2, which applies equally here, but respond to arguments raised by the parties with respect to the "as such" measures.

4.10. First, we note that Korea considers that the very use of the DPM, irrespective of whether the USDOC ultimately applies the W-T or W-W comparison methodology for the determination of a dumping margin, would result in an "as such" violation and entitle Korea to suspend concessions.³⁰⁹ The United States counters that the calculation of a W-W margin does not become WTO-inconsistent

³⁰¹ Korea's methodology paper, para. 23.

³⁰² Korea's response to Arbitrator question No. 58, para. 22.

³⁰³ United States' response to Arbitrator question No. 69, para. 58.

³⁰⁴ See section 3.2 above.

³⁰⁵ The Appellate Body confirmed the panel's conclusions that the DPM was "as such" inconsistent with Articles 2.4 and 2.4.2 for taking into account non-pattern transactions and failing to consider whether the T-T methodology could account for relevant price differences. Appellate Body Report, *US – Washing Machines*, paras. 6.2, 6.4-6.6.

³⁰⁶ Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, fn 43. See para. 3.16 above.

³⁰⁷ The Appellate Body concluded that the use of the W-T methodology was "as such" inconsistent with Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement for essentially the same reasons as its application ("as applied") in the underlying investigation and connected proceedings on LRWs. Appellate Body Report, *US – Washing Machines*, paras. 6.9-6.10.

³⁰⁸ Panel Report, *US – Washing Machines*, para. 7.101.

³⁰⁹ Korea's response to Arbitrator question No. 73, paras. 56-57.

by virtue of the USDOC's use of the DPM, since the ultimate result – the W-W margin – would be the same.³¹⁰ We agree with the United States that a W-W margin, calculated under the first sentence of Article 2.4.2 of the Anti-Dumping Agreement, would not constitute nullification or impairment of benefits, for which Korea would be entitled to seek suspension. We recall, in that regard, that the Appellate Body found the DPM to be "as such" inconsistent with Article 2.4.2 of the Anti-Dumping Agreement to the extent that it results in the application of the W-T comparison methodology to non-pattern transactions, because the DPM fails to explain why the W-W or T-T comparison methodology could not also appropriately account for relevant price differences, and because the use of the W-T comparison methodology included zeroing.³¹¹ The operation of the DPM, in and of itself, does not render the W-W margin WTO-inconsistent; rather, the W-W margin is a *comparator*, applied in the last step of the DPM framework.³¹² Only following an affirmative determination that the W-W comparison methodology cannot appropriately account for the observed pattern of significant price differences does the DPM trigger the application of the W-T comparison methodology. At that point, the operation of the DPM results in nullification or impairment of benefits. Hence, the nullification or impairment arising from the use of DPM does not relate to the W-W margin. Korea cannot legitimately expect, in these circumstances, that a W-W margin, by mere operation of the DPM, would be invalid and would entitle Korea to retaliate with respect to an anti-dumping duty rate established on that basis.³¹³

4.11. Second, Korea, considering that a W-W margin is also inconsistent, further argues that any dumping margin is not valid, since "the use of the WTO-inconsistent method means that the United States has not met the conditions to permit application of anti-dumping duties".³¹⁴ Consequently, the anti-dumping duty in "any instance where the United States applies the DPM and zeroing should be 0.00 percent."³¹⁵ In the United States' view, it is not reasonable or plausible to assume termination of the anti-dumping measure, in general, or an anti-dumping duty rate of 0.00%.³¹⁶ Further, according to the United States, "modelling a tariff reduction to zero for all margins of dumping" would "overstate the level of nullification or impairment by including margins that are not inconsistent with the recommendations adopted by the DSB".³¹⁷ We agree with the United States that the removal of an entire anti-dumping order as a counterfactual scenario, wherein all W-W or W-T dumping margins are reduced to zero, is not reasonable. An anti-dumping order may include margins of dumping assigned to Korean producers, calculated using the W-W, W-T, or, even, the T-T comparison methodologies. Modelling a tariff reduction to zero for the "all others rate" would also imply reduction of all constituent rates to zero, which may overstate the level of nullification or impairment.³¹⁸

4.12. Moreover, as with the LRWs anti-dumping determination, it is possible for a margin to be calculated on the basis of "adverse facts available." Korea states that it "intends to exclude from the calculation ... margins calculated based on total adverse facts available rates"³¹⁹, but at the same time maintains that the counterfactual should be termination of the entire order, whether or not the USDOC applies the inconsistent DPM framework and W-T comparison methodology to one or more companies.³²⁰ We find these statements difficult to reconcile with each other. This, in our view, further points to the implausibility of Korea's counterfactual.

4.13. For the foregoing reasons, we conclude that Korea's counterfactual of "ceased to use the DPM and zeroing in the calculation of W-T margins", to the extent that it is premised on termination of an entire anti-dumping order, is not an accurate reflection of benefits accruing to Korea under Articles 2.4 and 2.4.2 of the Anti-Dumping Agreement and cannot be considered a reasonable or plausible counterfactual for the "as such" measures.

³¹⁰ United States' comments on Korea's response to Arbitrator question No. 71(a), para. 45.

³¹¹ Appellate Body Report, *US – Washing Machines*, paras. 6.2 and 6.4-6.6.

³¹² The W-W margin is compared with the W-T margin to ultimately decide whether or not to apply a W-T margin. See Appellate Body Report, *US – Washing Machines*, para. 5.12.

³¹³ However, should Korea consider that a W-W margin, in a future anti-dumping determination, is inconsistent with the Anti-Dumping Agreement, it could have recourse to dispute settlement proceedings.

³¹⁴ Korea's response to Arbitrator question No. 71(a), para. 52.

³¹⁵ Korea's response to Arbitrator question No. 71(a), para. 52.

³¹⁶ United States' comments on Korea's response to Arbitrator question No. 71(a), para. 43.

³¹⁷ United States' comments on Korea's response to Arbitrator question No. 58, para. 18.

³¹⁸ See United States' comments on Korea's response to Arbitrator question No. 58, para. 18.

³¹⁹ Korea's response to Arbitrator question No. 58, para. 22.

³²⁰ Korea's response to Arbitrator question No. 58, para. 21.

4.2.1.3 Alternative counterfactual

4.14. Since Korea's proposed counterfactual does not reflect the nature and scope of benefits that are nullified or impaired due to the "as such" measures, we must establish the appropriate counterfactual with respect to non-LRWs. One alternative we consider is the United States' proposal of applying a duty in the amount of the W-W margin, which we assess in terms of plausibility or reasonableness. If we do not consider the United States' counterfactual to reflect those considerations, then our mandate directs us to determine a counterfactual ourselves.

4.15. Specifically, the United States considers that "a margin of dumping determined using the W-W comparison methodology, without zeroing, could be used here for the purpose of the hypothetical counterfactual".³²¹ According to the United States, using the W-W comparison methodology would "be presumed consistent with the [Anti-Dumping] Agreement."³²² Korea disagrees and argues that accepting the United States' counterfactual would require the Arbitrator to either "examine how the United States calculated the margin based on the first sentence of Article 2.4.2" or to "simply accept that the U.S. calculations would be correct and WTO-consistent".³²³

4.16. We do not consider it necessary to decide whether, in each future instance of application, a W-W margin would be WTO-consistent³²⁴ – doing so would surpass our mandate, which directs us, at this point, to assess whether the United States' proposal is reasonable or plausible.

4.17. However, as noted above, we consider it plausible and reasonable for the United States to calculate some dumping margin, should it find injurious dumping, and, further, that the United States would resort to a "normal[]" comparison methodology under the first sentence of Article 2.4.2 of the Anti-Dumping Agreement in situations where it would have otherwise applied the DPM and ultimately applied the W-T comparison methodology.³²⁵ This counterfactual reflects the approach we have taken with respect to LRWs.

4.18. Yet, it is not reasonable, in our view, to go so far as to assume that the "normal[]" rate, in all future anti-dumping determinations, would necessarily be calculated using the W-W, as opposed to the T-T, comparison methodology under the first sentence of Article 2.4.2 of the Anti-Dumping Agreement, and, moreover, that such a rate will always be available to Korea to calculate the level of suspension.

4.19. Importantly, we do not believe that a key parameter for determining the level of suspension should necessarily be left to the party subject to that suspension. By this, we note, first, that there is nothing in the Anti-Dumping Agreement or under United States' law³²⁶ that would mandate public disclosure of W-W margins calculated as part of the DPM analysis in future anti-dumping proceedings. We observe, in this regard, that the United States indicates that such a W-W rate only "may exist on the USDOC's administrative record",³²⁷ even though, in undertaking the DPM, the USDOC must calculate a margin of dumping using the W-W comparison methodology.³²⁸ Taking the

³²¹ United States' response to Arbitrator question No. 71(b), para. 74. (emphasis omitted)

³²² United States' response to Arbitrator question No. 66(b), para. 50.

³²³ Korea's comments on the United States' response to Arbitrator question No. 69, para. 43. See also Korea's comments on the United States' response to Arbitrator question No. 71(b), para. 50.

³²⁴ Korea's position appears contradictory insofar as it argues, on the one hand, that a counterfactual must be WTO-consistent, while, on the other hand, the Arbitrator is precluded from examining the WTO-consistency of that counterfactual. This argument suggests that only withdrawal of the measure is possible. See Korea's comments on the United States' response to Arbitrator question No. 71(b), paras. 49-52. However, we disagree with this view. See fn 81 above.

³²⁵ See section 3.2.2.2 above.

³²⁶ The United States explained, in response to a question on the public availability of certain information related to an anti-dumping investigations and determinations, that "the governing statutes do not specify in greater detail" that USDOC and USITC are required to notify the petitioner and parties to the investigation and describe the facts and conclusions on which the determination is based. In addition, the United States noted that company specific business confidential information "cannot be disclosed in the determinations". United States' response to Arbitrator question No. 89, paras. 109-113.

³²⁷ United States' response to Arbitrator question No. 71(a), para. 70.

³²⁸ In response to a question by the Arbitrator, the United States observed that the "USDOC always calculates a margin of dumping using the W-W comparison methodology, either because the USDOC does not find a pattern of price differences to support consideration of an alternative to the W-W comparison methodology, or because, upon finding a pattern of price differences that supports consideration of an alternative to the W-W comparison methodology, the USDOC examines whether using only the W-W

LRWs anti-dumping investigation as an example, the USDOC did not publicly disclose the W-W dumping margins; rather, the United States submitted the confidential calculation and decision memoranda, containing the margins calculated for LG and Samsung, as exhibits in this proceeding. Korea confirmed that, while its exporters received such disclosure material, it did not.³²⁹ Consequently, it cannot be ensured that W-W margins will be available to Korea in all future investigations for purposes of calculating the level of nullification or impairment.³³⁰ This means that Korea may lack the information required to calculate the level of suspension on the basis of a W-W margin, if it is not disclosed – and, for that reason, we cannot select, as a counterfactual, a situation in which one of the essential inputs to calculate the level of suspension is potentially unavailable to the requesting Member. Doing so might leave Korea without recourse to suspension and the United States without incentive to bring its measures into compliance.

4.20. Second, a counterfactual based on W-W margins would be grounded on the assumption that the United States would maintain the same practice, by, *inter alia*, continuing to compare the results of the W-W and W-T comparison methodologies. However, as the United States itself indicated, the DPM is not mandatory³³¹, and the USDOC could, at any point in the future, change its practice. This creates further uncertainty that a W-W margin would be an alternative for Korea to use as a basis for suspending concessions, in all applicable future anti-dumping orders.

4.21. For these reasons, we conclude that a calculation of the level of nullification or impairment premised on the application of a duty rate calculated by using the W-W comparison methodology would not be practicable, given the particular circumstances related to the "as such", as opposed to the "as applied", measures.³³² There is necessarily no information on the record as to the dumping margins that would be obtained for a number of unidentified future products based upon a W-W comparison methodology to be performed by the USDOC at some future date. Consequently, in a calculation of nullification or impairment, we consider it reasonable to use the value of zero to take the place of a W-T margin, ultimately assigned through the WTO-inconsistent DPM.

4.22. To be clear, a zero anti-dumping duty rate is a proxy figure for what would have been a dumping margin calculated consistently with Article 2.4, as well as Article 2.4.2, of the Anti-Dumping Agreement. In the absence of information, we cannot speculate on what the exact anti-dumping duty rate, between zero and the inconsistent rate based on a W-T margin, would be. Importantly, setting the WTO-inconsistent rate to zero, for the purpose of the calculation, does not transform this

comparison methodology can appropriately account for price differences identified in the first stage of a differential pricing analysis (i.e., application of the Cohen's d test and the ratio test)." United States' response to Arbitrator question No. 68, para. 55; Korea's response to Arbitrator question Nos. 66(b), 70, and 73, paras. 48-49, and 57.

³²⁹ Korea's response to Arbitrator question No. 70(a), paras. 49-51.

