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Evolution of National Accounts Statistics Compilation Practices Over the Period 2018 to 2021 in 189 Economies

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Evolution of National Accounts Statistics Compilation Practices Over the Period 2018 to 2021 in 189 Economies

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ABSTRACT: This paper analyzes the evolution of national accounts statistics compilation practices over the period of 2018 to 2021 for 189 economies. This is useful information for monitoring the quality of national accounts statistics and supporting identification of areas for improvement. Economies can use this data to benchmark their practices to the region and the world. Many economies have made strides in implementing *2008 SNA* to better reflect the size and structure of the economy however, there hasn't been an assessment on how quick the migration is. With the new *2025 SNA* vintage on the horizon, it was imperative to check how many economies are using the *2008 SNA* vintage as it will provide a clue to how fast authorities will migrate to the new framework. We found that 31 economies have moved to the *2008 SNA* between 2018 and 2021. The paper also examined how many economies started compiling quarterly GDP during the period 2018 and 2021.

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WORKING PAPERS

Evolution of National Accounts Statistics Compilation Practices Over the Period 2018 to 2021 in 189 Economies

Prepared by Anthony Silungwe[1]

1 The author would like to thank Bright Kimuli, Margarida Martins, Martha Tovar Soria, and Jesus Rodrigo Gonzalez-Garcia for their inputs in improving the content of this paper.

Contents

Glossary

1968 SNA	*System of National Accounts 1968*
1993 SNA	*System of National Accounts 1993*
2008 SNA	*System of National Accounts 2008*
DQAF	Data Quality Assessment Framework
DSBB	Dissemination Standards Bulletin Board
ESA 2010	European System of Accounts 2010
GDP	Gross Domestic Product
GDP-E	Gross Domestic Product by expenditure
GDP-P	Gross Domestic Product by production (economic activity)
GDP-I	Gross Domestic Product by income
MENA	Middle East and North Africa
NSDP	National Summary Data Page
NA	National Accounts
RCDCs	Regional Capacity Development Centers
SDDS	Special Data Dissemination Standard
STA	Statistic Department of the IMF
UNSD	United National Statistics Division

I. Introduction and Background

The initiative to take stock of national accounts compilation practices started in 2018 when IMF Staff conducted an evaluation of Gross Domestic Product (GDP) compilation practices in 189 economies. In 2021, a second stocktaking exercise was conducted with a more comprehensive coverage of practices, including availability of source data and institutional sector accounts, for 206[1] economies with reference to end of 2020. The third round of updates was conducted in early 2022 with reference to end of 2021. For a better assessment of the changes over the period, the several vintages of data were merged into one data set for the same panel of economies.

In the analysis, we compare the results for the 189 economies that were part of the 2018 collection and focused on the four features of national accounts programs. These are (1) the vintage of the System of National Accounts (SNA) implemented, (2) the time lag between national accounts benchmark years, (3) the availability of annual GDP by production and expenditure, and (4) the availability of quarterly GDP by production and expenditure. The paper discusses changes between the end of 2018 and the end of 2021 for the variables that were included in both collections. As the different data vintages are based on several sources, some discrepancies may occur, however these discrepancies are not considered relevant for the main conclusions of this paper.

The SNA vintage being adopted by authorities is an important aspect of the national account statistics to ensure better comparison across economies, and we reviewed the progress on the migration to the most recent SNA. The time lag of the latest benchmark year was assessed for the two most recent data points, to understand whether the authorities kept-up with the regular updates on the benchmarks. Availability of annual and quarterly GDP in current and constant prices play a critical role in policy analysis and formulation. The availability has been assessed for GDP data compiled by the production and the expenditure approach, at current and constant prices. GDP by income was not analyzed because it is rarely used as the headline GDP across economies.

All the above practices of the national accounts are subset of the IMF Data Quality Assessment Framework (DQAF) for which the aspects were covered in both the 2018 and 2021 vintages of data sets. The DQAF is rooted in the UN Fundamental Principles of Official Statistics and is organized around a set of prerequisites and five dimensions of data quality—assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.

