

Supplementary Figure Legends:

Supplementary Figure 1. APC of ASIR of ischemic stroke in each GBD region from 1990 to 2021.

Supplementary Figure 2. APC of ASMR of ischemic stroke in each GBD region from 1990 to 2021.

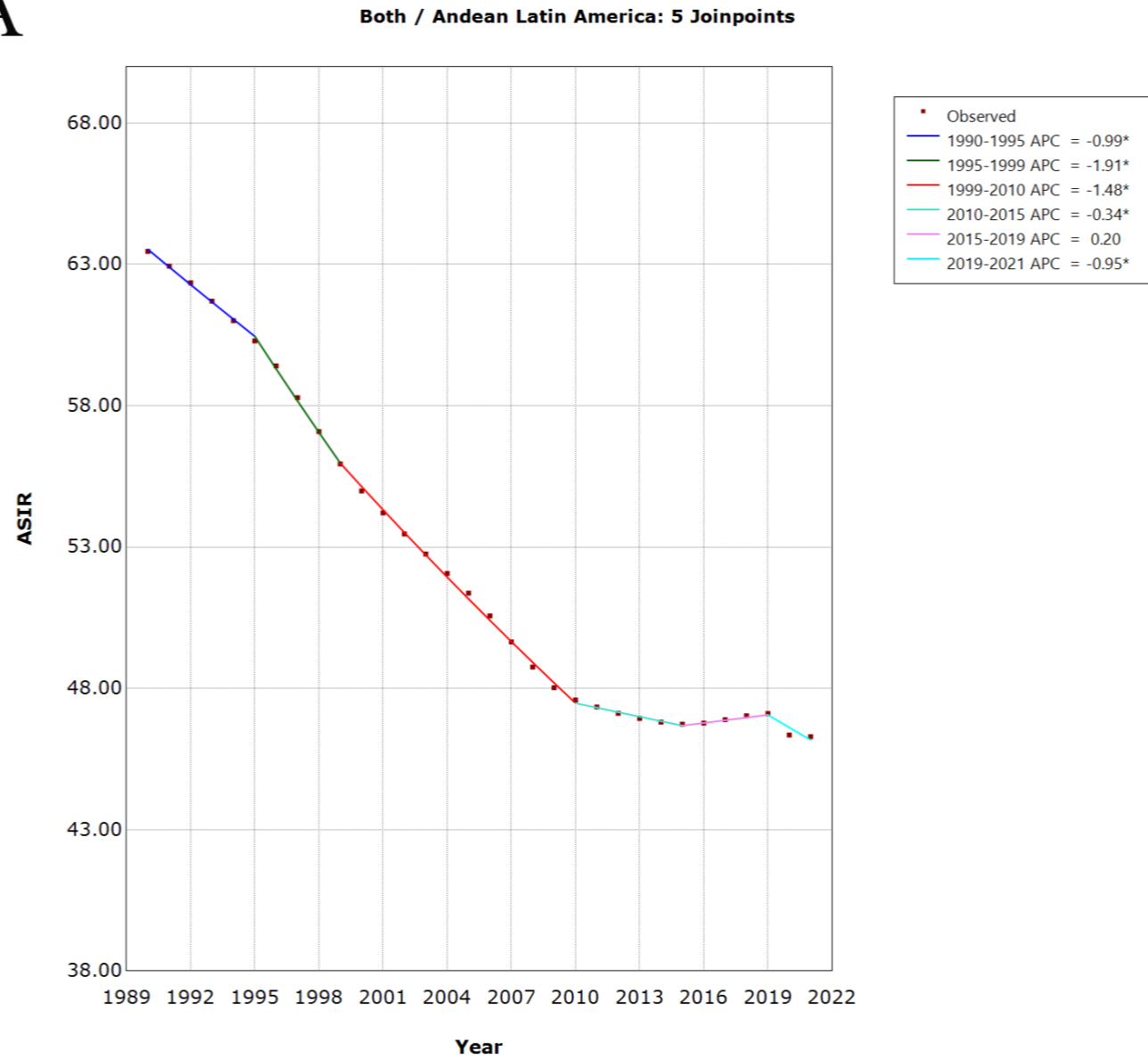
Supplementary Figure 3. APC of ASDR of ischemic stroke in each GBD region from 1990 to 2021.

Supplementary Figure 4. Incident, Death, and Disability-Adjusted Life-Years (DALYs) Cases of Ischemic Stroke in 204 Countries and Territories.

Supplementary Figure 5. The ASIR, ASMR, and ASDR of Ischemic Stroke in 204 countries and territories.

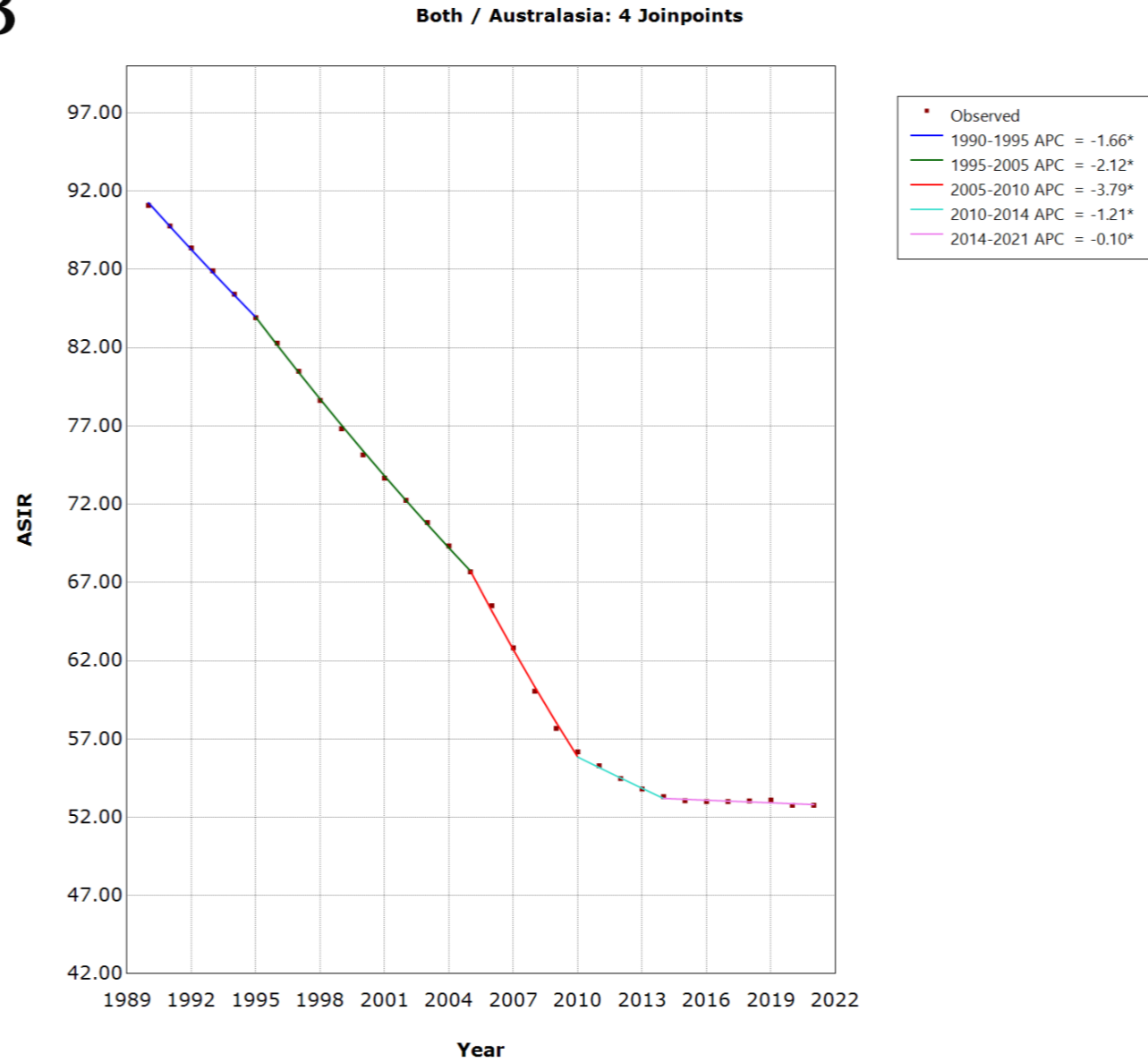
Supplementary Figure 6. APC of ASMR for ischemic stroke attributable to each risk factor, 1990-2021.

A



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

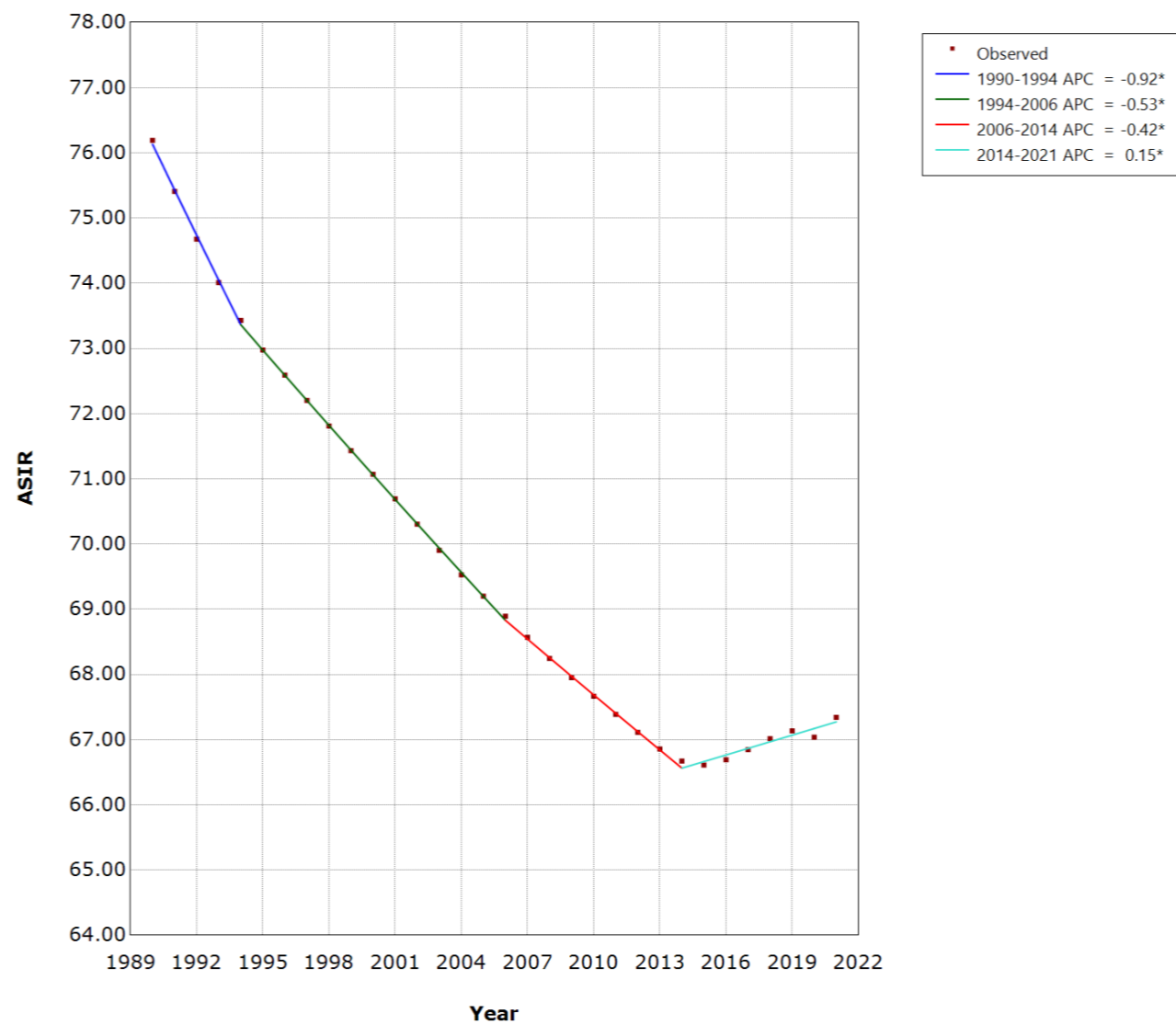
B



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 4 Joinpoints.

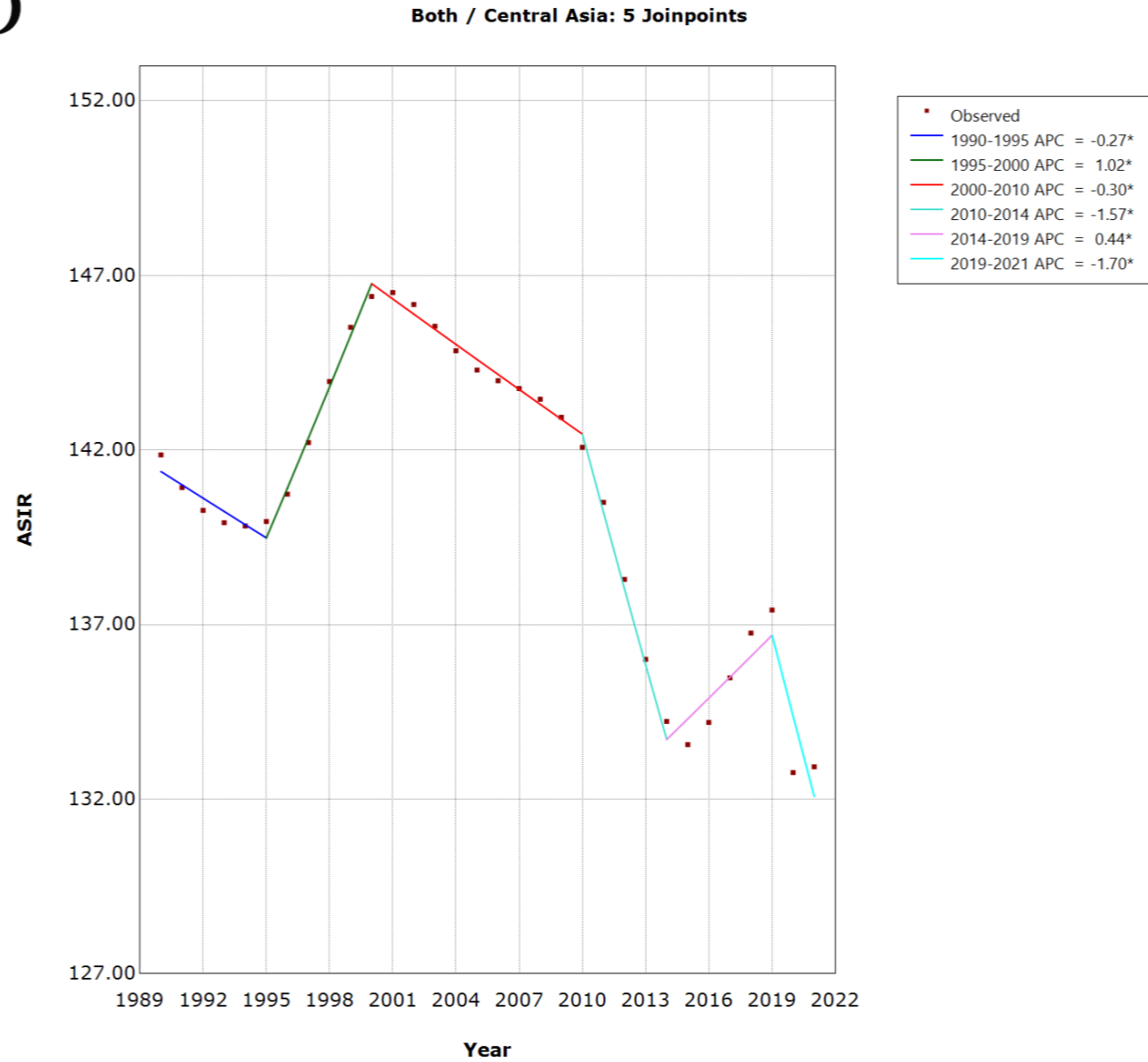
C

Both / Caribbean: 3 Joinpoints



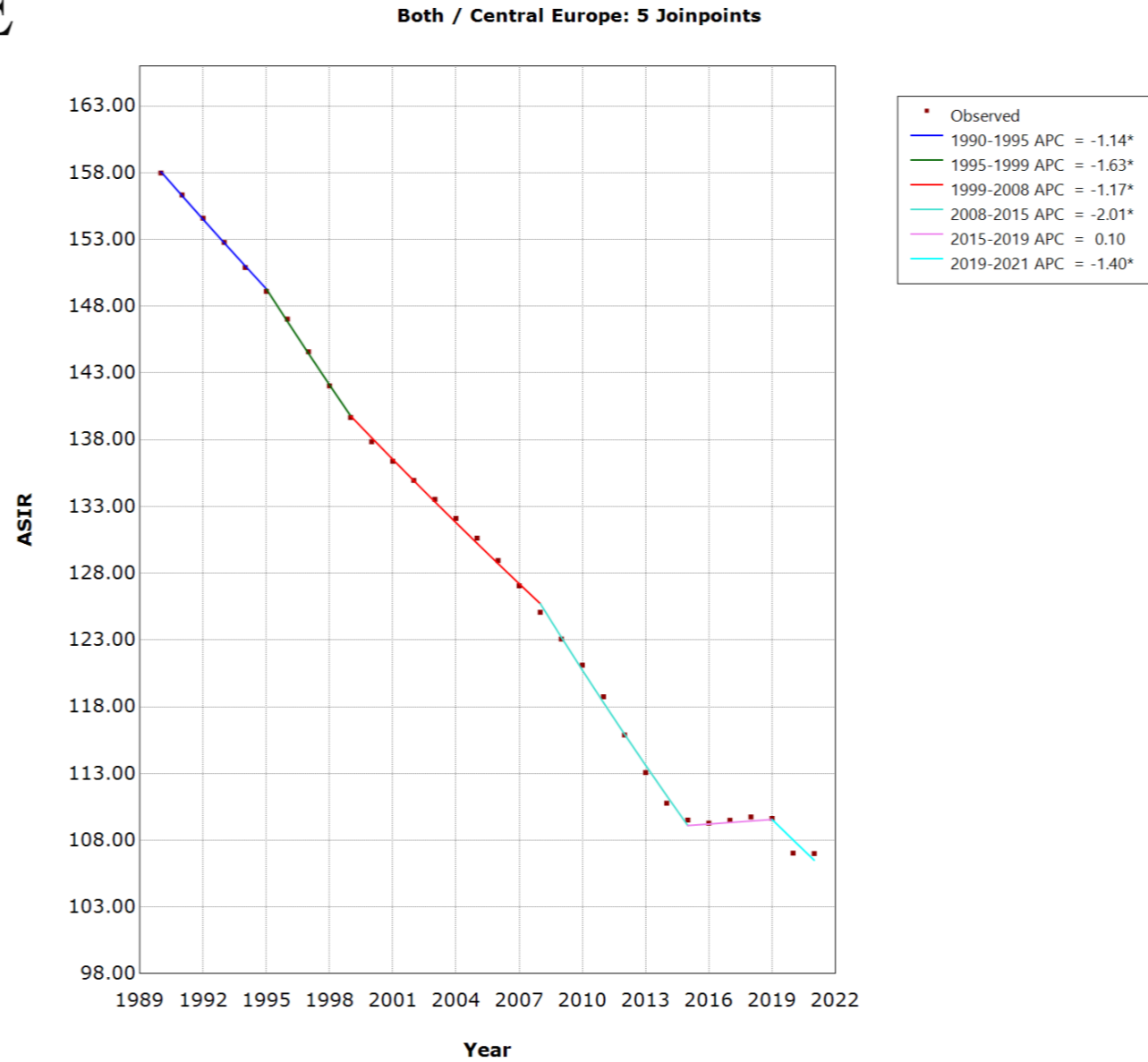
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Final Selected Model: 3 Joinpoints.

D



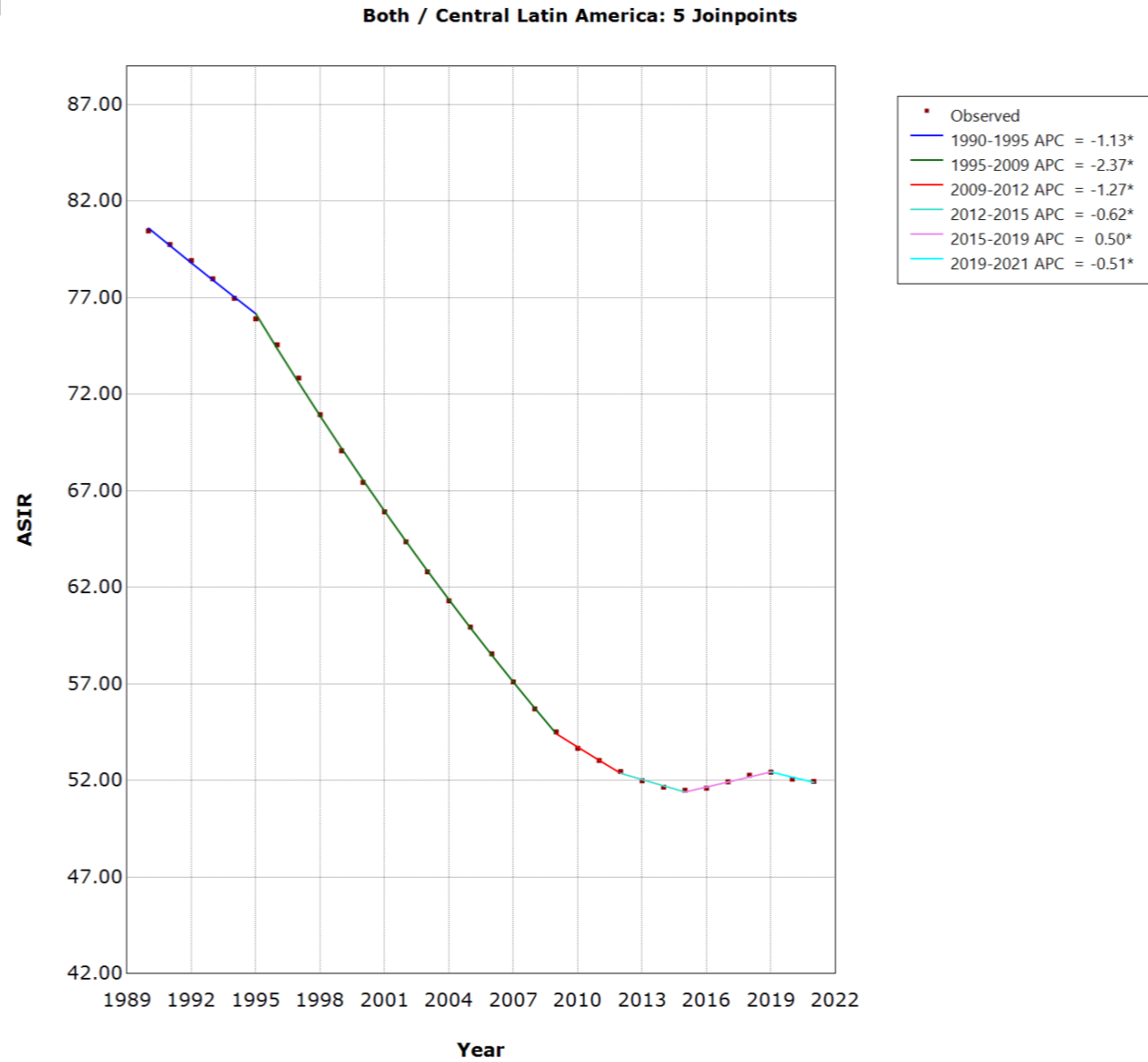
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

E



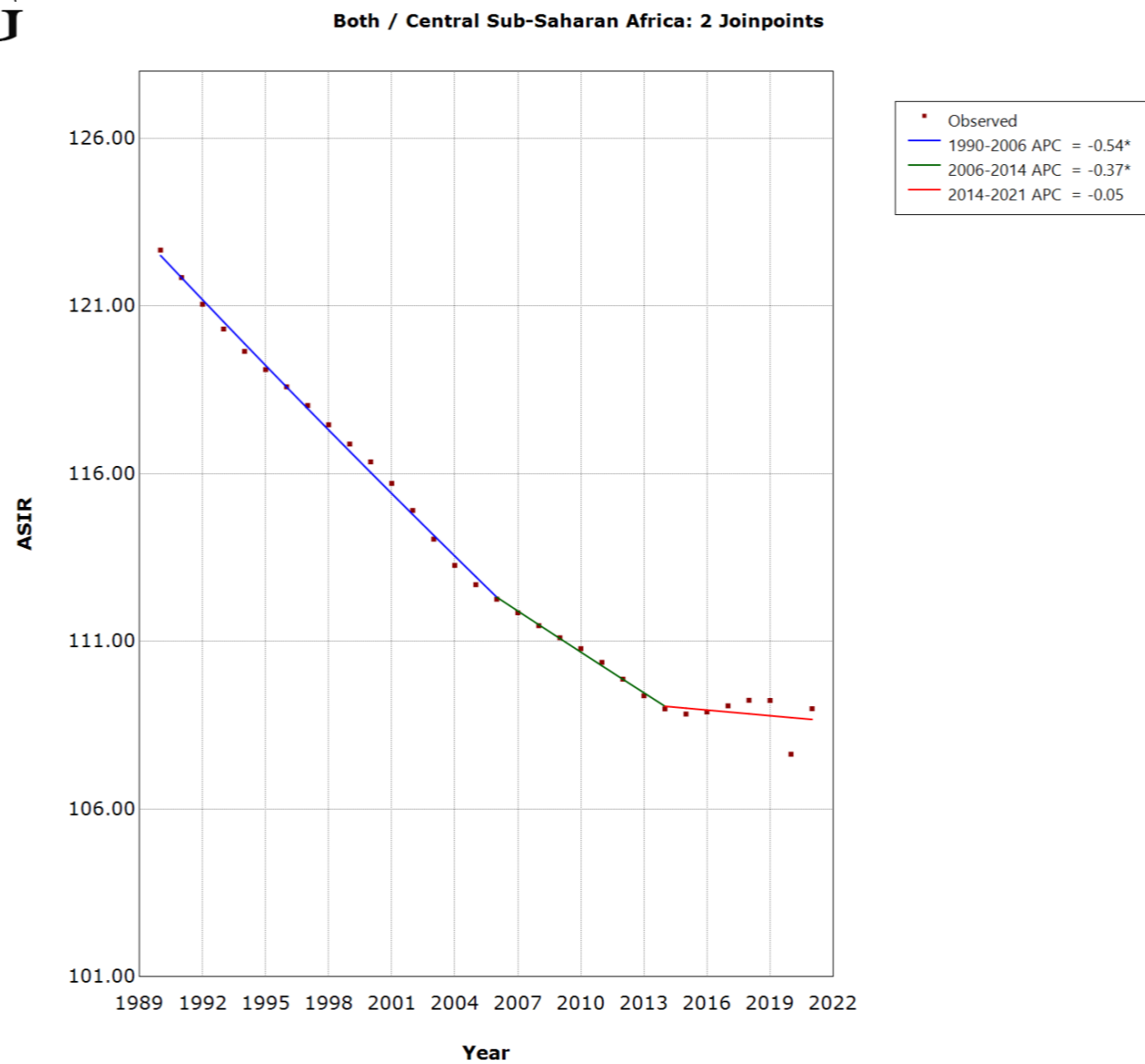
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F



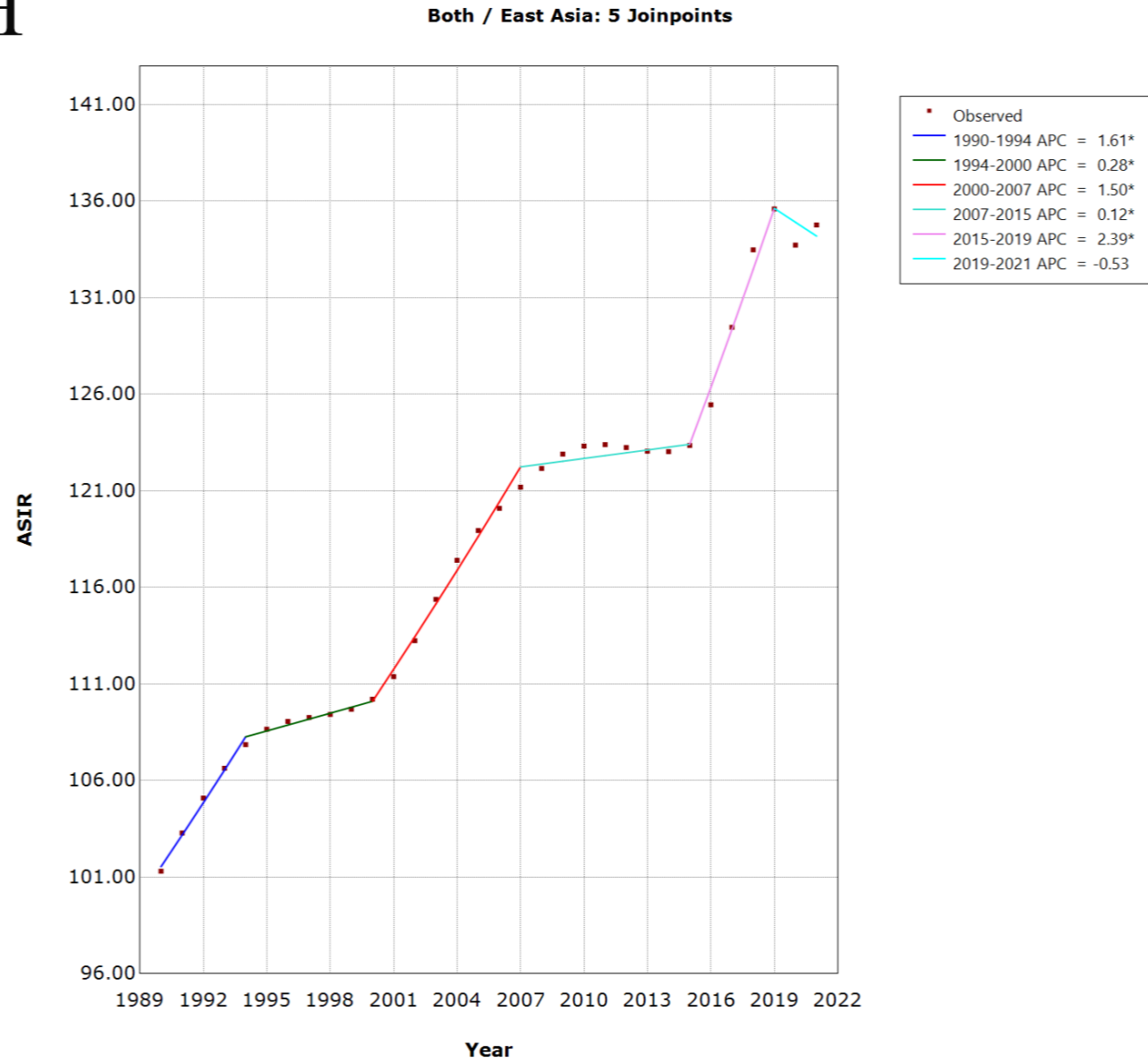
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G



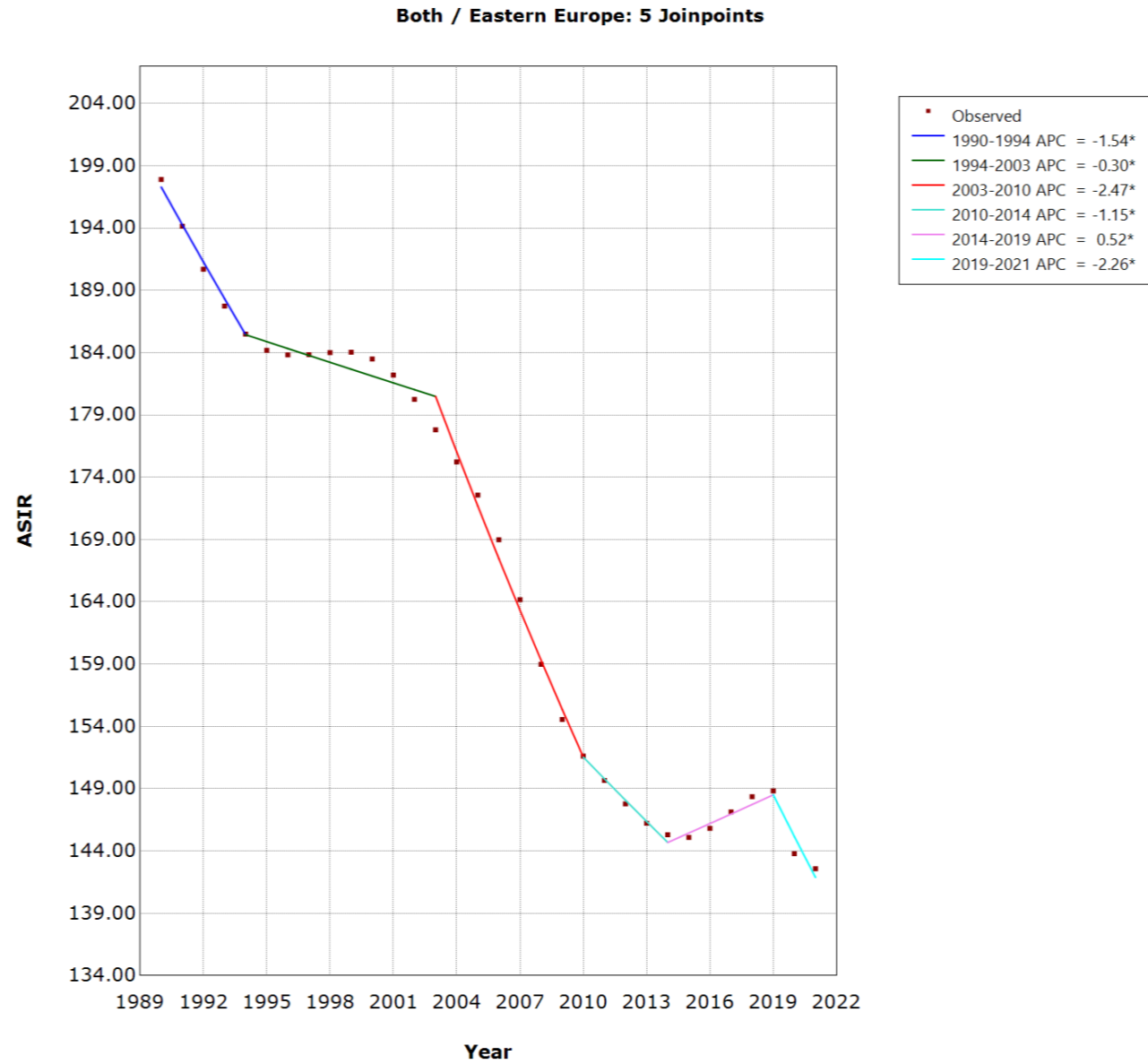
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 2 Joinpoints.