³³⁰ It might be expected that Korean exporters, subject to an anti-dumping duty calculated on the basis of the WTO-inconsistent methodologies, would normally be incentivized to share with Korea the memoranda and other administrative records containing the W-W rate. However, it would be speculative to assume that Korea will always receive such information. In our view, a Member should not be obliged to rely exclusively on private actors disclosing potentially confidential information to calculate the level of suspension of concessions or other obligations pursuant to the DSU. See United States' comments on Korea's response to Arbitrator question No. 58, para. 19. For example, in *US – 1916 Act (EC)*, the arbitrator noted that European Communities entities had entered into settlement agreements, but neither the European Communities nor the United States were able to obtain the text of settlement agreements, since the companies involved refused to disclose them. The arbitrator found that only "to the extent that the European Communities can obtain credible information about existing settlement agreements – in other words, to the extent that it can obtain disclosure of such settlement agreements – it can include in any calculation of the level of nullification or impairment the amounts payable by EC entities in settlements under the 1916 Act". Thereby, the arbitrator declined to rely on the actions of private actors to supply information that formed the basis of suspension. Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, paras. 6.8-6.12.

³³¹ See United States' response to Arbitrator question No. 66(a), para. 48.

³³² We also recall that should the United States decide to apply a W-W rate instead of a WTO-inconsistent W-T rate in future anti-dumping orders, nothing in the Anti-Dumping Agreement would prevent it from doing so. Indeed, the United States acknowledges that it would be "possible" for the USDOC to apply the W-W comparison methodology with respect to LG's and Samsung's margins, following a Section 129 proceeding. United States' response to Arbitrator question No. 67, para. 54. As a consequence, there would be no need for retaliation. The United States would, thereby, "control the levers to make the actual level of suspension of concessions or other obligations go down". Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 4.24. See also Korea's response to Arbitrator question No. 49(c), para. 139.

counterfactual scenario into one of termination of an anti-dumping order.³³³ Rather, any future investigation or administrative review in which the USDOC invokes the DPM and ultimately applies the inconsistent W-T comparison methodology, reflected in a final determination or review result, would give rise to retaliation only with respect to duties based on the W-T margins, since margins calculated under "adverse facts available", W-W or T-T comparison methodologies do not nullify or impair benefits accruing to Korea.

4.23. Based on the foregoing analysis, and taking into account the specific circumstances of this case, we shall use the value of zero, as a proxy figure, to take the place of anti-dumping duty rates based on W-T margins in future anti-dumping orders on non-LRWs.³³⁴

4.2.2 The appropriate time-frame

4.24. Past arbitrations have normally used the year following the end of the RPT, as a time-frame for their calculation of nullification or impairment. In the current Arbitration, for the reasons explained above in section 3.2.4, the time-frame for the calculation of nullification or impairment for LRWs is based on 2017, i.e. the year preceding the end of the RPT. However, neither approach is appropriate for Korea's request with respect to non-LRWs.

4.25. Korea seeks to suspend concessions with respect to any not-yet-identified product (i.e. non-LRW) subject to the WTO-inconsistent "as such" measures in years subsequent to the end of the RPT. The prospective nature of Korea's request makes it impossible to determine *ex ante* a single time-frame for non-LRWs potentially subject to WTO-inconsistent measures in the future. The year in which the RPT ended, i.e. 2017, cannot necessarily be used to calculate the level of nullification or impairment for all such products. An appropriate time-frame must be related to the time at which a WTO-inconsistent measure would be applied in the future. In recognition of the specific circumstances of this case, we shall address the issue of the appropriate time-frame in further detail in section 4.4 below, when dealing with the calculation of the level of nullification or impairment.

4.3 Korea's proposed formula to assess the level of nullification or impairment

4.3.1 Introduction

4.26. Korea has requested authorization for a formula, to annually estimate the level of suspension of concessions with respect to the DSB's "as such" recommendations.³³⁵ Korea clarified that it considers that "[t]he right to suspend concessions based on non-LRW products arises upon the issuance of the USDOC's final determination, when the parties can confirm whether the USDOC used the WTO-inconsistent method to calculate the dumping margins."³³⁶

4.27. We agree with Korea that it may retaliate only in respect of "final determinations", issued after the expiry of the RPT. We note that such "final determinations" could be related to new investigations or to administrative reviews (where they are referred to as "final results").

4.28. We now turn to the examination and assessment of Korea's proposed formula. If we cannot accept Korea's proposal, we will determine the approach we consider compatible.

4.3.2 Description of Korea's proposed formula

4.29. As noted above, Korea has requested authorization to suspend concessions for non-LRW products based on a formula and proposes to use the same formula as that submitted for LRWs to calculate the level of nullification or impairment.³³⁷

³³³ Korea equates a zero anti-dumping margin with termination of the entire anti-dumping order. See Korea's response to Arbitrator question No. 71(a), para. 52.

³³⁴ In this regard, Korea's right to suspend concessions would arise on the issuance of the USDOC's final determination. See Korea's response to Arbitrator question No. 73, para. 56.

³³⁵ Korea's methodology paper, paras. 49-51.

³³⁶ Korea's response to Arbitrator question No. 73, para. 56.

³³⁷ Korea's methodology paper, paras. 49-51. Korea's proposed formula may be found in para. 3.55.

4.30. To apply this formula, Korea proposes to use the following data-sources to obtain individual data for each non-LRW at issue.³³⁸ Korea intends to employ data from USITC Dataweb for each HTS code included in the "Scope of the Investigation"³³⁹ section of a final determination to determine a product's import share from Korea and, in turn, the entire import value.³⁴⁰ Korea elaborates that if the product scope does not coincide with the HS 10-digit classification used in the USITC Dataweb, Korea would request Korean companies subject to anti-dumping duties to identify the specific HS tariff lines of the imports facing anti-dumping duties.³⁴¹ According to Korea, the change in price as a result of the United States' non-compliance will be equal to the anti-dumping duty rate calculated on the basis of WTO-inconsistent DPM and the use of zeroing.³⁴² Korea proposes to obtain the demand and supply elasticities from USITC reports that are part of the anti-dumping investigations. If the demand and supply elasticities are not available in public sources, such as publications made during anti-dumping investigations, Korea states that it would request information from international economic consulting companies.³⁴³ Korea also provides an illustrative list of products that would potentially be subject to the application of its proposed calculations.³⁴⁴

4.3.3 The United States' arguments regarding Korea's proposed formula

4.31. The United States agrees that, as a general matter, neither the DSU nor subsequent arbitrator decisions preclude the possibility that the Arbitrator might base the level of suspension of concessions on a formula.³⁴⁵ Yet, the United States contends that the Arbitrator should reject Korea's request because of the methodological and data problems associated with Korea's formula.³⁴⁶

4.32. First, the United States observes that Korea's formula assumes that the world is composed of two countries only and that export supply and import demand are entirely determined by the domestic conditions in the respondent's and the complainant's markets.³⁴⁷ To illustrate, the United States cites Appendix B of Korea's Methodology Paper, where, it notes, "all but three of the antidumping proceedings identified [in the Appendix] involve imports ... from countries other than Korea" but an examination of those three "reveals that, for those three products as well, Korea is not the only source of imports."³⁴⁸ Consequently, "Korea and the United States are not the only two countries that produce and sell in the U.S. market the products other than LRWs that are identified in Appendix B of Korea's Methodology Paper."³⁴⁹

4.33. Second, the United States notes that Korea's formula assumes perfect substitutability between Korean products and products from the United States and, implicitly, no substitution at all between Korean and non-Korean imports.³⁵⁰ The United States contends that all the USITC reports identified in Korea's methodology paper recommend substitution elasticities for each of the products examined.³⁵¹ Hence, according to the United States, Korea's assumption of perfect substitutability is incorrect.³⁵²

4.34. Third, the United States argues that it would not be appropriate to determine the level of nullification or impairment using its proposed Armington-based partial equilibrium model.³⁵³ This is because "[t]he data input issues ... would be compounded in the application of such an economic

³³⁸ Korea's methodology paper, paras. 26-27 and 50-51.

³³⁹ We observe that the "Scope of the Investigation" is a common heading in USDOC final determinations, which lists the HTS codes that are subject to that proceeding. See, e.g. Notice of Final Determination of Sales at Less Than Fair Value: Large Residential Washers from the Republic of Korea, 77 Fed. Reg. 75988 (Dec. 26, 2012), (Exhibit KOR-5).

³⁴⁰ Korea's methodology paper, para. 51.

³⁴¹ Korea's response to Arbitrator question No. 90(a), paras. 109-110.

³⁴² Korea's methodology paper, para. 51.

³⁴³ Korea's response to Arbitrator question No. 90(d), paras. 113-114.

³⁴⁴ Korea's methodology paper, Appendix B.

³⁴⁵ United States' response to Arbitrator question No. 41, para. 133. In support of its argument, the United States refers to Decisions by the Arbitrators in *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, para. 4.20 and *US – 1916 Act (EC) (Article 22.6 – US)*, para. 6.14.

³⁴⁶ United States' written submission, para. 138.

³⁴⁷ United States' written submission, para. 132.

³⁴⁸ United States' written submission, para. 132.

³⁴⁹ United States' written submission, para. 132.

³⁵⁰ United States' written submission, para. 133.

³⁵¹ United States' written submission, para. 133.

³⁵² United States' written submission, para. 133.

³⁵³ United States' written submission, para. 135.

model to so many different products.³⁵⁴ To illustrate this, the United States points to the difficulty in identifying appropriate market share data for the LRW market, identifying the correct tariff lines to compile data on imports, and determining the data to calculate the growth rate.³⁵⁵ In the United States' view, it is likely that there would be similar challenges in collecting data specific to the products other than LRWs that are identified in Appendix B of Korea's methodology paper.³⁵⁶ Furthermore, the United States argues that, whereas its proposed model is appropriate to analyse the market for LRWs, the same cannot be said for not-yet-identified non-LRWs.³⁵⁷ Given that these products are unknown, it cannot be determined whether it is appropriate to use the United States' proposed model to analyse such products.³⁵⁸

4.35. Fourth, the United States identifies an operational problem to calculate the appropriate level of nullification or impairment if the USDOC "were to employ a differential pricing analysis and zeroing to determine the antidumping duty rate for one or more Korean exporters, but, in the same proceeding, the USDOC determined the antidumping duty rate for other Korean exporters without using a differential pricing analysis and without using zeroing."³⁵⁹ In the United States' view, it is not clear what tariff rate reduction should be modelled and what the total value of imports would be.³⁶⁰

4.3.4 Arbitrator's assessment of Korea's proposed formula

4.36. The Arbitrator identifies three problems with the formula proposed by Korea. We address each in turn below.

4.37. First, Korea's proposed formula assumes that all markets in which WTO-inconsistent duties are imposed can be described by a perfect substitutes partial equilibrium model. In our view, however, such assumption is incorrect. We agree with the United States that substitutability of products is a critical factor in the selection of an appropriate economic model.³⁶¹ We believe that the assumption of perfect substitutability is simply not tenable for all markets and non-LRWs coming from different firms and different countries. Moreover, this assumption has a significant effect on the calculated level of nullification or impairment since, under such an assumption, the imposition of a WTO-inconsistent duty is predicted to have a much larger effect on the value of imports and thus on the level of nullification or impairment than under the assumption of imperfect substitutability. This is because, if products are perfectly substitutable, a reduction in the duty rate leads to a higher substitution towards the products facing lower duties. Under the assumption of perfect substitutability, products are considered identical and consumers would switch immediately to the cheaper product.

4.38. Second, to calculate the level of nullification or impairment, the formula Korea proposed requires various inputs which should be appropriately selected to ensure that the level of suspension of concessions is equivalent to the level of nullification or impairment. Hence, Korea would be expected to provide a clearly defined procedure to identify the data sources and to compile those inputs. However, the data sources proposed by Korea to implement its formula are not described in a sufficiently detailed manner making it difficult to assess them. This is so for two crucial inputs, namely the elasticities and Korea's import share. With respect to the former, Korea proposes to use the demand and supply elasticities reported in publications from the United States' anti-dumping investigations or, if not available, to employ estimates from consultancy firms.³⁶² Yet Korea does not provide information about the type of expertise required from a consultancy firm, nor does it indicate how those firms would obtain the necessary data. Korea's import share is calculated based on data from USITC Dataweb for each HS tariff subheading included in the product scope of the anti-dumping investigation.³⁶³ According to Korea, if the product scope does not coincide with the HS classification in USITC Dataweb, Korea would request Korean companies subject to anti-dumping duties to identify

³⁵⁴ United States' written submission, para. 135.

³⁵⁵ United States' written submission, paras. 135-137.

³⁵⁶ United States' written submission, para. 135.

³⁵⁷ United States' response to Arbitrator question No. 91, para. 116.

³⁵⁸ United States' response to Arbitrator question No. 91, para. 116.