II. SNA Vintage

The SNA represents the internationally recommended conceptual framework that economies are requested to follow when compiling and presenting their national accounts. The SNA framework has been updated several times to reflect changes in the global economy. The current version of the SNA, the *2008 SNA,* was published in 2009. A new vintage of the SNA is on the horizon, expected to be published by 2025, under the coordination

[1] The term "economy," as used in this paper, does not in all cases refer to a territorial entity that is a state as understood by international law and practice. The term also covers some non-sovereign territorial economies, for which statistical data are maintained and provided internationally on a separate and independent basis. The 206 economies include the non-sovereign territories for which statistical data are maintained. The following economies were excluded in this analysis: Anguilla, Antigua & Barbuda, Aruba, Bermuda, British Virgin Islands, Cayman Islands, Cook Islands, Curacao, Montserrat, Niue, Sint Maarten, Taiwan, Tokelau, Turkmenistan, Turks and Caicos Islands and West Bank and Gaza.

of the United Nations Statistics Division (UNSD).[2] In the past years, several guidance notes were developed under the coordination of the UNSD to prepare for the update of the *2008 SNA*. The updates are meant to address challenges posed by the ever-changing economic environment to capture the impact of globalization, digitization, wellbeing and sustainability, and the informal economy, among others.

In the recent past, emerging and developing economies migrated from the old SNA vintages to the latest vintage of 2008. At the end of 2021, there were 129 economies using the *2008 SNA* vintage (including ESA 2010[3]), compared to 98 economies at the end of 2018. There are remaining challenges related to the migration to the *2008 SNA*, especially if the migration is linked to benchmark and rebasing processes. Even though national authorities have dedicated significant efforts to migrate to the latest SNA, there are four economies still using the *1968 SNA*. The use of different SNA vintages generates many challenges when making international comparisons of the GDP data series as the scope of the data published by authorities differs depending on the vintage of the SNA used.[4]

Table 1. SNA Vintage Applied

	2018		2021	
	1993 SNA	*2008 SNA*[5]	*1993 SNA*	*2008 SNA*[6]
World	**91**	**98**	**60**	**129**
Advanced Economies	1	36	1	36
Emerging and Developing Economies	90	62	59	93
MENA, Afghanistan, and Pakistan	17	5	10	12
Emerging and Developing Europe	2	10	0	12
Sub-Saharan Africa	29	16	20	25
Latin America and the Caribbean	15	17	11	21
Commonwealth of Independent States	8	3	4	7
Emerging and Developing Asia	19	11	14	16

Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

[2] The planned process of releasing the new SNA vintage (*2025 SNA*).

[3] European System of Accounts 2010.

[4] For example, the scope of what is included in the asset boundary changes between vintages of the SNA, which can have a major impact on the level of GDP and other components. See *2008 SNA* annex 3 Changes from the *1993 System of National Accounts* for more information.

[5] Includes ESA 2010 and the *1993 SNA* includes *1968 SNA*.

[6] Includes ESA 2010 and the *1993 SNA* includes *1968 SNA*.