H



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

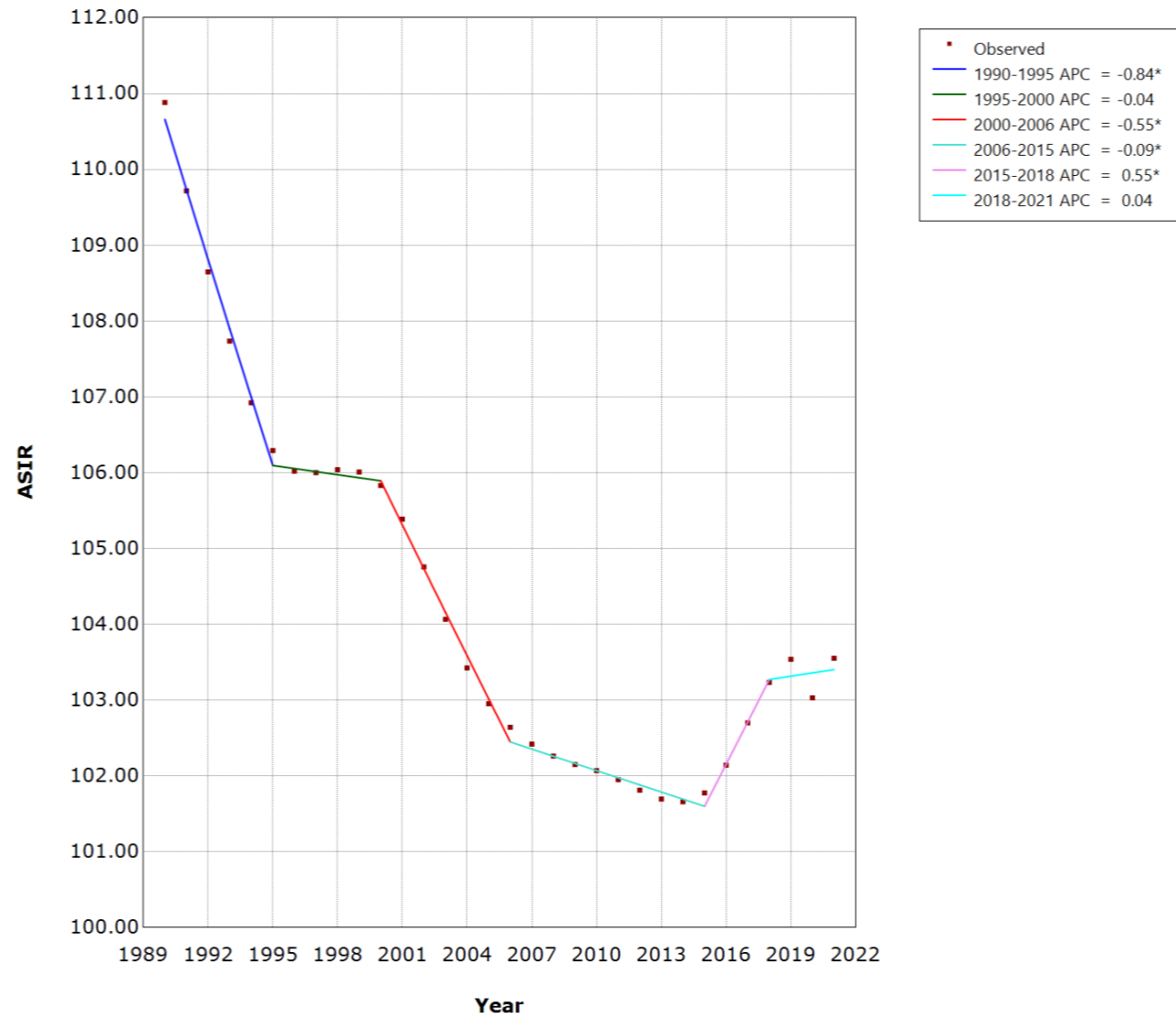
I



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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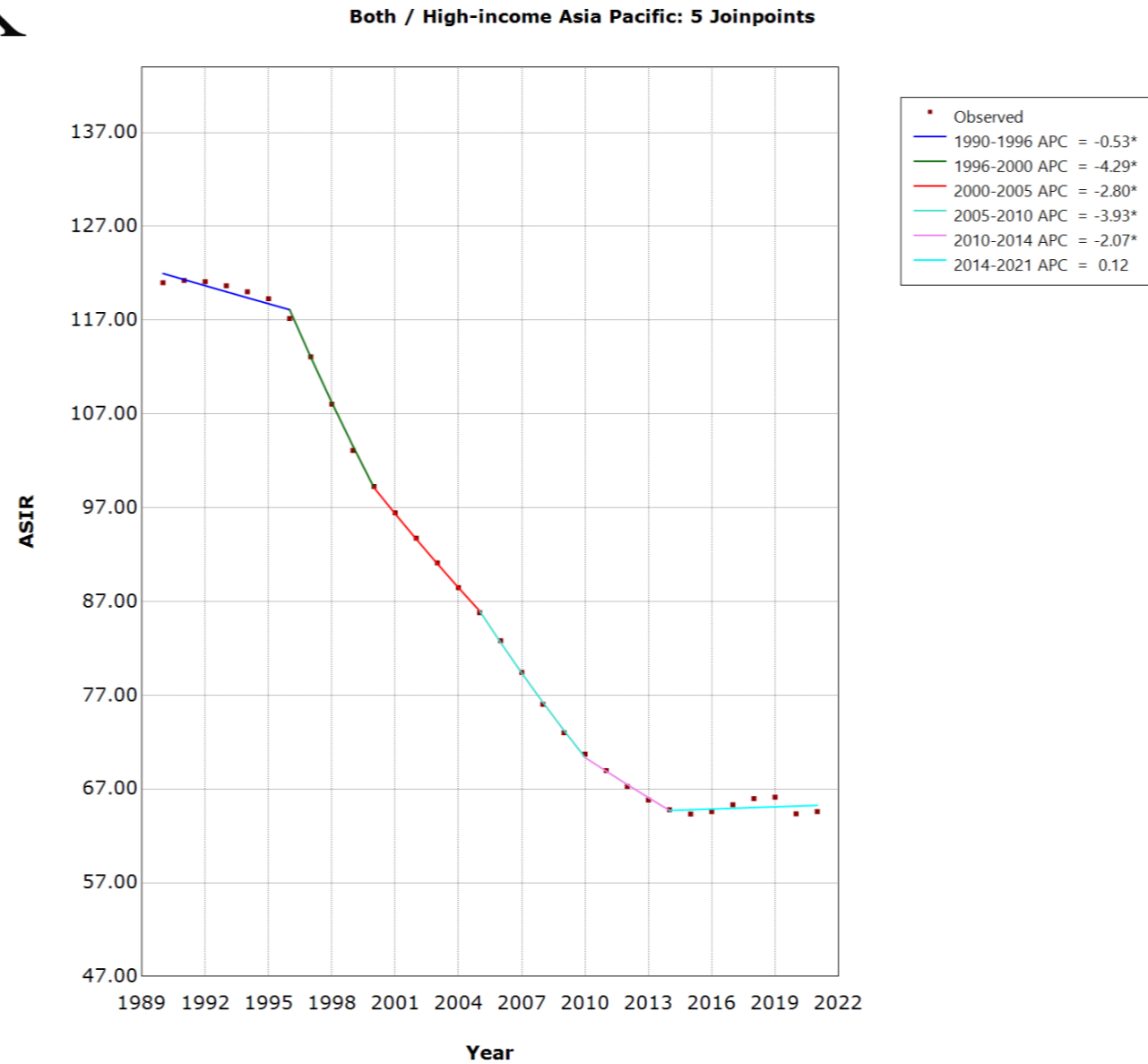
J

Both / Eastern Sub-Saharan Africa: 5 Joinpoints



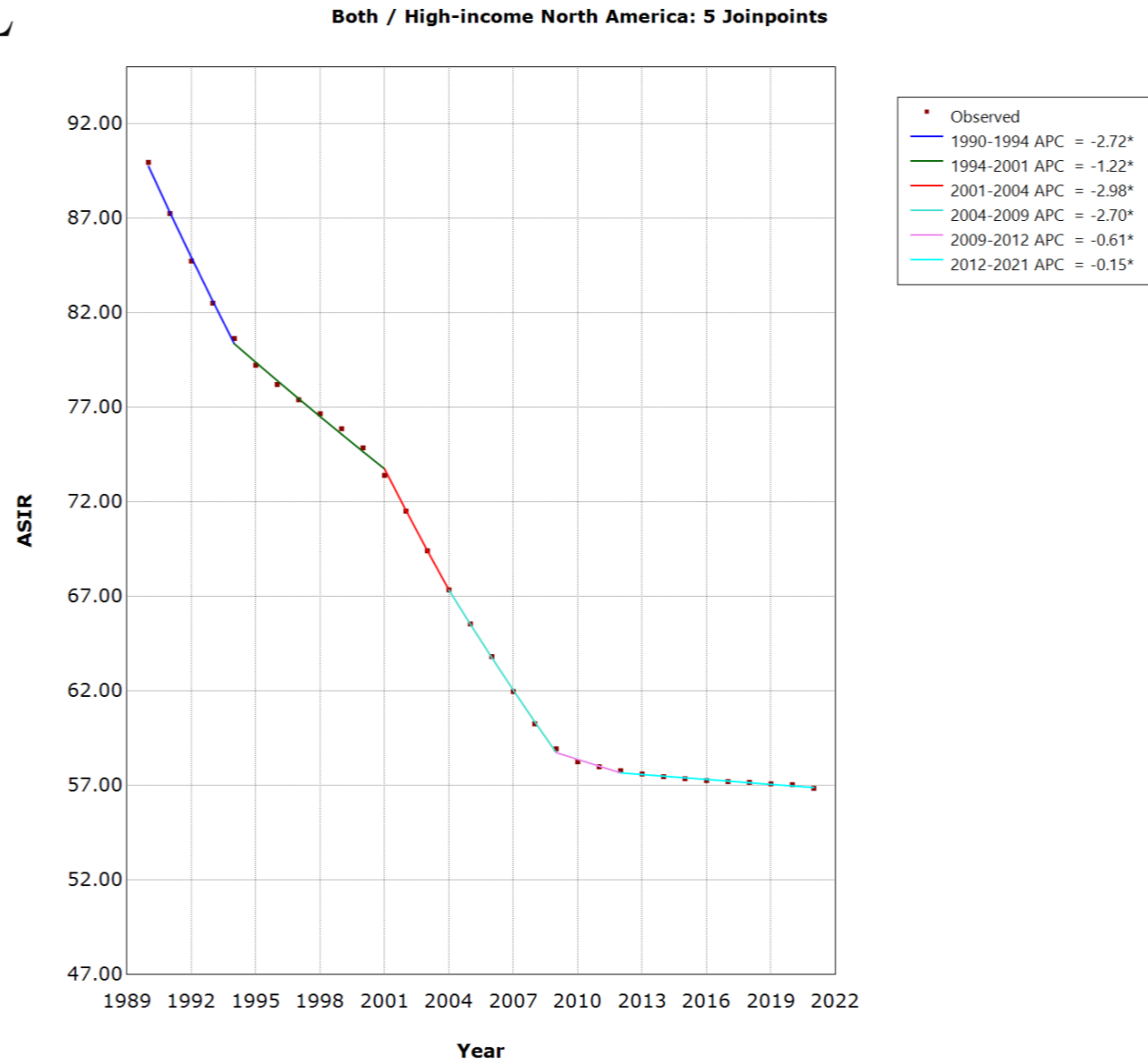
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Final Selected Model: 5 Joinpoints.

K



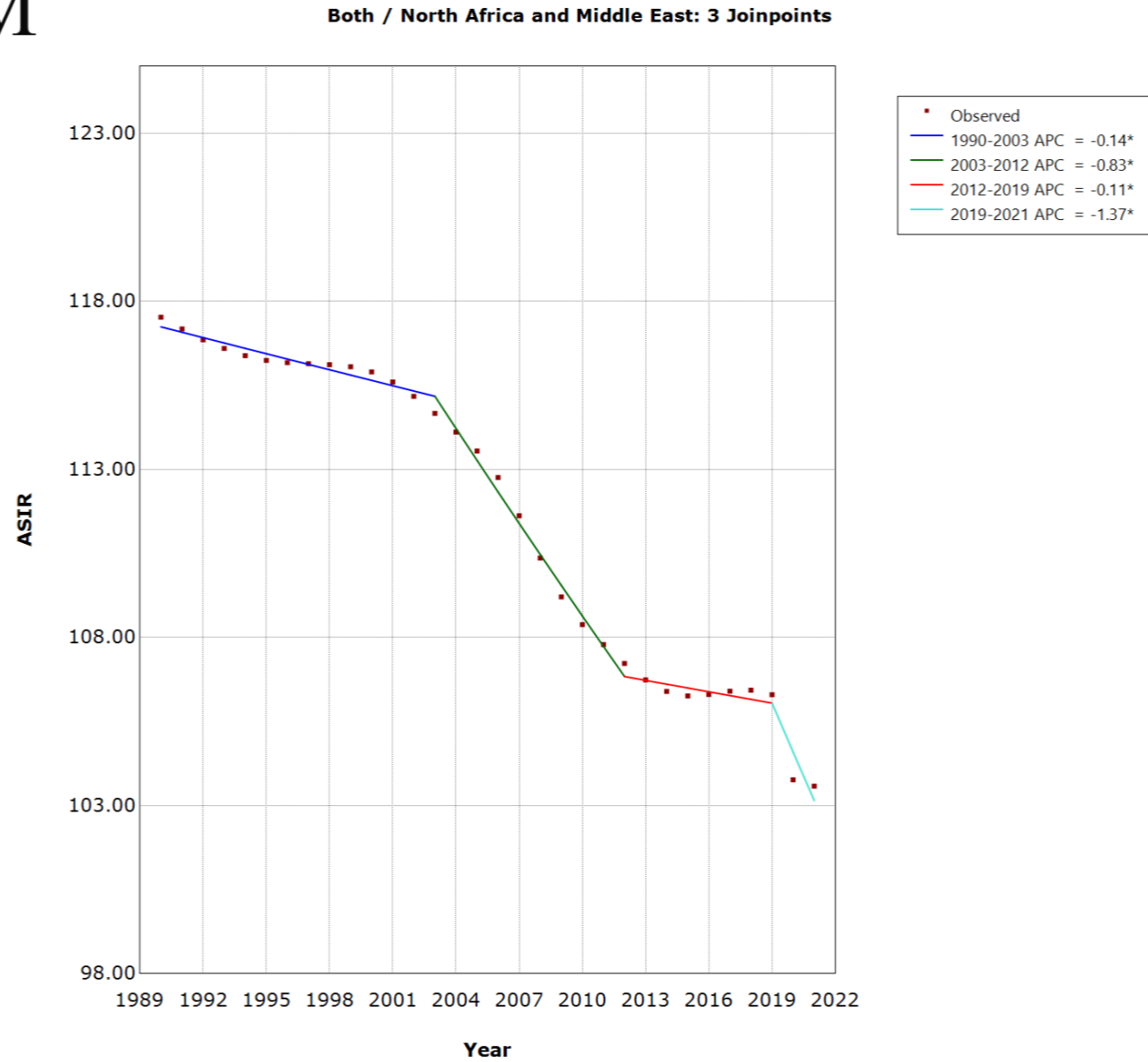
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L



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

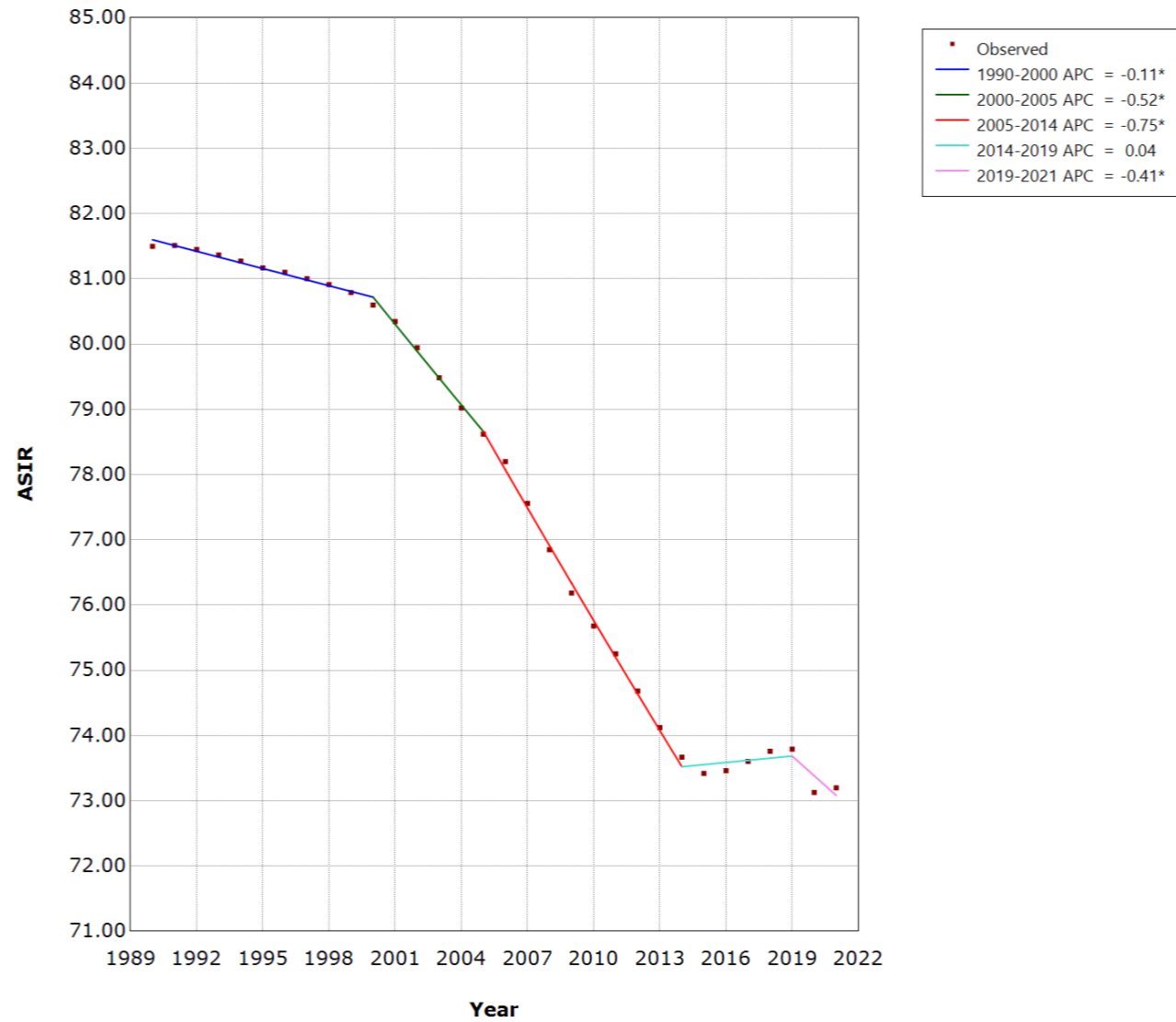
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* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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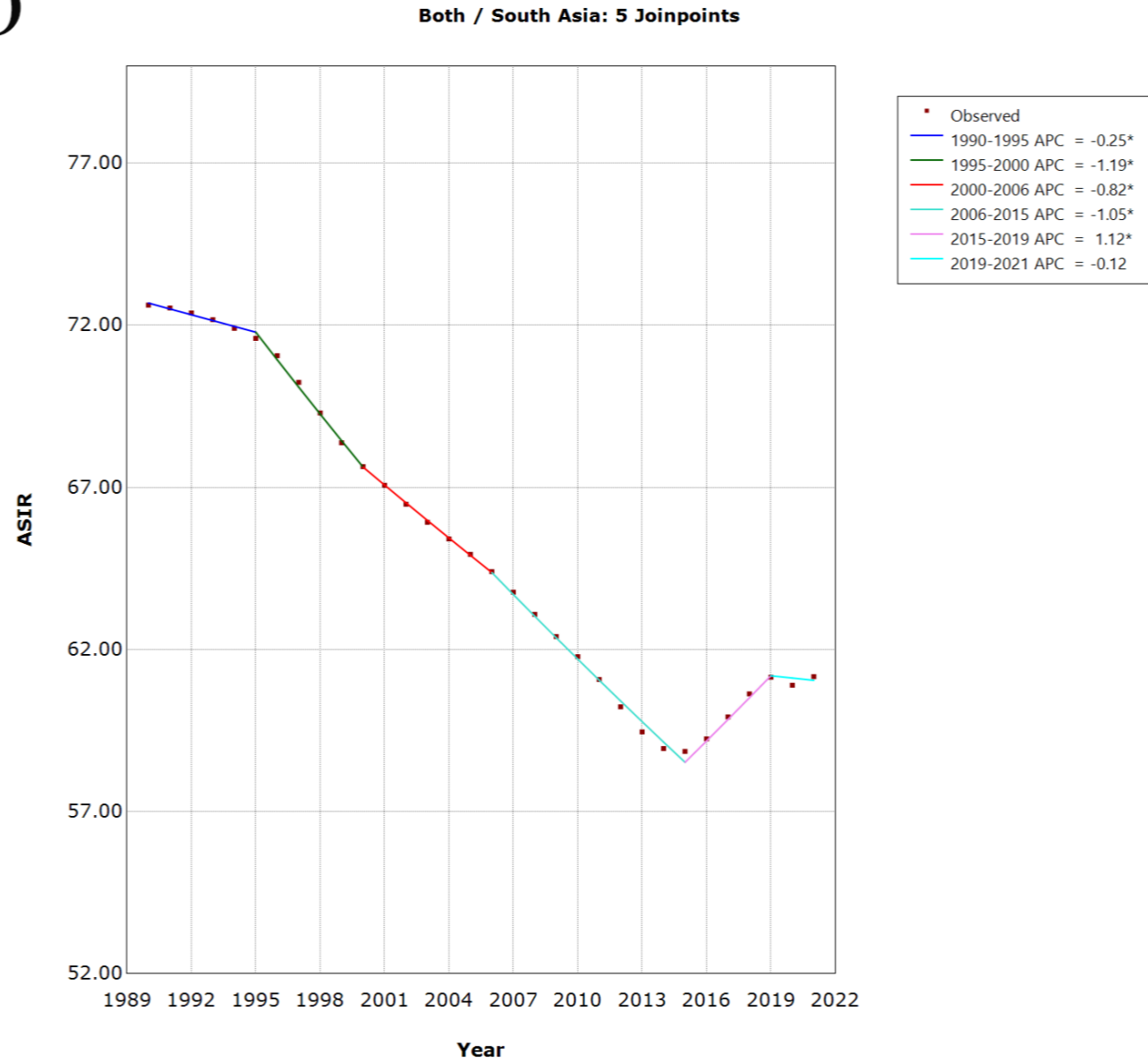
N

Both / Oceania: 4 Joinpoints



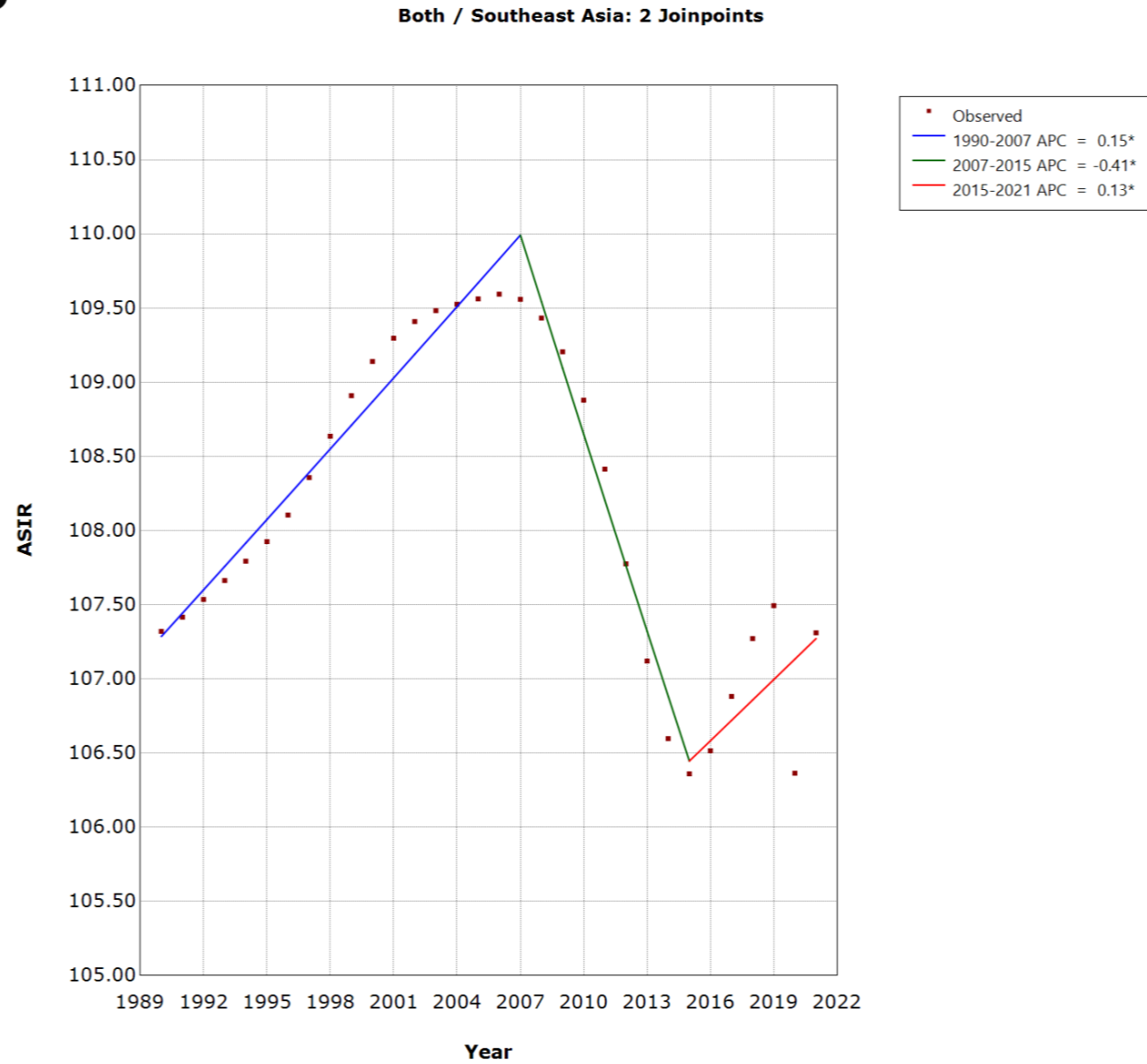
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O



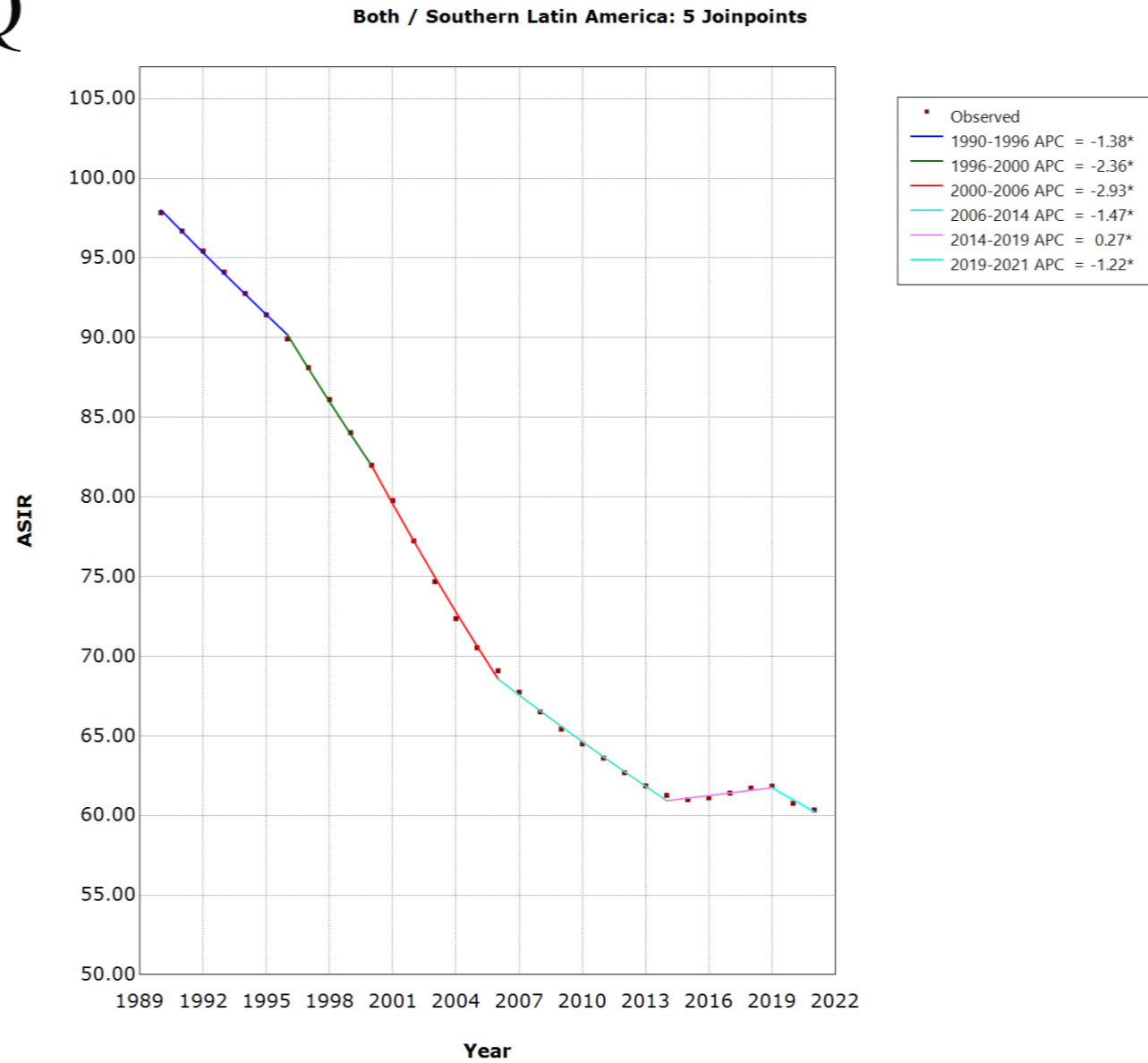
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P



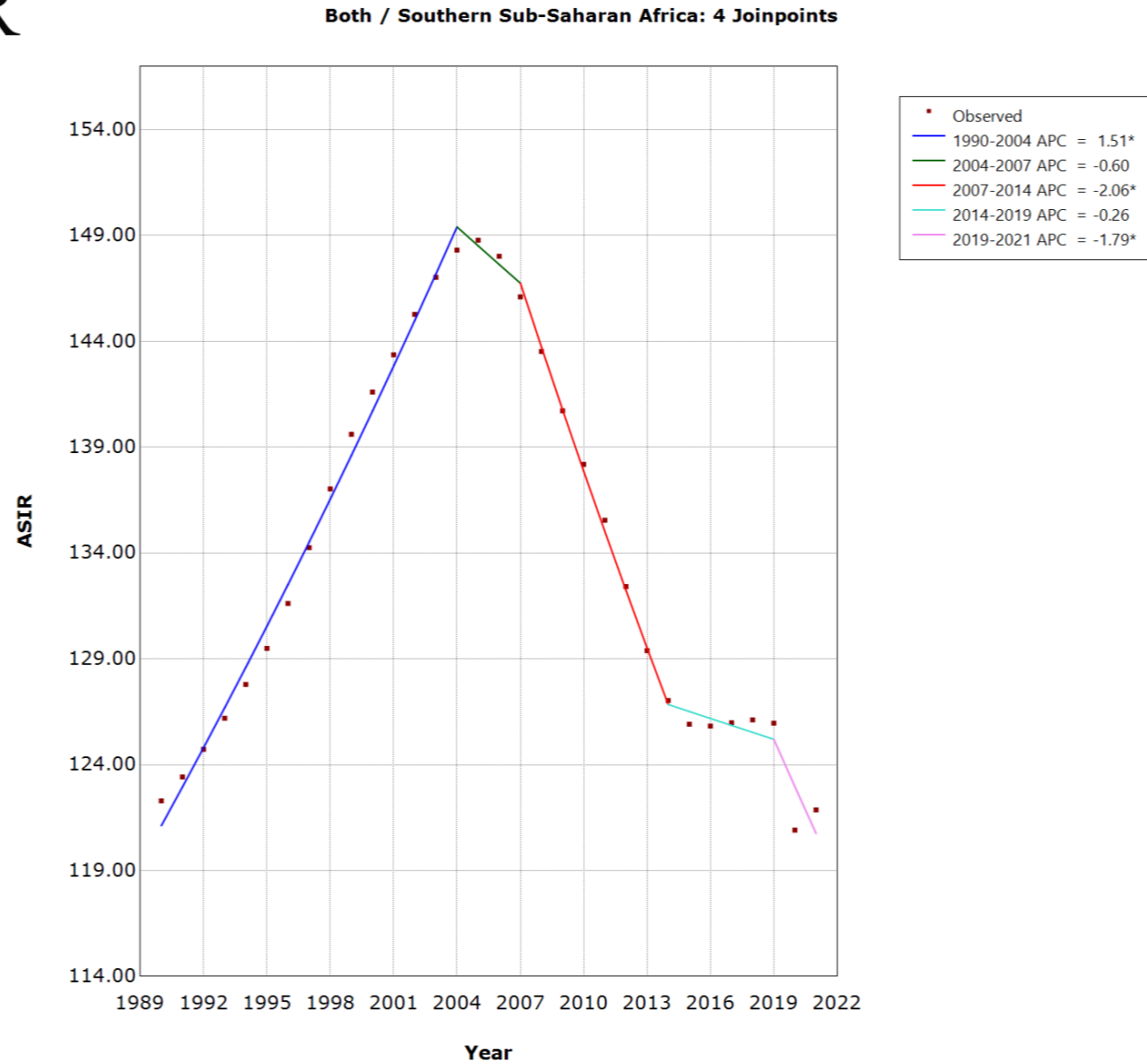
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Q



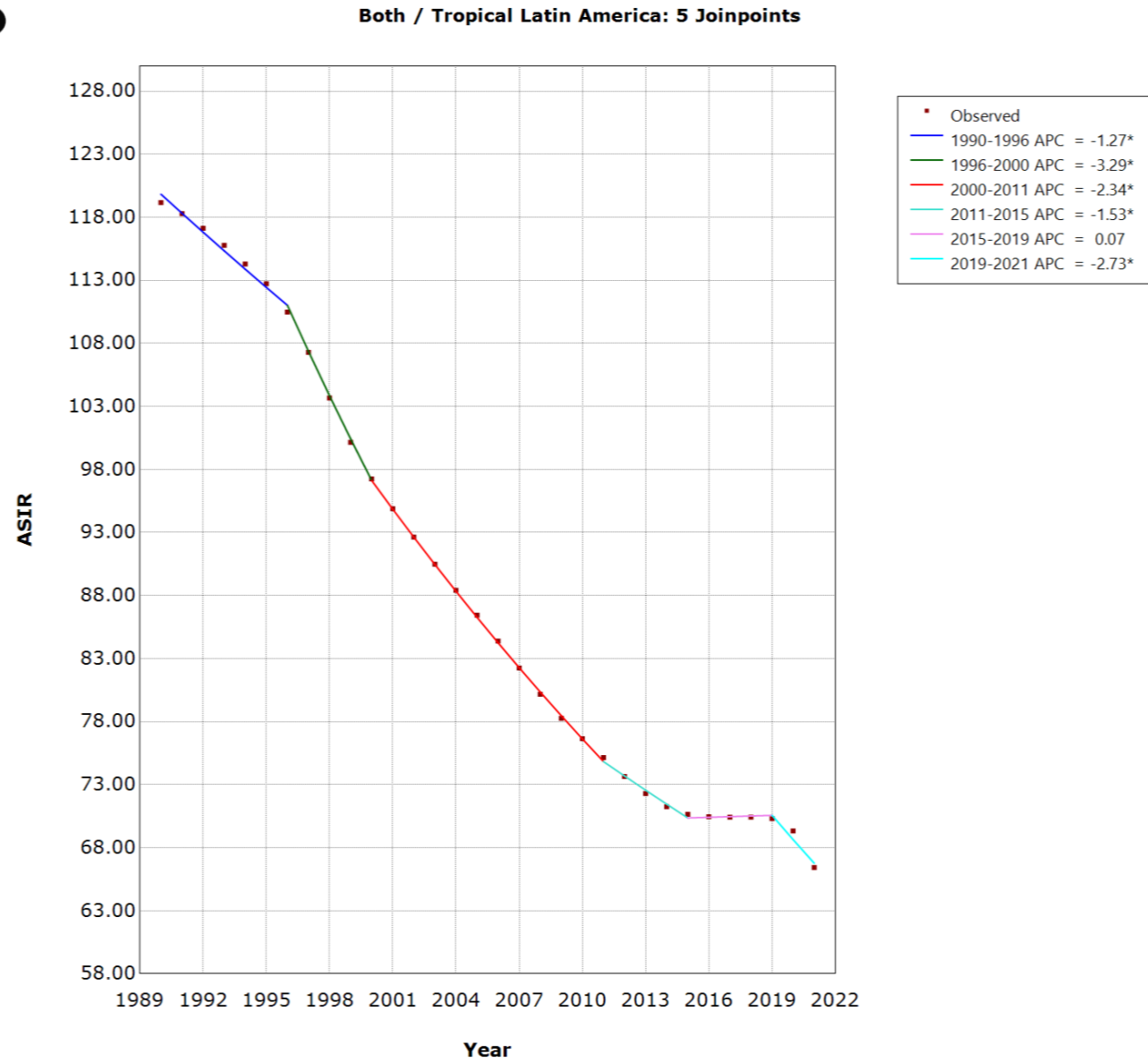
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Final Selected Model: 5 Joinpoints.