³⁵⁹ United States' response to Arbitrator question No. 53, para. 6.

³⁶⁰ United States' response to Arbitrator question No. 53, para. 6.

³⁶¹ United States' response to Arbitrator question No. 91, para. 115.

³⁶² Korea's response to Arbitrator question No. 90(d), paras. 113-114.

³⁶³ Korea's methodology paper, para. 51.

the specific HS tariff lines of the imports facing anti-dumping duties.³⁶⁴ It is not clear how Korea would do so, and we do not consider that such a parameter should be left to the sole determination of the requesting party or vested in Korean companies. These problems indicate that, as argued by the United States³⁶⁵, Korea's formula does not provide for a sufficient level of predictability for any future calculation of nullification or impairment. Furthermore, not all Korean firms investigated in relation to specific products, and thus to specific HS tariff lines, face WTO-inconsistent duties. Therefore, Korea's approach would likely lead to an overestimation of the level of nullification or impairment.

4.39. Finally, Korea's proposed formula does not correctly calculate the change in imports as a result of removing a WTO-inconsistent duty. We recall that Korea proposes the same formula for non-LRWs as for LRWs, based on the perfect substitutes partial equilibrium model. Hence, the formula proposed by Korea for non-LRWs suffers from the same shortcomings as those described in the context of LRWs in section 3.3.3.3 above. In particular, the supply and demand elasticities are applied to (multiplied by) the value of imports to calculate the change in imports as a result of the change in duty (from a WTO-inconsistent to a WTO-consistent level). Rather, according to academic literature, the demand elasticity should have been multiplied by the value of domestic demand and the supply elasticity by the value of domestic supply to calculate the changes, respectively, in domestic demand and domestic supply. The change in imports could then be calculated by comparing the difference between domestic demand and domestic supply under initial and final duty levels.³⁶⁶

4.40. Summing up our view of Korea's proposed formula, we observe, first, that not all products potentially subject to WTO-inconsistent duties can be described by a perfect substitutes model and using such a model in cases where products are not perfect substitutes would lead to an overestimation of the level of nullification or impairment. Second, the procedure to obtain the inputs into the formula is not described in sufficient detail, which makes it difficult to assess its appropriateness, and means that it can potentially become a source of future disagreement between the parties. Finally, even if the product and market concerned could be appropriately described by a perfect substitutes model, the way Korea applies its proposed formula has a number of shortcomings. To us, Korea's formula does not provide for a sufficient level of predictability and can lead to an overestimation of the level of nullification or impairment.

4.41. In light of the foregoing, we have decided to reject Korea's proposed formula. We also observe that the United States has not proposed a formula or any other particular approach to assess nullification or impairment with respect to non-LRWs. We therefore need to make our own determination of the appropriate approach to calculate the level of nullification or impairment with respect to non-LRWs.

4.42. However, before considering an alternative approach, we will address an argument by the United States that pertains to our mandate. The United States acknowledges that previous arbitrators determined the level of nullification or impairment on their own after finding that the level proposed by the requesting party was not equivalent, and contends that such an approach "may make sense where a complaining Member has requested suspension at a particular numerical level".³⁶⁷ For the United States, however, if the Arbitrator concludes that Korea's requested amount of suspension is not equivalent to the level of nullification or impairment "without knowing precisely what the numerical level of nullification or impairment may be", then the Arbitrator "would need to go well beyond what is required under Article 22.6 of the DSU" if it were to determine the level of nullification or impairment on its own.³⁶⁸

4.43. In our view, the United States' position does not find support in the DSU. Unlike the United States, we consider that an arbitrator's mandate under Article 22.6 of the DSU is identical, whether the requesting party seeks authorization to apply a formula to calculate future level of nullification or impairment, or to suspend concessions at a specified numerical level. We recall that, after rejecting the approach proposed by the requesting parties, the arbitrator in *US – Offset Act (Byrd*

³⁶⁴ Korea's response to Arbitrator question No. 90(a), paras. 109-110.

³⁶⁵ United States' written submission, para. 143.

³⁶⁶ See for example Linda Calvin and Barry Krisoff, "Technical Barriers to Trade: A Case Study of Phytosanitary Barriers and U.S.-Japanese Apple Trade," *Journal of Agricultural and Resource Economics*, 23(2):351-366 (1998), (Exhibit USA-18).

³⁶⁷ United States' response to Arbitrator question No. 52, paras. 11-13.

³⁶⁸ United States' comments on Korea's response to Arbitrator question No. 52, para. 13.

Amendment) found that "consistent with past arbitrations, it falls to us to determine the approach we consider compatible"³⁶⁹ and developed its own formula which the requesting parties would use in any future instance of application of the "as such" inconsistent measure. Hence, determining our own approach for assessing the level of nullification or impairment with respect to non-LRWs – should we disagree with Korea's proposed approach – does not amount to "mak[ing] Korea's case for it"³⁷⁰: it is, in fact, our "essential task and responsibility".³⁷¹

4.44. We will therefore proceed with our own determination of the level of nullification or impairment for non-LRWs.

4.4 The Arbitrator's own determination of the level of nullification or impairment for non-LRWs

4.4.1 Introduction

4.45. In the previous section, we decided to reject Korea's formula. At the same time, we consider that a formula – as opposed to the determination of a fixed level – is an appropriate approach to estimate the level of suspension in a situation involving "as such" measures.

4.46. The United States has clarified that it takes issue with the appropriateness of Korea's proposed formula and not with the use of a formula in general to estimate the level of suspension.³⁷² Indeed, the United States agrees, as a general matter, that neither the DSU nor subsequent arbitrator decisions preclude the possibility that the Arbitrator might base the level of suspension of concessions on a formula.³⁷³ Thus, in the absence of any disagreement between the parties, and as previous arbitrators have, in line with the DSU, granted requests for future suspension of concessions based on a method of calculation that resulted in a variable amount³⁷⁴, we will proceed with examining Korea's request to suspend concessions for non-LRWs on the basis of a formula.

4.4.2 Guiding considerations for calculating the level of nullification or impairment for non-LRWs

4.47. Korea's request concerning the suspension of concessions following the United States' failure to implement the "as such" recommendations and rulings raises particular challenges since nullification or impairment will arise as a consequence of possible future events, i.e. the application of anti-dumping duties to non-LRWs based on a methodology found to be WTO-inconsistent. Only three past arbitrations have evaluated a request for suspension for the maintenance of WTO-inconsistent "as such" measures, namely *US – 1916 Act (EC)*, *US – Offset Act (Byrd Amendment) (EC)*, and *US – Upland Cotton (Article 22.6 – US I)*. The nature of the measures and the circumstances of the arbitrations informed those awards.

4.48. Given the difficulty of quantifying the level of nullification or impairment and, consequently, assessing an equivalent level of suspension of concessions for future cases for which we have at

³⁶⁹ See Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.69. In that arbitration, the requesting parties were granted authorization to suspend concessions based on a formula developed by the arbitrator.

³⁷⁰ United States' opening statement, para. 51, referring to Appellate Body Report, *Japan – Agricultural Products II*, para. 129, where the Appellate Body, discussing the investigative authority of a panel under Article 13 of the DSU and Article 11.2 of the SPS Agreement, stated, *inter alia*, that a panel is not entitled "to make the case for a complaining party". In our view, this reference is inapposite because the task of an arbitrator acting pursuant to Article 22.6 of the DSU is different from the task of a panel. As explained by the arbitrator in *EC – Hormones (US) (Article 22.6 – EC)*, "[t]here is a difference between our task here and the task given to a panel. In the event we decide that the [requesting party's] proposal is *not* WTO consistent ..., we should not end our examination the way panels do... In pursuit of the basic DSU objectives of prompt and positive settlement of disputes, we would have to estimate the level of suspension we consider to be equivalent to the impairment suffered". Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 12. (emphasis original)

³⁷¹ Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 12.

³⁷² United States' response to Arbitrator question No. 51(a), paras. 155-156. See also United States' opening statement, para. 47.

³⁷³ United States' response to Arbitrator question No. 41, para. 133. In support of its argument, the United States refers to Decisions by the Arbitrators in *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, para. 4.20, and *US – 1916 Act (EC) (Article 22.6 – US)*, para. 6.14.

³⁷⁴ See above, section 3.5.2.

present little or no information, we have decided to devise a formula that Korea can use if and when the United States applies definitive duties to specific exporters of a given non-LRW, based on margins calculated under a W-T comparison methodology, as found to be inconsistent by the Panel and the Appellate Body in the underlying dispute ("inconsistent anti-dumping duty measures"). In deciding on this approach, we have taken into consideration criteria used by previous arbitrators, as well as the circumstances of the current case, as described below.

4.49. First, the calculation of the level of nullification or impairment should result in a "predictable" level of suspension.³⁷⁵

4.50. Second, the award should be practical to implement and limit the risk of potential controversies between the parties. In this respect, we observe that in *US – 1916 Act (EC)*, *US – Offset Act (Byrd Amendment) (EC)*, and *US – Upland Cotton I*, the arbitrators selected clearly defined approaches, based on sound economic theory, to calculate the level of suspension.

4.51. Third, the data used to calculate the level of nullification or impairment should rely, as much as possible, on factual and verifiable information³⁷⁶ that is available to both parties.

4.52. Fourth, acknowledging that a possible future WTO-inconsistent anti-dumping measure may refer to any product under the HS classification system, the formula should be sufficiently generic to capture any variation in the types of products and any variation in the types of markets (for example, perfect competition or monopolistic competition) on which a given product is traded.

4.53. To sum up, we consider that, in light of the circumstances of this case, an appropriate approach is to devise a formula enabling Korea to calculate, at a future date, the level of nullification or impairment that may arise following the application by the United States of an inconsistent anti-dumping duty measure. That formula must (i) result in a predictable level of suspension, (ii) be practical to implement, (iii) use inputs that are factual and verifiable by the United States, and (iv) be sufficiently generic to capture variation in the type of products and markets.

4.54. We have endeavoured to limit any future possible controversy between the parties, by fixing those parts of the formula that can be fixed, without compromising on the equivalence requirement. Elements that cannot be fixed at the outset will be obtained from clearly defined data sources. Our approach bears similarities to the approach in *US – Offset Act (Byrd Amendment) (EC)*. In that arbitration, the arbitrator decided that the European Communities could suspend concessions based on a formula that depended, *inter alia*, on a fixed coefficient and a variable amount of disbursements.³⁷⁷ For this reason, we asked the parties to give their views on a similar coefficient-based approach with both variable and fixed elements.³⁷⁸

4.55. Both Korea and the United States expressed reservations about the use of a coefficient in a formula. Korea questioned "whether a coefficient approach would meet the equivalence requirement under Article 22.4 of the DSU", because certain elements of that formula "would have to be calculated when the value[s] ... are not yet known, as it would not be possible to know in advance for which products the USDOC would apply the WTO-inconsistent method."³⁷⁹ Korea further contends that the formula "in *US – Offset Act (Byrd Amendment) (EC)* is inapplicable to the current case" because the coefficient, in that arbitration, was intended "to quantify trade effect caused by the distribution of anti-dumping and countervailing duties, which did not in themselves reflect the trade effect of the measure".³⁸⁰ Korea observes, "the problem" – that the measure at issue "only indirectly had a trade effect – is not present here."³⁸¹ The United States, largely agreeing with Korea's analysis,

³⁷⁵ Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC)* (Article 22.6 – US), paras.4.23-24.

³⁷⁶ See, in the same sense, Decision by the Arbitrator, *US – 1916 Act (EC)* (Article 22.6 – US), para. 5.54.

³⁷⁷ That formula follows: $0.72 \times$ Amount of disbursements under CDSOA (Continued Dumping and Subsidies Offset Act of 2000) for the most recent year for which data are available relating to anti-dumping or countervailing duties paid on imports from the European Communities at that time, as published by the United States' authorities. See Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC)* (Article 22.6 – US), para. 5.2.

³⁷⁸ See Arbitrator question Nos. 93 and 94.

³⁷⁹ Korea's response to Arbitrator question No. 94(a), para. 14.

³⁸⁰ Korea's response to Arbitrator question No. 94(a), para. 3.

³⁸¹ Korea's response to Arbitrator question No. 94(a), para. 4.

also does not consider a coefficient-based approach to be "feasible because it cannot result in a level of suspension that is consistent with the DSU".³⁸² The United States specifies that "[i]t is not feasible" to determine whether a coefficient-based approach is appropriate "without first examining the characteristics of the different industries that produce those products, and the different markets in which those products are traded, to determine if the assumptions ... hold for the different products."³⁸³

4.56. The parties' concerns are valid and speak to a tension in our mandate. On the one hand, we are called to determine equivalence between the level of nullification or impairment and the level of suspension of concession. On the other hand, the request pertaining to non-LRWs is about unknown future events, which makes it impossible for Korea to determine these two levels, and for us to assess equivalence between them.