Figure 1. Vintage of the SNA Applied

Figure 1a: 2018

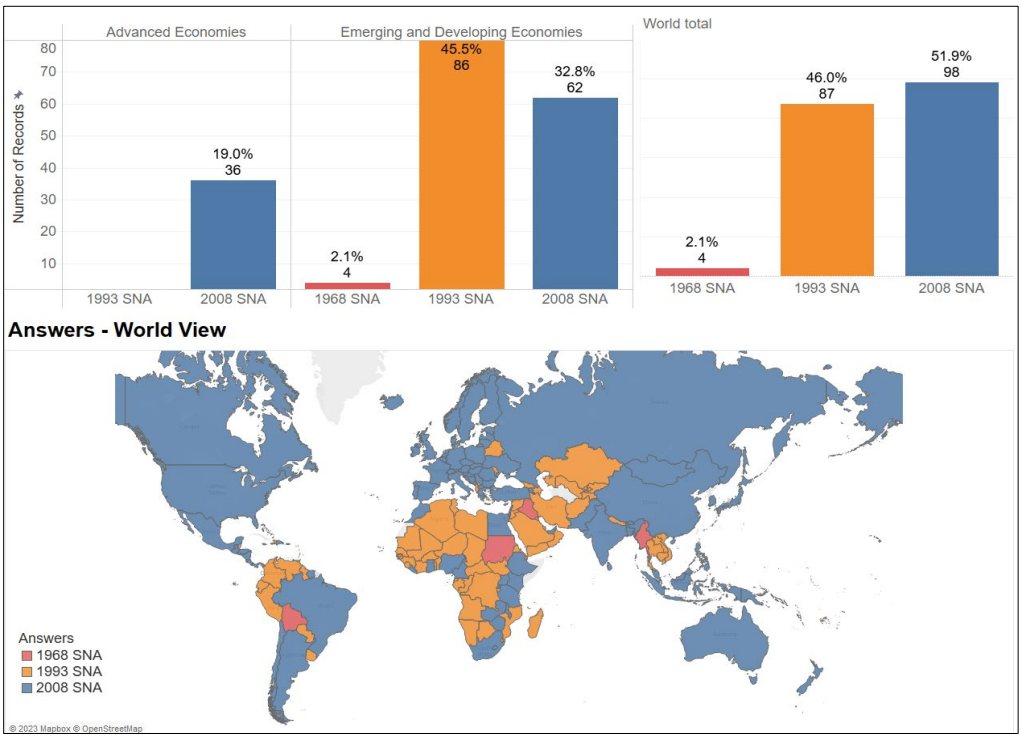
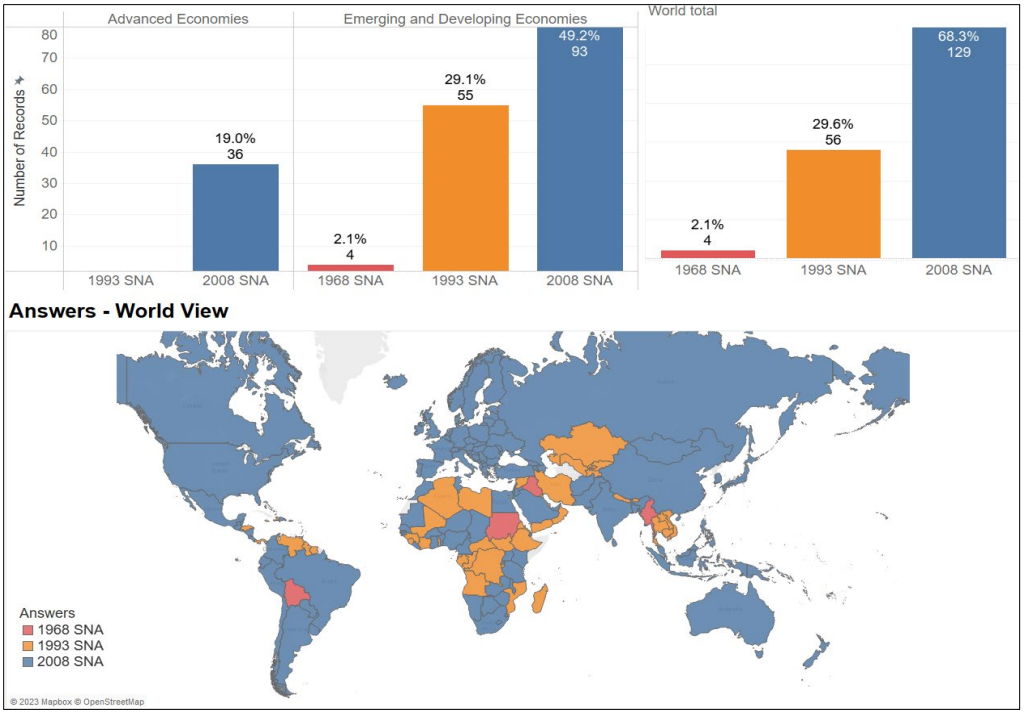


Figure 1b: 2021



Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

III. Time Lag Between National Accounts Benchmarks

The benchmark year refers to the year in which an economy`s transactions such as production, input costs, consumption, capital formation, international trade, and taxes are comprehensively measured using the most complete and best-quality source data than is available from the previous benchmark or from annual series, in most cases. The periodic development of GDP benchmarks is needed because of cost and resource constraints faced in many economies, where annual and quarterly GDP estimates and its sub-aggregates are developed using incomplete source data and indicators. While this ensures timely estimates of economic growth, the use of these indicators over an extended period can result in a deterioration in the quality of GDP.