R



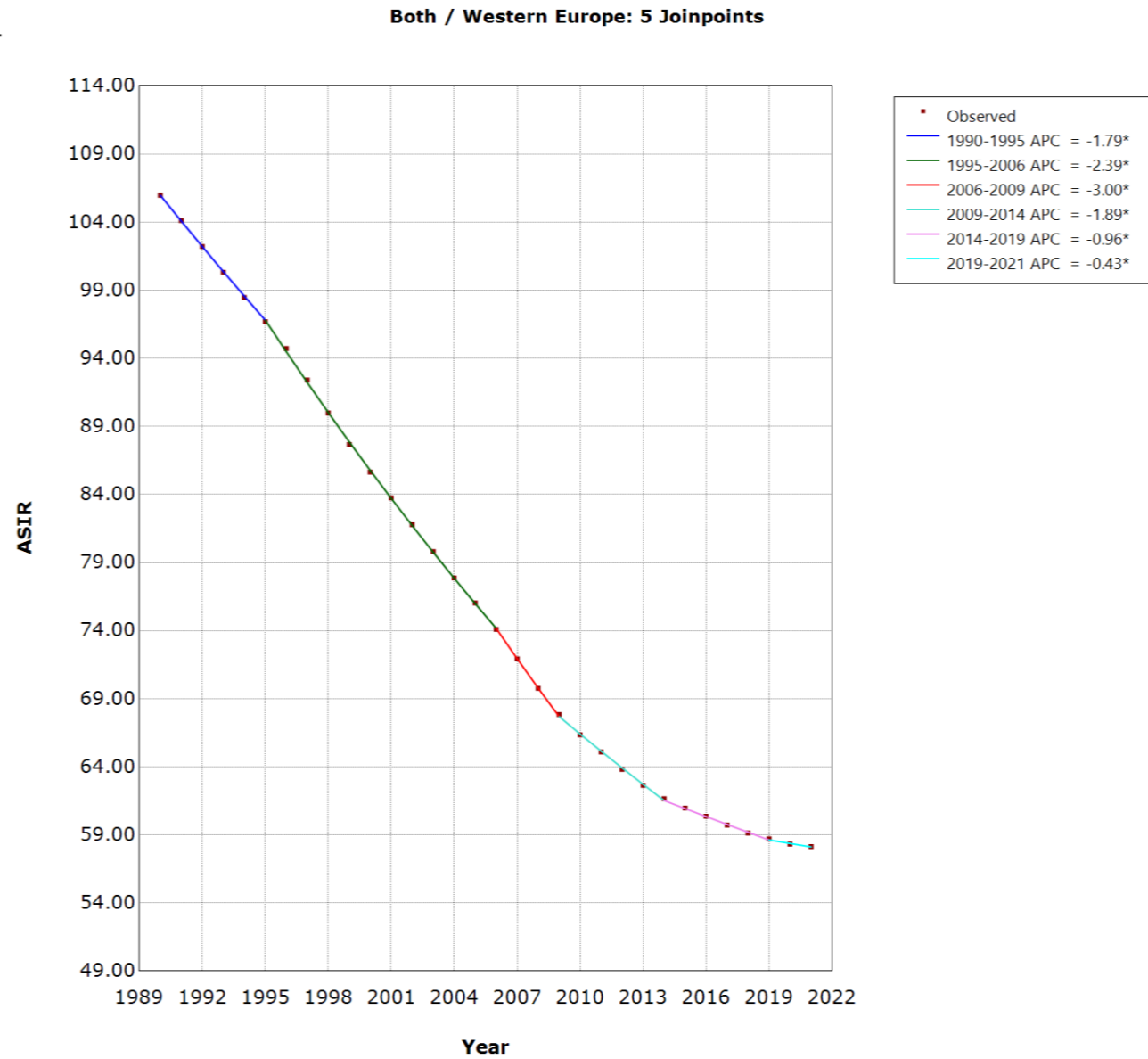
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S



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

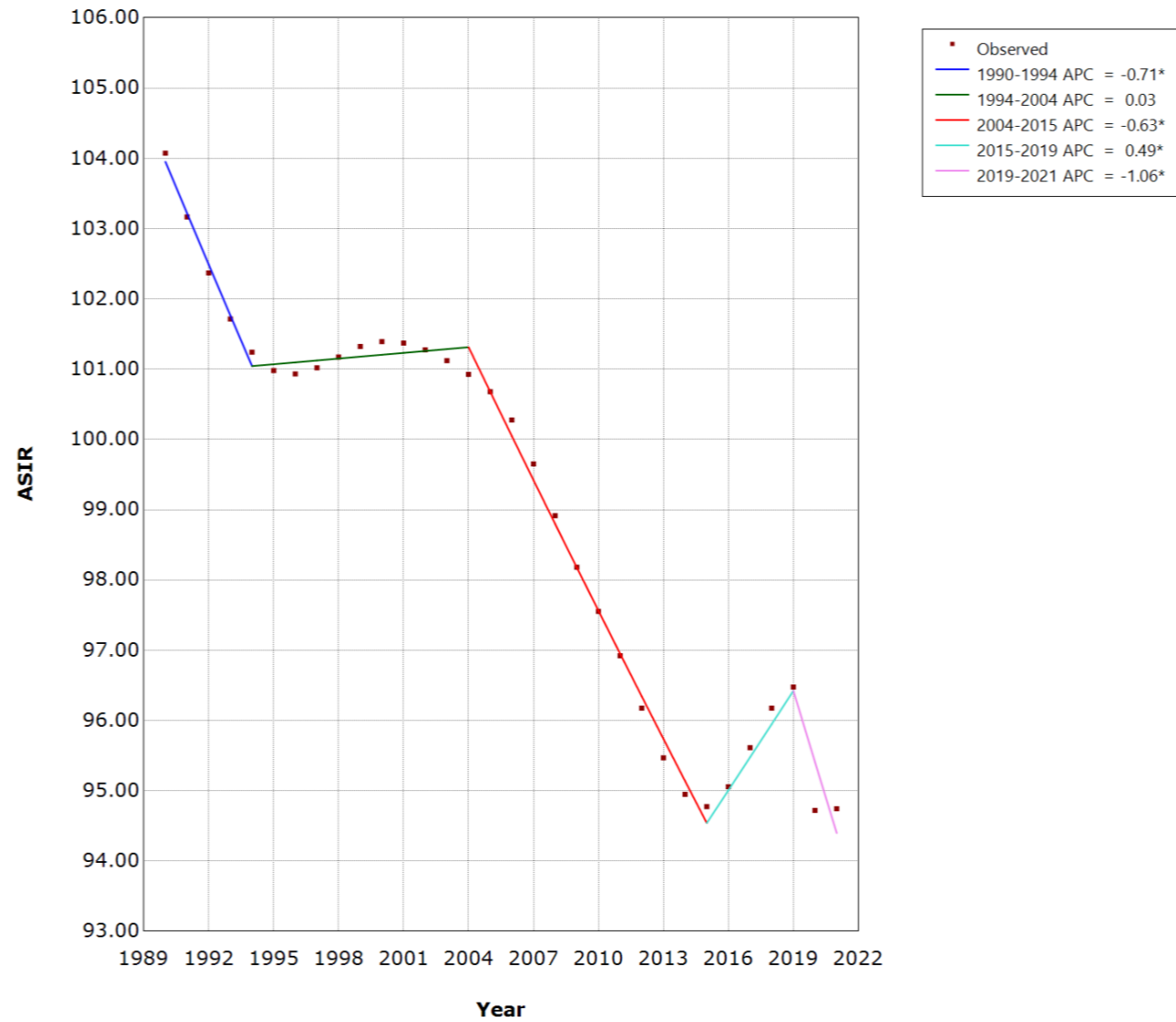
T



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

U

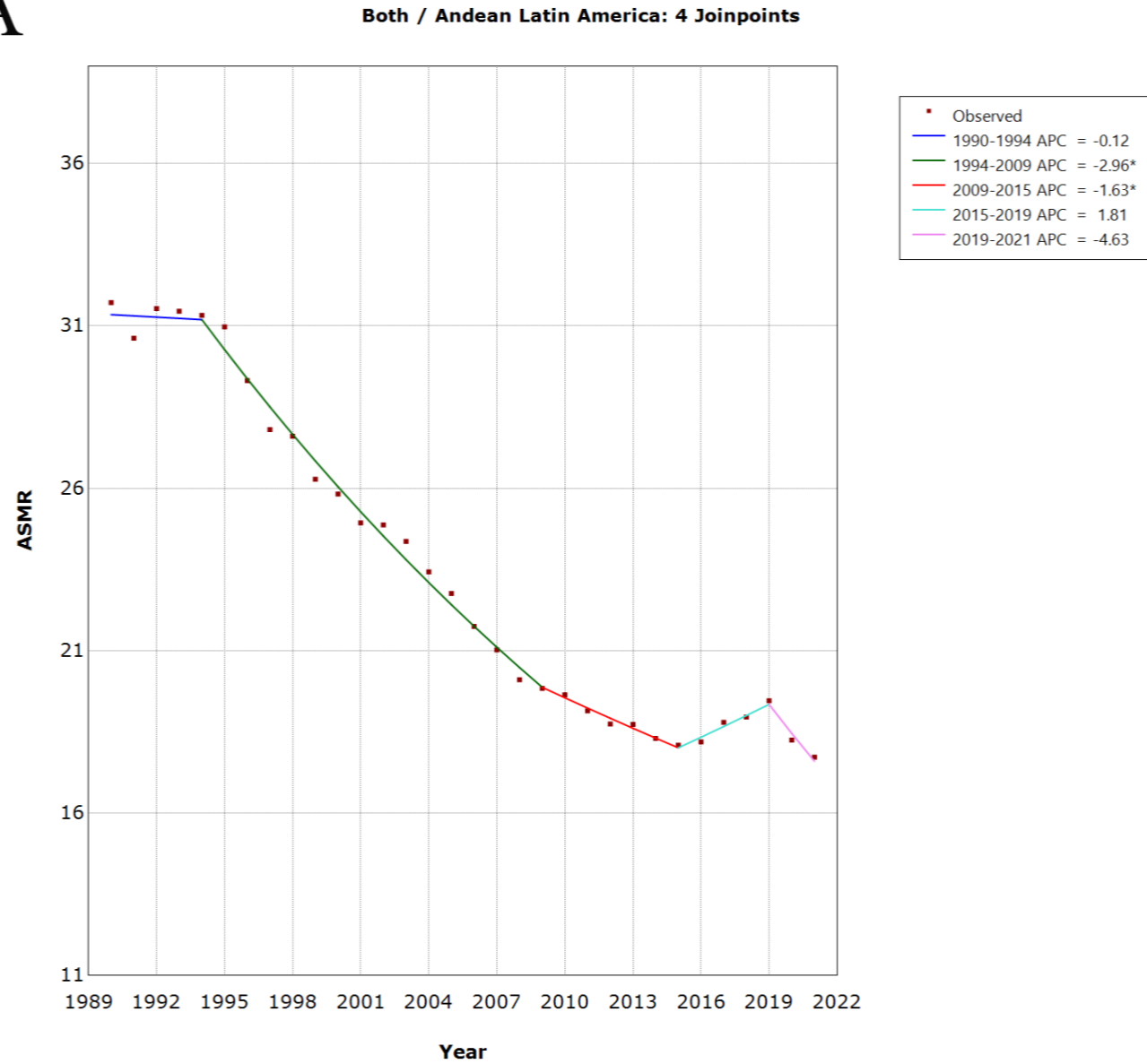
Both / Western Sub-Saharan Africa: 4 Joinpoints



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

Supplementary Figure 1. APC of ASIR of ischemic stroke in each GBD region from 1990 to 2021. A. APC of ASIR of ischemic stroke in Andean Latin America from 1990 to 2021. B. APC of ASIR of ischemic stroke in Australasia from 1990 to 2021. C. APC of ASIR of ischemic stroke in Caribbean from 1990 to 2021. D. APC of ASIR of ischemic stroke in Central Asia from 1990 to 2021. E. APC of ASIR of ischemic stroke in Central Europe from 1990 to 2021. F. APC of ASIR of ischemic stroke in Central Latin America from 1990 to 2021. G. APC of ASIR of ischemic stroke in Central Sub-Saharan Africa from 1990 to 2021. H. APC of ASIR of ischemic stroke in East Asia from 1990 to 2021. I. APC of ASIR of ischemic stroke in Eastern Europe from 1990 to 2021. J. APC of ASIR of ischemic stroke in Eastern Sub-Saharan Africa from 1990 to 2021. K. APC of ASIR of ischemic stroke in High-income Asia Pacific from 1990 to 2021. L. APC of ASIR of ischemic stroke in High-income North America from 1990 to 2021. M. APC of ASIR of ischemic stroke in North Africa and Middle East from 1990 to 2021. N. APC of ASIR of ischemic stroke in Oceania from 1990 to 2021. O. APC of ASIR of ischemic stroke in South Asia from 1990 to 2021. P. APC of ASIR of ischemic stroke in Southeast Asia from 1990 to 2021. Q. APC of ASIR of ischemic stroke in Southern Latin America from 1990 to 2021. R. APC of ASIR of ischemic stroke in Southern Sub-Saharan Africa from 1990 to 2021. S. APC of ASIR of ischemic stroke in Tropical Latin America from 1990 to 2021. T. APC of ASIR of ischemic stroke in each Western Europe 1990 to 2021. U. APC of ASIR of ischemic stroke in each Western Sub-Saharan Africa 1990 to 2021. APC = Annual percent change. ASIR = Age-standardized incidence rate.

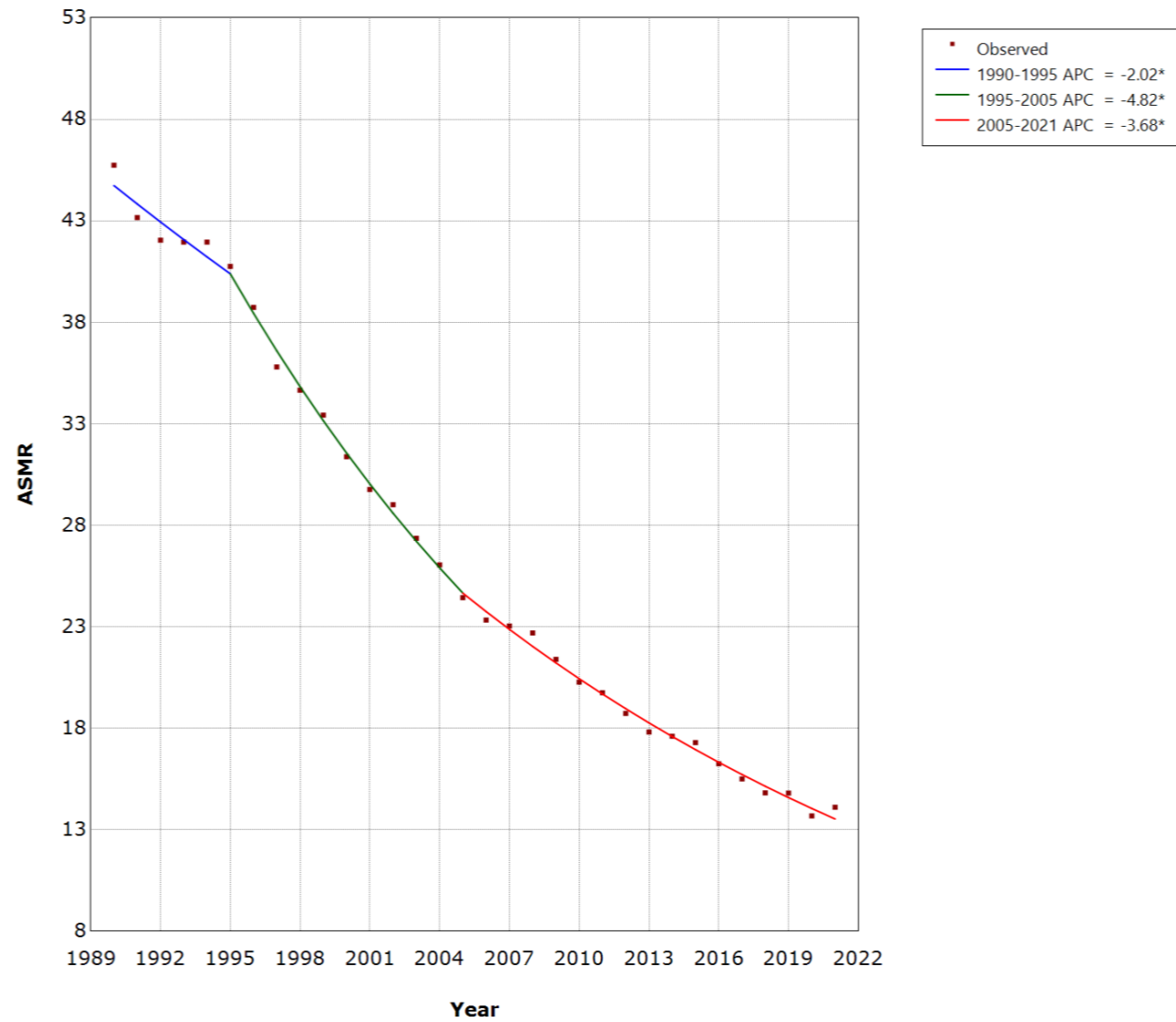
A



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

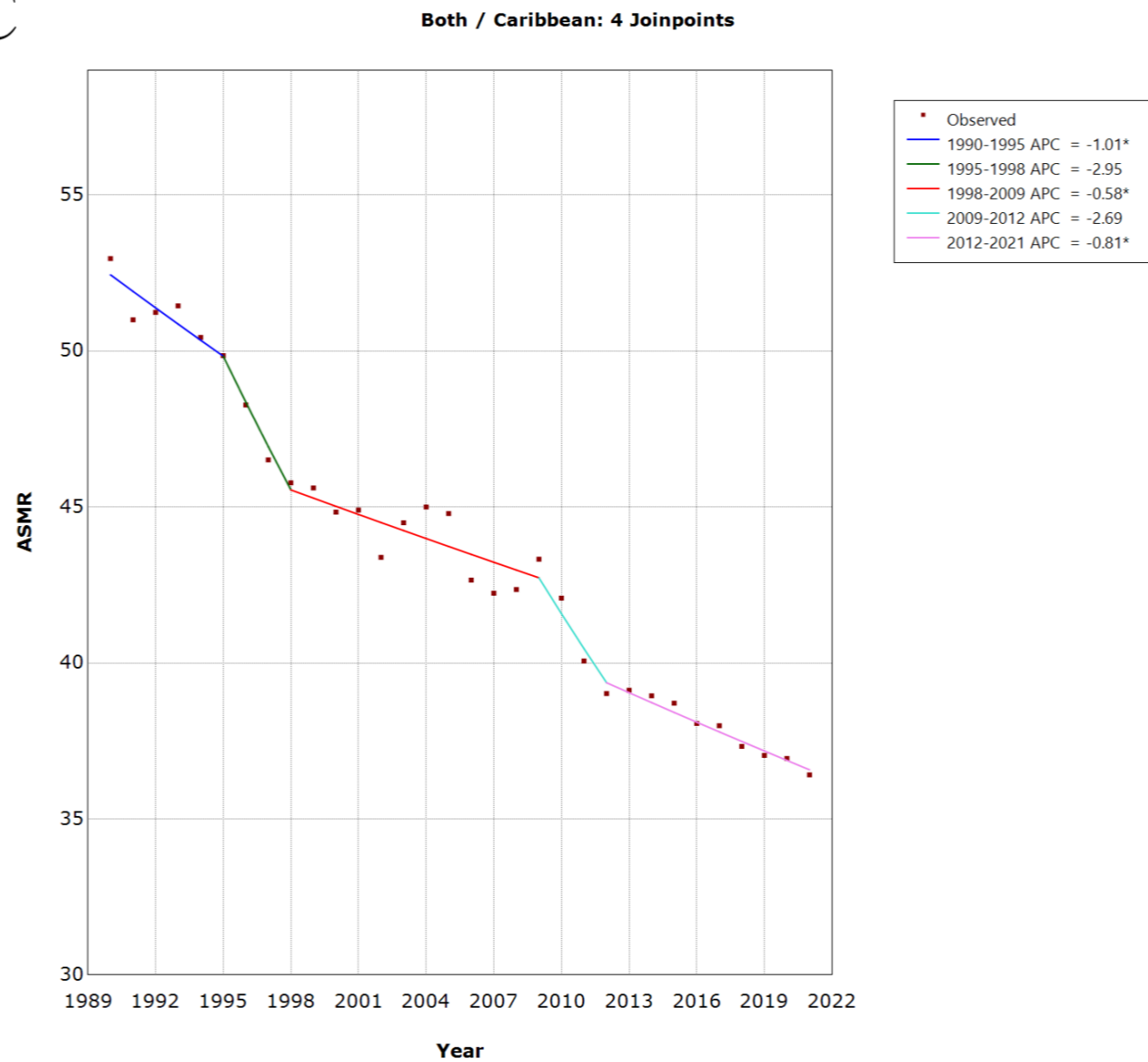
B

Both / Australasia: 2 Joinpoints



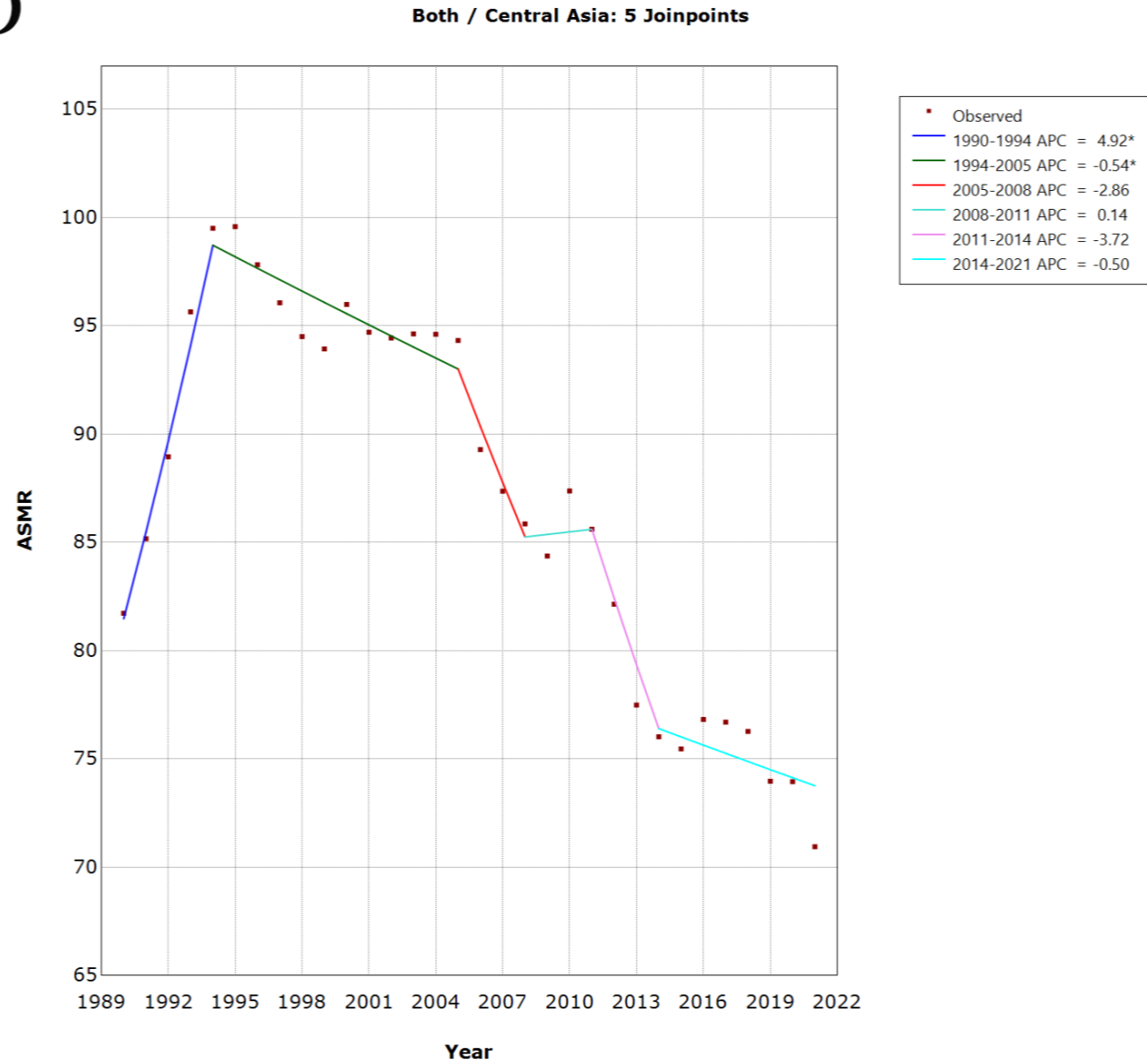
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C



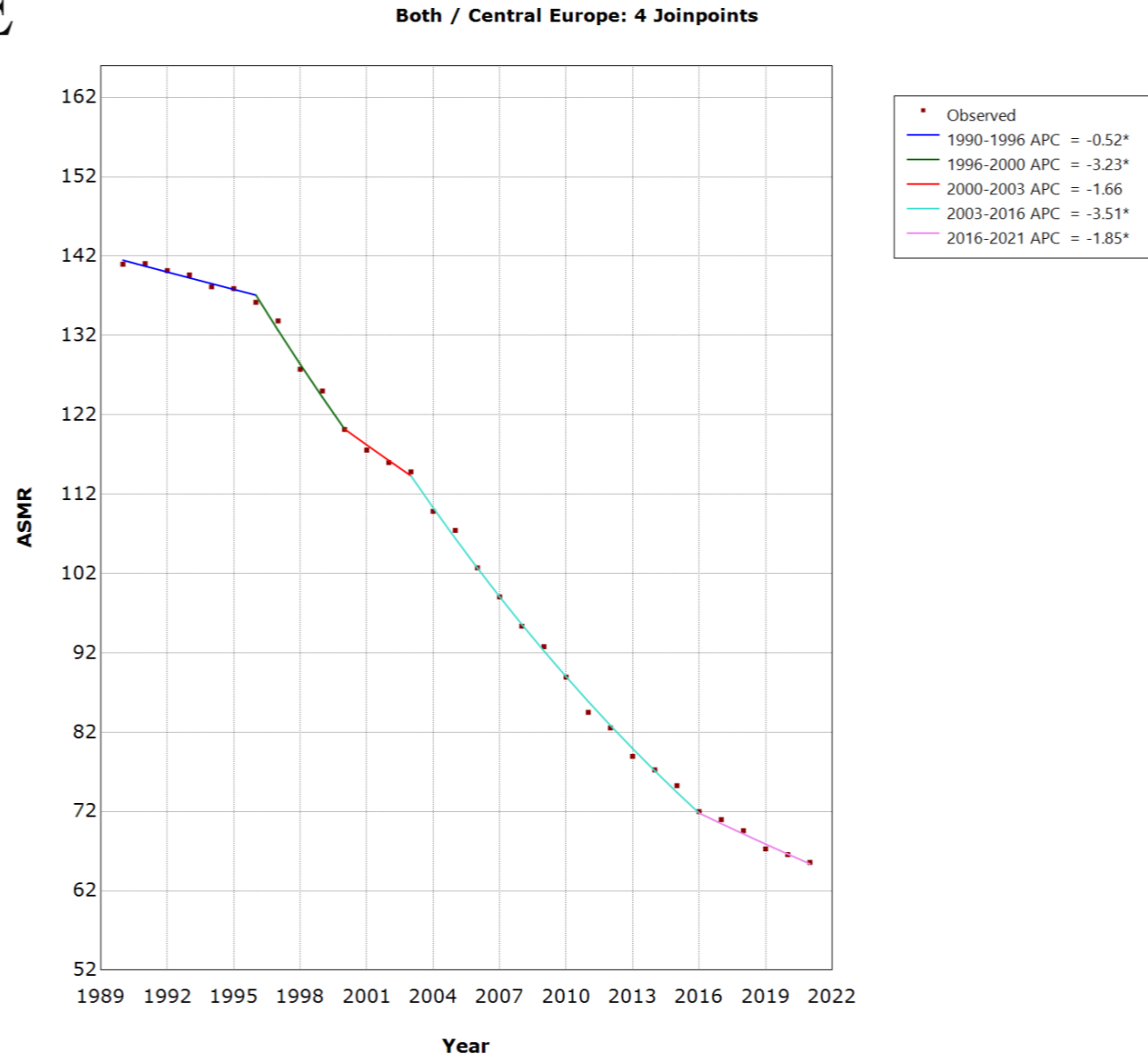
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D



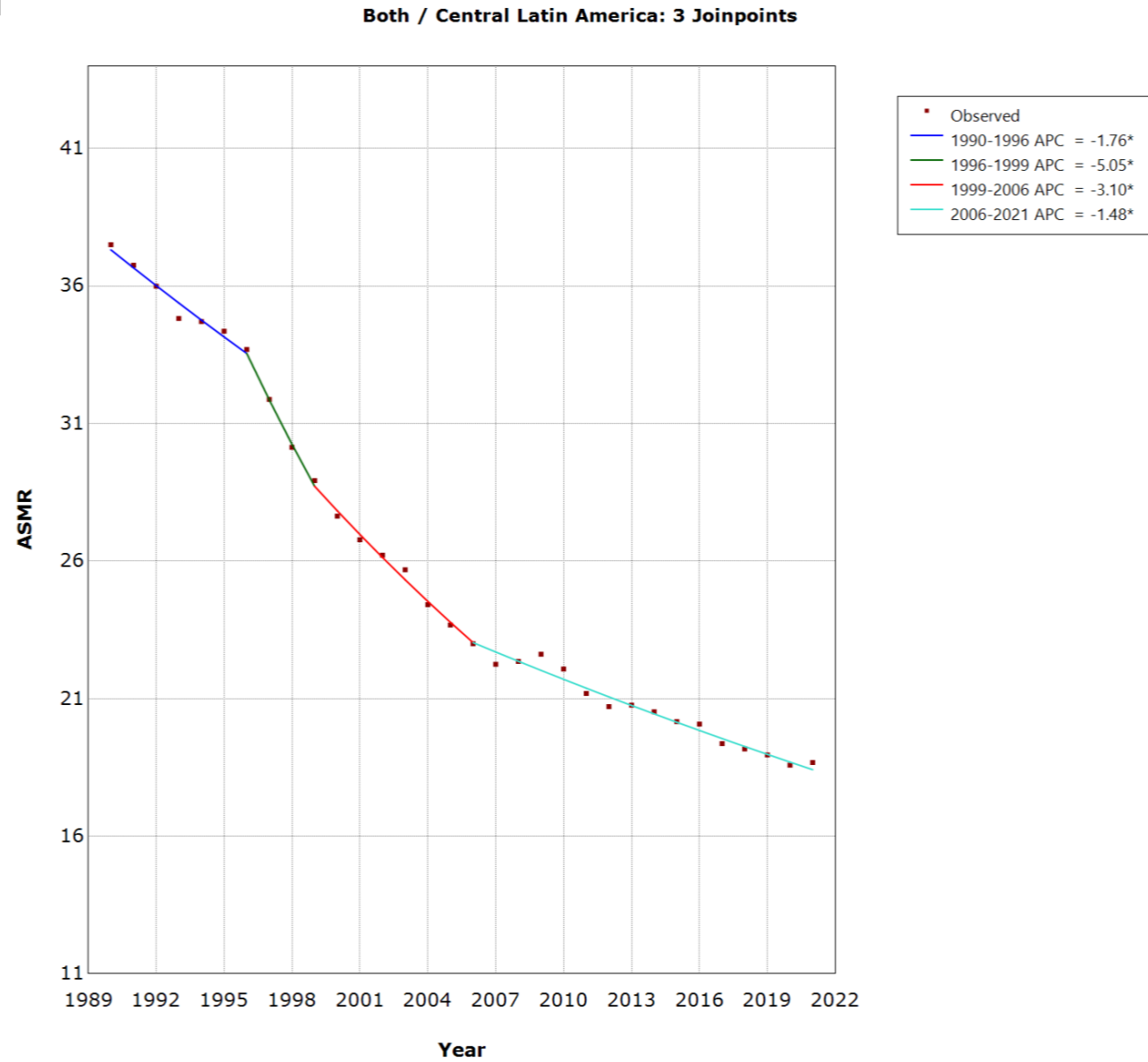
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 Final Selected Model: 5 Joinpoints.

E



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 4 Joinpoints.

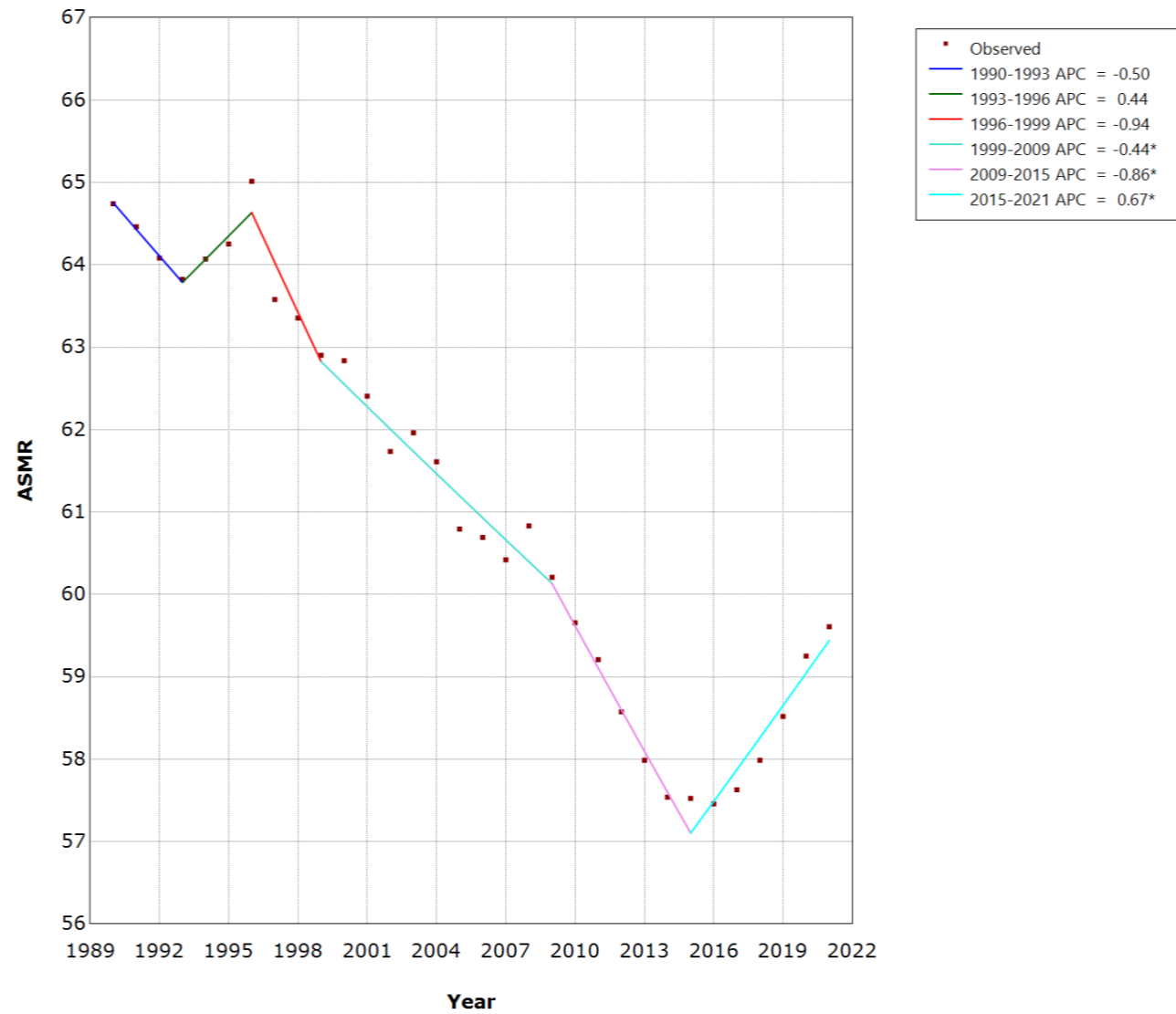
F



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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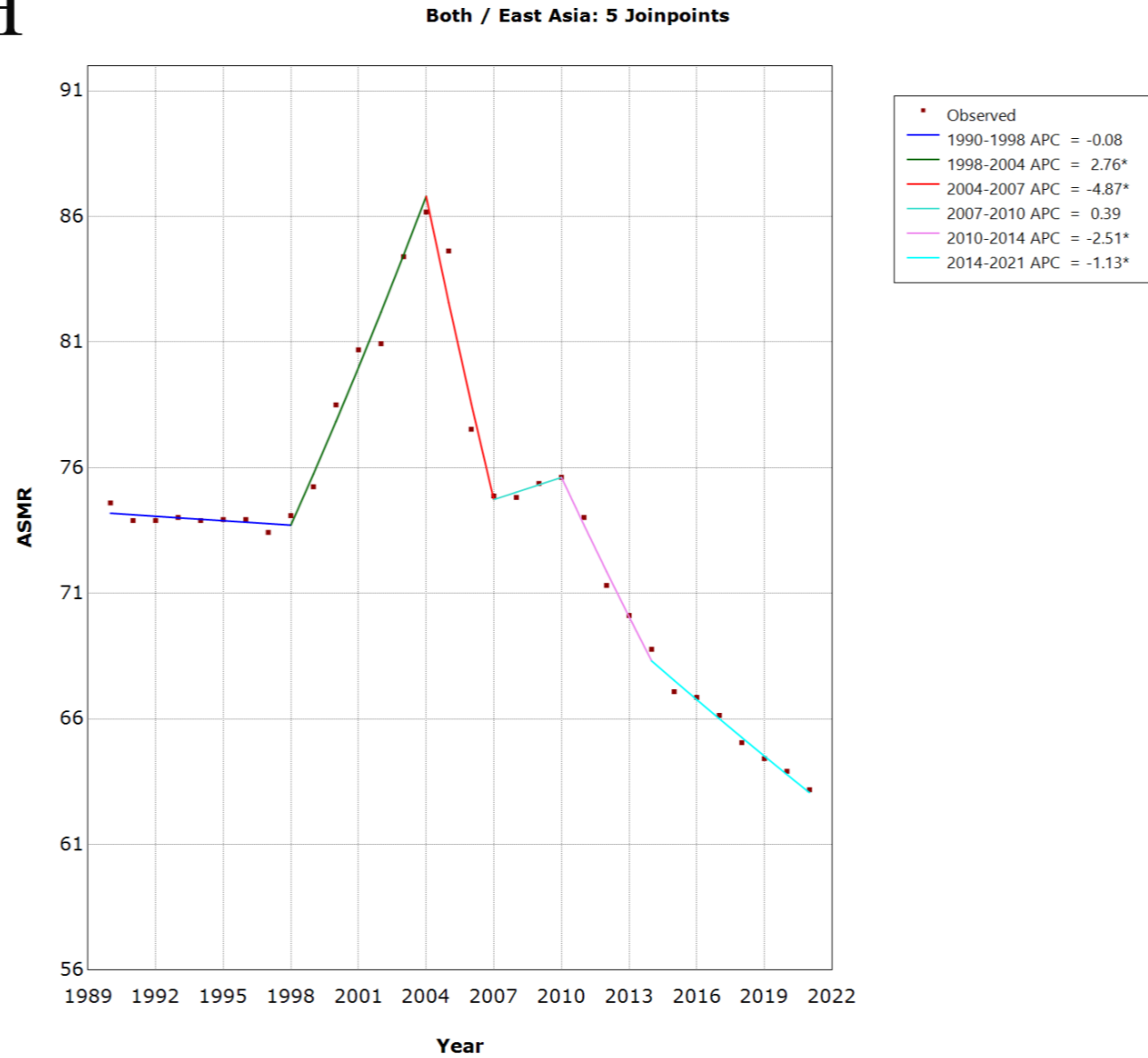
G

Both / Central Sub-Saharan Africa: 5 Joinpoints



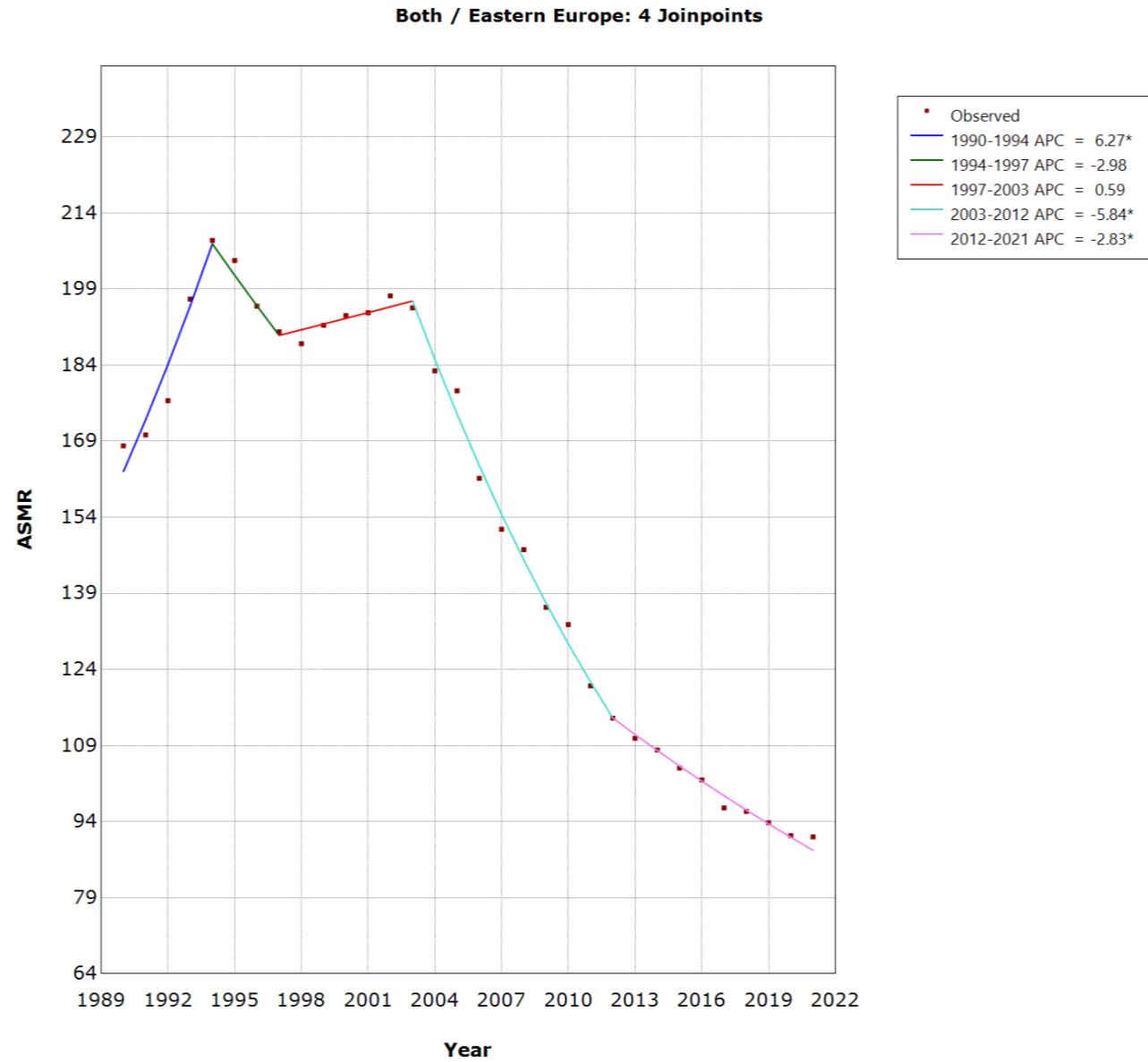
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H



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Final Selected Model: 5 Joinpoints.