4.57. Nevertheless, and as discussed above in section 4.3.4 above, given that we disagree with Korea's proposed approach, our mandate requires us to identify a methodology that can be applied in the future if and when a new WTO-inconsistent W-T anti-dumping duty measure is applied by the United States.³⁸⁴ We have therefore developed a formula that reflects the economic context of this case and will permit Korea to quantify the trade effect flowing from the possible future imposition of inconsistent anti-dumping duty measures, recognizing the range of products and markets that may be covered by such anti-dumping duty measures.

4.4.3 Formula to calculate the level of nullification or impairment

4.4.3.1 Description

4.58. Korea is granted authorization to apply the following formula to calculate the level of nullification or impairment, NI_i , for non-LRWs:

$$NI_i = c_s * vimp_i * \frac{\Delta t_i}{1+t_i} \quad (6)$$

4.59. The inputs are defined as follows: NI_i is the level of nullification or impairment of the non-LRW i ; c_s is a coefficient for the HS-chapter s to which non-LRW i belongs, depending on the market share of the complaining party and the demand, supply, and substitution elasticities of the product under consideration; $vimp_i$ is the value of imports from Korean enterprises (inclusive of cost, insurance and freight but exclusive of duties) subject to WTO inconsistent duties; Δt_i is the difference between the WTO-inconsistent duty rate and zero; and, t_i is the level of the WTO-inconsistent duty rate. Δt_i and t_i are ad valorem duty rates, *not* measured in percentage terms. Hence, a duty rate of for example 0.02 on the value of imports means that the importing firm must pay duties equal to 2% of the value imported. The mathematical derivation of this formula appears in Annex C-2.

4.60. The following section will explain the theoretical basis of the formula. We will then describe in detail how each of the inputs should be obtained starting with the size of the coefficient, followed by the value of imports subject to WTO-inconsistent duties, and concluding with the value and change of the WTO-inconsistent duties.

4.4.3.2 Theoretical basis

4.61. To derive the formula in equation (6), the Arbitrator employs the set of equilibrium conditions of the Armington model as described in Hallren and Riker (2017).³⁸⁵ The equilibrium equations of the Armington model are written in relative changes and combined to obtain an expression for the change in the value of imports as a function of the change in the level of import duties. As a result,

³⁸² United States' comments Korea's response to Arbitrator question No. 94(a), paras. 2 and 9.

³⁸³ United States' response to Arbitrator question No. 94(a), para. 1.

³⁸⁴ For the reasons noted above, in section 1.3, we disagree with the United States view that the Arbitrator would "go well beyond what is required under Article 22.6 of the DSU" if we were to determine the level of nullification or impairment with respect to non-LRWs; rather, our mandate requires us to do very that. See United States' response to Arbitrator question No. 94(a), para. 3.

³⁸⁵ See R. Hallren and D. Riker, An Introduction to Partial Equilibrium Modeling of Trade Policy, Economic Working Paper Series (Working Paper 2017-07-B), U.S. International Trade Commission, July 2017, (Exhibit KOR-15).

the formula can be used to calculate the level of nullification or impairment arising from the imposition of import duties. The fact that the Armington model is written in relative changes means that the formula holds exactly only for a marginal change in the duty rate and approximates the exact change in imports for non-marginal changes in the duty rate. Annex C-2 contains a detailed derivation of the formula. After clarifying the different components of the formula, the Arbitrator will explain why it deems it appropriate to use a formula for non-LRWs and why the formula is based on the Armington model.

4.62. The formula in equation (6), with its different components, follows directly from the set of equilibrium conditions of the Armington model. The formula calculates the level of nullification or impairment of a WTO-inconsistent duty, as in the difference between the value of imports with and without a WTO-inconsistent duty. Note that if one ignores the denominator $1 + t_i$, the level of nullification or impairment is proportional to the revenues from the WTO-inconsistent duty, i.e. $vimp_i \Delta t_i$, with the constant of proportionality given by the coefficient c_s . Since it is the difference between the value of imports with and without a WTO-inconsistent duty which should be calculated, and not just the tariff-revenues of the WTO-inconsistent duty, we multiply the tariff revenues by a coefficient, c_s , which captures the trade response to the tariff. This allows calculation of the trade effect arising from the imposition of a WTO-inconsistent anti-dumping duty measure.

4.63. The formula is an approximation and its use is, in our view, appropriate. The alternative to the formula would be to solve the set of equilibrium conditions of the economic model exactly. The Arbitrator prefers the use of a formula over the alternative for two reasons, which are related to the guiding considerations formulated in the previous subsection. First, a formula is more practical to implement. Second, a formula makes the calculation of the level of nullification or impairment more predictable, as it reduces the number of decisions that must be taken by the complainant. In particular, the use of a formula means that Korea does not have to take a decision on Korea's market share and the substitution, supply, and demand elasticities, since these inputs are included in the coefficient.

4.64. We recall that Korea has proposed using a formula based on the perfect substitutes model. The perfect substitutes model is a special case of the Armington model with the substitution elasticity between varieties going to infinity, i.e. products becoming perfectly substitutable. Evidence submitted by the United States does not support perfect substitutability for the illustrative list of products in Appendix B of Korea's methodology paper, since the estimated substitution elasticity is finite for these products.³⁸⁶ Hence, the level of nullification or impairment cannot be calculated correctly with the perfect substitutes model, since trade patterns and the response of trade to changes in duty rates of *a priori* unknown products cannot be modelled correctly with this model. Rather than employing a model that assumes from the outset that the value of the elasticity of substitution is infinite, it would be more appropriate to employ an Armington specification where the elasticity of substitution will depend on the features of the product.

4.65. Further, and as mentioned in the discussion on LRWs, governments and research institutions examine the economic impact of trade policy changes by mostly employing CGE models that model trade according to the Armington assumption of national product differentiation. Therefore, the Arbitrator considers that the formula should be based on the set of equilibrium conditions of the Armington model. As noted before, this model assumes that goods are differentiated by country of origin and consumers choose between varieties from different countries of origin.³⁸⁷

4.66. There are three variables in the formula that lead to the calculation of the level of nullification or impairment, namely the coefficient, c , the value of imports, $vimp$, and the level and change of

³⁸⁶ United States' written submission, para. 133 and fn 162.

³⁸⁷ Arkolakis et al. (2012) and Costinot and Rodriguez-Clare (2014) have shown that the set of equilibrium conditions of the Armington model is identical to the set of equilibrium conditions in the model of Eaton and Kortum (2002) in which consumers choose between many varieties from different countries instead of only between one variety per country. The equilibrium equation for import demand is identical in both models, since import demand is shaped by differences in comparative advantage in the model of Eaton and Kortum. The authors have also shown that, under certain general conditions, the effects of changes in trade costs are similar in the Armington model and in the models of imperfect (monopolistic) competition of Krugman (1980) and Melitz (2003). As such, the formula based on the Armington model can also describe behaviour in imperfectly competitive markets and for products differentiated by firm rather than by country.

the WTO-inconsistent anti-dumping duty, Δt . We address each of them in detail in the following sections.

4.4.3.3 Determination of coefficient, c

4.4.3.3.1 Introduction

4.67. As discussed in the preceding section, the formula devised by the Arbitrator requires a value for a coefficient, a fixed term that is multiplied by the value of imports. The coefficient translates a WTO-inconsistent duty into its effect on trade for products with varying characteristics. Specifically, as shown in Annex C-2, the coefficient c_s is represented by the following expression:

$$c_s = \frac{(\eta_s + 1)\sigma_s \frac{\eta_s - \varepsilon_s}{\eta_s + \sigma_s} - (\sigma_s + \varepsilon_s)\eta_s \frac{\eta_s + 1}{\eta_s + \sigma_s}}{\varepsilon_s - \eta_s} sh_s \quad (7)$$

4.68. Equation (7) shows that the coefficient is determined by four parameters, the market share of Korea in total sales in the United States, sh_s , the substitution elasticity between varieties from different source origin countries, σ_s , the price elasticity of supply, η_s and the price elasticity of demand, ε_s . In the following paragraphs the Arbitrator will discuss in turn the number of coefficients and the data sources for the four different parameters of the coefficient.

4.69. There is a wide range of options for the number of coefficients to be used. For instance, it could be possible to employ just one coefficient for all products, to vary the coefficient by HS-chapter level, or to vary the coefficient at the product level. In answers to the Arbitrator, Korea expresses a preference for the use of multiple coefficients to better account for variations in individual products characteristics.³⁸⁸ The United States does not express a preference for the number of coefficients. The United States contends that "HS chapters are extensive and can include a broad range of products", and that "[i]t would not be possible to determine coefficients for entire HS chapters that could be used to calculate accurately the level of nullification or impairment for all of the different products in a given chapter."³⁸⁹

4.70. Recalling the considerations formulated in the previous subsection, the formula should both be practical, which would call for a single coefficient, and sufficiently generic to accommodate all possible product types and relevant markets, which would call for a large number of coefficients, varying at the product level (HS 6-digit, HS 8-digit, or even HTS 10-digit). It is impossible to calculate, *ex ante*, a specific coefficient for each currently unknown product that may be subject to an anti-dumping order, to which the United States might apply an inconsistent anti-dumping duty measure. To balance these two considerations, the Arbitrator has decided to calculate 98 coefficients, one for each chapter of the harmonized system classification. The use of different coefficients for each product would make the procedures difficult to implement and, moreover, would make the estimated level of nullification or impairment too dependent on estimates of elasticities for a single product with the risk of raising the variance of the estimated elasticities and, thus, of under- or overestimating the coefficients.

4.71. The appropriate sources of data for each constituent parameter of the coefficient follow.

4.4.3.3.2 Substitution elasticity, σ

4.72. To generate values for the elasticity of substitution at the HS chapter level, the Arbitrator employs estimates by Soderbery (2015).³⁹⁰ This study provides the most disaggregated (at the 10-digit tariff line level), recent estimates in academic literature on the substitution elasticity between imports from different sources into the United States. It refines the procedure introduced by Feenstra

³⁸⁸ Korea's response to Arbitrator question No. 94(b), para. 17.

³⁸⁹ United States comments to Korea's response to Arbitrator question No. 94(b), para. 11.

³⁹⁰ A. Soderbery (2015). "Estimating Import Supply and Demand Elasticities: Analysis and Implications." Journal of International Economics 96(1): pp. 1-17

(1994)³⁹¹ and applied to United States' imports in the earlier work by Broda and Weinstein (2006).³⁹² We note and address below the parties' views on this source for the elasticity of substitution.

4.73. Korea proposes that the Arbitrator use substitution elasticities reported in Feenstra et al (2018)³⁹³ which estimate substitution elasticities for United States imports at the HS 2-digit level. Korea is not opposed to the data-sources described below for the other parameters (demand elasticity, supply elasticity and market share).³⁹⁴ Feenstra et al (2018) argue that, in one third of the sectors, there is a significant difference between the so-called macro-elasticity, the elasticity of substitution between domestic and imported varieties, and the micro-elasticity, the elasticity of substitution between imported varieties from different sources. Two main arguments, in our view, weigh against the use of the substitution elasticities from Feenstra et al (2018).³⁹⁵ First and foremost, Feenstra et al (2018) do not report estimates of the HS 2-digit level elasticities in their publication and so the Arbitrator is unable to use this study. Second, they report that some of the estimated elasticities are negative.³⁹⁶ As we have noted before, the elasticity of substitution takes a value between zero and infinity, so the negative values reported by the authors suggest data problems, as they themselves acknowledge.³⁹⁷

4.74. The United States argues that product-specific elasticities reported by USITC in anti-dumping investigations should be employed. These estimates are made after "analysing responses from purchasers, producers, and importers to questionnaires concerning the market of the product under investigation, as well as arguments made by interested parties."³⁹⁸ According to the United States, the use of elasticities estimated by USITC would imply coefficients that vary from case-to-case in future anti-dumping proceedings. Hence, the size of the coefficients could not be included in the Arbitrator's decision.³⁹⁹ In line with the considerations noted above, namely that the formula should be predictable and practical to implement, the Arbitrator favours an approach with pre-determined coefficients. This implies that it is not possible to use coefficients determined by the USITC and, in fact, for future cases those estimates do not yet exist.

4.75. In light of the foregoing, the Arbitrator is of the view that Soderbery (2015) remains the most practical and appropriate source of estimates of the elasticity of substitution. We shall therefore take these substitution elasticities and aggregate them to the HS-chapter level, calculating trade-weighted averages, using as weights the United States' imports from Korea in 2016, extracted from US Census. The average elasticity across the 98 chapters is 4.73, and the value ranges between 1.40 and 35.83.⁴⁰⁰

4.4.3.3.3 Price elasticity of demand, ϵ

4.76. The Arbitrator determines the price elasticity of demand based on estimates of the price elasticity of demand in Reimer and Hertel (2004)⁴⁰¹ and reported as part of the Global Trade Analysis

³⁹¹ R.C. Feenstra (1994). "New product varieties and the measurement of international prices." *American Economic Review* 84: pp. 157-177.