A good practice is to produce benchmark estimates of GDP and its sub-components on a regular basis preferably after every five to ten (5-10) years. The regular development of benchmark estimates of GDP ensures that compilers provide their users with accurate measures of the size and structure of the economy and appropriate weights for aggregating GDP-related volume indices.[7] In many developing economies, GDP benchmarking and rebasing (switching weights from one year to another) often occur at the same time, especially if they use the "*Fixed weight Laspeyres"* method in deriving volume estimates. These economies may require shorter lags in the benchmarks so that the weights can be updated.

However, for advanced economies and selected developing economies, mainly in francophone Africa, where "*chained-weighted*" methods are used to derive volume estimates of GDP, the weights are updated every year. Developing economies often employ weak deflation techniques and overly aggregated classification which may lead to distortions in the volume measures if chain-weighting is applied.[8]. Furthermore, advanced economies have advanced statistical systems with better access to more complete and detailed data on an annual basis so that chain-weighting can be used to support the compilation of high-quality national accounts statistics. The introduction of new benchmarks generally results into revision of the GDP level as well as growth rates[9].

Many of the 189 economies surveyed shortened the time between benchmarks during the period studied from the end of 2018 to the end of 2021. There were 25 economies with benchmark years within the range of five years by the end of 2021, compared to four economies at the end of 2018. This shows the importance economy authorities had attached to improving the quality of the GDP estimates.[10] Even though these improvements have been observed, the group of Emerging and Developing Economies still lags, with 76 economies having more than 10-year lags between benchmarks at the end of 2021.

[7] en-special-series-on-covid-19-benchmarking-and-rebasing-national-accounts%20(3).

[8]Fixed Base Year vs Chain Linking in National Accounts: Experience of Sub-Saharan African Countries https://www.imf.org/external/pubs/ft/wp/2016/wp16133.pdf.

[9] IMF Working Paper No. 22/29.

[10] The updates would have been better if there was no pandemic.

Figure 2.1 Time Lag of National Account Benchmarks 2018 and 2021

Figure 2a: 2018

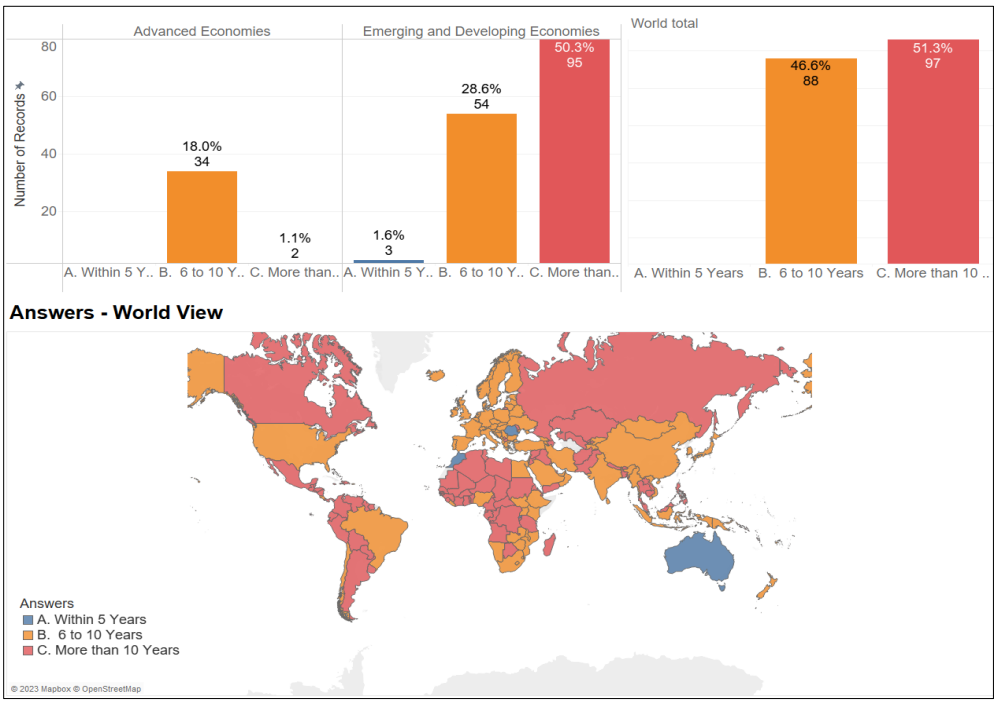
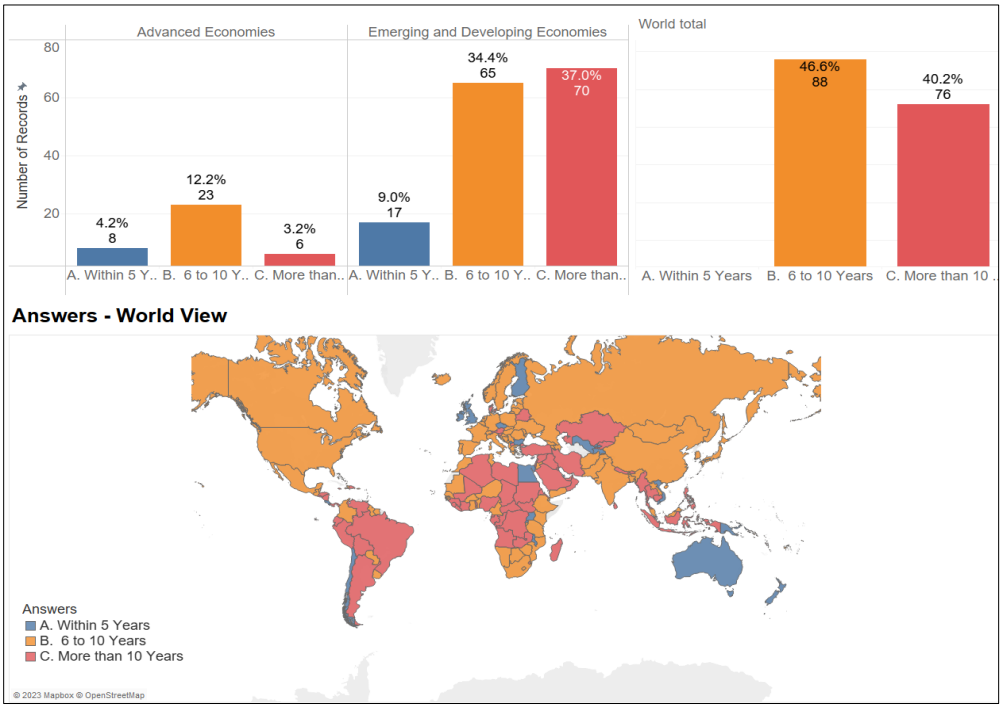