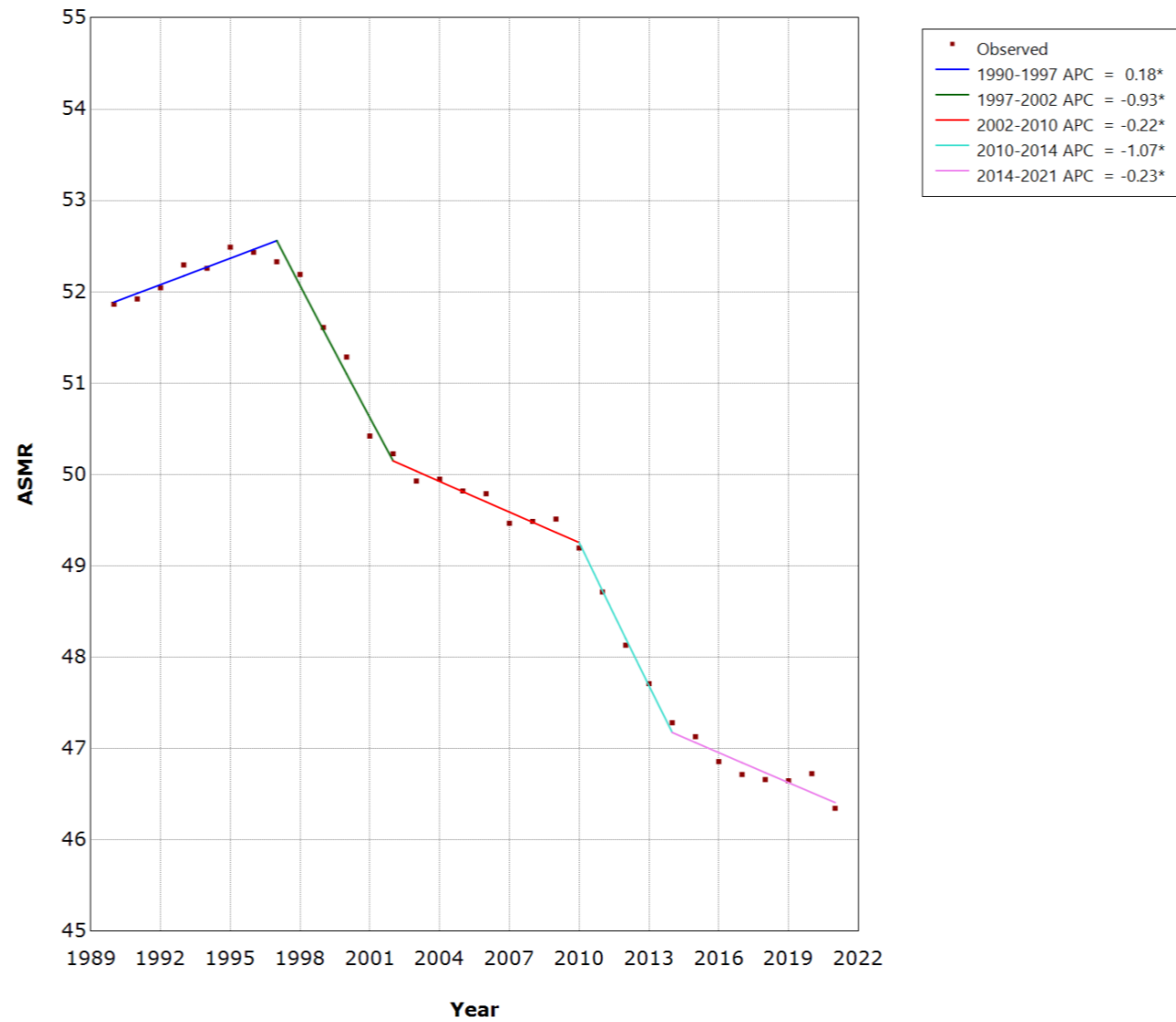
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* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 4 Joinpoints.

J

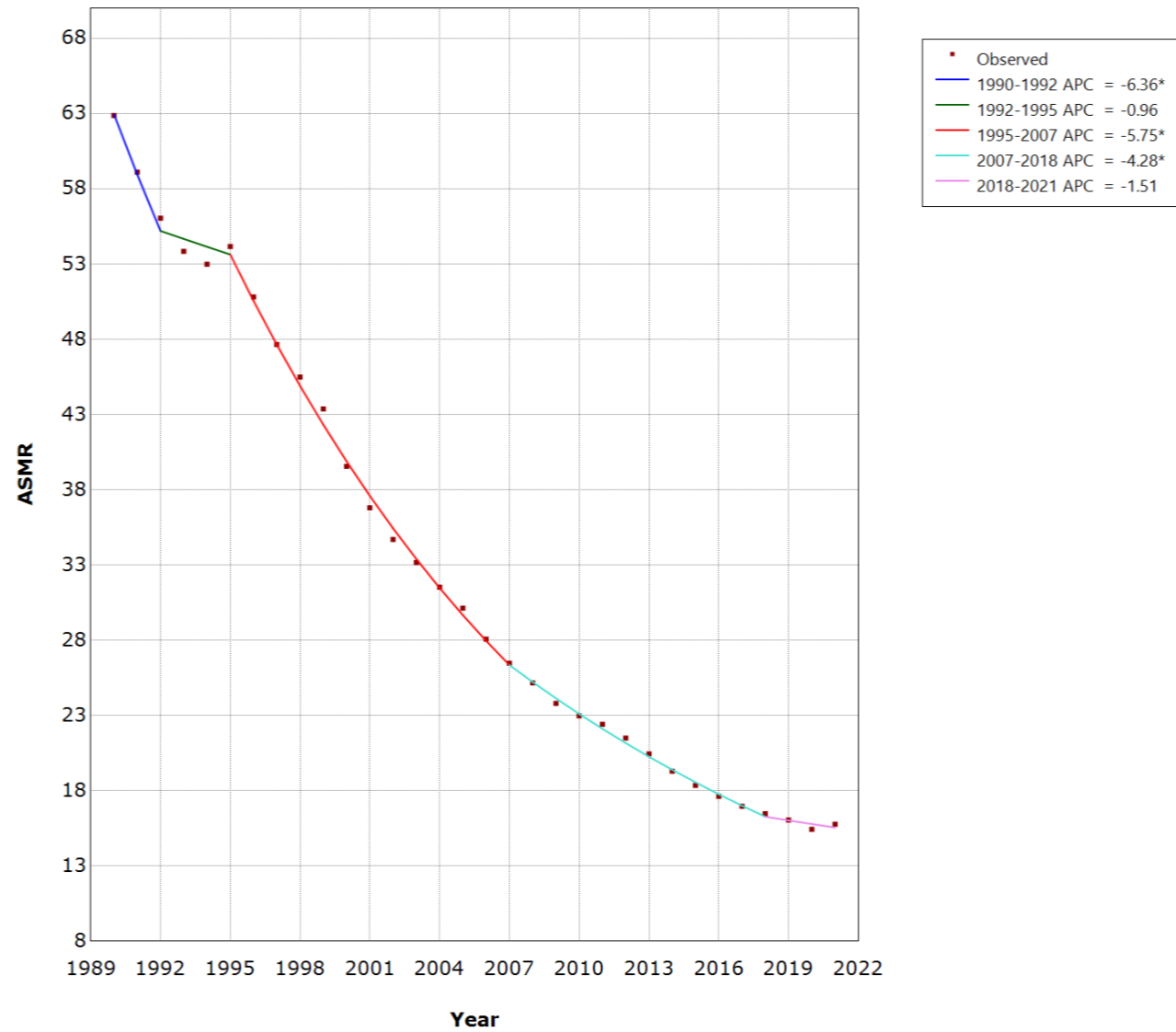
Both / Eastern Sub-Saharan Africa: 4 Joinpoints



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

K

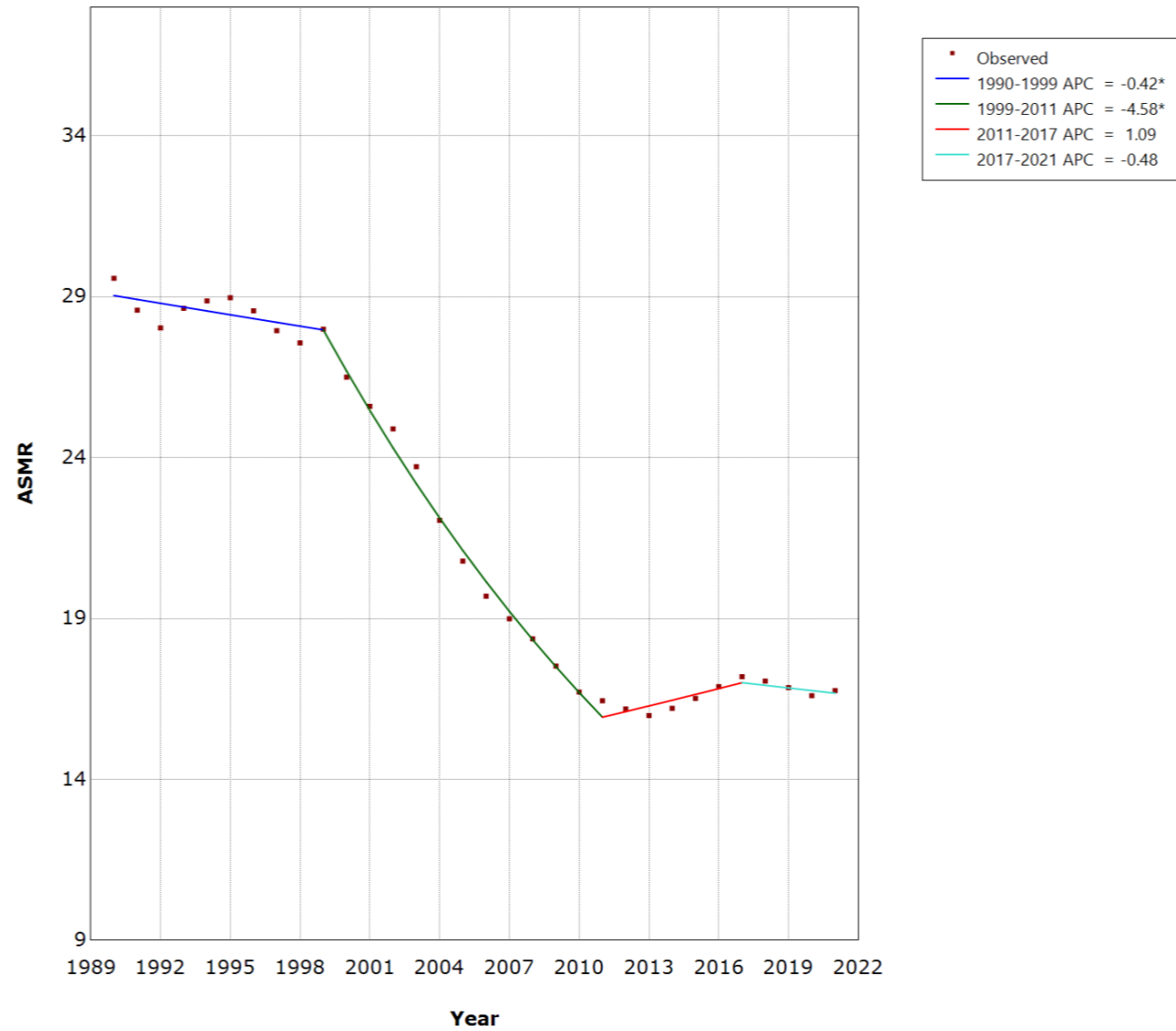
Both / High-income Asia Pacific: 4 Joinpoints



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

L

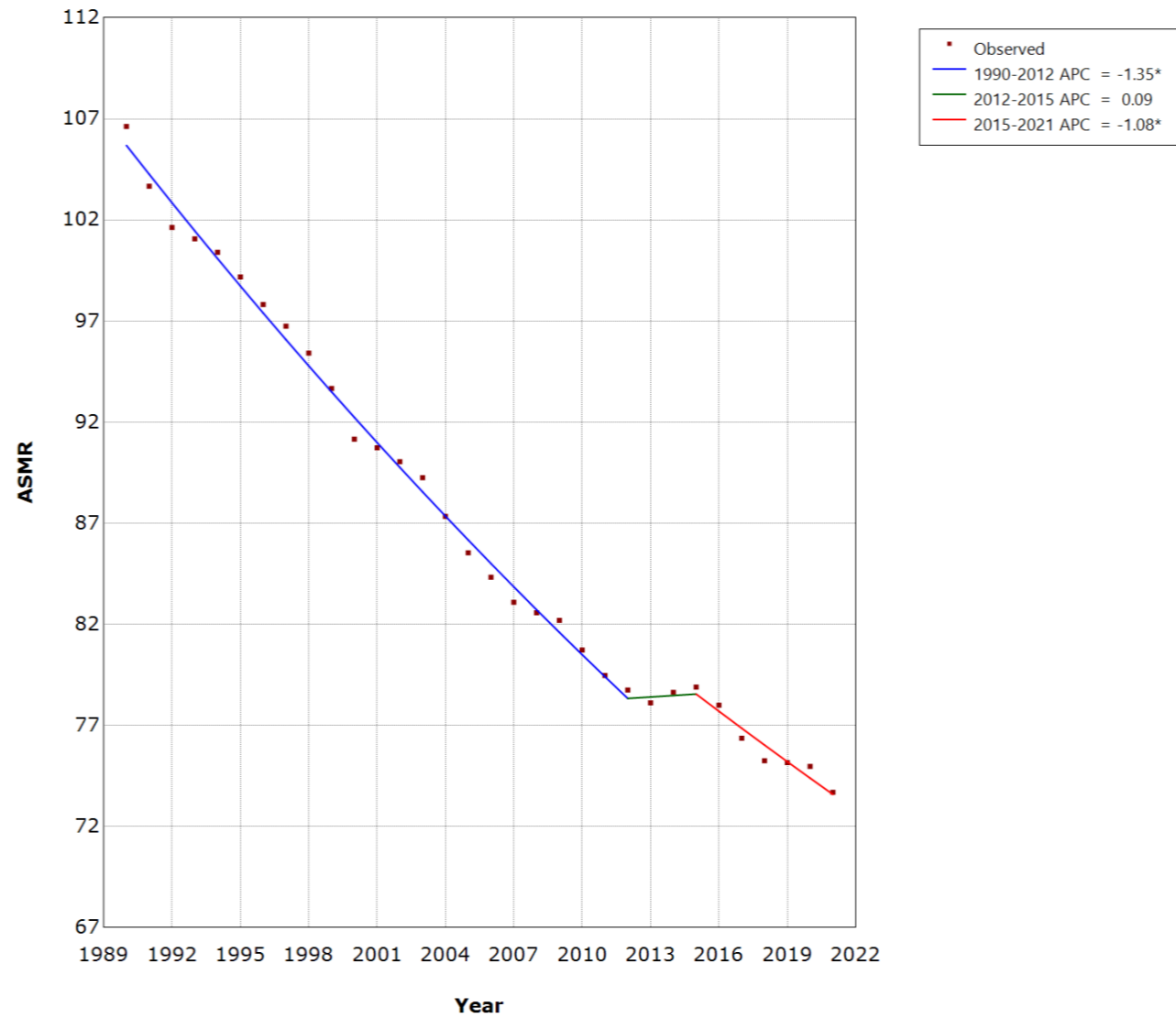
Both / High-income North America: 3 Joinpoints



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 3 Joinpoints.

M

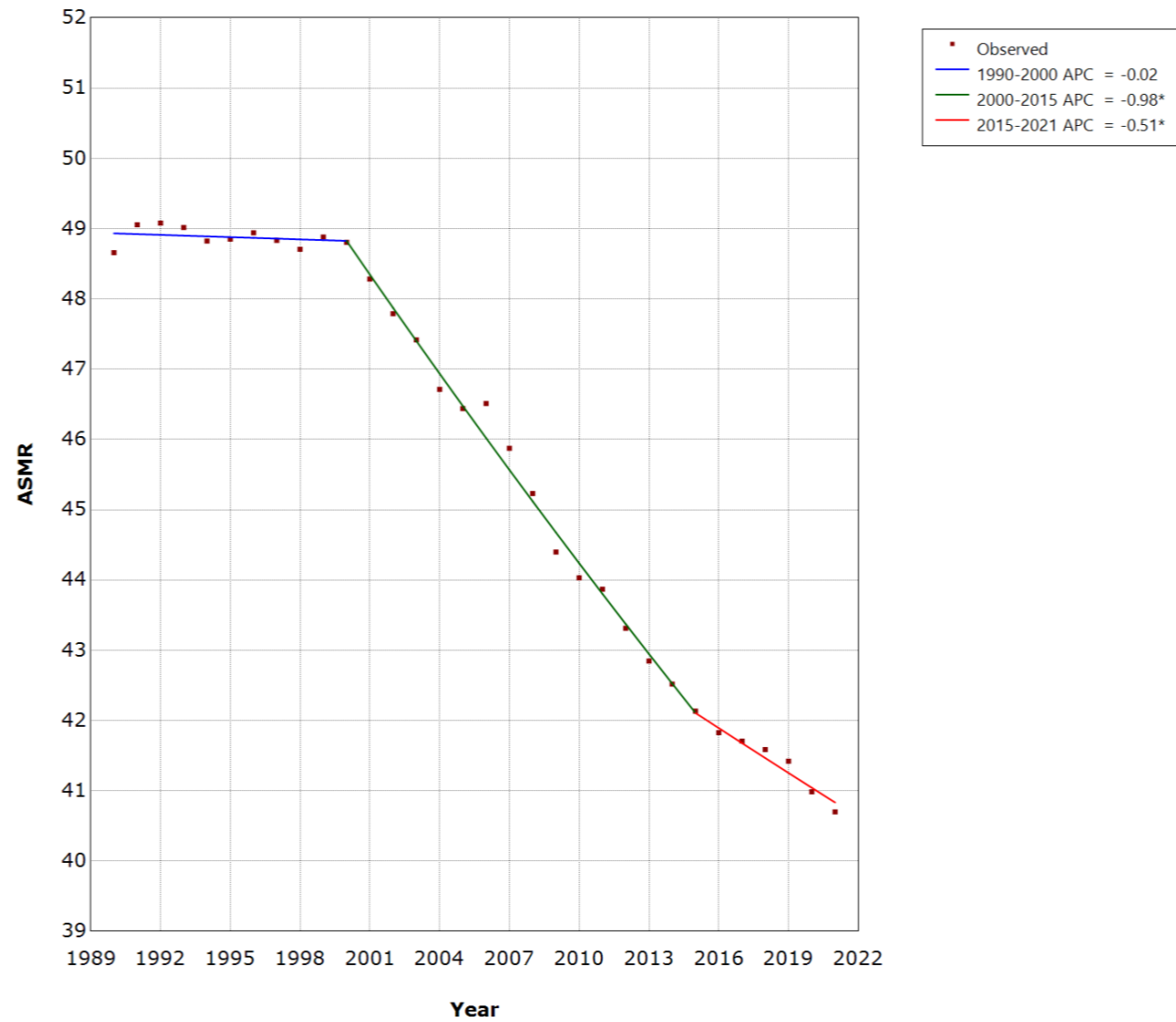
Both / North Africa and Middle East: 2 Joinpoints



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 2 Joinpoints.

N

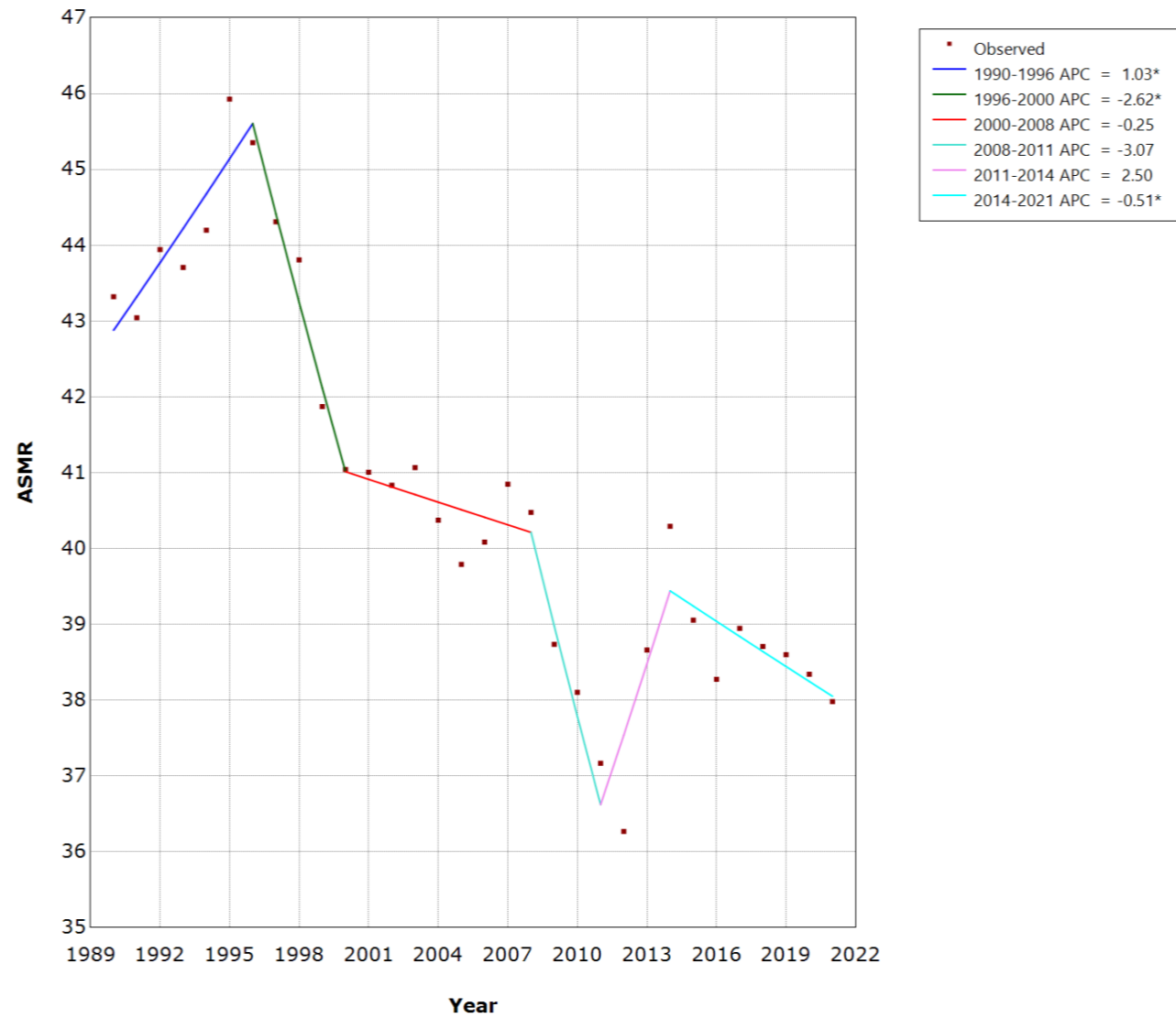
Both / Oceania: 2 Joinpoints



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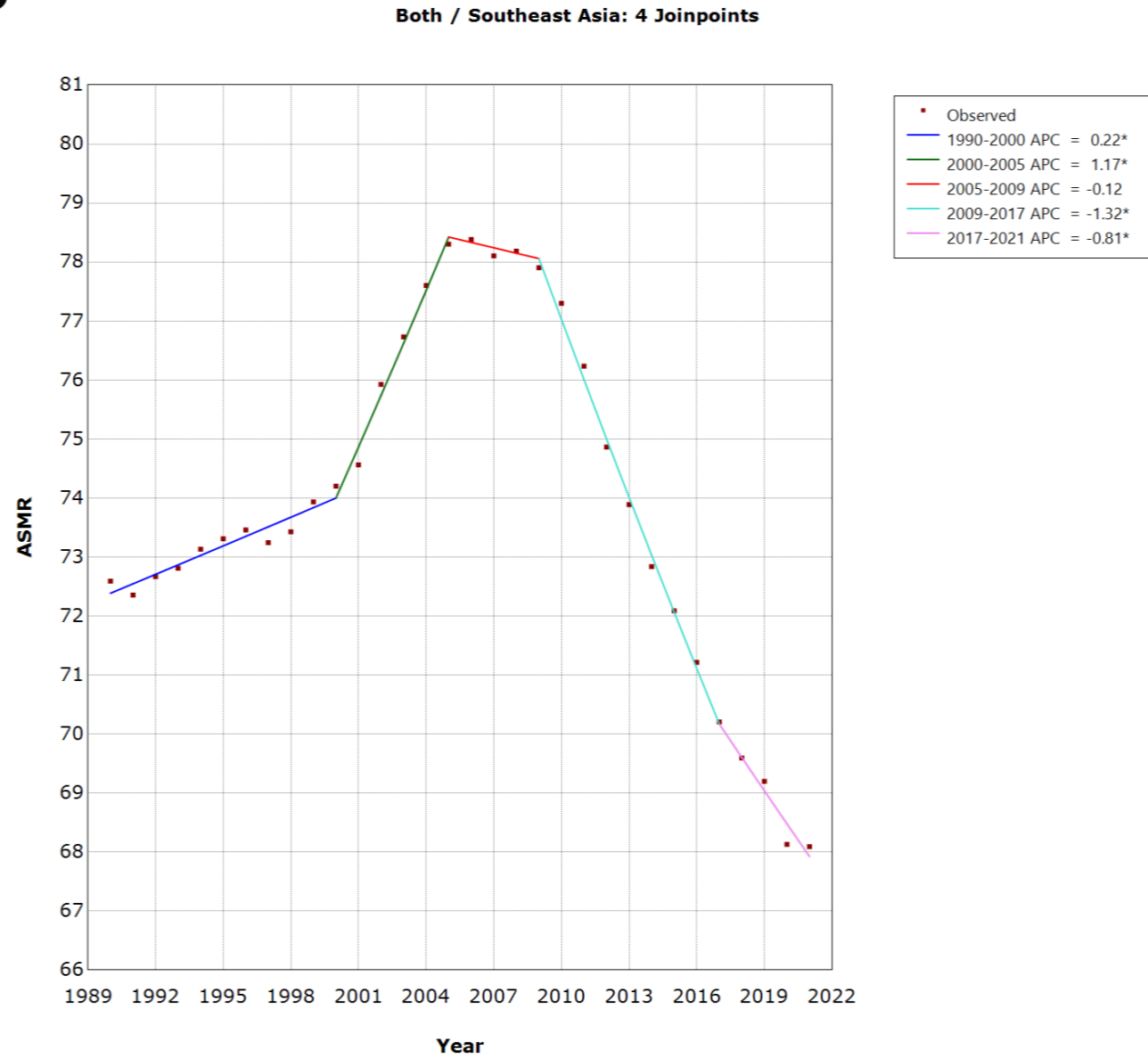
O

Both / South Asia: 5 Joinpoints



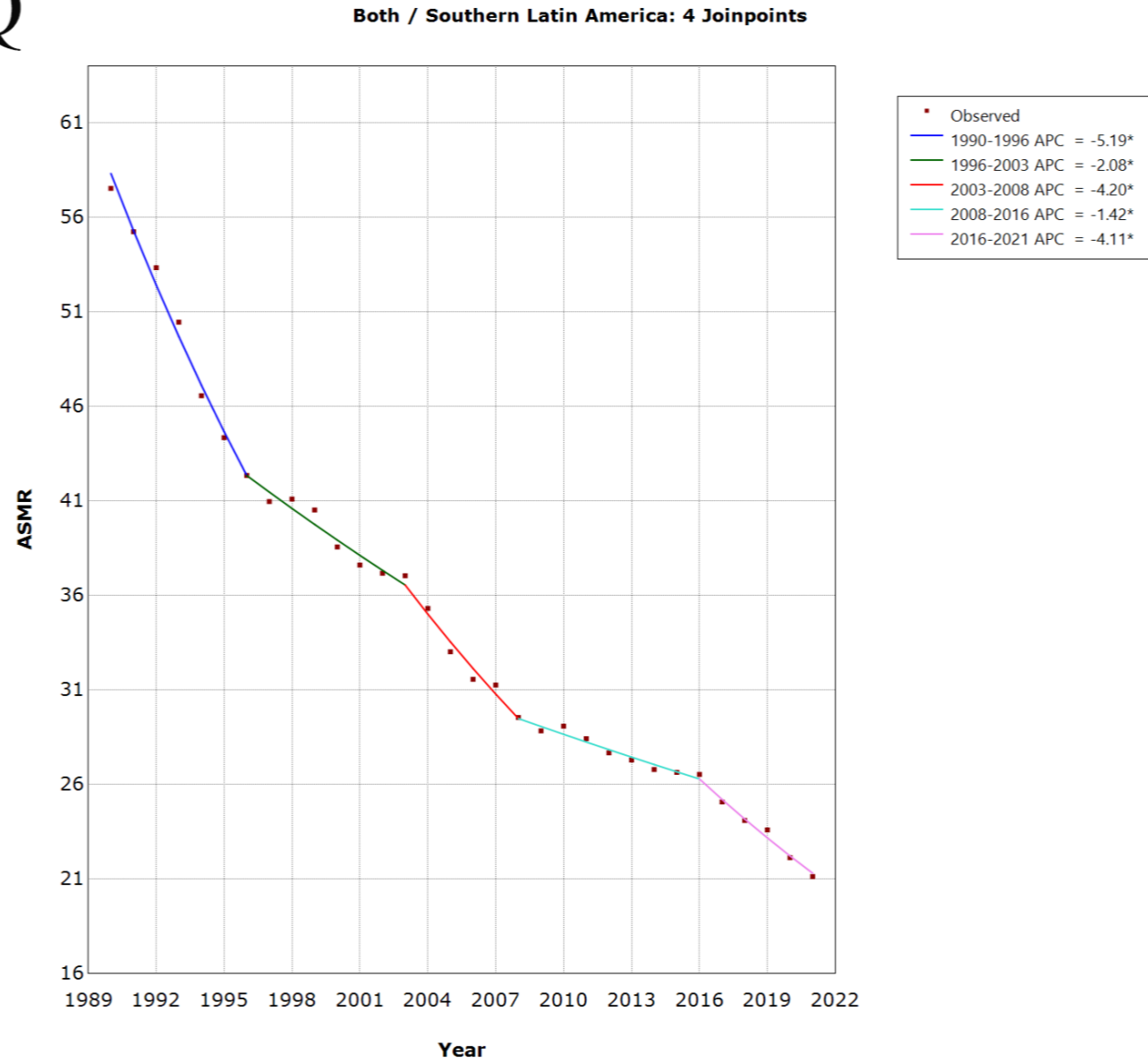
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P



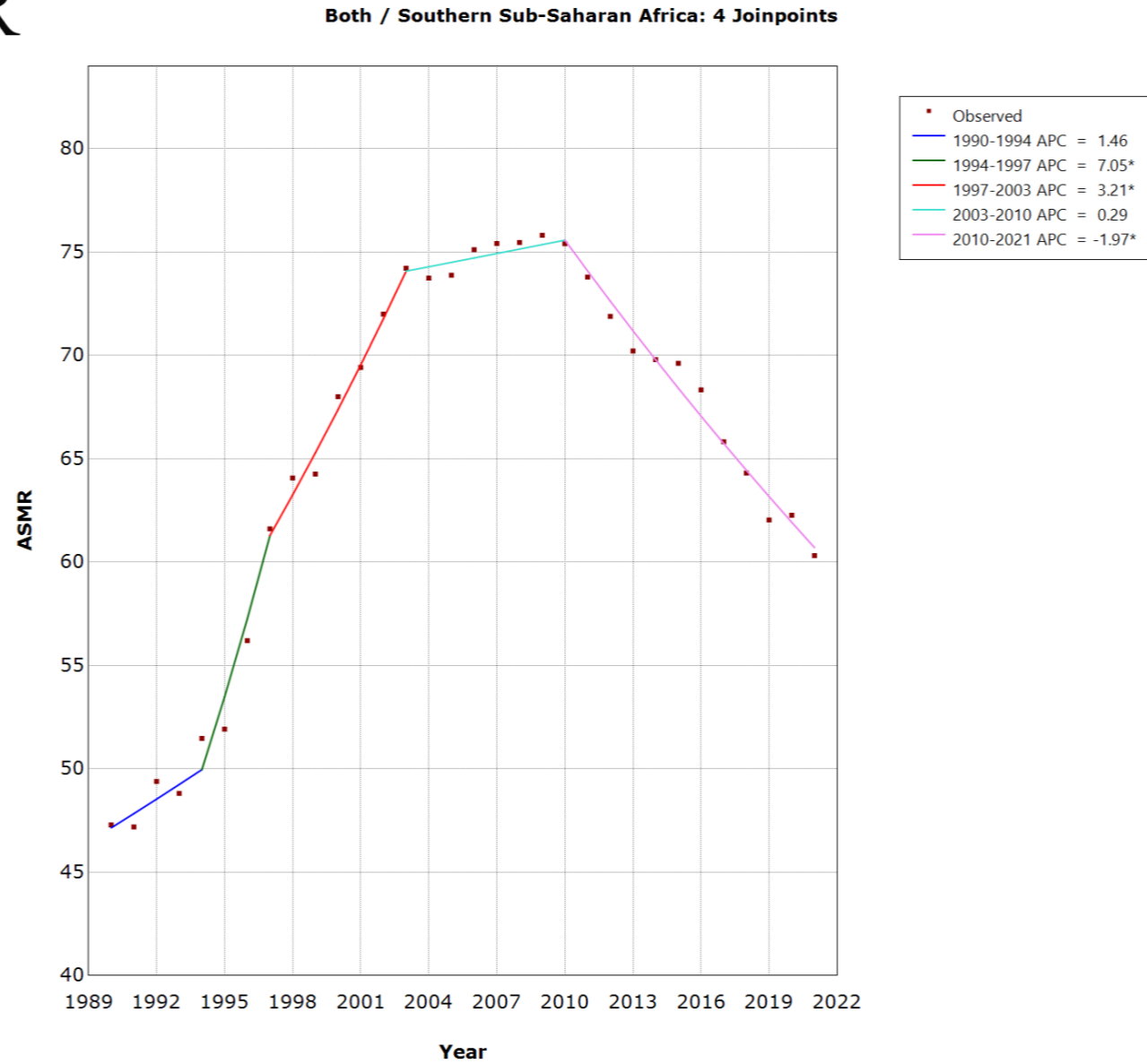
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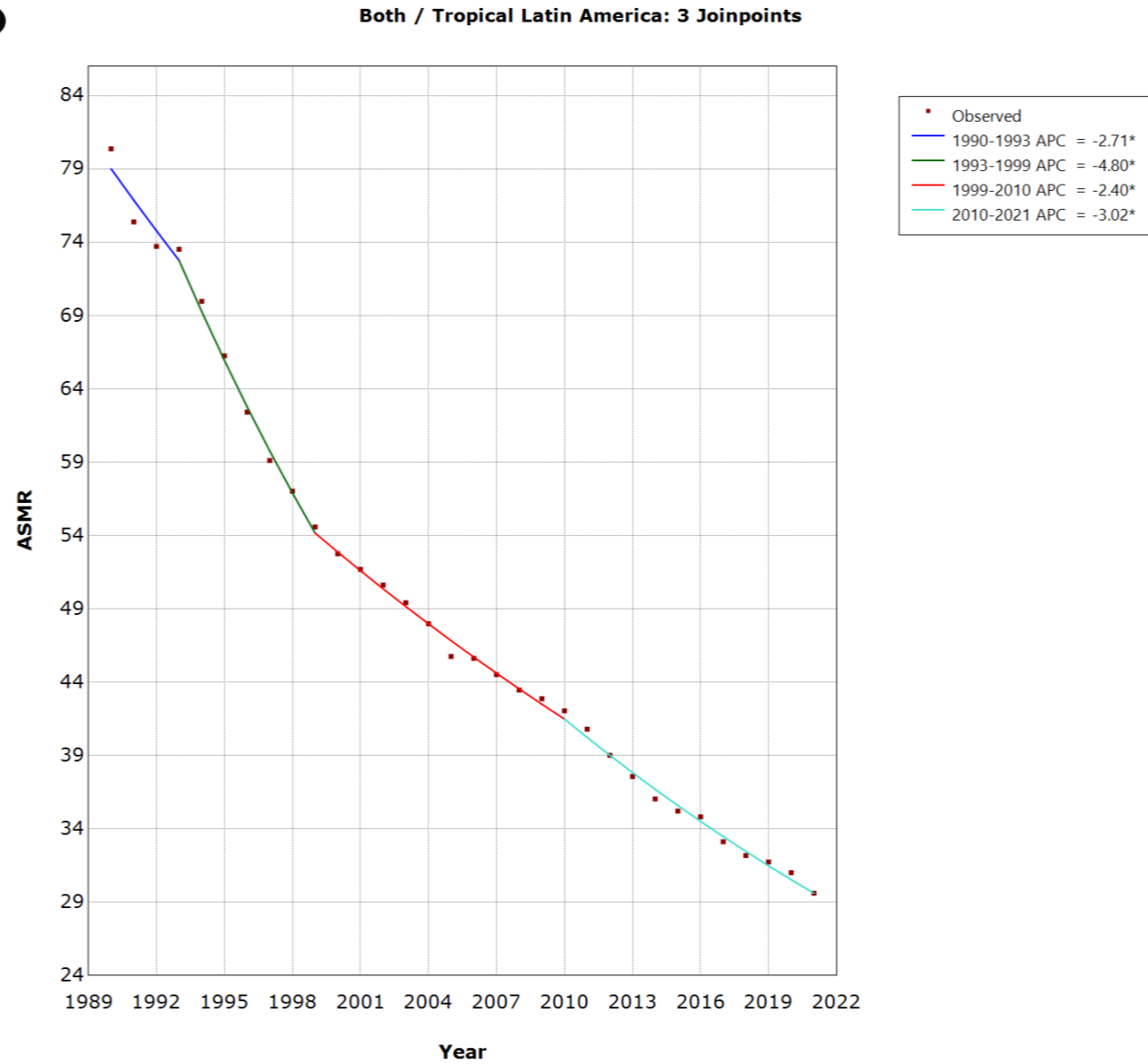
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R