³⁹² C. Broda, D. Weinstein (2006). "Globalization and the gains from variety." *Quarterly Journal of Economics* 121: pp. 541-585.

³⁹³ R.C. Feenstra, P. Luck, M. Obstfeld and K.N. Russ (2018). "In Search of the Armington Elasticity." *Review of Economics and Statistics* 100(1): pp. 135-150.

³⁹⁴ Korea's response to Arbitrator question No. 94(c), paras. 18-25.

³⁹⁵ The United States holds the opinion that Feenstra et al is not of assistance to the Arbitrator, but does not further support this position. United States' comments to Korea's responses to question No. 94(c), para. 15.

³⁹⁶ These can be found in figures 1 and 2 of Feenstra et al (2018) which depict the distribution of the estimated elasticities.

³⁹⁷ R.C. Feenstra et al write: "We isolated a small number of goods in our data set, however, where the estimates of σ_g are most frequently negative (i.e., in more than 75% of the bootstrap estimates), so that we conclude that these data are faulty or incompatible with our model." See p. 144 of R.C. Feenstra et al. "In Search of the Armington Elasticity", *The Review of Economics and Statistics*, 100(1), March 2018, (Exhibit KOR-69).

³⁹⁸ United States' response to Arbitrator question No. 94(c), paras. 6-8.

³⁹⁹ United States' response to Arbitrator question No. 94(c), paras. 6-8.

⁴⁰⁰ These averages can be found in Annex C-2.

⁴⁰¹ J. Reimer and T.W. Hertel (2004). *International Cross-Section Estimates of Demand for Use in the GTAP Model*. GTAP Technical Paper No. 23. Center for Global Trade Analysis, West Lafayette, Indiana.

Project (GTAP) 10 Data Base (GTAP10.2).⁴⁰² Korea does not object to the use of the demand elasticities in Reimer and Hertel (2004)⁴⁰³, while the United States contends that USITC elasticities are preferable to elasticities from other sources.⁴⁰⁴ As discussed in the previous section on substitution elasticity, the Arbitrator favours an approach with pre-determined coefficients, which implies that it is not possible to use coefficients from USITC for future cases for which those estimates do not yet exist.

4.77. As described in Hertel and Van der Mensbrugghe (2014), the estimated income and price elasticities for ten aggregate sectors determine the behavioural parameters of the constant difference elasticity utility function, which in turn determine the price and income elasticities for all 57 sectors (42 commodities and 15 types of services) in the GTAP Data Base.⁴⁰⁵ The Arbitrator employs the price elasticities of demand for the United States of the 42 commodities sectors reported in GTAP10.2 and disaggregates these elasticities into elasticities for the 98 HS-chapters using a publicly available concordance table from HS to GTAP from the World Integrated Trade Solution (WITS) portal.⁴⁰⁶ The average demand elasticity is -0.80, with values ranging between -0.00 and -0.88.⁴⁰⁷

4.4.3.3.4 Price elasticity of supply, η

4.78. The Arbitrator determines the (import) supply elasticity based on a survey of the literature by Hillberry and Hummels (2013), who point out that estimates of this parameter are scarce in the literature.⁴⁰⁸ These authors suggest an estimate of 7.7⁴⁰⁹, which is between other values reported in the literature. Korea has not objected to the use of the supply elasticities as explained in Hillberry and Hummels (2013).⁴¹⁰ The United States considers that USITC elasticities are preferable to elasticities from other sources.⁴¹¹ The Arbitrator favours an approach with pre-determined coefficients, for the reasons mentioned in the previous two sections. Hence, the Arbitrator will employ a price elasticity of supply of 7.7.

4.4.3.3.5 Market share of Korea in total sales in the United States, sh

4.79. The Arbitrator calculates the market share of Korea in total sales in the United States by multiplying two shares, i.e. the share of Korean imports in total imports and the share of total imports in total sales in the United States. The first share is calculated based on 2017 import data at the HS2-level from United States Census. The second share is calculated based on GTAP 10.2

⁴⁰² T.W. Hertel and Dominique van der Mensbrugghe (2017). Behavioral Parameters. Documentation GTAP10. Chapter 14.

⁴⁰³ Korea's response to Arbitrator question No. 94 (c), para. 22.

⁴⁰⁴ United States' response to Arbitrator question No. 94 (c), paras. 6-7.

⁴⁰⁵ The 10 aggregate sectors are Grains, other crops; Meat, dairy, fish; Processed food, beverages, tobacco; Textiles, apparel, footwear; Utilities, housing services; Wholesale/retail trade; Manufactures/electronics; Transport Communication; Financial and business services; and Housing, education, health, public services. The 42 commodities in the GTAP-model can be found at the GTAP website. Global Trade Analysis Project, <https://www.gtap.agecon.purdue.edu/databases/v8/v8_sectors.asp>, accessed 15 October 2018.

⁴⁰⁶ World Integrated Trade Solution, <<https://wits.worldbank.org>>, accessed 15 October 2018. WITS is a data portal developed by the World Bank in collaboration with the United Nations Commission on Trade and Development, the United Nations Statistical Division and the WTO.

⁴⁰⁷ Seale and Regmi (2006) report similar estimates for the price elasticity of demand. See J. L. Seale Jr. and A. Regmi (2006). Modeling International Consumption Patterns. *Review of Income and Wealth* 52(4), pp. 603-624. See also Annex C-2.

⁴⁰⁸ R. Hillberry and D. Hummels, David (2013). "Trade Elasticity Parameters for a Computable General Equilibrium Model," *Handbook of Computable General Equilibrium Modeling*, Elsevier.

⁴⁰⁹ In a study on trade liberalization in the US, USITC (2002) employs both values around 7 and values of 50. See USITC (2002) "The economic effects of significant US import restraints: third update," USITC Publication. On the other hand, Hillberry and Hummels (2013) point out that the Melitz firm heterogeneity model gives rise to an elasticity of transformation between domestic sales and exports as first shown by Feenstra (2010). See R.C. Feenstra (2010) "Measuring the gains from trade under monopolistic competition", *Canadian Journal of Economics*, 43, pp. 1-28. As explained by Hillberry and Hummels (2013), estimates in the literature give rise to an elasticity of transformation between 3 and 7, which translates approximately into the same value of the supply elasticity. The estimates reported in Hillberry and Hummels (2013) therefore indicate that 7.7 is a good median value in between other estimates reported in the literature and the Arbitrator will use the value of 7.7 for the price elasticity of supply.

⁴¹⁰ Korea's response to Arbitrator question No. 94(c), para. 22.

⁴¹¹ United States' response to Arbitrator question No. 94(c), para. 7.

data for the 42 commodities sectors and disaggregated into the 98 HS chapters employing a publicly available concordance table from WITS also used to disaggregate the price elasticity of demand.⁴¹² Korea has not objected to the use of data from GTAP,⁴¹³ whereas the United States argues that the GTAP data are too aggregated and should be updated after a new release of GTAP data becomes available.⁴¹⁴

4.80. As noted in section 4.4.2, the formula must be practical to implement and result in predictable calculations. Furthermore, as explained in paragraph 4.67, the use of a coefficient is necessary. For purposes of determining the percentage of total imports in total sales in the United States, required to calculate the coefficients, the Arbitrator deems it appropriate to use the GTAP 10 Data Base as a source of information for the market share since it is the last available update of this database. The GTAP 10 Data Base is a data source widely used by research institutes, academics, and policy makers, whose data can be converted into HS-chapters using publicly available concordance tables.⁴¹⁵ As explained in paragraph 4.77, GTAP data are more aggregated than HS chapters. However, a procedure applicable to all products requires a degree of aggregation. The share of total imports in total sales in the United States is not available at a higher degree of disaggregation, such as HS-10.

4.81. As shown in Annex C-2, the average share of Korean imports in total imports in the 98 HS chapters is equal to 2.45% with values ranging between 0.001% and 20.5%. The average share of imports in total United States sales is 23% with values ranging between 1.7% and 75%. Finally, the average share of Korean imports in total United States' sales is equal to 0.51% with values ranging between 0.00003% and 5.92%.

4.82. Substituting the parameter values described above into equation (7) leads to the values for the coefficients at the HS chapter level, as set out in Annex C-2.⁴¹⁶ Korea shall use these values for the coefficients in implementing the formula in equation (6). On average the coefficient is equal to -2.96, with values ranging between -7.15 and -1.34.⁴¹⁷

4.83. Finally, the Arbitrator is aware that, in some cases, a non-LRW may enter the United States under different chapter headings. In such cases, the coefficient to be applied shall be the simple average of all the applicable chapter coefficients, as illustrated with the following example. Assume (i) a WTO-inconsistent duty is imposed on a product with tariff subheadings in two different HS-chapters, say HS chapters 72 and 73, and (ii) the coefficients for HS chapters 72 and 73 are -3.869 and -2.336, respectively. In such a case, the formula should use the simple average of the two coefficients, which is -3.103.

4.4.3.4 Value of imports

4.4.3.4.1 Possible data sources

4.84. As noted above, the *vimp* is a required input in the formula determined by the Arbitrator to calculate the level of nullification or impairment. It reflects the value of company-specific imports subject to WTO-inconsistent duties. We therefore need to evaluate and select possible data sources in order to enable Korea to obtain the value of imports.

4.85. Although we have ultimately rejected Korea's proposed formula to calculate the level of suspension for non-LRWs, we note that in explaining its formula, Korea suggested that it would be able to determine the value of imports from company-specific information. The United States did not provide an alternative source for the value of imports. We also recall, as noted in section 3.3.4.6 in relation to LRWs, that the parties agreed that the value of imports to calculate the level of

⁴¹² Global Trade Analysis Project, <<https://www.gtap.agecon.purdue.edu/databases/v10/>>, accessed 15 October 2018. This version was released in 2018 and contains data extending up to 2014.

⁴¹³ Korea's response to Arbitrator question No. 94(c), para. 20

⁴¹⁴ United States' response to Arbitrator question No. 94(c), para. 5.

⁴¹⁵ A potential alternative data source for the share of total imports in total sales could be the supply and use tables of the Bureau of Economic Analysis (BEA), which is available until 2017. However, there is no publicly available concordance table to map the sectoral classification employed by BEA, NAICS4 into HS-chapters. Henceforth, it is better to use import shares from a publicly available and widely employed source (by academics, research institutes, and policy makers) that can be mapped into HS-chapters.

⁴¹⁶ The coefficients are listed in Table 1 of Annex C-2.

⁴¹⁷ These statistics are listed in Table 2 of Annex C-2.

nullification or impairment for LRWs may be obtained by using, based on the HTS codes enumerated at the 10-digit level in the LRWs final anti-dumping determination, total import value from a publicly available source (i.e. USITC DataWeb).

4.86. Hence, there are two possible paths to obtain the value of imports for any given non-LRW in the future. The aggregate amount of exports to the United States by each Korean company subject to a WTO-inconsistent duty or the total value of imports at the HTS 10-digit level subject to adjustment to reflect that not all exports are subject to an anti-dumping duty.⁴¹⁸ Either path – "company-specific" data or "HTS 10-digit level" data – leads to an estimated figure for *vimp*. However, determining the value of imports prospectively presents challenges unique to non-LRWs – and to the circumstances of this Arbitration – that merit a practical solution. With this in mind, we elaborate on each possible data source.

4.4.3.4.1.1 "Company-specific" data

4.87. In response to a question from the Arbitrator on how to obtain the amount of exports of each affected firm, Korea stated the following:

Korea's customs authorities maintain records regarding the amount of exports of each firm. Although this information is confidential, Korea could use the information to identify the companies from which it should obtain consent to release the information to the United States for the purposes of calculating the level of nullification or impairment.

In requesting consent from the affected companies to release the export data to the United States, Korea would also request that the companies identify the exports for which the companies paid anti-dumping duties pursuant to the anti-dumping order in question.⁴¹⁹

4.88. Korea also notes that because "the U.S. customs authorities would be in possession of the entry forms filed by the exporters, the United States would be able to verify the information provided by the Korean exporters using its own internal customs data".⁴²⁰

4.89. The United States, however, finds "no basis for Korea's optimism that companies will consent or cooperate concerning the release of their business confidential information", when, in this proceeding, Samsung and LG declined to disclose certain business confidential information, and casts doubt that Korea's customs data would match the United States' own, given that "[t]rade data queried from different sources often do not match."⁴²¹

4.90. Korea's suggested approach of identifying the relevant companies and, in turn, requesting those companies to identify actual exports, would result in a precise value of imports for each future anti-dumping order or administrative review in which the USDOC used the DPM and applied the W-T comparison methodology.⁴²² However, as both parties acknowledge, this information is confidential⁴²³, meaning that Korea may not be able to obtain it or that the United States may not have an opportunity for verification. Korea has not elaborated on how it would proceed with suspension, should Korean companies not consent to release this information. Korea's proposal, as the United States observes, "is dependent on exporters being 'fully cooperative'"⁴²⁴ and, even assuming such cooperation, a "mechanism for both parties to verify any information that was

⁴¹⁸ We have accepted this approach to determine the input for value of imports in the calculation of the level of nullification or impairment for LRWs. See above, section 3.3.4.6.