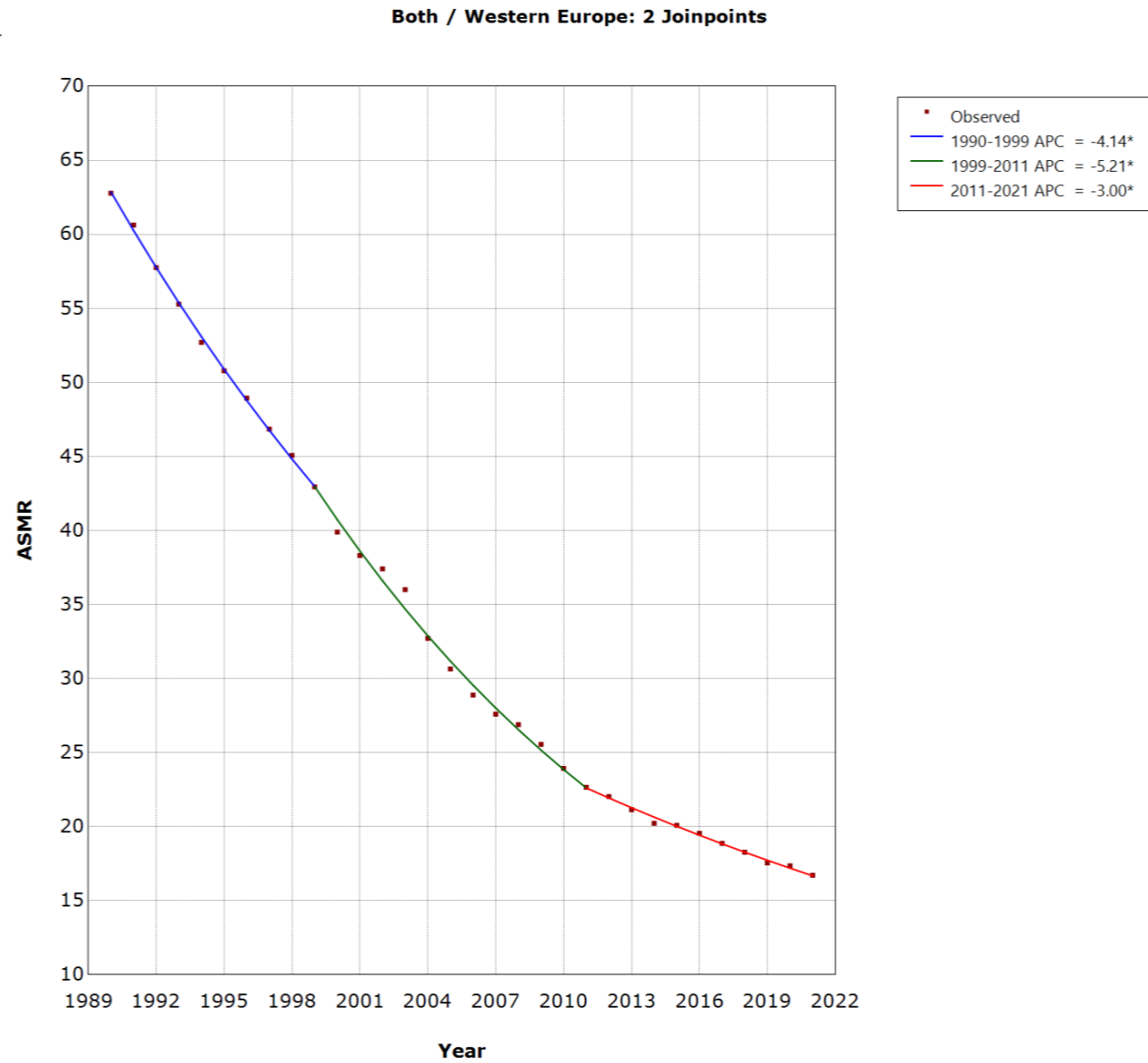


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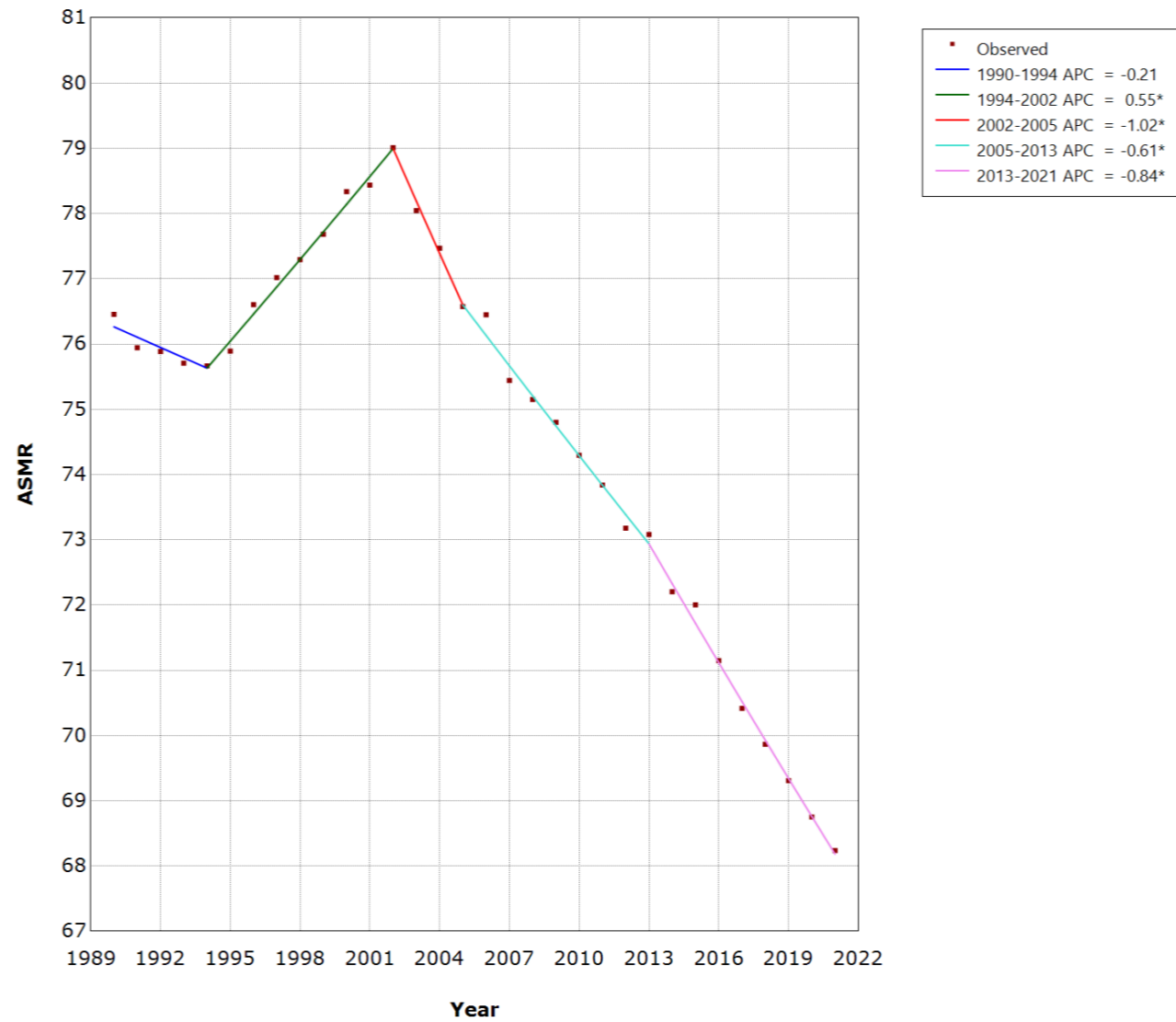
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* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 2 Joinpoints.

U

Both / Western Sub-Saharan Africa: 4 Joinpoints

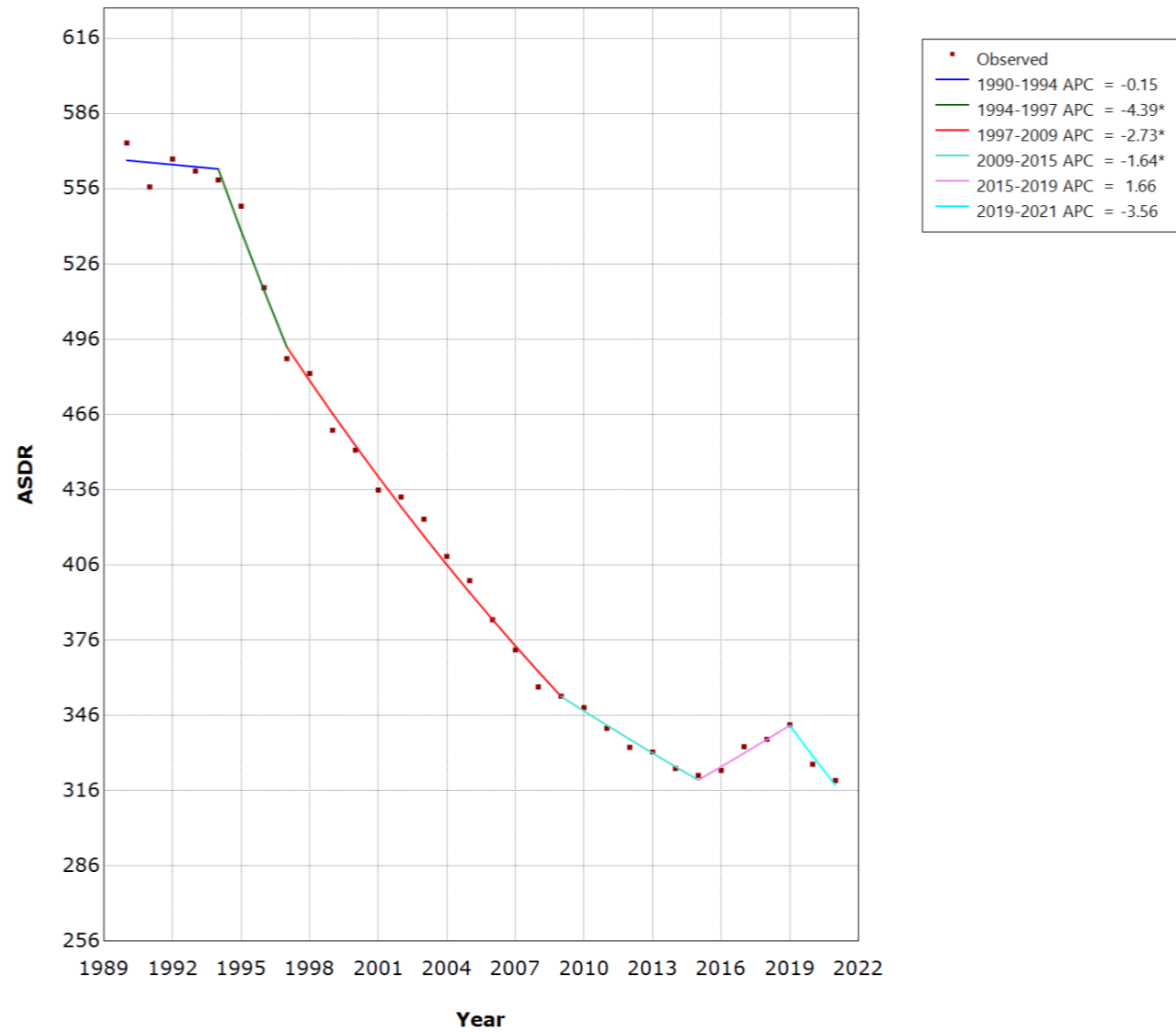


* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

Supplementary Figure 2. APC of ASMR of ischemic stroke in each GBD region from 1990 to 2021. A. APC of ASMR of ischemic stroke in Andean Latin America from 1990 to 2021. B. APC of ASMR of ischemic stroke in Australasia from 1990 to 2021. C. APC of ASMR of ischemic stroke in Caribbean from 1990 to 2021. D. APC of ASMR of ischemic stroke in Central Asia from 1990 to 2021. E. APC of ASMR of ischemic stroke in Central Europe from 1990 to 2021. F. APC of ASMR of ischemic stroke in Central Latin America from 1990 to 2021. G. APC of ASMR of ischemic stroke in Central Sub-Saharan Africa from 1990 to 2021. H. APC of ASMR of ischemic stroke in East Asia from 1990 to 2021. I. APC of ASMR of ischemic stroke in Eastern Europe from 1990 to 2021. J. APC of ASMR of ischemic stroke in Eastern Sub-Saharan Africa from 1990 to 2021. K. APC of ASMR of ischemic stroke in High-income Asia Pacific from 1990 to 2021. L. APC of ASMR of ischemic stroke in High-income North America from 1990 to 2021. M. APC of ASMR of ischemic stroke in North Africa and Middle East from 1990 to 2021. N. APC of ASMR of ischemic stroke in Oceania from 1990 to 2021. O. APC of ASMR of ischemic stroke in South Asia from 1990 to 2021. P. APC of ASMR of ischemic stroke in Southeast Asia from 1990 to 2021. Q. APC of ASMR of ischemic stroke in Southern Latin America from 1990 to 2021. R. APC of ASMR of ischemic stroke in Southern Sub-Saharan Africa from 1990 to 2021. S. APC of ASMR of ischemic stroke in Tropical Latin America from 1990 to 2021. T. APC of ASMR of ischemic stroke in each Western Europe 1990 to 2021. U. APC of ASMR of ischemic stroke in each Western Sub-Saharan Africa 1990 to 2021. APC = Annual percent change. ASMR = Age-standardized mortality rate.

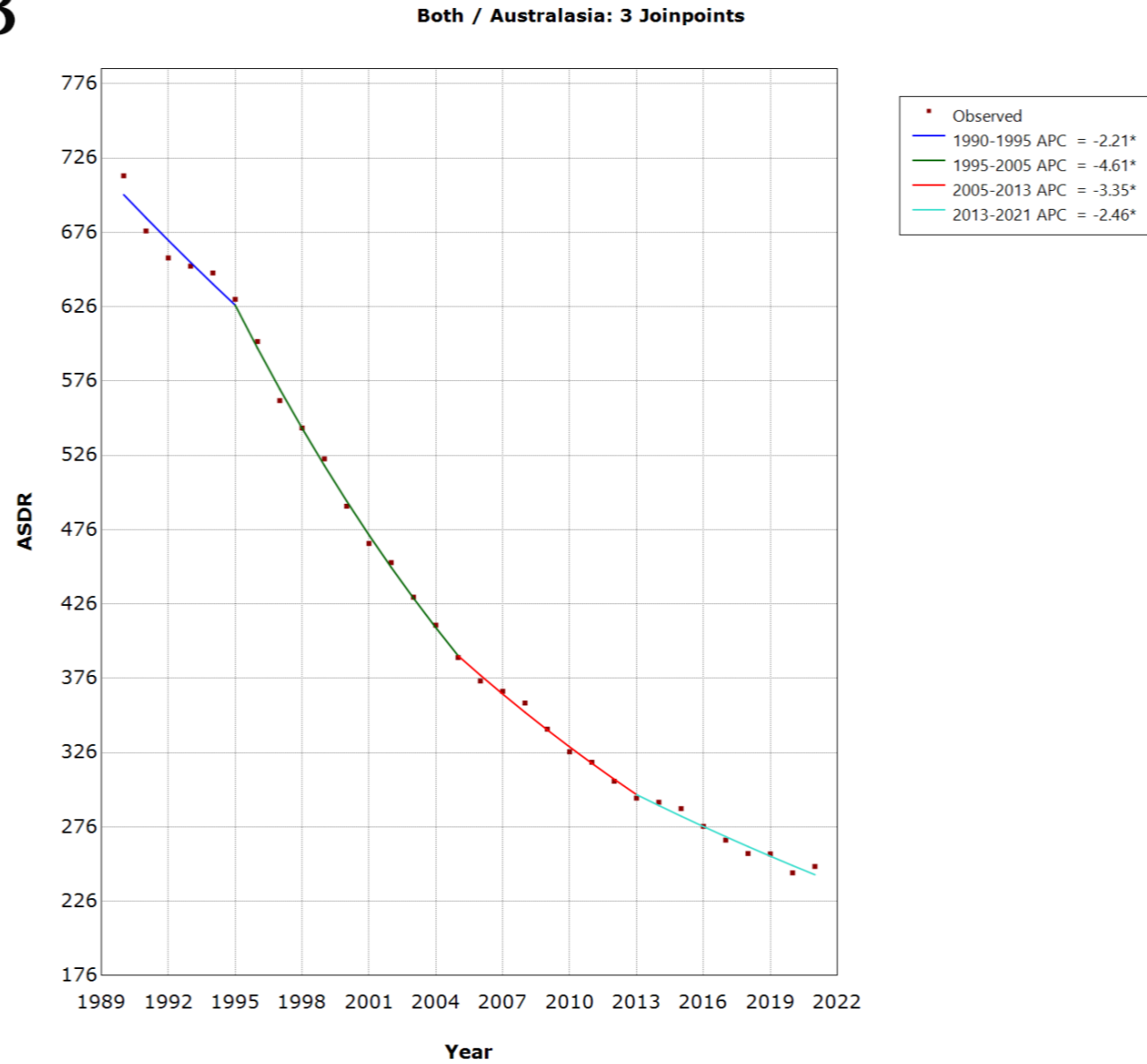
A

Both / Andean Latin America: 5 Joinpoints



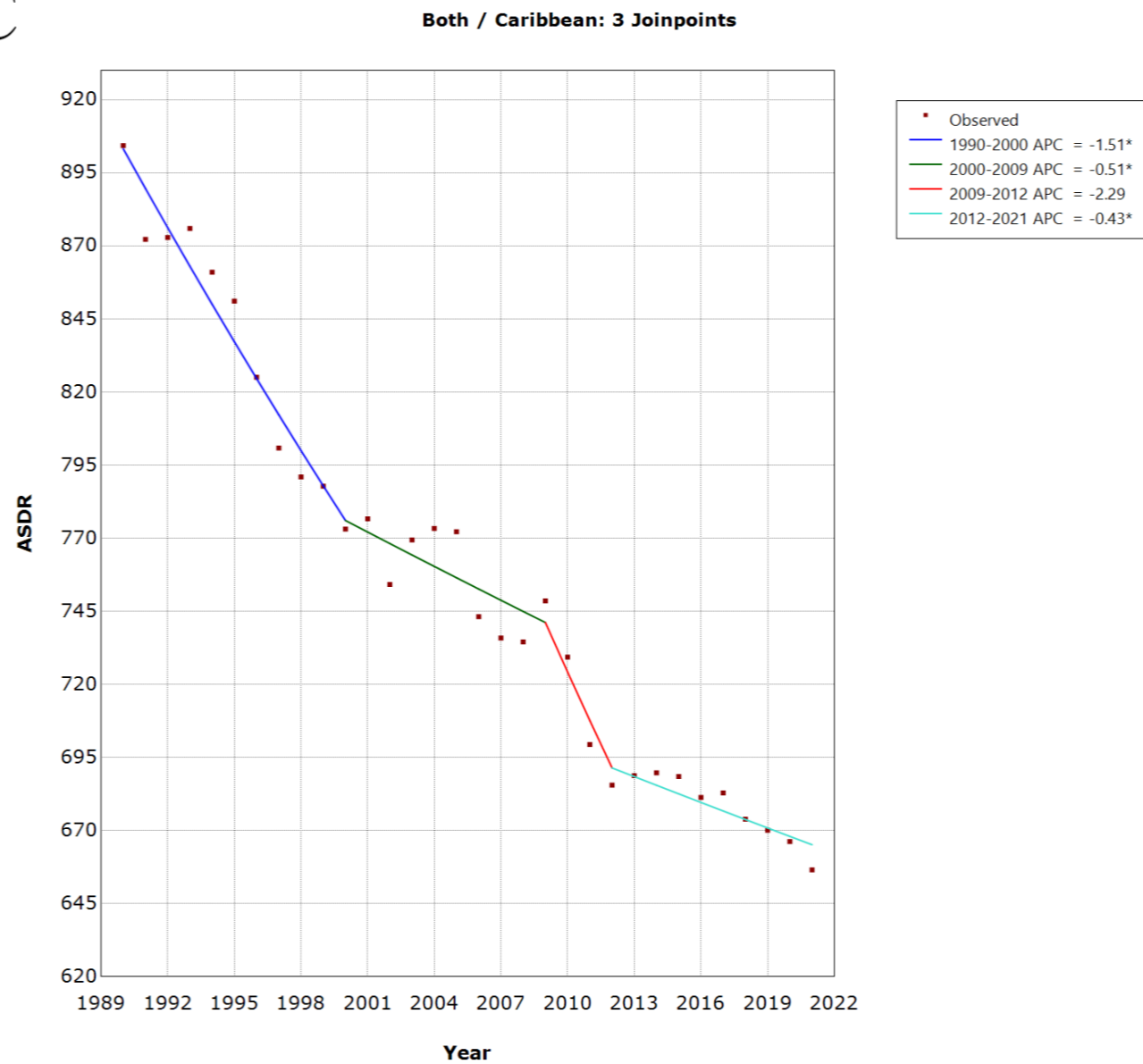
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B



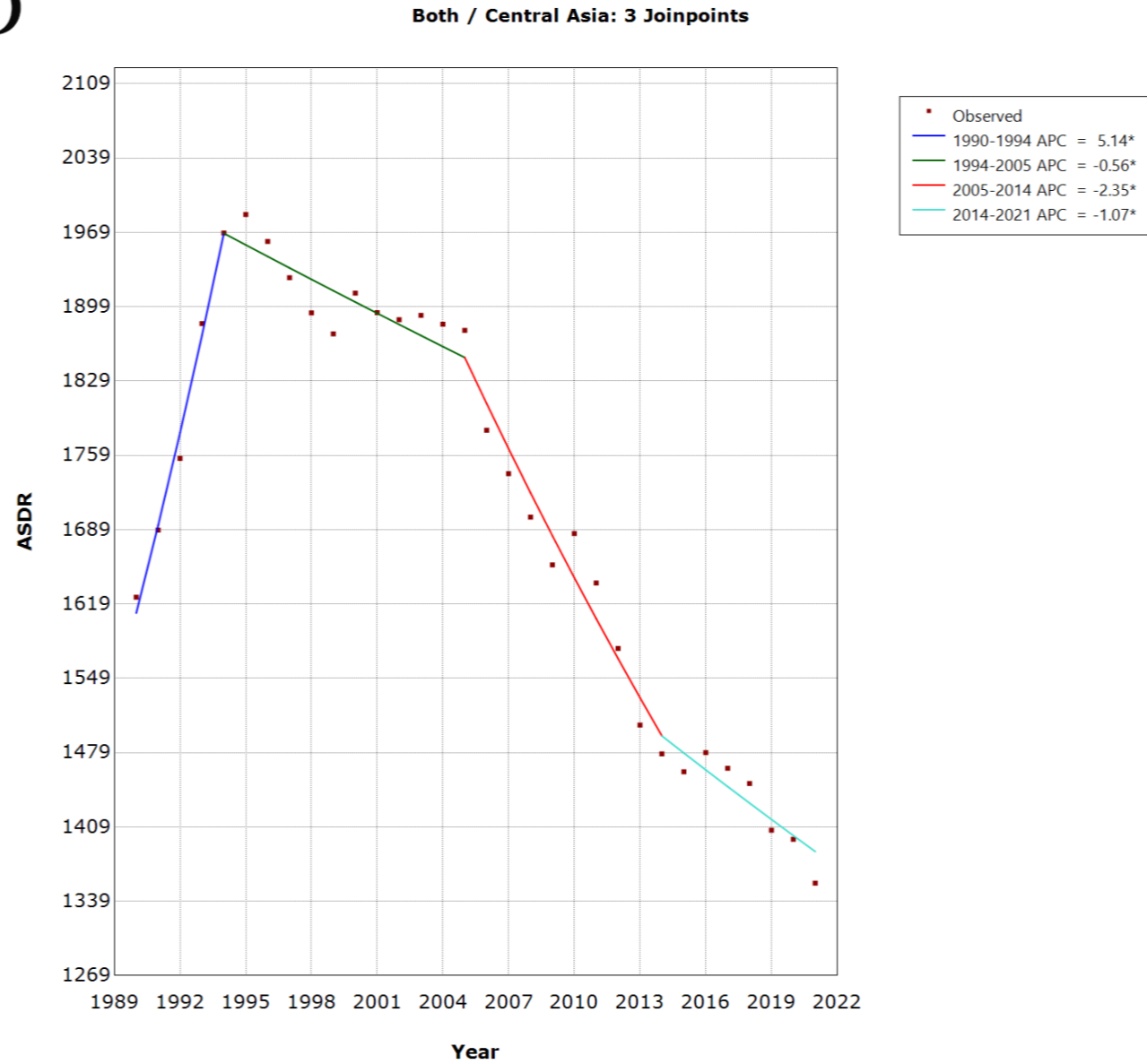
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C



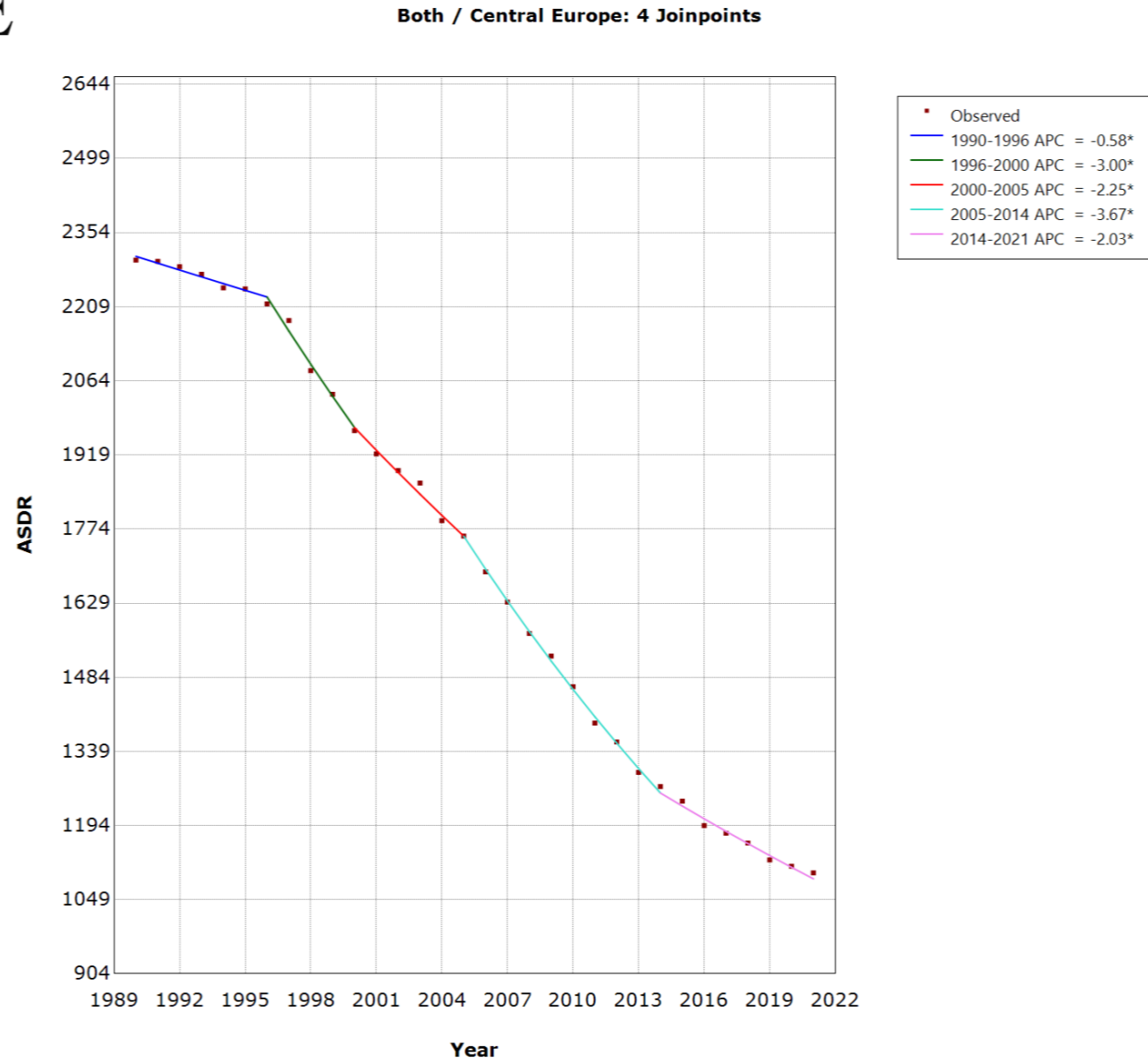
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D



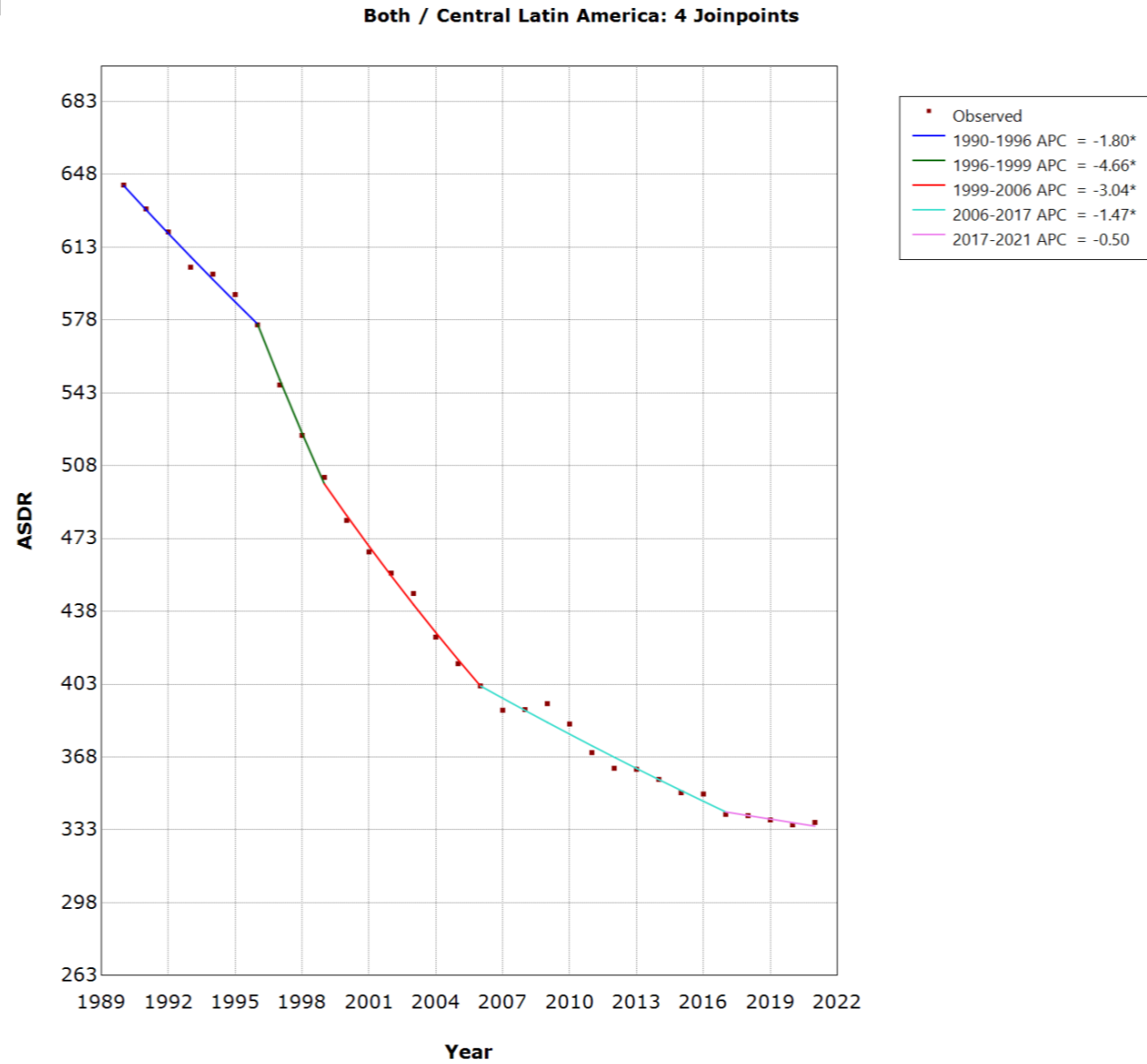
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E



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 4 Joinpoints.

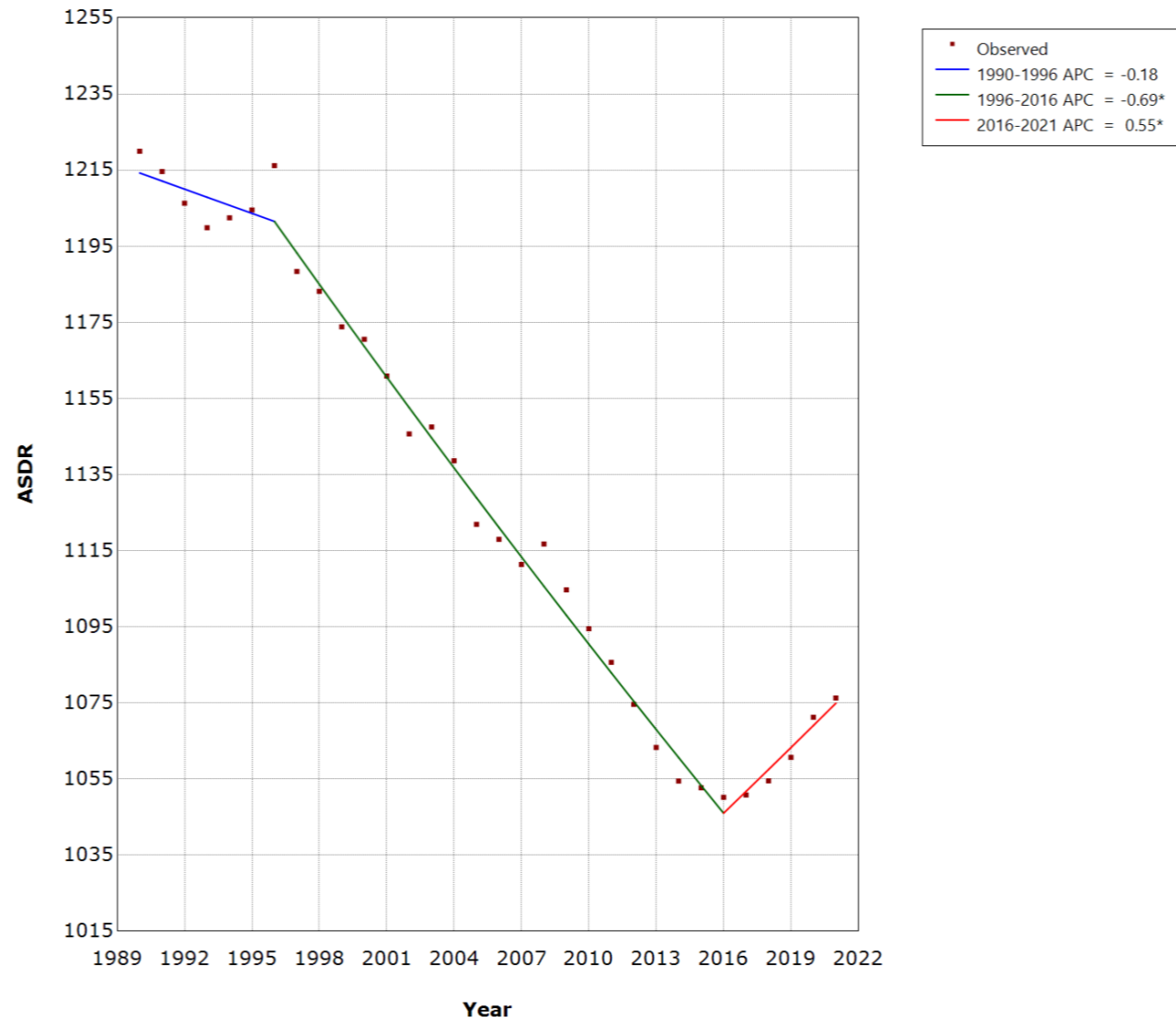
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* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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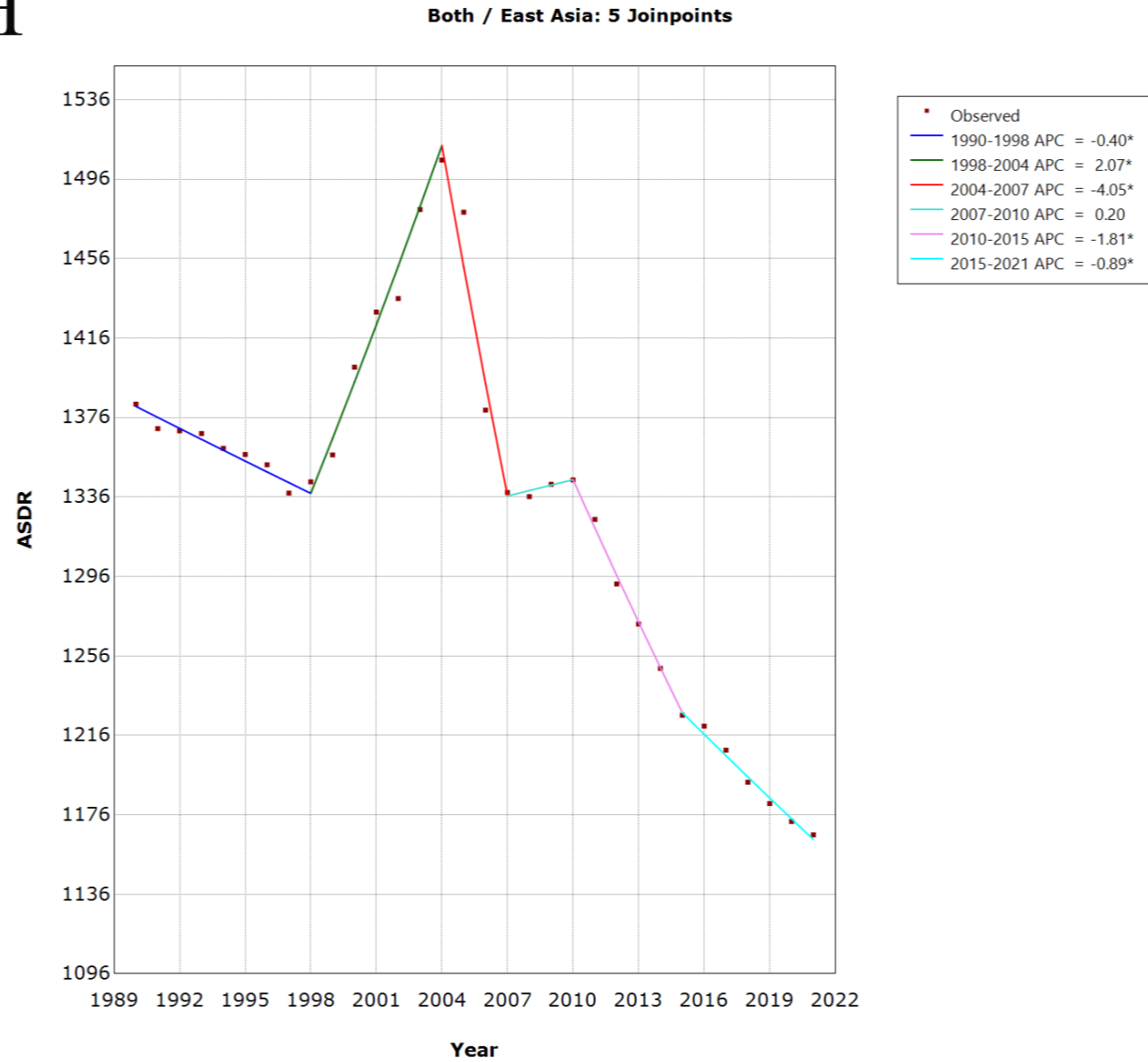
G

Both / Central Sub-Saharan Africa: 2 Joinpoints



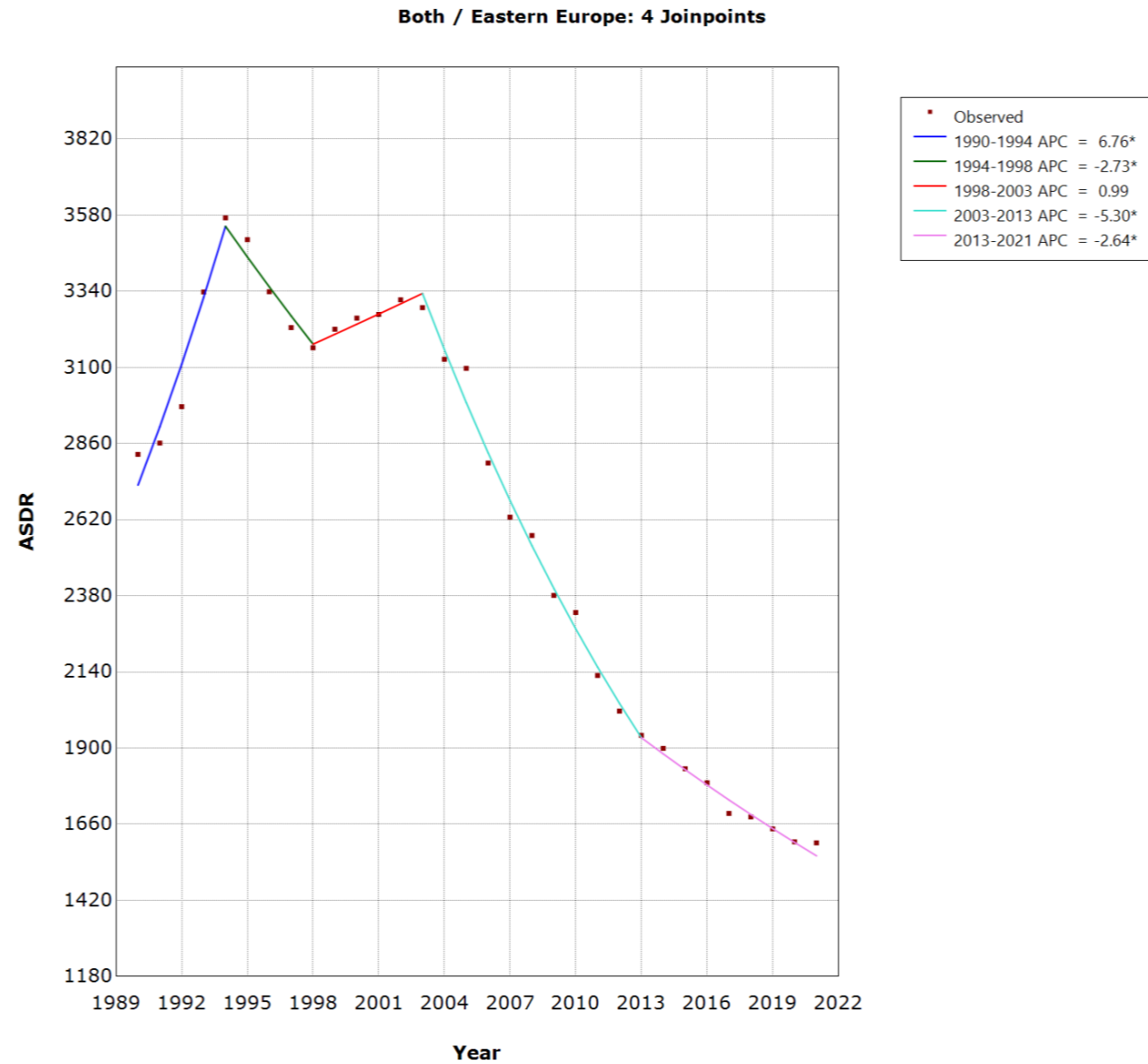
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Final Selected Model: 2 Joinpoints.

H



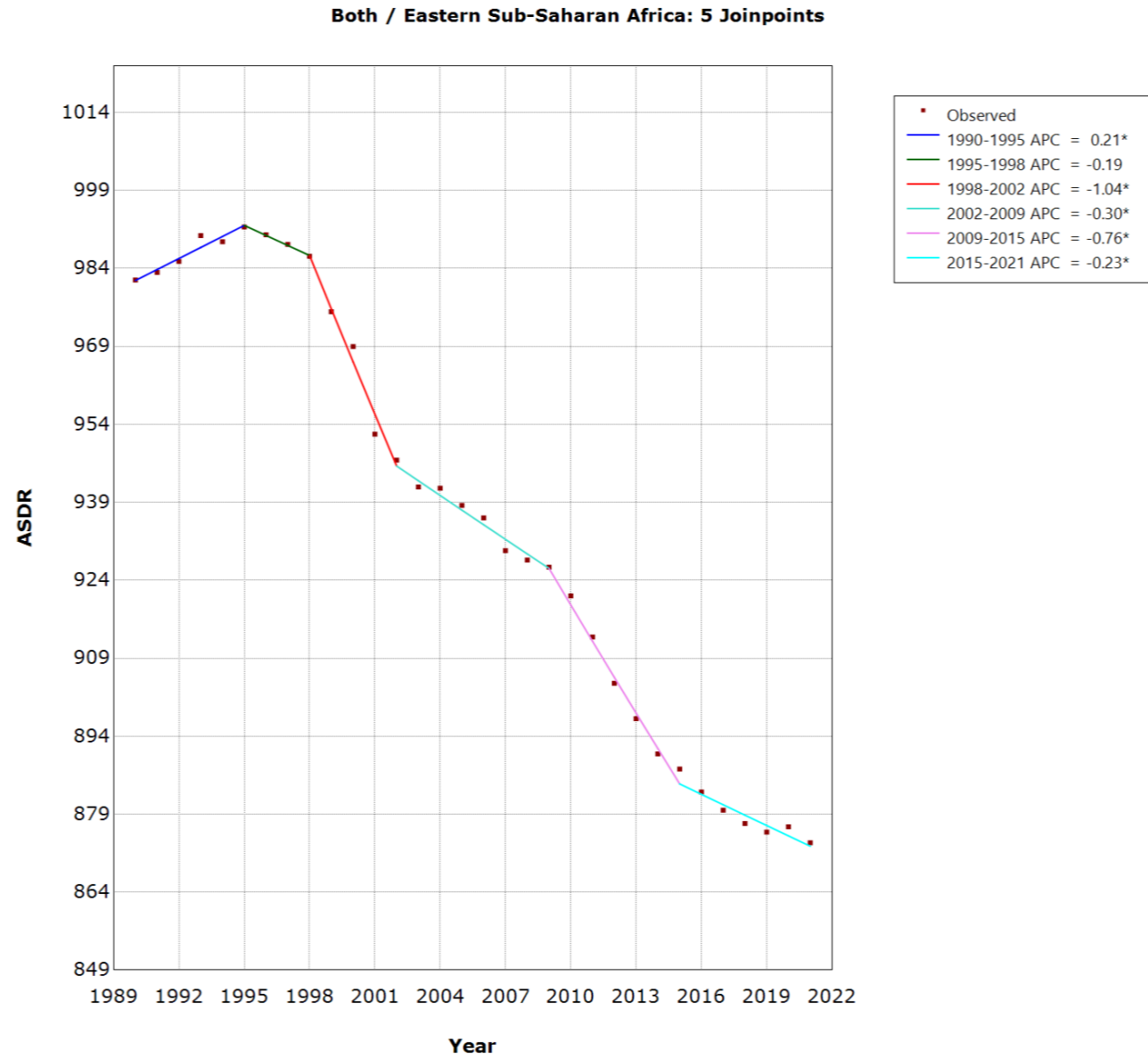
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 5 Joinpoints.

I



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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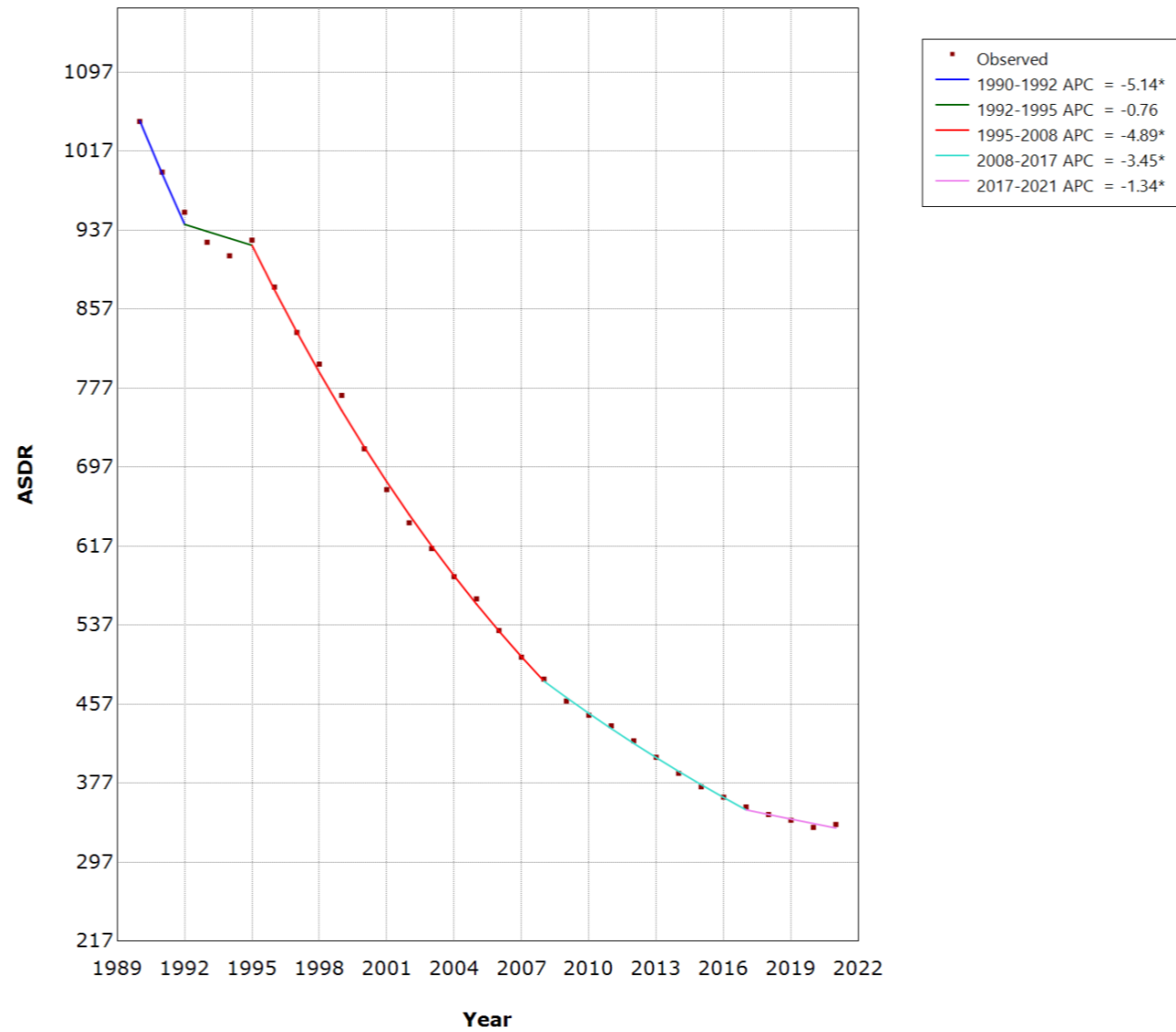
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* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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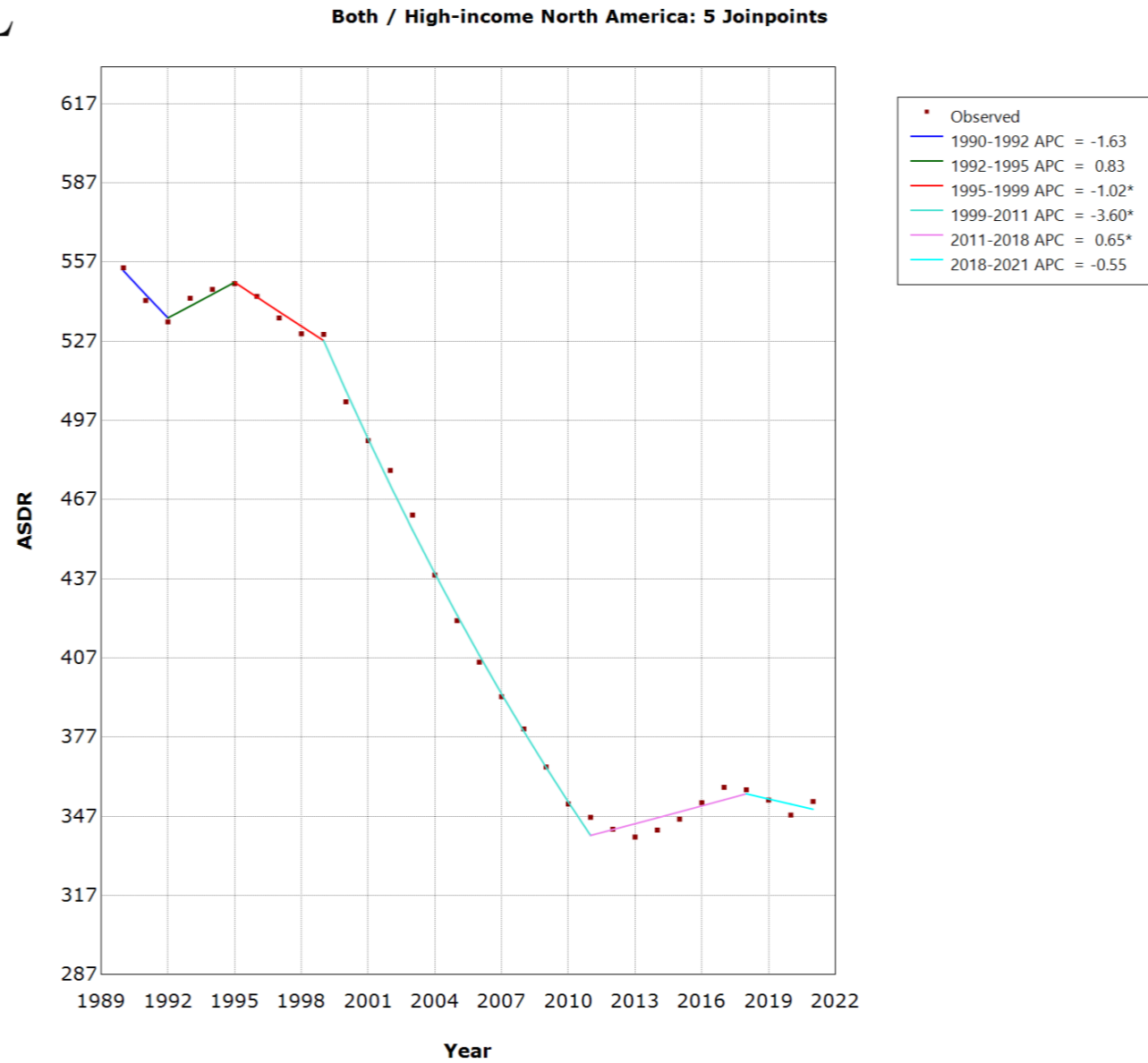
K

Both / High-income Asia Pacific: 4 Joinpoints



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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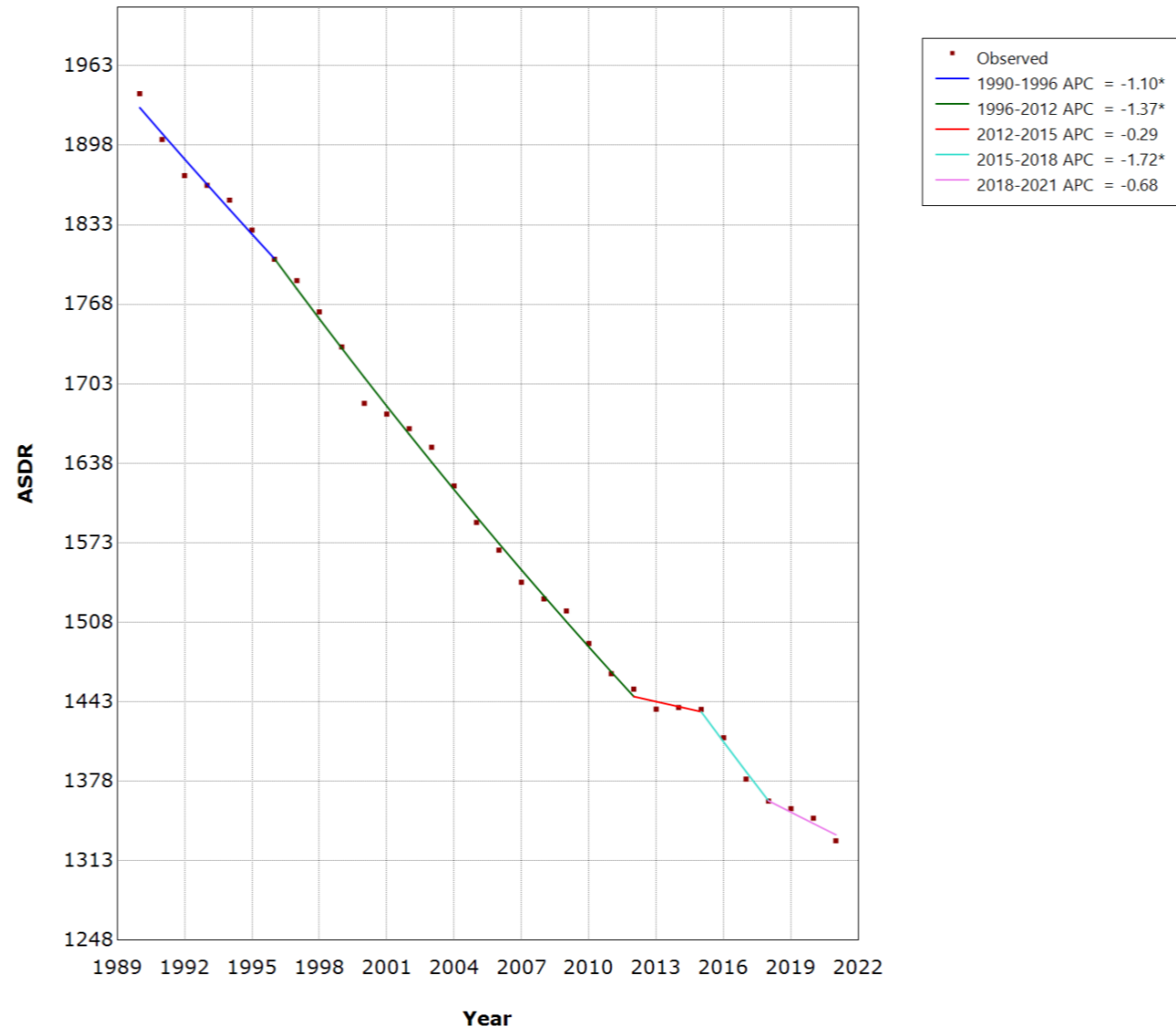
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* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
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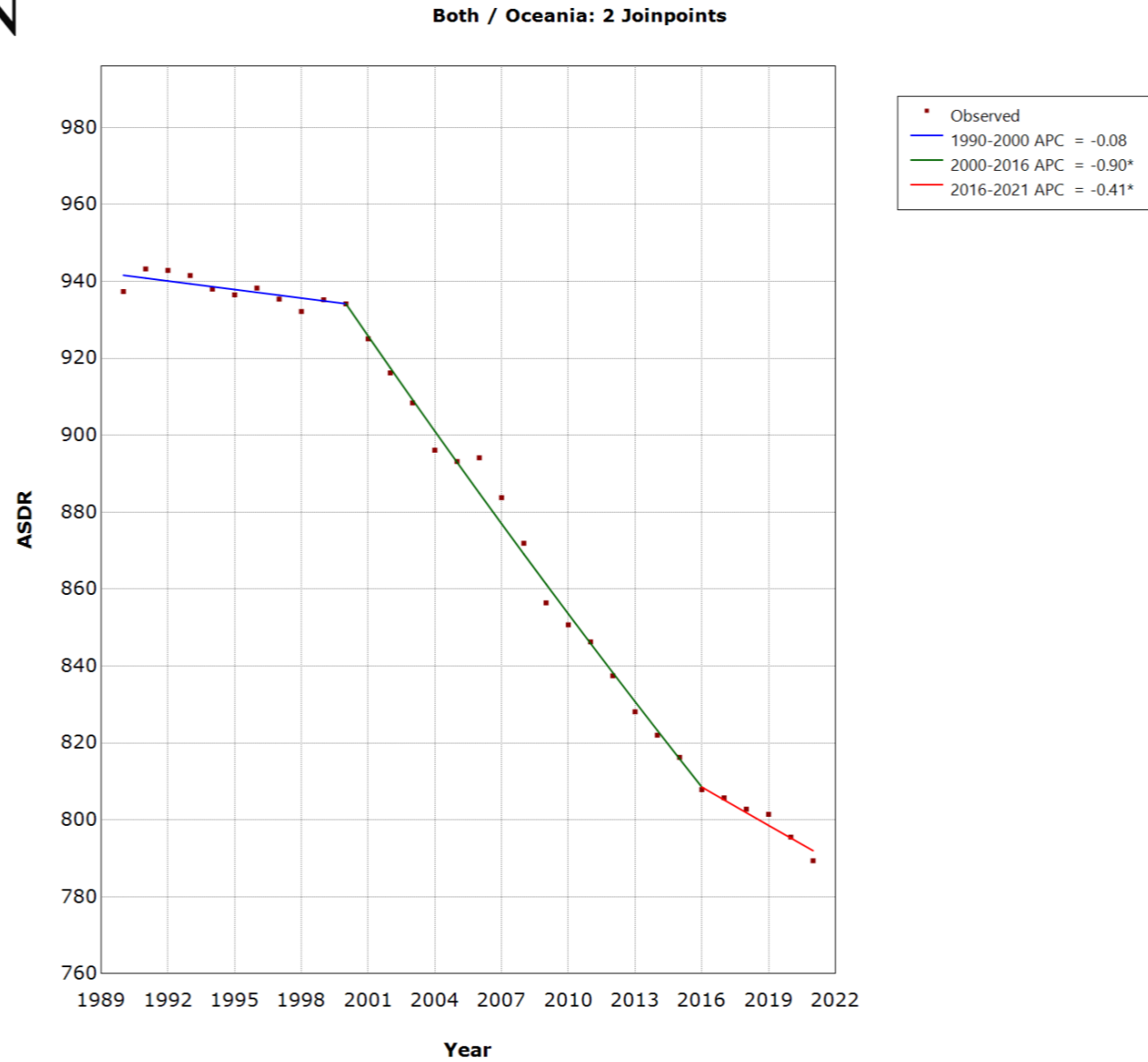
M

Both / North Africa and Middle East: 4 Joinpoints



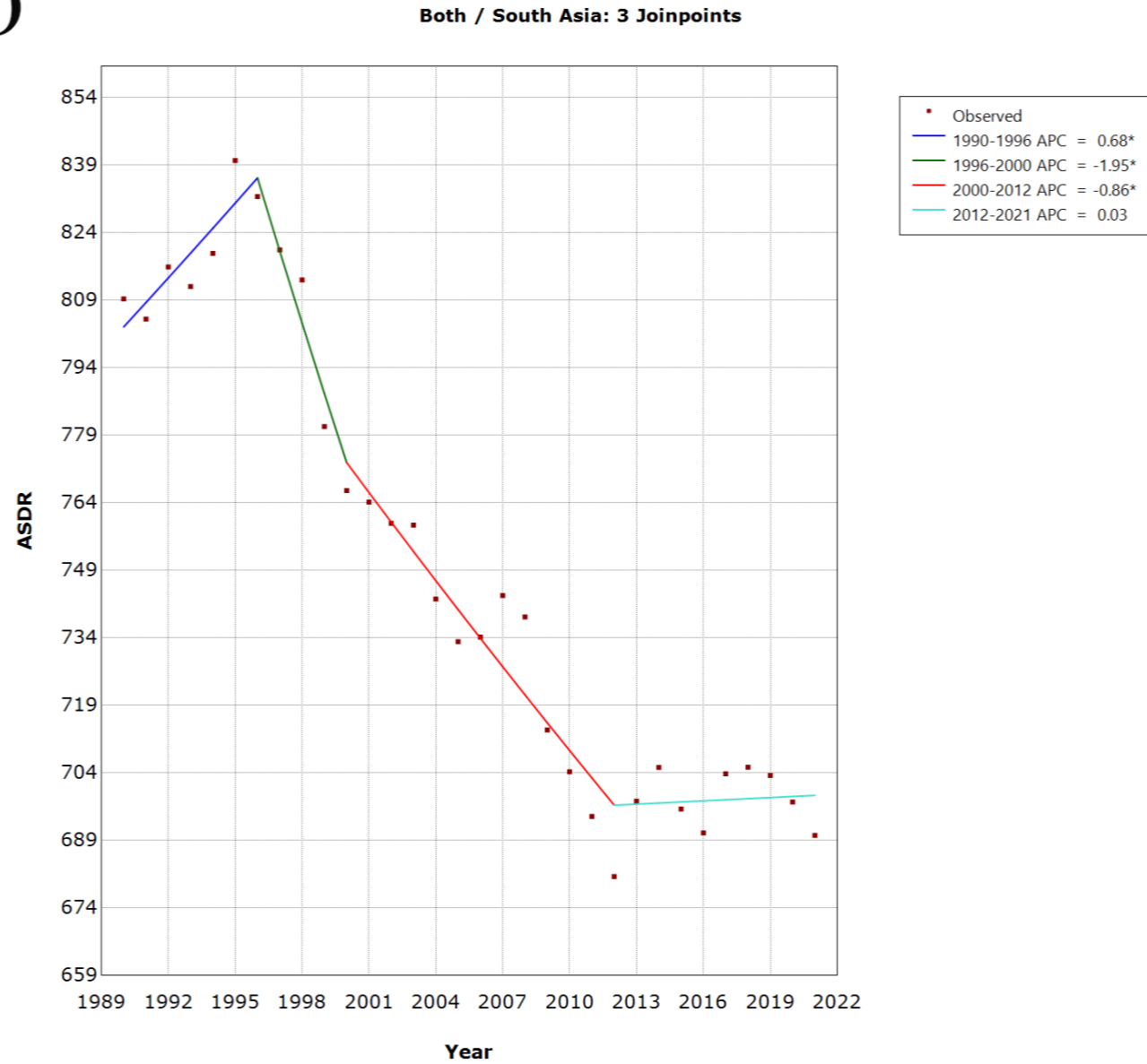
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N



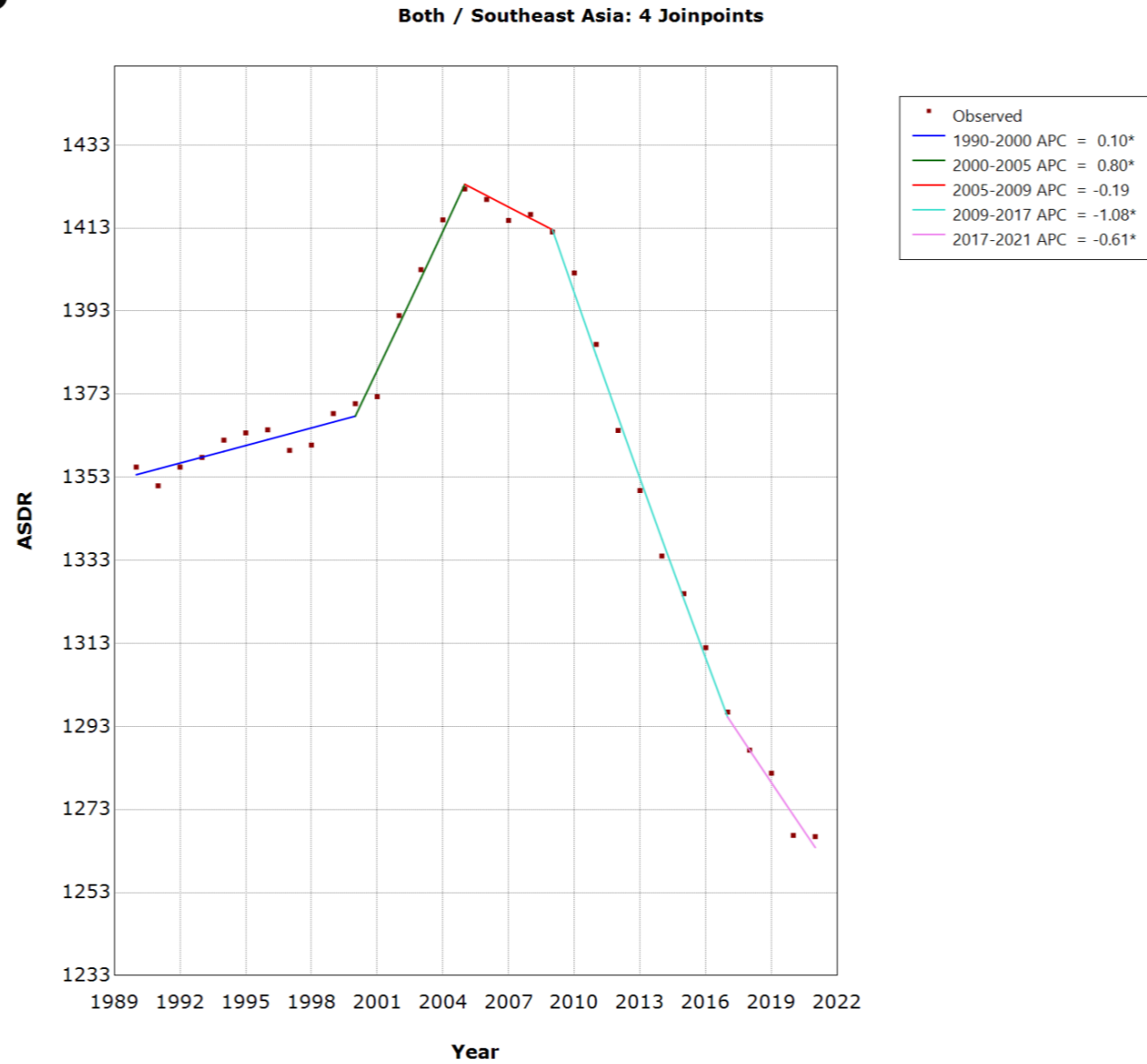
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 2 Joinpoints.

O



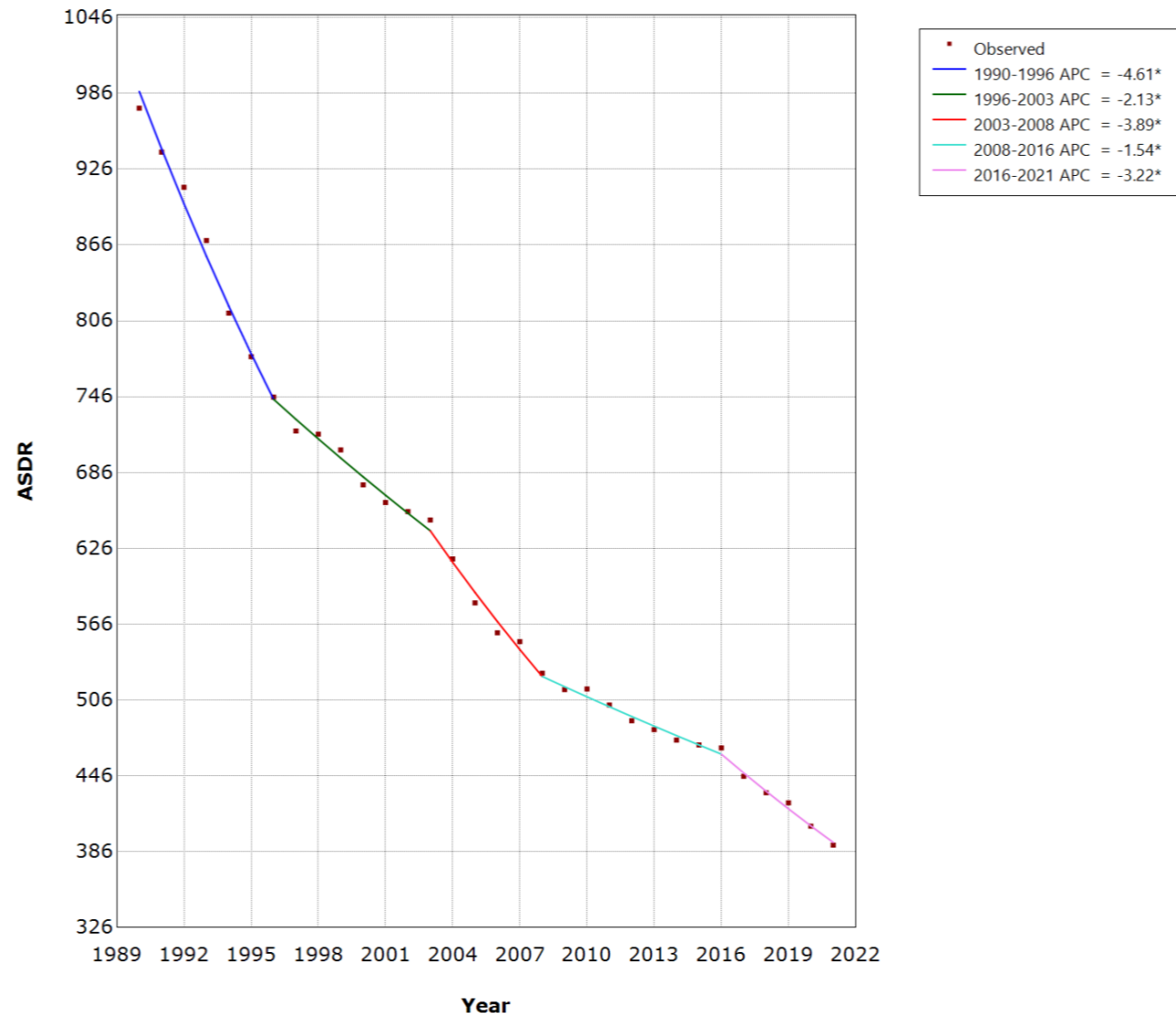
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Final Selected Model: 3 Joinpoints.