⁴¹⁹ Korea's response to Arbitrator question No. 90(a), paras. 107 and 109. See also Korea's response to Arbitrator question No. 95, para. 27.

⁴²⁰ Korea's response to Arbitrator question No. 90(b), para. 110.

⁴²¹ United States' comments on Korea's response to Arbitrator question No. 90(a), paras. 104-105.

⁴²² This further reflects our understanding that the level of nullification or impairment of benefits may be appropriately measured by reference to Korean exporters. See section 3.2.2.1.

⁴²³ As Korea acknowledges, both LG and Samsung "declined to disclose business proprietary information" in this proceeding. We share the United States' concern that Korean companies may "likewise decline to disclose their business confidential information in the future." See Korea's response to Arbitrator question No. 70(a), para. 50; and United States' comments on Korea's response to Arbitrator question No. 90(b), para. 107.

⁴²⁴ United States' comments on Korea's response to Arbitrator question No. 90(b), para. 107.

provided" would be needed "to provide confidence that any information relied upon was accurate and complete".⁴²⁵

4.4.3.4.1.2 HTS 10-digit level data

4.91. Alternatively, and reflecting the approach taken by the Arbitrator with respect to LRWs, it may also be possible to permit Korea to query total value of imports on the basis of the particular HTS lines listed in a final anti-dumping determination.⁴²⁶

4.92. However, in the non-LRW context both the value of imports for non-LRWs and the subject companies are unknown, until the United States determines an anti-dumping duty on a given product. Further, the prospective nature of Korea's request makes it impossible to determine beforehand how many Korean companies will be assigned a duty based on a WTO-inconsistent W-T dumping margin, in any future anti-dumping investigation or administrative review, and also the corresponding share of exports from Korea to the United States, affected by that duty. Yet, failing to adjust such market-level data will likely overstate the level of nullification or impairment, as frequently not all imports within the referred HTS 10-digit codes are affected by the WTO-inconsistent measure. Some adjustment is therefore necessary.

4.93. Consequently, we examine a "representative period" to observe the incidence of the USDOC's application of the W-T comparison methodology to then determine a value for the adjustment.⁴²⁷ This prompted us to ask the parties to calculate, for the year 2017: (i) "the percentage share of exports from Korea to the United States made by Korean firms, assigned anti-dumping duty rates calculated on a W-T basis, in terms of the total amount of exports from Korea to the United States, subject to anti-dumping orders"; and, (ii) "the percentage of Korean firms that exported products, subject to anti-dumping duty rates calculated on a W-T basis, into the United States, in terms of the total number of Korean firms subject to United States' anti-dumping orders".⁴²⁸ Neither party was able to calculate the first.⁴²⁹ Hence, we turn to the parties' responses with respect to the second.

4.94. Korea calculated the percentage share of Korean firms subject to anti-dumping duties calculated on a W-T basis to be 47.6%.⁴³⁰ To arrive at this number: (i) Korea identified preliminary and final determinations of dumping in the United States' anti-dumping investigations covering imports from Korea in 2017; (ii) if two determinations were made in 2017 regarding the same investigation, Korea eliminated the earlier one to exclude double-counting; (iii) Korea calculated the total number of Korean respondents subject to the determination of individual dumping margins ("mandatory respondents") in each investigation it identified; and, (iv) Korea then calculated the number of respondents that received anti-dumping duty rates based on dumping margins calculated using the W-T method and divided that figure by the number obtained in step (iii), above.⁴³¹

⁴²⁵ United States' comments on Korea's response to Arbitrator question No. 90(b), para. 108.

⁴²⁶ In that case, the Arbitrator agreed with the parties that the total level of imports could be queried in the USITC DataWeb by inputting the products classified under the enumerated HTS 10-digit codes in the "Scope of the Investigation" section of the LRWs anti-dumping final determination. With this market-level data, the parties, and the Arbitrator, agreed that the data should be adjusted to capture only the exports of LG and Samsung, the two Korean companies assigned anti-dumping duties on the basis of the WTO-inconsistent W-T comparison methodology. As there were only two relevant companies, the parties could derive the respective market shares of Samsung and LG and adjust the market-level data. See section 3.3.4.6 above.

⁴²⁷ A similar approach is found in Decisions by the Arbitrators, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.150; and *EC – Hormones (US) (Article 22.6 – EC)*, paras. 57-58.

⁴²⁸ See Arbitrator question Nos. 95 and 96.

⁴²⁹ Korea explained that it could not obtain the necessary information within the time-period to respond to the Arbitrator's question, as it would need "to obtain consent of the companies to release this information." Instead, Korea "would propose using the total amount of all the identified firms' exports subject to anti-dumping duty orders, compared to the total amount of exports subject to anti-dumping duty orders, compared to the total amount of exports subject to anti-dumping duty orders exported by those firms that were subject to margins calculated on a W-T basis." Korea's response to Arbitrator question No. 95, paras. 26-28. The United States also could not undertake the requested calculation, since "[t]he information necessary to respond to this question does not yet exist, because antidumping duty rates have not yet been assigned to all exports from Korea to the United States." United States' response to Arbitrator question No. 95, para. 9.

⁴³⁰ Korea's response to Arbitrator question No. 96, para. 29. See also Calculation of Exporters Subject to W-T Comparison Method, (Exhibit KOR-70), Table 3.

⁴³¹ Korea's response to Arbitrator question No. 96, para. 29.

4.95. The United States, however, considered that "the information necessary to respond ... does not yet exist" and that it "does not know, and cannot know, the total number of Korean firms subject to U.S. antidumping orders, because there may have been companies subject to the 'all others' antidumping rates that never identified themselves to the United States."⁴³² The United States further criticized Korea for "provid[ing] the Arbitrator a percentage that is grossly overstated".⁴³³

4.96. The United States challenges Korea's approach on four grounds. It first contends that "the information Korea has provided does not cover all exports from Korea to the United States for 2017 that were subject to anti-dumping measures", since most of the determinations issued in 2017 cover imports made before this period.⁴³⁴ Second, the United States claims that, owing to the retrospective nature of its system, "determinations in original investigations[] do not actually relate to the assessment, *i.e.*, collection of antidumping duties".⁴³⁵ Third, the United States does not accept Korea's reliance on preliminary determinations issued in the year 2017, as the margins "are not final and are subject to change".⁴³⁶ Fourth, the United States claims that Korea should have used the total number of Korean companies subject to United States' anti-dumping measures, rather than the number of "mandatory" respondents, as the denominator in this equation.⁴³⁷

4.97. In our view, while there could be various ways to determine the relevant estimate, we consider Korea's approach to be reasonable, notwithstanding the United States' criticism. As a general matter, we observe that we are not determining the actual amount of Korean exports affected by the United States' WTO-inconsistent measures, but estimating an adjustment that would reflect the incidence of the United States' WTO-inconsistent behaviour. This is an exercise of estimation, because relevant information on future events does not exist.

4.98. Turning to the United States' arguments, we observe, first, that while Korea's estimate of the number of companies does not cover all exports made to the United States in 2017, we consider the approach to nevertheless reasonably reflect the frequency with which the United States applied the W-T comparison methodology to Korean companies. We are equally not persuaded by the United States' criticism in relation to the use of preliminary determinations in the estimate. While it is true that preliminary determinations based on WTO-inconsistent methodologies may ultimately result in the application of WTO-consistent duties at the final stage, the reverse is also possible: WTO-consistent methodologies applied in a preliminary determination could theoretically be replaced by WTO-inconsistent ones in the final determination. Again, we believe that an approach which takes a view of the United States' behaviour over a time period, with relation to the application of W-T comparison methodologies in dumping calculations for Korean companies, regardless of the type of determination in question, is a valid one to estimate the frequency of such behaviour.

4.99. The United States argues that Korea relies on individually examined, or mandatory, respondents instead of relying on the total number of exporters identified in the determinations. In this regard, we observe that, depending on the outcome of the case with respect to the individually examined exporters, the calculated weighted average duty rate to other exporters will be based either entirely on WTO-consistent methodologies (if all individual margins are determined on a W-W or a T-T basis), or entirely on WTO-inconsistent methodologies (if they are determined on a W-T basis), or a combination of the two.⁴³⁸ Therefore, duty rates that are ultimately assigned to exporters not examined individually may, at least in part, be affected by the United States' application of the WTO-inconsistent W-T comparison methodology. It would be impossible to surgically remove any W-T margins from the "all others" rate assigned to the exporters not examined individually; and, for

⁴³² United States' response to Arbitrator question No. 96, paras. 12-13.

⁴³³ United States' comments on Korea's response to Arbitrator question No. 96, para. 21.

⁴³⁴ United States' comments on Korea's response to Arbitrator question No. 96, para. 23.

⁴³⁵ United States' comments on Korea's response to Arbitrator question No. 96, para. 24.

⁴³⁶ United States' comments on Korea's response to Arbitrator question No. 96, para. 25.

⁴³⁷ United States' comments on Korea's response to Arbitrator question No. 96, para. 26.

⁴³⁸ Pursuant to Article 6.10 of the Anti-Dumping Agreement, investigating authorities, "as a rule, determine an individual margin of dumping for each known exporter or producer concerned of the product under investigation"; however, in cases where the number of exporters "is so large as to make such a determination impracticable, the authorities may limit their examination", thereby determining individual margins only with respect to selected exporters. Article 9.4(i) of the Anti-Dumping Agreement further directs the authorities in such situations to determine an anti-dumping duty for exporters not included in the examination. The determination of this latter duty involves a calculation of a weighted average of the dumping margins established with respect to the individually examined respondents, disregarding any zero and *de minimis* margins and margins established on the basis of facts available.

the same reason, it would not be logical to account for non-mandatory respondents in the denominator, as the United States suggests. We therefore believe that Korea correctly based its calculation on individually examined exporters, which allowed it to concentrate on the comparison between the incidence of WTO-inconsistent behaviour (margins determined on a W-T basis) and a *priori* WTO-consistent behaviour (margins unaffected by the W-T comparison methodology).

4.100. While the United States criticized Korea's overall approach, it did not raise any issues with respect to the 47.6% figure *per se*. Nor did the United States propose any alternative calculated figure. Therefore, we consider that, "in the absence of convincing elements" that would justify the use of another figure for adjustment, we should accept Korea's calculated figure of 47.6%.⁴³⁹

4.101. Consequently, with respect to non-LRWs, we consider that the HTS 10-digit level data could also be used to obtain the value of imports, i.e. *vimp*, provided such data is adjusted, which will account for the fact that, in any specific anti-dumping order, not all Korean companies will be subject to the WTO-inconsistent W-T rate. For that adjustment, we consider Korea's proposed figure of 47.6% to be appropriate.

4.4.3.4.2 Procedure to determine the value of imports

4.102. In weighing these two potential data sources, we recall that Korea's right to retaliate arises only when the United States ultimately applies, after the expiry of the RPT, definitive duties to specific exporters of a given non-LRW, based on margins calculated under a W-T comparison methodology, as found to be inconsistent by the Panel and the Appellate Body in the underlying dispute ("inconsistent anti-dumping duty measures"), as a result of USDOC's final determinations issued. As noted in paragraph 4.27, such final determinations could be related to new investigations or to administrative reviews. Hence, we consider that the value of a Korean company's exports of a product subject to an inconsistent anti-dumping duty measure should be prioritized to the extent it is factual and verifiable.

4.103. Nonetheless, the Arbitrator acknowledges that such company-specific data is normally confidential, and, as such, may not be made available to Korea or may not be "verifiable" by the United States. Although the Korean customs authority "maintains records regarding the amount of exports from each firm on an HS code basis, through which Korea could obtain the specific export volumes subject to each anti-dumping duty order", that more particularized information is confidential⁴⁴⁰ – as is the information collected by the United States authorities.⁴⁴¹ Korea may only use such information if it were to secure the necessary authorization from the companies concerned.⁴⁴² Yet, at the same time, Korea should not be deprived from its right to retaliate if it cannot secure such authorization from Korean companies. In this regard, the current situation presents a largely novel problem, as a required input for Korea to calculate suspension of concessions may not be publicly available⁴⁴³ and readily "verifiable" by the United States.

⁴³⁹ See Decision by the Arbitrator, *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, paras. 3.79-3.80. In *Canada – Aircraft Credits and Guarantees*, Canada calculated a financing rate to be applied in the calculation of the level of nullification or impairment. Brazil, however, "argue[d] in general that basing countermeasures on the amount of subsidy is inappropriate in this case". The arbitrator observed that "Brazil did not submit either any sufficient argument or any evidence to support the use of another rate, whereas Canada replied to Brazil's arguments ... in a manner which we consider sufficiently credible." We, too, invited the United States to comment on Korea's response, wherein Korea performed the calculation at issue. The United States did not and, as noted above, opposed Korea's overall approach.