P



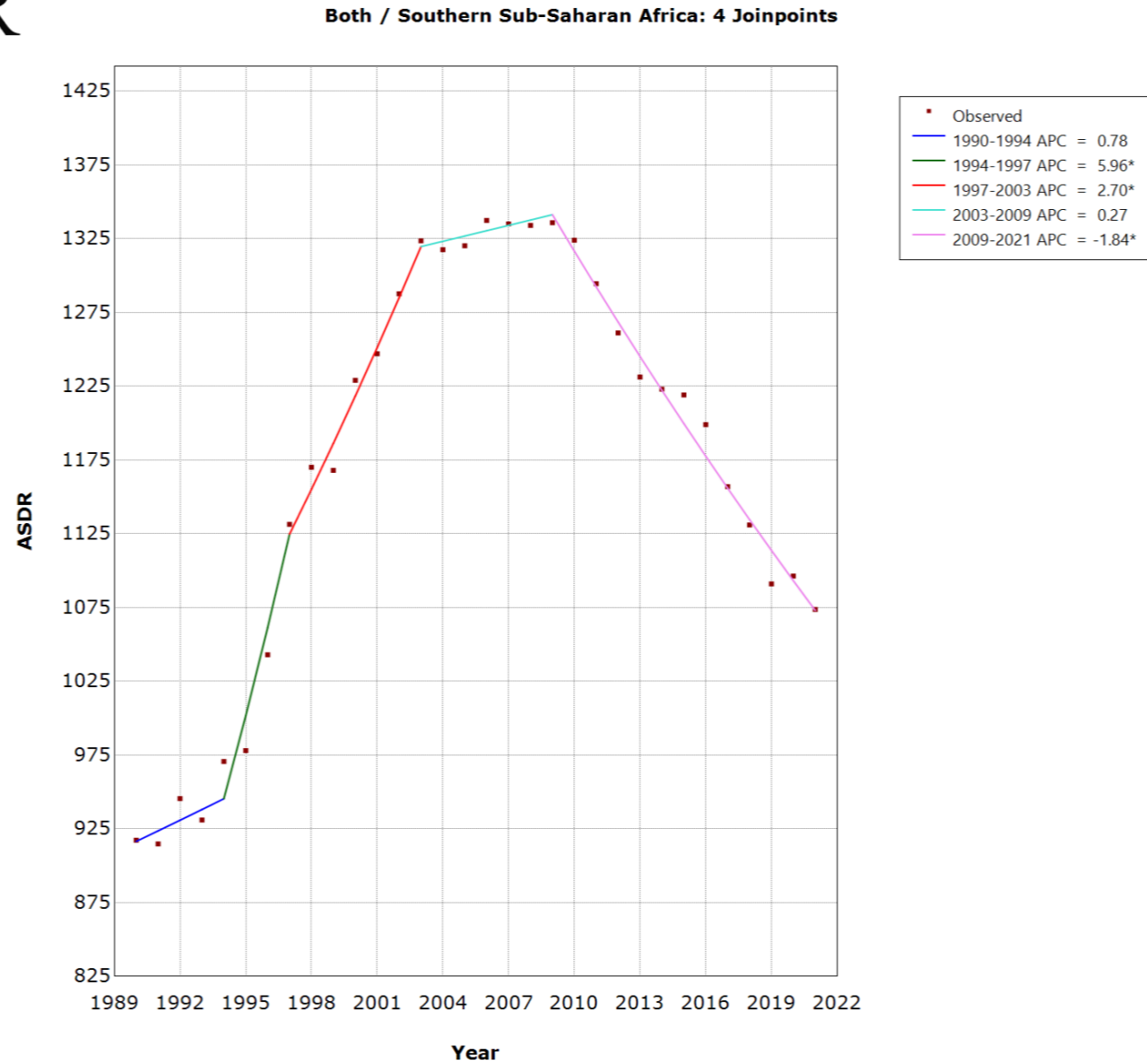
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

Q

Both / Southern Latin America: 4 Joinpoints

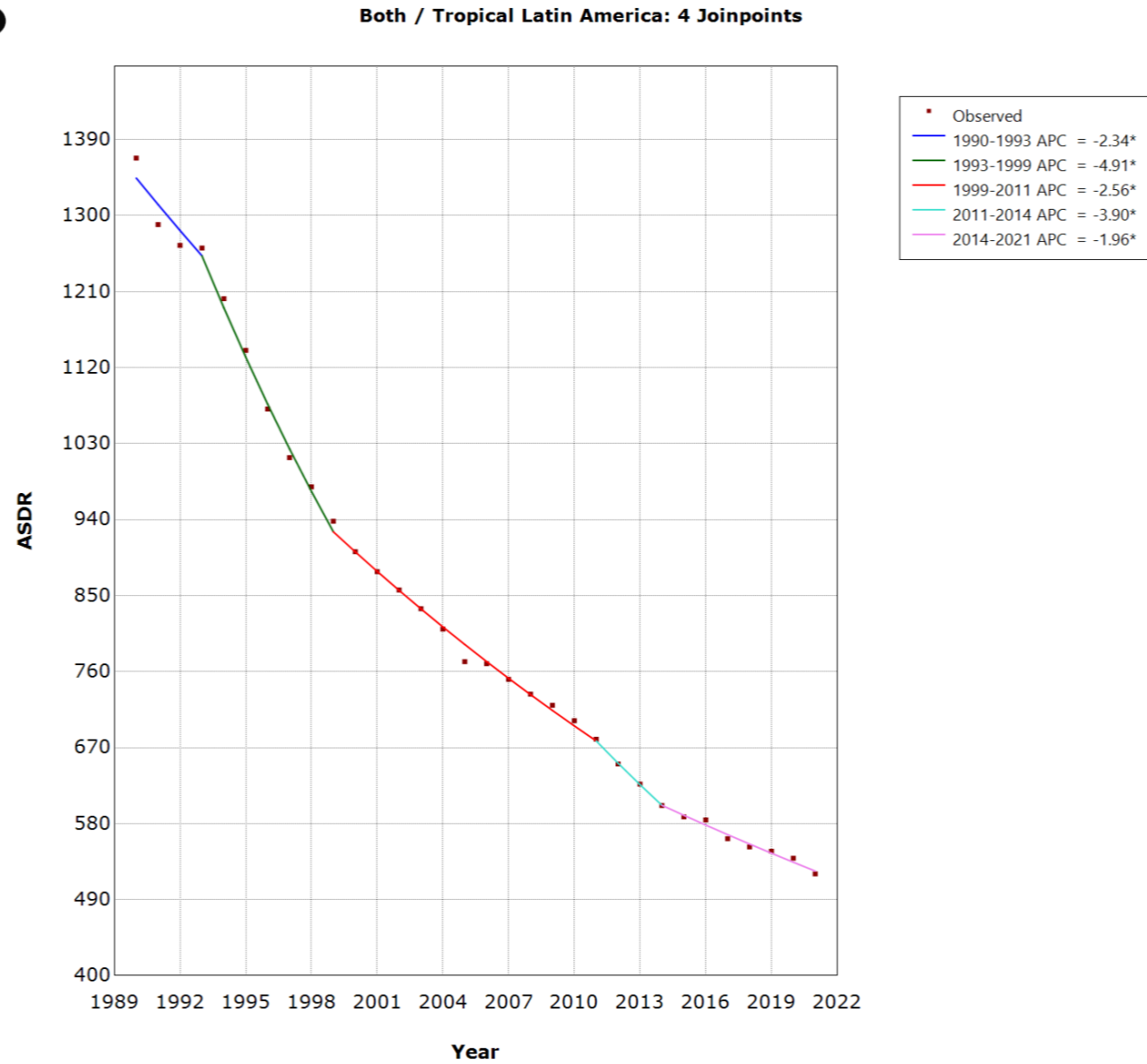
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

R



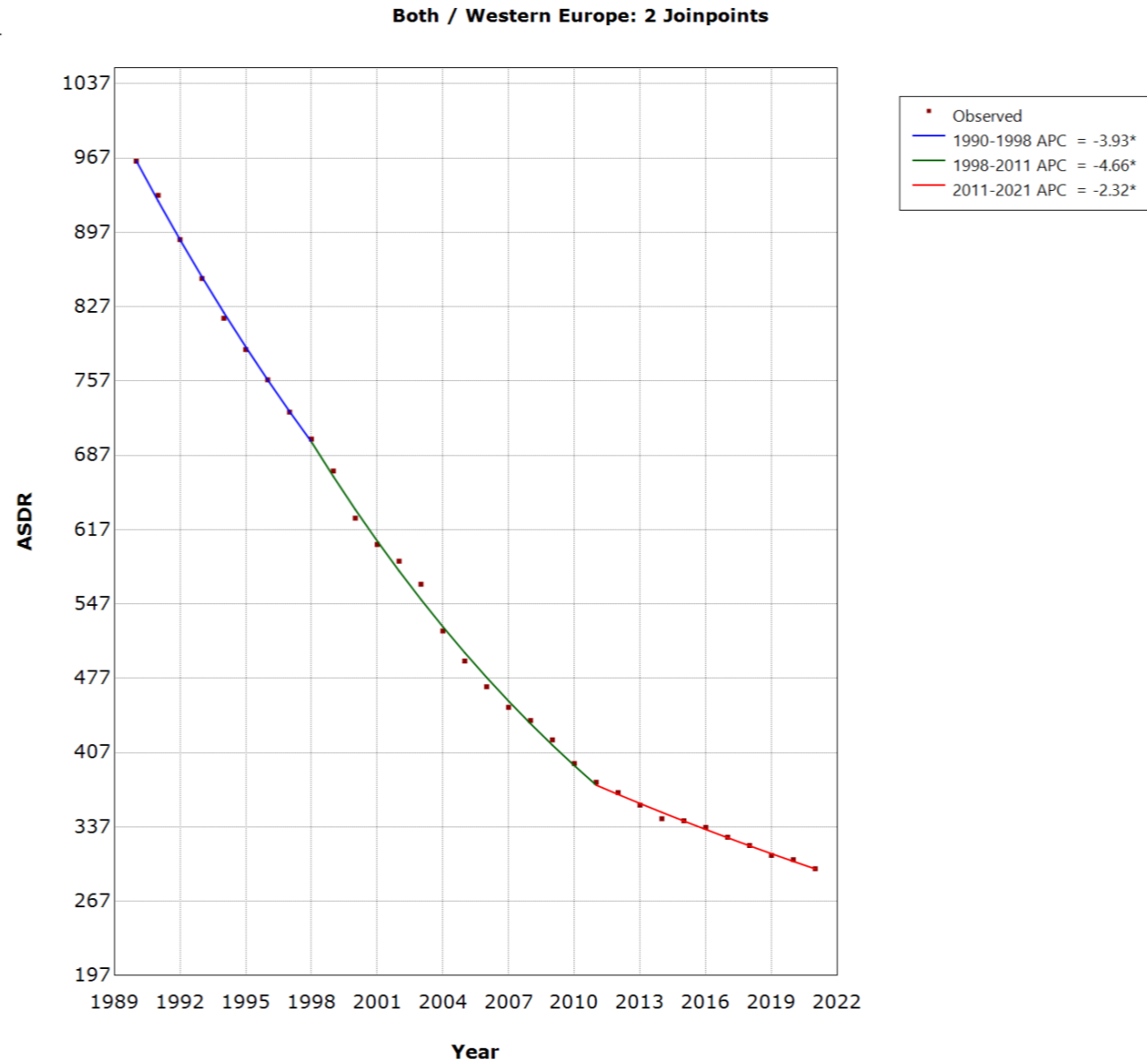
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 4 Joinpoints.

S



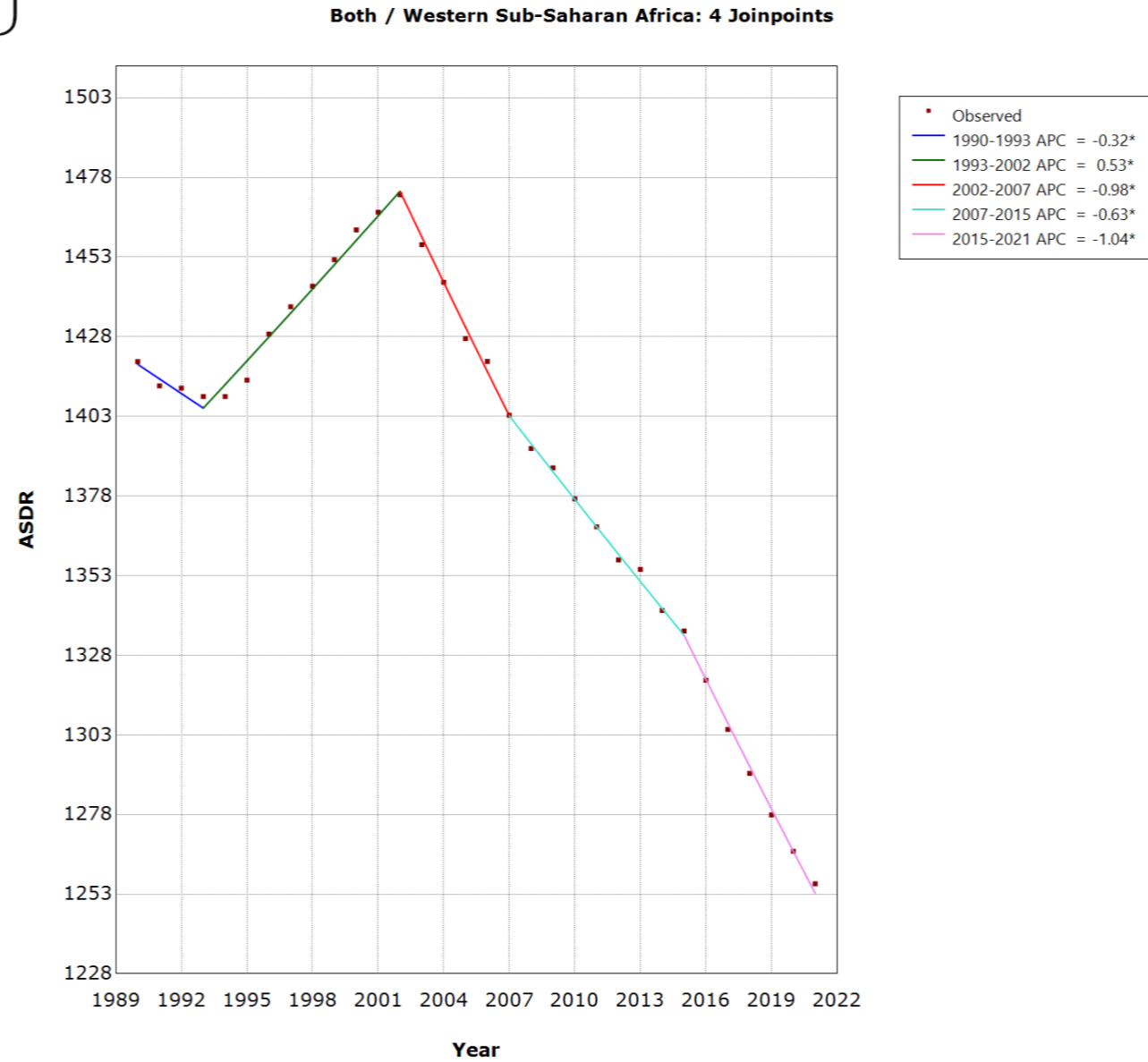
* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 4 Joinpoints.

T



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
 Final Selected Model: 2 Joinpoints.

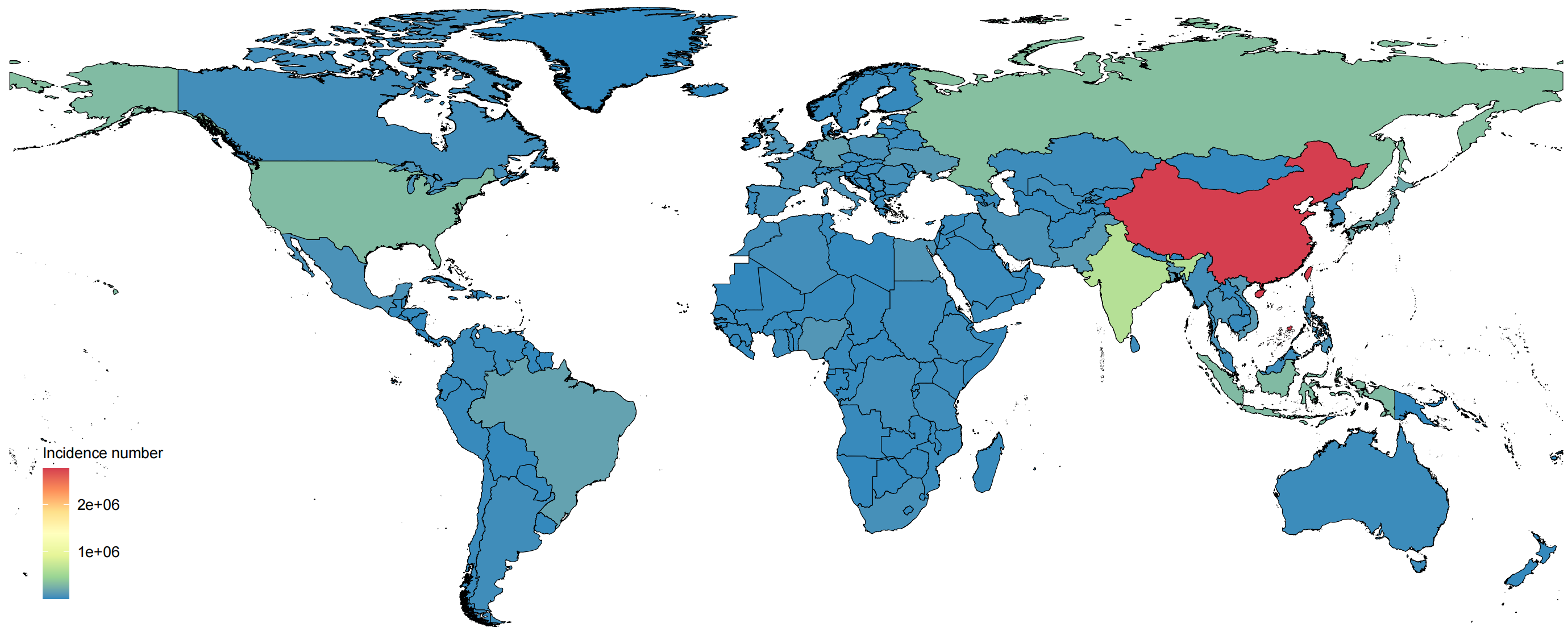
U



* Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level
Final Selected Model: 4 Joinpoints.

Supplementary Figure 3. APC of ASDR of ischemic stroke in each GBD region from 1990 to 2021. A. APC of ASDR of ischemic stroke in Andean Latin America from 1990 to 2021. B. APC of ASDR of ischemic stroke in Australasia from 1990 to 2021. C. APC of ASDR of ischemic stroke in Caribbean from 1990 to 2021. D. APC of ASDR of ischemic stroke in Central Asia from 1990 to 2021. E. APC of ASDR of ischemic stroke in Central Europe from 1990 to 2021. F. APC of ASDR of ischemic stroke in Central Latin America from 1990 to 2021. G. APC of ASDR of ischemic stroke in Central Sub-Saharan Africa from 1990 to 2021. H. APC of ASDR of ischemic stroke in East Asia from 1990 to 2021. I. APC of ASDR of ischemic stroke in Eastern Europe from 1990 to 2021. J. APC of ASDR of ischemic stroke in Eastern Sub-Saharan Africa from 1990 to 2021. K. APC of ASDR of ischemic stroke in High-income Asia Pacific from 1990 to 2021. L. APC of ASDR of ischemic stroke in High-income North America from 1990 to 2021. M. APC of ASDR of ischemic stroke in North Africa and Middle East from 1990 to 2021. N. APC of ASDR of ischemic stroke in Oceania from 1990 to 2021. O. APC of ASDR of ischemic stroke in South Asia from 1990 to 2021. P. APC of ASDR of ischemic stroke in Southeast Asia from 1990 to 2021. Q. APC of ASDR of ischemic stroke in Southern Latin America from 1990 to 2021. R. APC of ASDR of ischemic stroke in Southern Sub-Saharan Africa from 1990 to 2021. S. APC of ASDR of ischemic stroke in Tropical Latin America from 1990 to 2021. T. APC of ASDR of ischemic stroke in each Western Europe 1990 to 2021. U. APC of ASDR of ischemic stroke in each Western Sub-Saharan Africa 1990 to 2021. APC = Annual percent change. ASDR = Age-standardized DALYs rate.

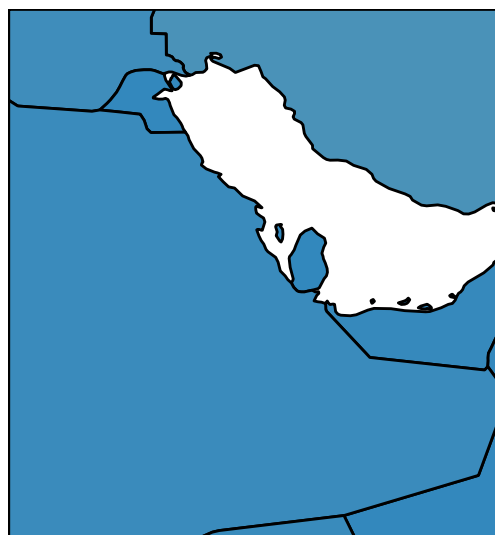
A



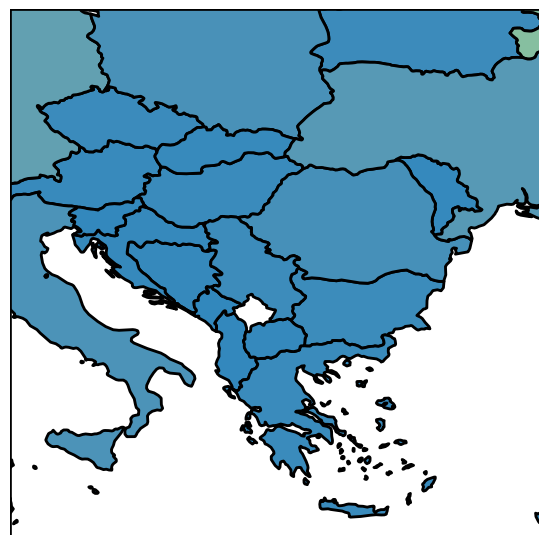
Caribbean and central America



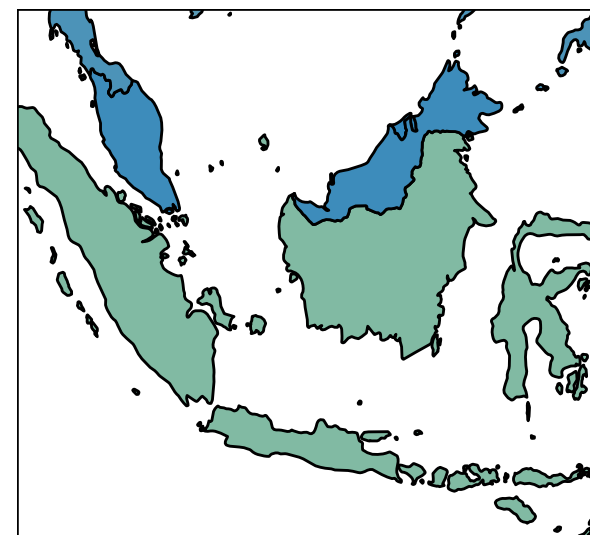
Persian Gulf



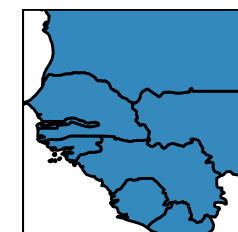
Balkan Peninsula



Sotheast Asia



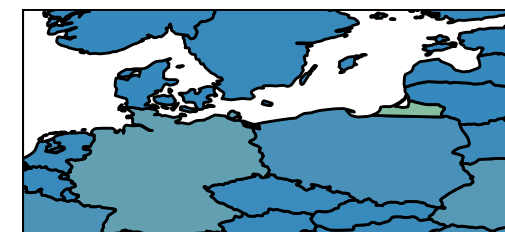
West Africa



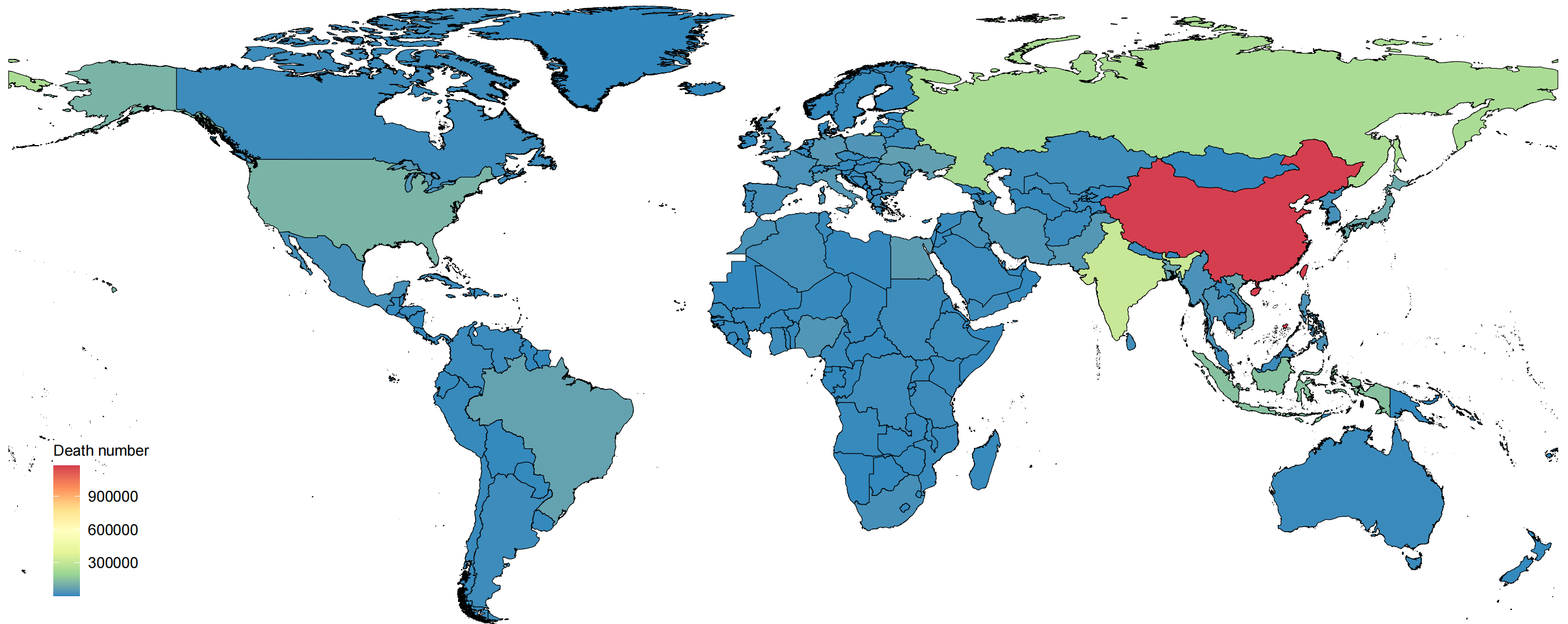
Eastern Mediterranean



Northern Europe



B



Caribbean and central America

Persian Gulf

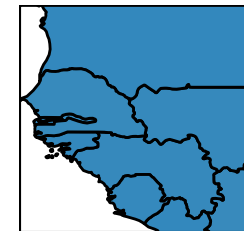
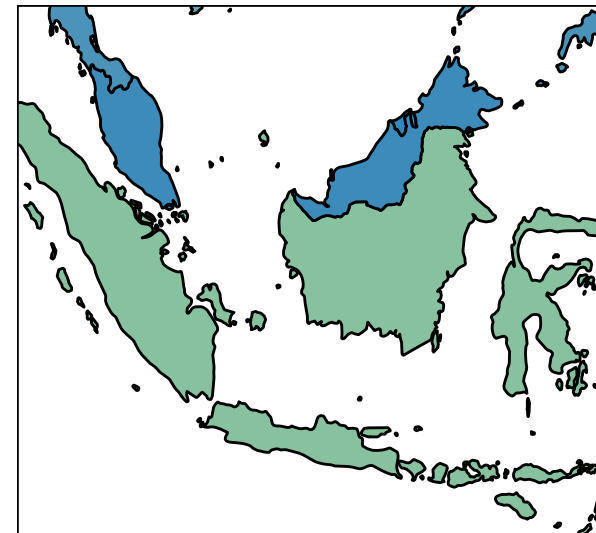
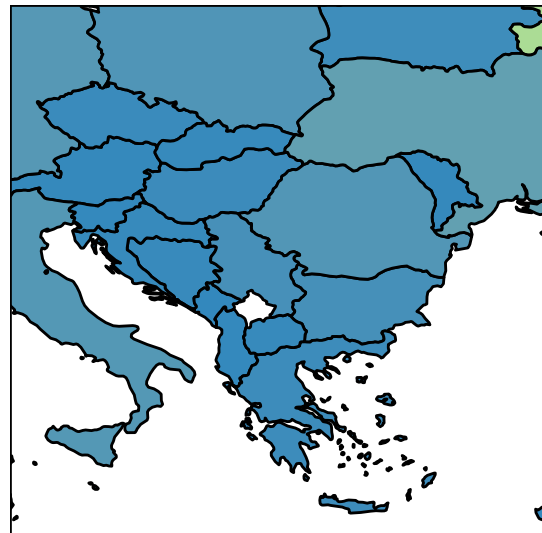
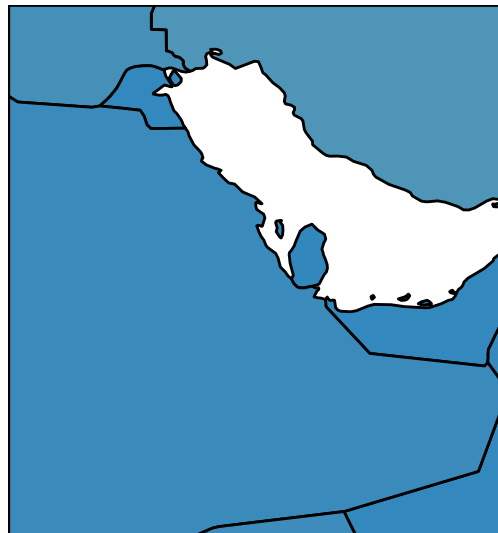
Balkan Peninsula

Sotheast Asia

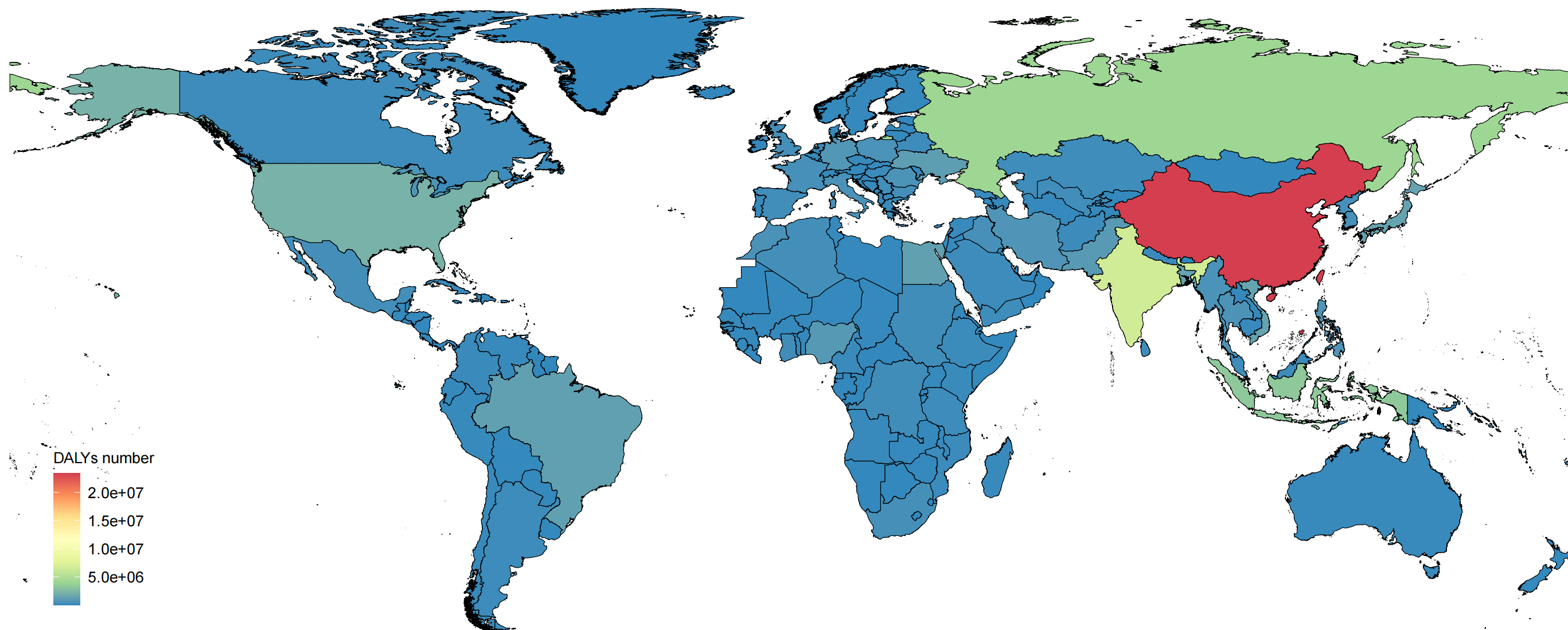
West Africa

Eastern
Mediterranean

Northern Europe



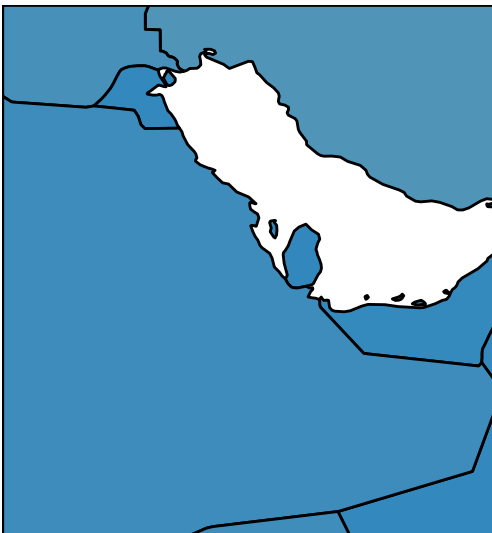
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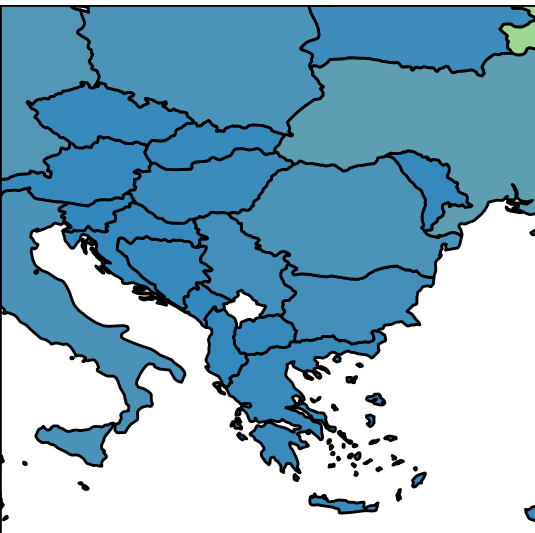
Caribbean and central America



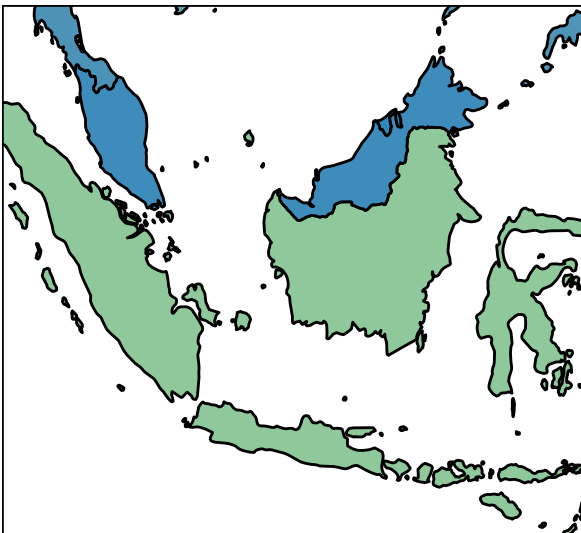
Persian Gulf



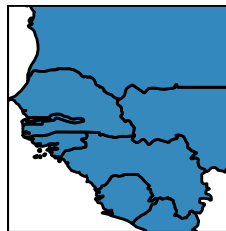
Balkan Peninsula



Sotheast Asia



West Africa



Eastern Mediterranean

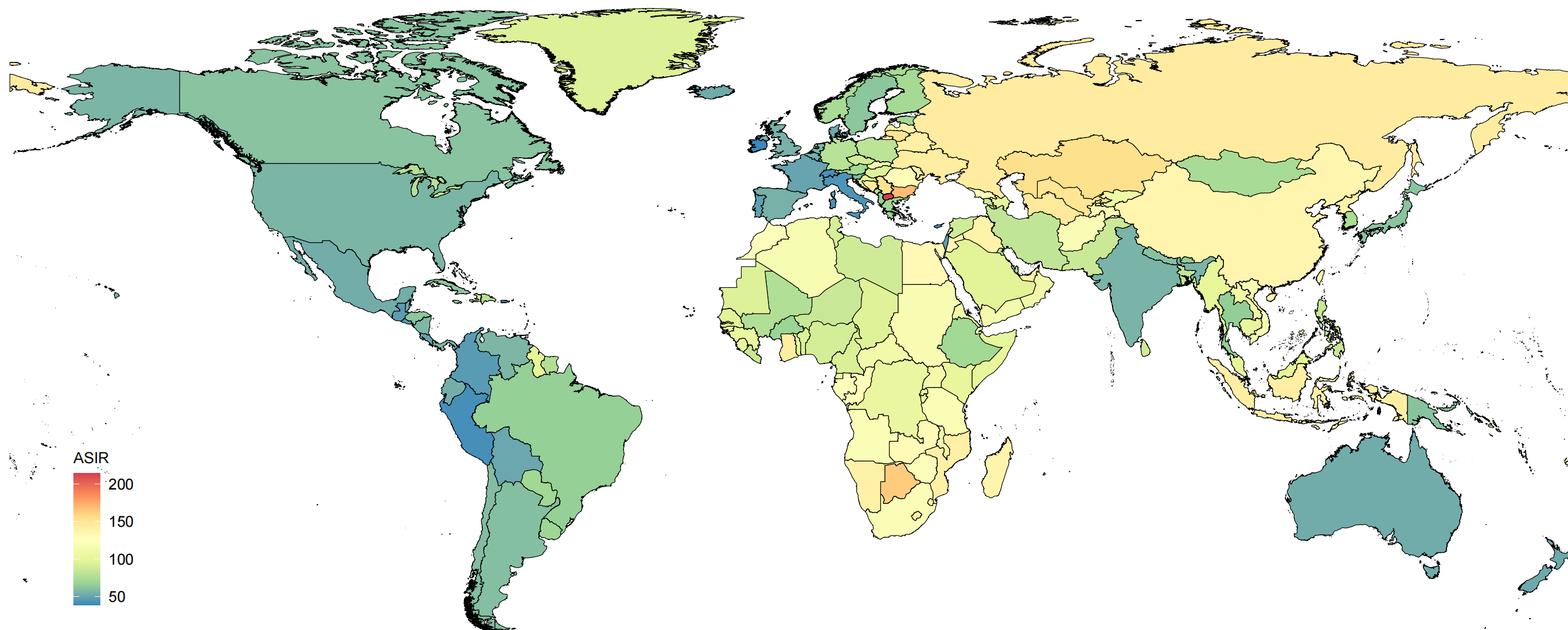


Northern Europe



Supplementary Figure 4. Incident, Death, and Disability-Adjusted Life-Years (DALYs) Cases of Ischemic Stroke in 204 Countries and Territories. A. Incident cases. B. Death cases. C. DALYs cases.

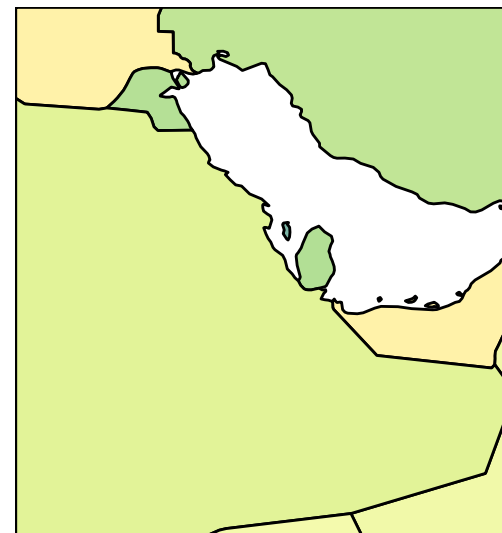
A



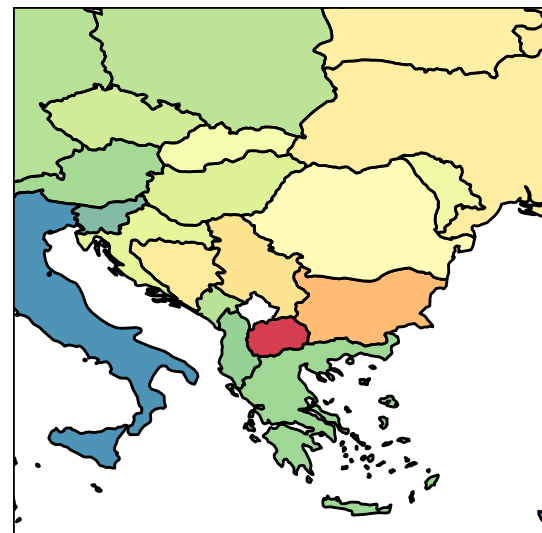
Caribbean and central America



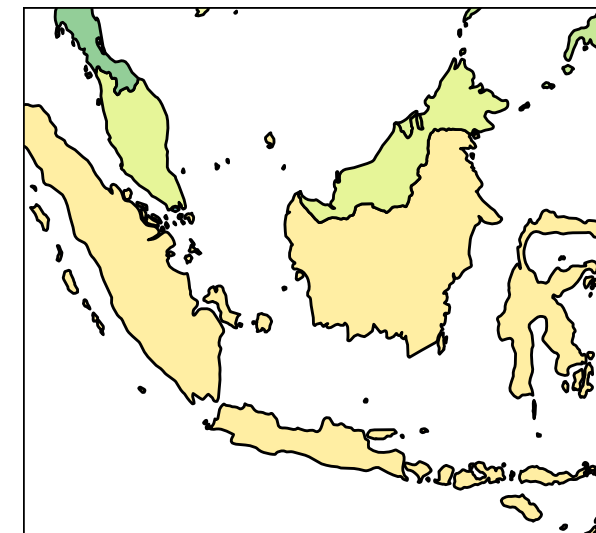
Persian Gulf



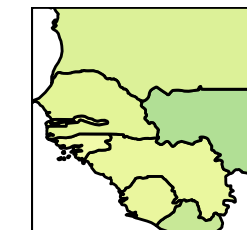
Balkan Peninsula



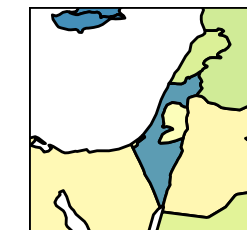
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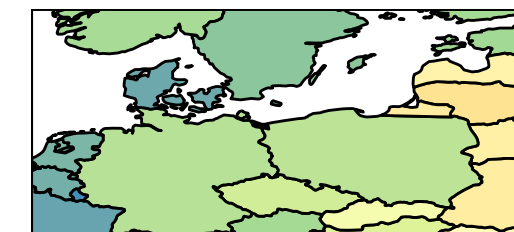
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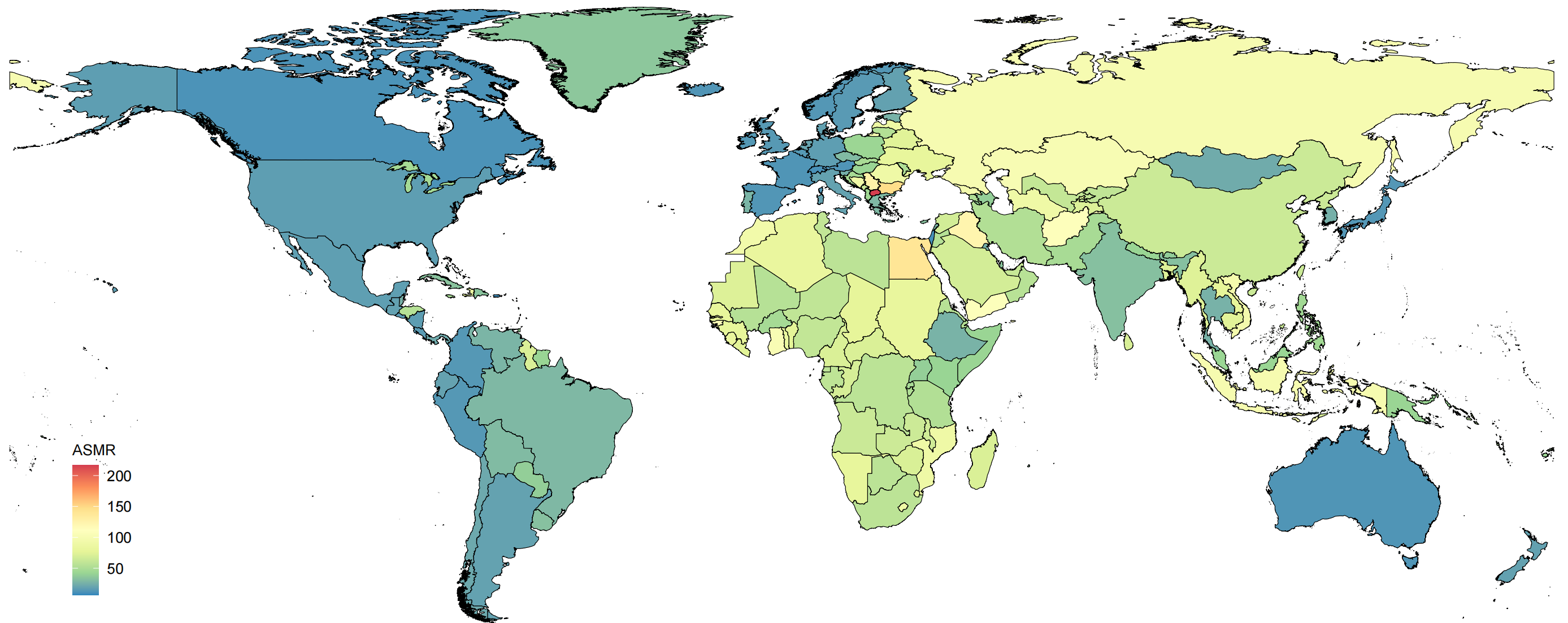
Eastern Mediterranean



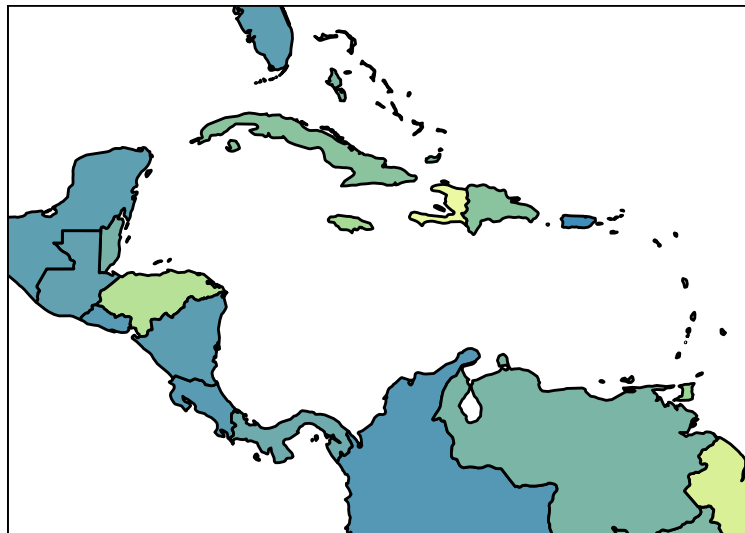
Northern Europe



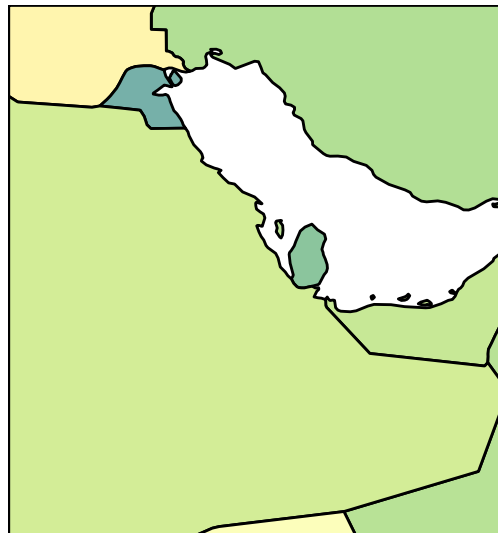
B



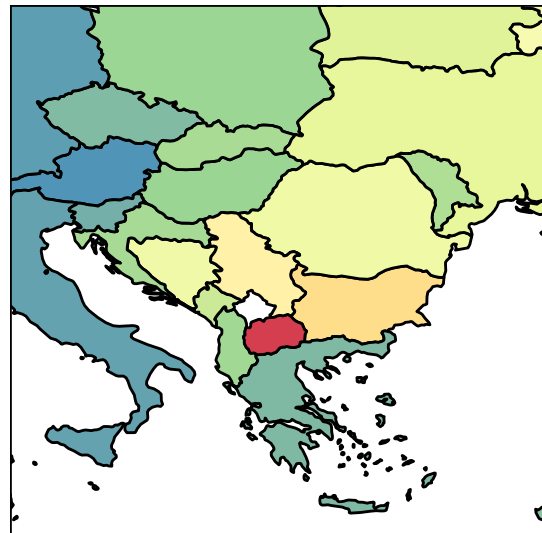
Caribbean and central America



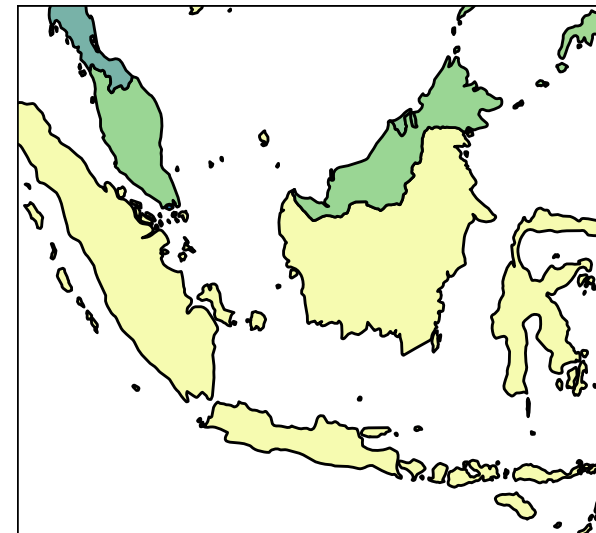
Persian Gulf



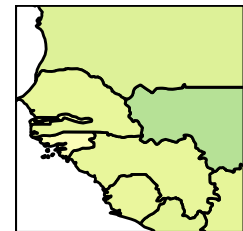
Balkan Peninsula



Sotheast Asia



West Africa



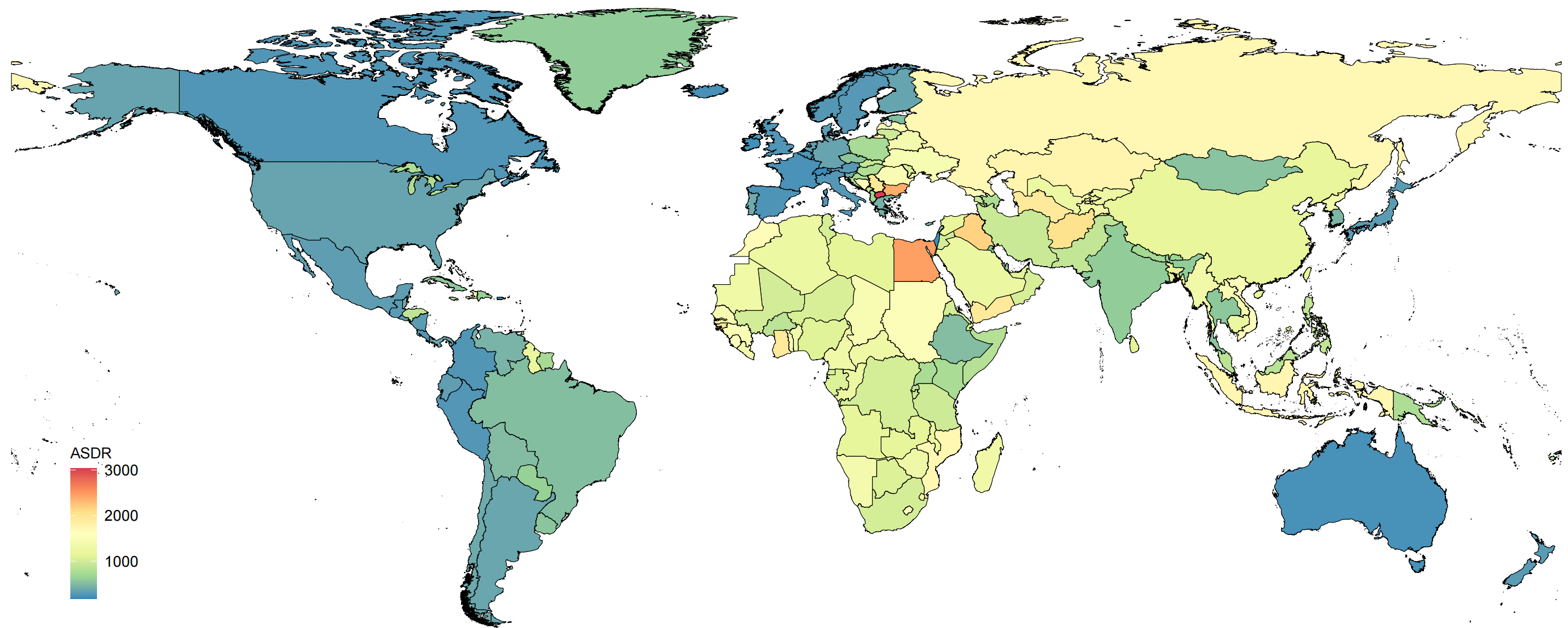
Eastern Mediterranean



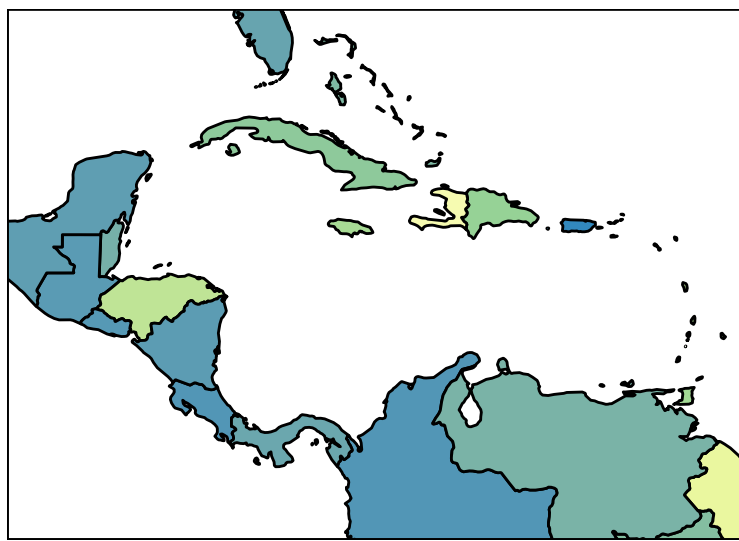
Northern Europe



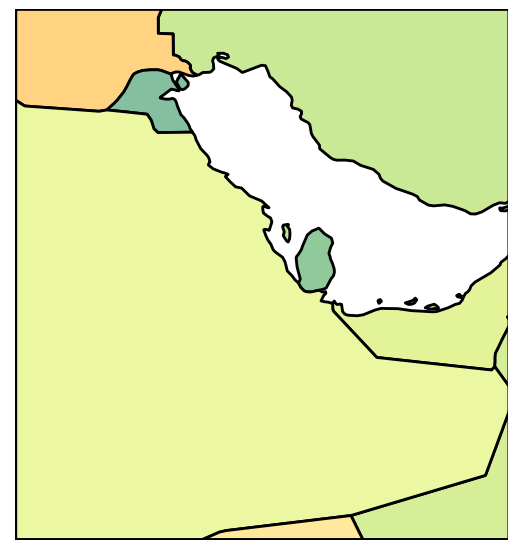
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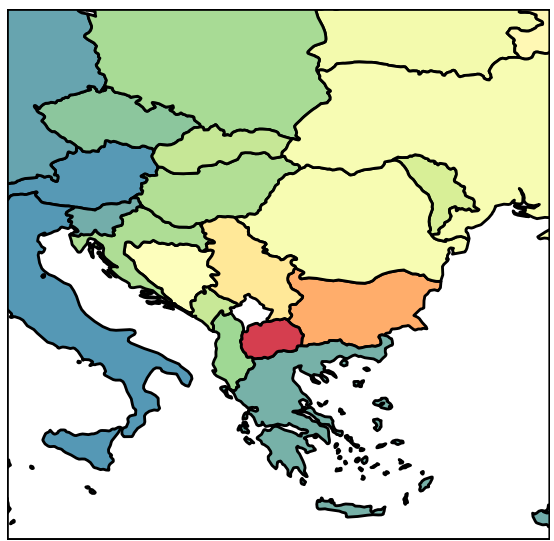
Caribbean and central America



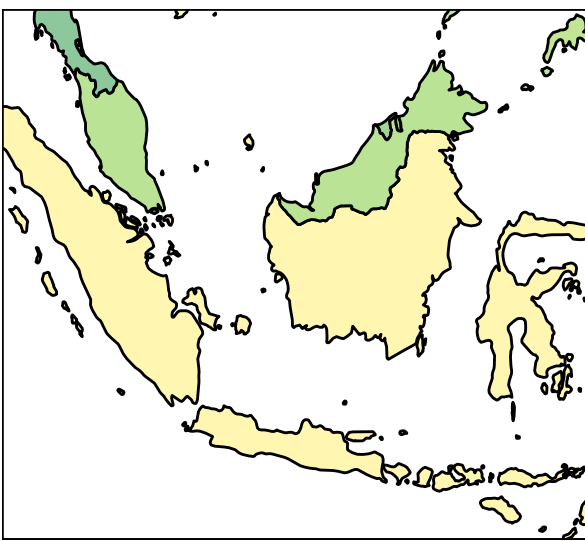
Persian Gulf



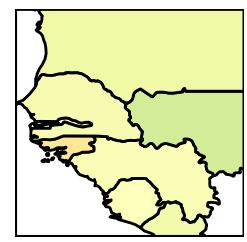
Balkan Peninsula



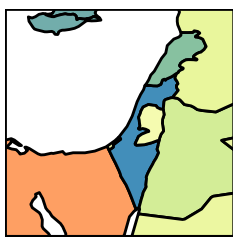
Sotheast Asia



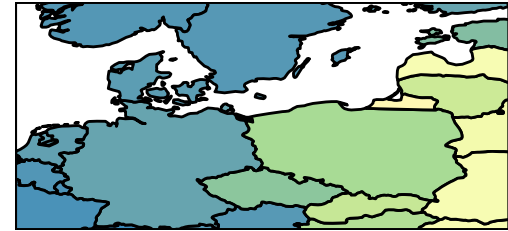
West Africa



Eastern Mediterranean

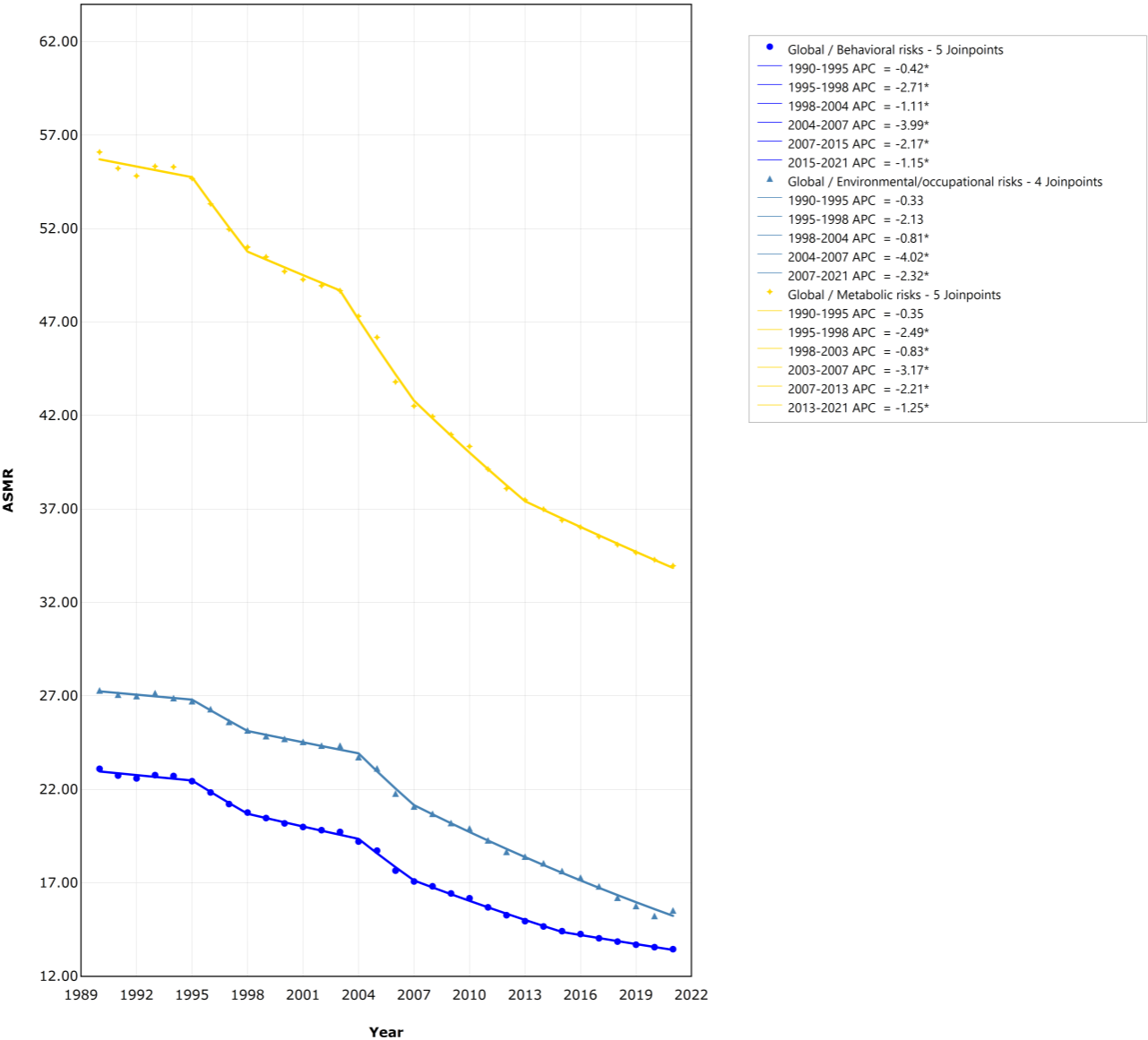


Northern Europe



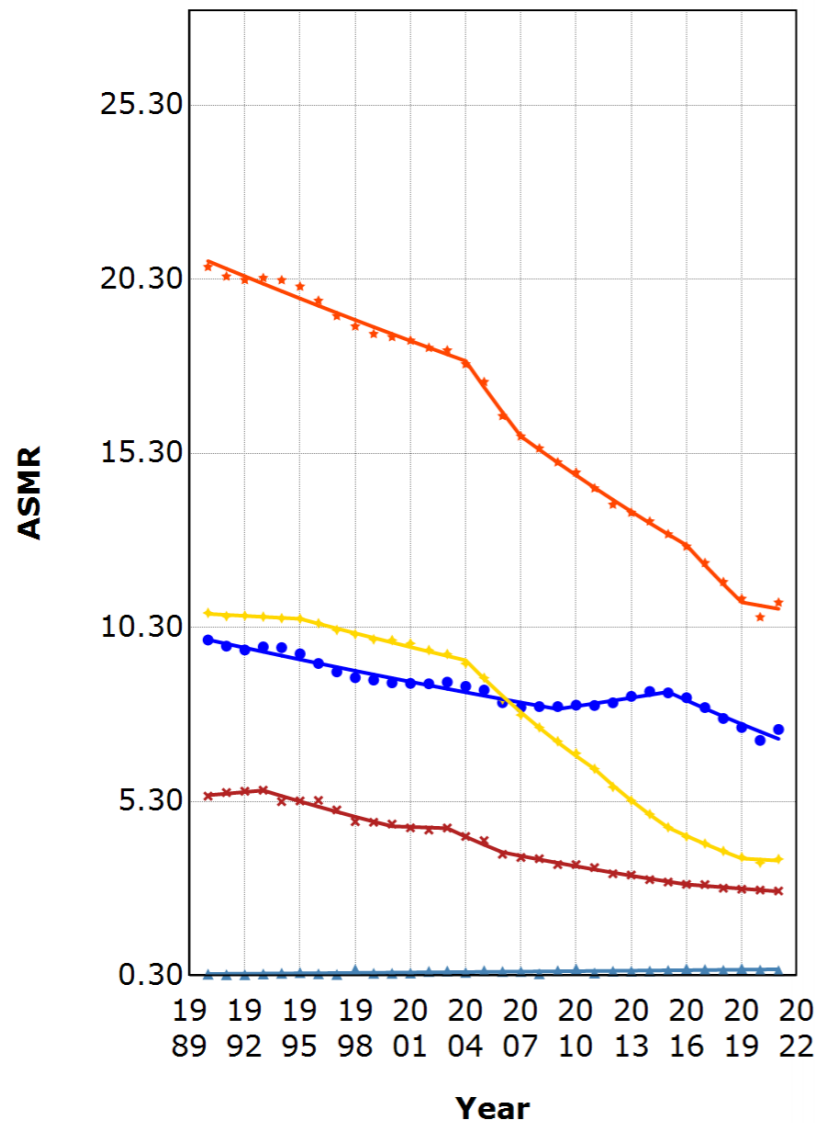
Supplementary Figure 5. The ASIR, ASMR, and ASDR of Ischemic Stroke in 204 countries and territories. (A) Disease burden of incidence rate. (B) Disease burden of deaths rate. (C) Disease burden of DALYs rate. ASIR = Age-standardized incidence rate. ASMR = Age-standardized mortality rate. ASDR = Age-standardized DALYs rate.

APC of ASMR in ischemic stroke due to three primary risk factors in Global from 1990 to 2019.



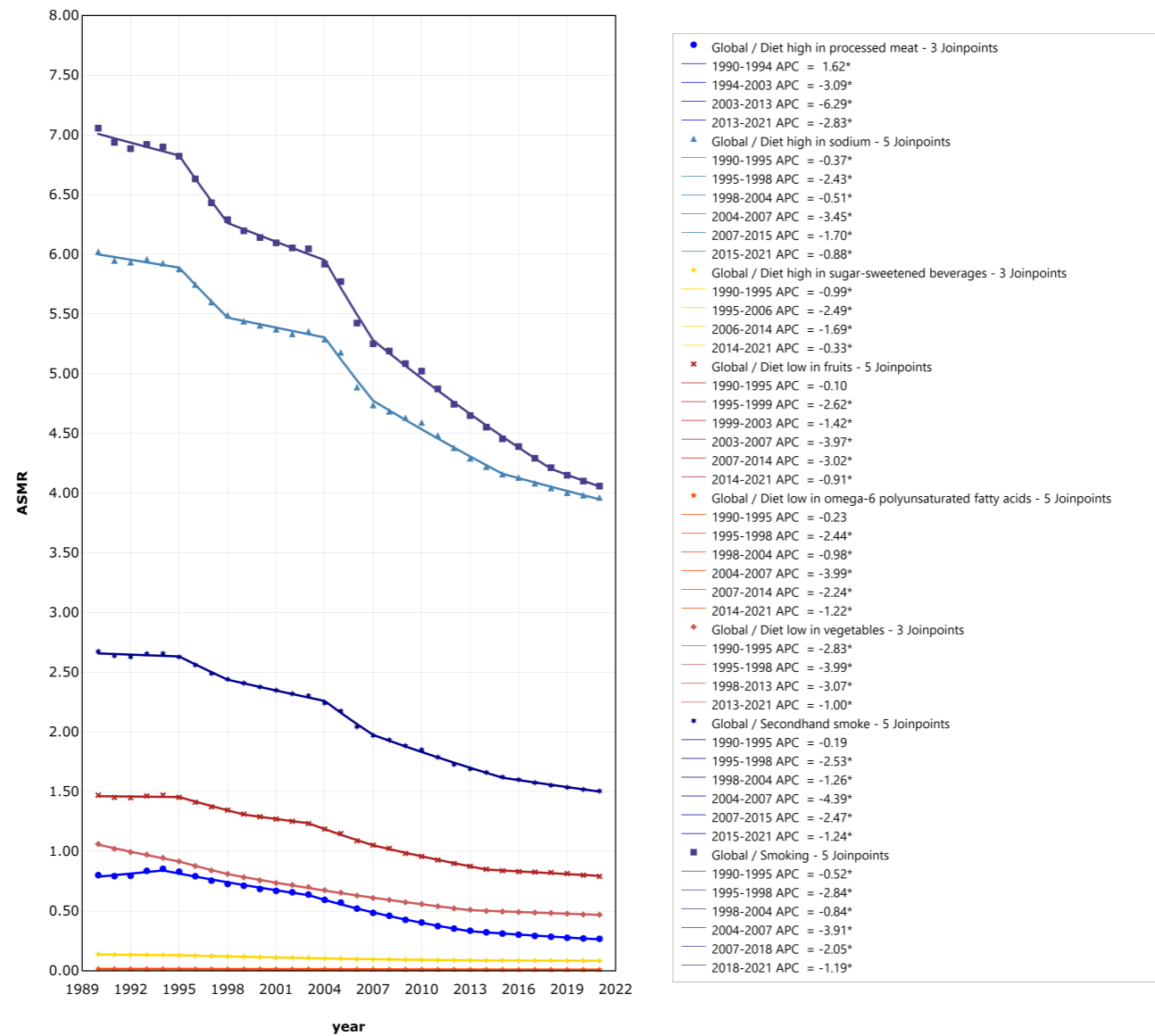
B

APC of ASMR in ischemic stroke due to Environmental/occupational risks in Global from 1990 to 2019.

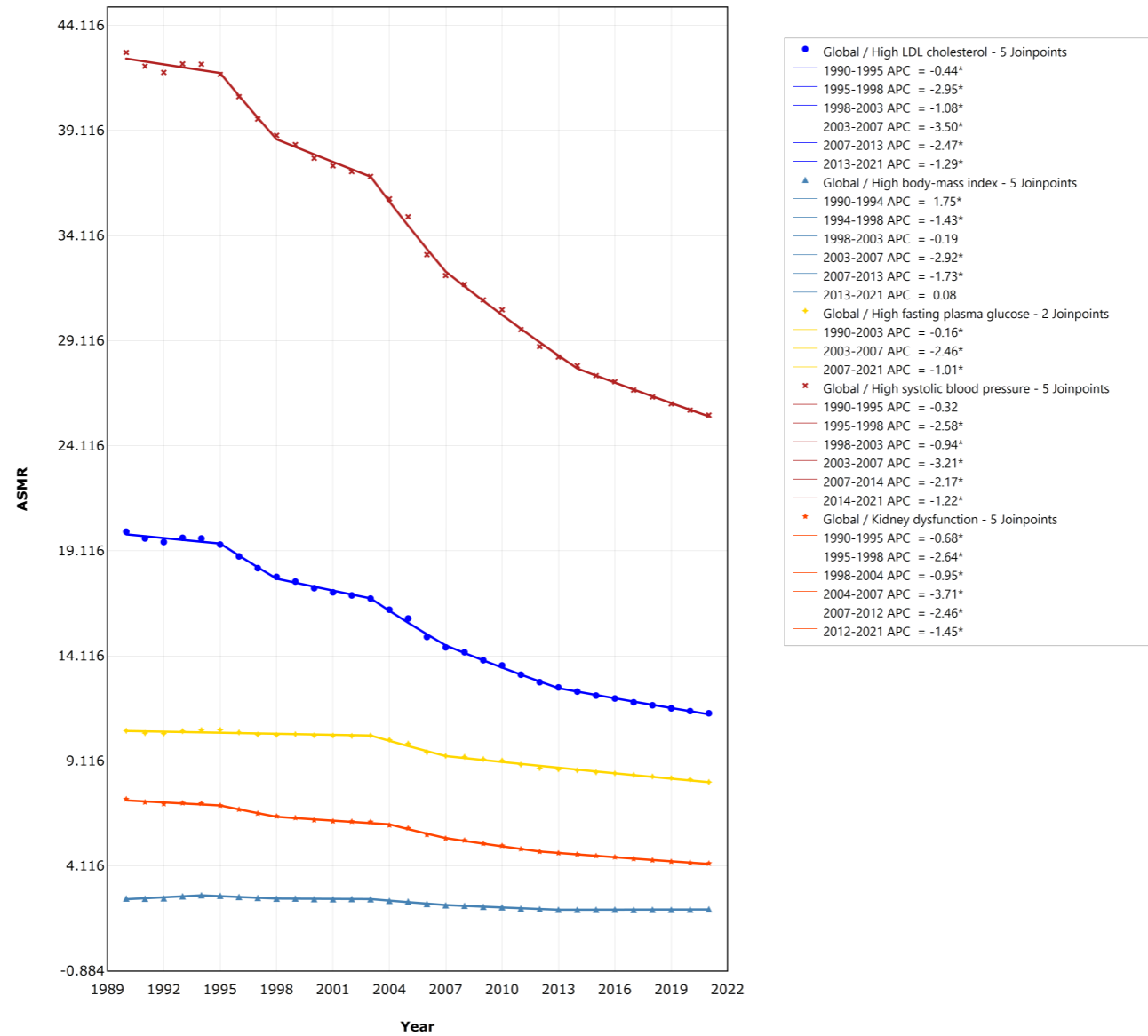


- Global / Ambient particulate matter pollution - 2 Joinpoints
 - 1990-2009 APC = -1.17*
 - 2009-2015 APC = 1.00
 - 2015-2021 APC = -2.86*
- ▲ Global / High temperature - 0 Joinpoints
 - 1990-2021 APC = 1.07*
- ◆ Global / Household air pollution from solid fuels - 5 Joinpoints
 - 1990-1995 APC = -0.27
 - 1995-2004 APC = -1.32*
 - 2004-2011 APC = -5.63*
 - 2011-2015 APC = -7.59*
 - 2015-2019 APC = -5.29*
 - 2019-2021 APC = -0.83
- ✕ Global / Low temperature - 5 Joinpoints
 - 1990-1993 APC = 0.84
 - 1993-2000 APC = -2.85*
 - 2000-2003 APC = -0.41
 - 2003-2006 APC = -5.38*
 - 2006-2016 APC = -2.71*
 - 2016-2021 APC = -1.41*
- * Global / Particulate matter pollution - 4 Joinpoints
 - 1990-2004 APC = -1.05*
 - 2004-2007 APC = -4.19*
 - 2007-2016 APC = -2.43*
 - 2016-2019 APC = -4.52*
 - 2019-2021 APC = -0.86

APC of ASMR in ischemic stroke due to Behavioral risks in Global from 1990 to 2019.



APC of ASMR in ischemic stroke due to Metabolic risks in Global from 1990 to 2019.



Supplementary Figure 6. APC of ASMR for ischemic stroke attributable to each risk factor, 1990-2021. A. APC of ASMR for ischemic stroke attributable to Environmental and occupational risks, behavioral risks, and metabolic risks, 1990-2021. B. APC of ASMR for ischemic stroke attributable to various Environmental and occupational risks, 1990-2021. C. APC of ASMR for ischemic stroke attributable to various behavioral risks, 1990-2021. D. APC of ASMR for ischemic stroke attributable to various metabolic risks, 1990-2021.