⁴⁴⁰ See Korea's response to Arbitrator question No. 95, para. 27; United States' comments on Korea's response to Arbitrator question No. 95, para. 19.

⁴⁴¹ In this respect, we recall that the United States submitted, as BCI, information on the value of imports, collected by USCBP. See para. 3.109 above.

⁴⁴² See Korea's response to Arbitrator question No. 90(a), para. 107; and United States' comments on Korea's response to Arbitrator question No. 90(a), para. 104.

⁴⁴³ In *US – 1916 Act (EC)*, the arbitrator also contended with a confidential data source. The arbitrator determined that the level of nullification or impairment suffered by the European Communities should be measured by reference to the monetary amount of final judgments and settlement awards under the 1916 Act entered into by EC entities. While final judgments were publicly available, settlements were not. The Arbitrator therefore determined that the European Communities could include settlement awards "to the extent that it can obtain disclosure of such settlement agreements". Even if the European Communities were unable to obtain the settlement awards, it nonetheless was entitled to include the amount of judgments. See Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 6.12.

4.104. To balance this consideration – the verifiability of otherwise confidential data – against our task, which is to determine "equivalence", we have set out a mechanism that strives to "provide confidence that any information relied upon [is] accurate and complete"⁴⁴⁴ by enabling Korea to rely on confidential information, when it is disclosed, or, if not, to have recourse to a "reasoned estimate"⁴⁴⁵ of the level of imports, based on HTS 10-digit level data.

4.105. Accordingly, for the purpose of this Arbitration, Korea shall determine the level of imports as prescribed below.

4.106. Korea will identify those Korean companies that were assigned an anti-dumping duty rate calculated on the basis of the WTO-inconsistent W-T comparison methodology in a given final anti-dumping determination made by the USDOC, following the expiry of the RPT.⁴⁴⁶ Having identified these Korean companies, Korea will then request those companies: (i) to release their export data for a given non-LRW for the relevant reference period⁴⁴⁷; (ii) to give their written permission to the Korean government to both use these data for the purpose of calculating nullification or impairment and to share the data with the United States; and, (iii) to also authorize the relevant United States authority to share the import data with the government of Korea for the purpose of consultation.⁴⁴⁸

4.107. After receiving the relevant information and the requested authorizations from all relevant Korean companies, Korea shall promptly share such information with the United States. Upon receipt, the United States will then be entitled to submit written comments or request a meeting to discuss these data with Korea, or both.

4.108. If the parties agree on the relevant trade data, Korea shall use the agreed data to determine the total value of imports for a non-LRW for the purpose of calculating nullification or impairment. However, if the parties do not reach an agreement on the relevant trade data, within 45 days of Korea's transmission of the data to the United States, Korea shall be entitled to calculate the level of nullification or impairment on the basis of the trade data released to it by affected companies.

4.109. The Arbitrator is mindful that Korea may not be able to secure the necessary authorization and information from all applicable Korean companies. Under circumstances where only some companies provide authorization and information, Korea will be entitled to either: (i) follow the procedure set out in paragraphs 4.106 and 4.107 above, based exclusively on the data for which it has secured the necessary authorization, or (ii) proceed on the basis of the HTS 10-digit level data, as explained in paragraph 4.110 below. Should none of the relevant companies provide authorization, then Korea shall calculate the level of nullification or impairment on the basis of HTS 10-digit level data, as explained in paragraph 4.110.

4.110. When Korea suspends on the basis of HTS 10-digit level data, then it shall, for each inconsistent anti-dumping duty measure, query the total value of imports in USITC DataWeb on the basis of the enumerated HTS lines, at the 10-digit level, in the relevant final determination. Korea shall then apply to this value the adjustment of 47.6%, as provided in section 4.4.3.4.1.3.

4.4.3.5 Level and change of the WTO-inconsistent duty, Δt

4.111. As noted above in section 4.2.1.3 we consider that the appropriate counterfactual is a scenario in which the USDOC calculated dumping margins consistently with Article 2.4, as well as Article 2.4.2, of the Anti-Dumping Agreement. For the purpose of calculating the level of nullification

⁴⁴⁴ United States' comments on Korea's response to Arbitrator question No. 90(b), para. 108.

⁴⁴⁵ Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 41.

⁴⁴⁶ The Arbitrator recalls, in that regard, that Korea suggested that it would "use the information [from the Korea customs authority] to identify the companies from which it should obtain consent to release information to the United States for the purposes of calculating the level of nullification or impairment". See Korea's response to Arbitrator question No. 90(a), para. 107. Korea also "anticipates that the exporters will be fully cooperative in providing the relevant information" since, according to Korea, as such exporters would be subject to anti-dumping duties, "they would have an interest in cooperating with the Korea government in efforts to induce the United States to bring its WTO-inconsistent measures into compliance." Korea's response to Arbitrator question No. 90(b), para. 111.

⁴⁴⁷ See above, section 4.2.2.

⁴⁴⁸ The Arbitrator notes Korea's statement that "the export data will not be released to private parties, and will not subject exporters to the risk of disclosing their confidential business information". Korea's response to Arbitrator question No. 90(b), para. 111.

or impairment, we recall that Korea is entitled to suspend concessions or other obligations with respect to the application of definitive duties to specific exporters of a given non-LRW, based on margins calculated under a W-T comparison methodology, as found to be inconsistent by the Panel and the Appellate Body in the underlying dispute ("inconsistent anti-dumping duty measures"). Mathematically, we recall that this W-T rate, t_i , is replaced with the value of zero in the counterfactual scenario, and the difference between these two values is the change in the duty rate, or Δt_i .

4.112. To undertake this calculation, we must make a further distinction between two situations in which Korea would be entitled to retaliate, depending on when, in relation to the end of the RPT, the WTO-inconsistent anti-dumping duties were imposed: (i) when the USDOC applies an inconsistent methodology in future administrative reviews, (ii) when it conducts new investigations following the end of the RPT. In the former scenario, what we call an "old case", an anti-dumping duty was in place before the expiry of the RPT⁴⁴⁹, whereas, in the latter scenario, or in a "new case", the USDOC, following the end of the RPT, conducts an investigation that results in the application of an inconsistent anti-dumping duty measure. This distinction is important because in old cases the imports in the reference year have already been affected by an inconsistent anti-dumping duty measure, whereas in new cases the value of imports in the reference year has not yet been affected by any such measures.

4.113. Hence, in old cases the level of nullification or impairment constitutes the *increase* in imports that result from eliminating the inconsistent anti-dumping duty measures under the counterfactual, and the reference year is the end of the RPT, i.e. calendar year 2017. In new cases the level of nullification or impairment is the *reduction* in imports arising from the introduction of the inconsistent anti-dumping duty measure under the counterfactual, and the reference period to determine the value of imports is the calendar year prior to the suspension of concessions. In other words, in old cases, the change in the duty rate is the elimination of the inconsistent anti-dumping duty measure, while, in new cases, the change in the duty rate is the application of the inconsistent anti-dumping duty measure.

4.114. This distinction has practical consequences for the formula as follows. For old cases, t_i is the WTO-inconsistent duty rate and the appropriate counterfactual duty is zero. Therefore, the change in the level of the duty in the formula, Δt_i , is equal to zero minus the level of the WTO-inconsistent duty; and, as such, for old cases, Δt_i would be negative. For new cases, t_i is zero since no WTO inconsistent rate has been applied yet. Δt_i would be equal to the WTO-inconsistent duty rate minus zero and hence would be a positive number. In both cases, the same formula applies, where in old cases, imports would increase under the counterfactual, while, in new cases imports would decrease under the same counterfactual. The level of nullification or impairment is equal to the absolute value resulting from application of the formula in equation (1), as noted in section 3.3.3.4.

4.5 Conclusion

4.115. The Arbitrator rejected the formula proposed by Korea, because being based on a model of perfect substitution, it is not appropriate for all traded products which may or may not be perfect substitutes. In addition, Korea's proposed formula does not find support in academic literature. Further, because Korea's proposed procedure to obtain the inputs for its formula is not sufficiently clear, it makes it difficult to assess its appropriateness.

4.116. The Arbitrator nevertheless agrees that Korea should be granted authorization to suspend concessions equivalent to the level of nullification or impairment for non-LRWs, in any future instance of application of the "as such" inconsistent measure. Therefore, the Arbitrator has devised a formula to determine the level of nullification or impairment for non-LRWs that is practical to implement, predictable, and sufficiently generic to take into account the variations of products and markets. Further, the information to undertake the calculation is factual and verifiable.

4.117. According to the Arbitrator's formula, the level of nullification or impairment is proportional to the value of imports from Korea times the change in the anti-dumping duty to make it WTO-consistent. The constant of proportionality is a coefficient that varies by HS chapter and is a function of the market share of Korean imports as well as elasticities of demand, supply and substitution for the product under consideration. With respect to determination of the value of imports, we have set out a mechanism for Korea to obtain the required data inputs and for the United States to verify

⁴⁴⁹ An illustrative list of such cases is found in Appendix B of Korea's methodology paper.

those data. In sum, the Arbitrator's approach enables Korea to calculate the level of nullification or impairment for future WTO-inconsistent measures on any non-LRW in a practical, predictable, and verifiable way.

4.6 Korea's request to adjust the level of suspension annually

4.6.1 Approach of the Arbitrator

4.118. Korea proposes to include a "growth rate" factor to adjust the level of suspension annually for non-LRWs⁴⁵⁰, but does not explain how it would determine the growth rates for these products.⁴⁵¹ In its response to a question by the Arbitrator, Korea clarifies that the actual growth rate of the market "would be the most appropriate way to accurately calculate the level of nullification or impairment" for non-LRWs.⁴⁵² The United States disagrees with Korea's proposed inclusion of a "growth rate" for non-LRWs⁴⁵³, and argues that Korea's approach "introduces a high degree of uncertainty"⁴⁵⁴, because of Korea's failure to explain "what would be the source[s] of the market size data" used to determine these growth rates.⁴⁵⁵

4.119. While the United States disagrees with Korea's proposed inclusion of a "growth rate" with respect to non-LRWs, it agrees, in principle, that a variable level of nullification or impairment is possible.⁴⁵⁶ We recall that nothing in the DSU prevents an arbitrator from providing for a mechanism to adjust the level of suspension to the level of nullification or impairment as long as the two levels remain equivalent.⁴⁵⁷ Moreover, such adjustment must be justified and unpredictability not increase as a result.

4.120. Turning to Korea's proposal, we agree with the United States that there is a "high degree of uncertainty"⁴⁵⁸ in relation to possible sources of data for growth rates for non-LRWs. This is because, at this point in time, the Arbitrator and the parties are unable to determine the products that would potentially be the subject of inconsistent anti-dumping duty measures and, therefore, of suspension. As a result, the appropriate sources for growth rates for such products cannot be determined. Accordingly, the circumstances in the present Arbitration do not merit the inclusion of a growth rate in the calculation of nullification or impairment, and in turn the level of suspension for non-LRWs.

4.121. As discussed in paragraph 3.132 above, one way to ensure that the real value of the level of suspension is maintained over time is by adjusting for inflation. When asked by the Arbitrator about its views on adjustment using the inflation rate, Korea states that it "does not object" to the use of the inflation rate for adjustment, and further notes that this alternative "do[es] not correlate to the actual growth rate of the industry".⁴⁵⁹ The United States opposes such an approach and notes that, in its view, "[u]sing the rate of inflation ... as a proxy for a growth factor for non-LRWs, would not be appropriate, as there is no evidentiary basis for doing so" and because it is "unknowable whether imports of non-LRWs would increase or decrease in parallel to the rate of inflation".⁴⁶⁰ The United States refers to *US – 1916 Act (EC)* to support its contention that the Arbitrator's use of the inflation rate as a proxy would amount to "speculation".⁴⁶¹

4.122. In our view, and as noted above, adjustment based on inflation is not a mechanism to adjust the level of imports, but a means to maintain the real value of the annual level of suspension that would be calculated for non-LRWs based on the formula authorized by the Arbitrator in this case. It does not entail speculation about import levels of non-LRWs and, thus, the United States' concern regarding the lack of evidence showing a relation between the inflation rate and import levels is inapposite.

⁴⁵⁰ Korea's methodology paper, para. 49.

⁴⁵¹ See Korea's methodology paper, paras. 49-51.

⁴⁵² Korea's response to Arbitrator question No. 80, para. 81.

⁴⁵³ United States' written submission, paras. 137.

⁴⁵⁴ United States' comments on Korea's response to Arbitrator question No. 92, para. 116.

⁴⁵⁵ United States' comments on Korea's response to Arbitrator question No. 92, para. 114.

⁴⁵⁶ United States' written submission, paras. 137, 140-141. See also para. 3.123 above.

⁴⁵⁷ See para. 3.124.

⁴⁵⁸ United States' comments on Korea's response to Arbitrator question No. 92, para. 116.

⁴⁵⁹ Korea's response to Arbitrator question No. 80, para. 82.

⁴⁶⁰ United States' response to Arbitrator question No. 80, para. 87.

⁴⁶¹ United States' response to Arbitrator question No. 80, para. 87.

4.123. In light of the foregoing, we conclude that the nullification or impairment, and in turn the level of suspension, calculated by Korea with respect to non-LRWs on which WTO-inconsistent duties are applied, may be adjusted for inflation on an annual basis. In our view, allowing Korea to adjust the level of suspension for non-LRWs to account for inflation is justified and does not increase unpredictability.

4.6.2 Annual adjustment of the level of nullification or impairment of non-LRWs based on the inflation rate

4.124. The next issue to address is the appropriate price index to use to calculate the rate of inflation for the purpose of making annual adjustments to the level of nullification or impairment. The price index should have a product coverage that corresponds as closely as possible to the range of non-LRWs. Among the price indices published by the United States Bureau of Labor Statistics, the most appropriate is the producer price index for total manufacturing. Thus, Korea shall use the producer price index for total manufacturing to make annual adjustments to the level of nullification or impairment of non-LRWs. The exact title and ID of this data series are: "PPI industry group data for total manufacturing industries, not seasonally adjusted" and "PCUOMFG--OMFG--", respectively.⁴⁶² The Bureau of Labor Statistics routinely revises PPI data four months after initial publication.⁴⁶³ Thus, calculations shall always use the latest version of this index published as of the date for making the annual adjustment of the level of nullification or impairment.

4.125. We recall that the Arbitrator has determined that the level of nullification or impairment, should the United States apply a WTO-inconsistent measure on a non-LRW in a particular year, can be determined by a formula based on the level of nullification or impairment in calendar year 2017, plus the changes in the inflation rate for the relevant year:

$$NI_{i,t+1} = NI_{i,t} * (1 + \text{inflation}_t), \quad t = 1, 2, \dots$$

$NI_{i,1}$ = level of nullification or impairment calculated using equation (6)

4.126. Here the variable $NI_{i,t+1}$ refers to the level of nullification or impairment of the non-LRW i in year $t + 1$; $NI_{i,t}$ is the level of nullification or impairment of the same non-LRW i in year t , the previous year; inflation_t is the rate of inflation in calendar year t as measured by the producer price index for total manufacturing. This is to be calculated by comparing the value of the index in December of year t with its value in December of the previous year.⁴⁶⁴ The time period "1" refers to the first year that the suspension of concessions is applied and must be equal to the level of nullification or impairment calculated using equation (6).

4.127. Korea shall be entitled to impose the suspension of concessions or other obligations equal to the level of nullification or impairment calculated using equation (6) during the first year following the date of DSB authorization (" $t=1$ "). In subsequent years (following the date of DSB authorization), if the United States has not fully complied with the DSB recommendations and rulings, Korea shall be entitled to adjust the value of its level of suspension by a percentage corresponding to the United States' price inflation rate for total manufacturing from the preceding calendar year.

4.128. The following example illustrates how this adjustment shall be implemented. Let us assume that, on 30 November 2019, Korea imposes suspension of concessions or other obligations on the United States at a level of USD 10 million, determined using the formula described in equation (6). Korea is therefore authorized to impose this level of suspension of concessions or other obligations starting from 1 December 2019 until 30 November 2020. For the subsequent period, from 1 December 2020 to 30 November 2021, Korea is authorized to increase the level of suspension of concessions or other obligations by a percentage corresponding to the change in the producer price index for total manufacturing during the preceding calendar year (2019). This is to be calculated by

⁴⁶² Bureau of Labor Statistics, <<https://data.bls.gov/timeseries/PCUOMFG--OMFG-->>, accessed 15 October 2018.

⁴⁶³ Bureau of Labor Statistics, <<https://www.bls.gov/ppi/ppiescalation.htm>>, accessed 15 October 2018.

⁴⁶⁴ The rate of inflation in calendar year t is to be calculated as follows: (Value of the producer price index for total manufacturing in December of year t - Value of the producer price index for total manufacturing in December of year $t-1$) / Value of the producer price index for total manufacturing in December of year $t-1$.

comparing the value of the index in December 2019 with its value in December 2018.⁴⁶⁵ When making this calculation, Korea shall use the latest version of this index published as of 30 November 2020. If the index changed by 5% in calendar year 2019, then Korea can impose a level of suspension of concessions or other obligations equivalent to USD 10.5 million, which is 5% more than the amount authorized from 1 December 2019 to 30 November 2020.

4.129. Accordingly, the level of suspension of concessions by Korea to the United States must not exceed in US dollars, the amount resulting from the yearly application of this formula.

5 OVERALL AWARD OF THE ARBITRATOR

5.1. For Korea's request pertaining to LRWs, based on the reasons set out in section 3 above, the Arbitrator determines that the level of nullification or impairment caused by the WTO-inconsistent anti-dumping and countervailing duty measures at the end of the RPT amounts to USD 74.40 million and USD 10.41 million, respectively. These amounts may be adjusted for inflation for the year 2018 and on an annual basis thereafter. We suggest that Korea notify the DSB every year of the adjustment to the level of suspension.

5.2. For Korea's request in relation to non-LRWs, based on the reasons set out above in section 4, we decide that Korea may apply the following formula to calculate the level of nullification or impairment on non-LRWs if and when the United States applies definitive duties to specific exporters of a given non-LRW, based on margins calculated under the W-T comparison methodology, as found to be WTO-inconsistent by the Panel and the Appellate Body in the underlying dispute:

$$NI_i = c_s * vimp_i * \frac{\Delta t_i}{1+t_i} \quad (6)$$

5.3. The inputs for the formula are defined as follows: NI_i is the level of nullification or impairment of the non-LRW i ; c_s is a coefficient depending on the market share of the complaining party and the demand, supply, and substitution elasticities of the product under consideration; $vimp_i$ is the value of imports from Korean enterprises (inclusive of cost, insurance and freight but exclusive of duties) subject to WTO inconsistent duties; Δt_i is the difference between the WTO-inconsistent duty rate and zero; and, t_i is the level of the WTO-inconsistent duty rate. Δt_i and t_i are ad valorem duty rates, *not* measured in percentage terms. Finally, we suggest that Korea notify the DSB of the level of suspension that it calculates and of any adjustment on this level of suspension thereafter "for each year during the first quarter of the following year".⁴⁶⁶

6 CONCLUDING OBSERVATIONS

6.1. This is the first arbitration that was tasked with determining the level of nullification or impairment caused by essentially the same measures "as such" and "as applied". In view of these particular circumstances, the Arbitrator has striven to use a similar approach for both, to the extent possible. However, certain adjustments were unavoidable. We wish to briefly highlight the main similarities and differences characterizing the approaches adopted for LRWs and non-LRWs, in particular with respect to the counterfactuals, the economic model, the data employed, and the reference period. We shall then conclude with a few general remarks.

6.2. Our selection of the counterfactuals was driven by the notion of benefits accruing to Korea. Against this background, and for the reasons explained above, the proper counterfactual could not entail withdrawal of the orders. For the "as applied" measures, the appropriate counterfactual is a hypothetical scenario in which the USDOC would have relied on the normal comparison methodology in the first sentence of Article 2.4.2 of the Anti-Dumping Agreement for the determination of the anti-dumping duty. In principle, the same scenario could have been envisioned with respect to non-LRWs; however, uncertainties related to the availability of information in future anti-dumping investigations and administrative reviews obliged us to use the value of zero, as a proxy figure, to

⁴⁶⁵ The rate of inflation in calendar 2018 is to be calculated as follows: (Value of the producer price index for total manufacturing in December 2018 - Value of the producer price index for total manufacturing in December 2017)/ Value of the producer price index for total manufacturing in December 2017.

⁴⁶⁶ Korea's response to Arbitrator question No. 73, para. 59.

take the place of anti-dumping duty rates based on W-T margins in future anti-dumping orders on non-LRWs.

6.3. The Arbitrator then determined that it would be possible to apply a similar model – the Armington model – to calculate the level of nullification or impairment for LRWs and non-LRWs. This model is flexible, because the elasticity of substitution can vary depending on the nature of the product and the market. In contrast, the perfect substitutes partial equilibrium model assumes that the elasticity of substitution is infinite, and we had no evidence, in the LRW context, and necessarily no means to obtain evidence, in the non-LRW context, to make that assumption.

6.4. For LRWs, the reasons to use the Armington model are, *inter alia*, that LRWs are differentiated products and evidence provided by the parties support a finite value of 4 for the elasticity of substitution of LRWs. In the case of non-LRWs, the Armington model was deemed flexible to accommodate the different types of products and market settings where "as such" violations may occur. This flexibility arises from allowing the elasticity of substitution to vary depending on the nature of the non-LRW, instead of assuming, without any evidence, that it is infinite, as would be the case in the perfect substitutes model. Consequently, the size of the coefficient also varies, depending on the product and market under consideration. This approach ensures that the suspension of concessions will be equivalent to the level of nullification or impairment.

6.5. The Armington model requires data inputs such as the import share and the size of demand, supply, and substitution elasticities. For LRWs the choice of each of these variables and parameters was made by the Arbitrator based on extensive submissions, responses to questions, and comments on each other's responses by the parties. This type of exchange was not possible for the not-yet-identified non-LRWs. Consequently, a procedure was required to reduce ambiguity in sources of data and calculations as much as possible. It is for these reasons that we have adopted the use of a formula for non-LRWs using the data sources and methodology described in section 4.4.3.⁴⁶⁷

6.6. While there is no difference in the variables used in the calculations for LRWs and non-LRWs the sources of data used for these variables differ, in particular with respect to (i) the value of imports, and (ii) the import share or size of the market.⁴⁶⁸ First, the value of imports is at HS 10-digit level for LRWs, whereas it is either firm-level or product-level data for non-LRWs. The reason for this difference is that in LRWs, the evidence submitted by the parties and the ensuing debate between them has allowed the Arbitrator to make the appropriate determinations about the tariff lines concerned⁴⁶⁹, whereas this is not the case for the not-yet-identified non-LRWs. Second, the average import shares for the 98 HS chapters are employed for non-LRWs, whereas precise information on the value of sales of LRWs in the United States is used (i.e. AHAM data). The reason for this difference is that no uniform source of data can be prescribed by the Arbitrator that could provide the same level of precision for yet unidentified products.

6.7. The reference period to determine the value of imports that serve as input into the model differs for LRWs and non-LRWs. For LRWs the market share in 2011, prior to the imposition of the measure, is employed and adjusted based on the economic model to arrive at a hypothetical market share in 2017 representing a situation in which the WTO-inconsistent duties are in place. The level of nullification or impairment is calculated in a counterfactual where the WTO-inconsistent duties are removed at the end of the RPT in 2017. For non-LRWs "old cases", where the reference period is also the end of the RPT, we cannot adopt the same approach as for LRWs, because the information to undertake this analysis was not provided by Korea and the use of hypothetical import values for non-LRWs would be impractical and difficult to implement. For non-LRWs "new cases", the reference period is the calendar year prior to the application of the inconsistent anti-dumping duty measure.

⁴⁶⁷ More technically, in the case of LRWs, the Armington model is solved exactly: the system of non-linear equations defining the Armington model is solved to determine the impact of changes in duties on the value of imports. For non-LRWs, the system of equations defining the Armington model is first written in relative changes to arrive at one equation (i.e. the formula), which can be employed to determine the impact of changes in duties on the value of imports.

⁴⁶⁸ For LRWs data on the value of imports and the size of the market are used, whereas for non-LRWs data on the value of imports and the import share are employed. However, combining the value of imports with the import share generates the size of the market. Hence, the variables employed for LRWs and non-LRWs are equivalent.

⁴⁶⁹ See Section 3.3.4.6 above.

6.8. Notwithstanding the differences highlighted above, the use of the Armington model for both LRWs and non-LRWs will result in a similar approach to calculating the level of nullification or impairment. In addition, both approaches "create an opportunity to ensure full cooperation from the parties and, hence, more precise and credible results".⁴⁷⁰ Moreover, with a view to enhancing transparency, we suggested that Korea should notify the DSB every year of the amount of suspension resulting from the implementation of our Award.

6.9. Finally, we note that, should the United States consider that the application of the suspension by Korea exceeds the level of nullification or impairment sustained by Korea, the United States may have recourse to the appropriate dispute settlement procedures.⁴⁷¹

⁴⁷⁰ Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.79.

⁴⁷¹ Decisions by the Arbitrators, *EC – Hormones (US) (Article 22.6 – EC)*, para. 38; *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 4.27; *US – 1916 Act (EC) (Article 22.6 – US)*, para. 9.2.