Figure 2b: 2021



Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

Of the 25 economies that had their benchmark year within five years, eight were Advanced Economies, while 17 were Emerging and Developing economies. There were 88 economies with a 6-to-10-year lag, of which 23 economies are from Advanced Economies,[11] 20 economies are part of Sub-Saharan Africa, and 12 economies are part of Emerging and Developing Asia.

A benchmark year with a lag of more than 10 years is assumed to be remote and economies are encouraged to migrate their benchmark to a more recent year. In 2021, there were 76 economies with more than 10 years lag, mainly from Sub-Saharan Africa (22),[12] Emerging and Developing Asia (16), and Latin America and the Caribbean (15). See Table 2.

Table 2. Time Lag of National Account Benchmarks

	2018			2021		
	Within 5 Years	6 to 10 Years	More than 10 Years	Within 5 Years	6 to 10 Years	More than 10 Years
World	**4**	**88**	**97**	**25**	**88**	**76**
Advanced Economies	1	34	2	8	23	6
Emerging and Developing Economies	3	54	95	17	65	70
MENA, Afghanistan, and Pakistan	1	8	13	2	8	12
Emerging and Developing Europe	1	9	2	2	8	2
Sub-Saharan Africa	1	15	29	3	20	22
Latin America and the Caribbean	0	4	28	6	11	15
Commonwealth of Independent States	0	6	5	2	6	3
Emerging and Developing Asia	0	12	18	2	12	16

Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

IV. Annual GDP By Production and Expenditure

Estimates of GDP can be compiled according to the production approach (GDP-P), the expenditure approach (GDP-E), and the income approach (GDP-I). GDP-P measures the value of output less intermediate consumption plus any taxes less subsidies on products not already included in the value of the output. While GDP-E measures the sum of expenditure on final consumption plus gross capital formation plus exports less imports.[13] Estimates of GDP-I are derived as compensation of employees plus gross operating surplus plus gross mixed incomes plus taxes less subsidies on production and imports. Economies that compile GDP using all three approaches in both current and constant prices provide users with multiple perspectives on their economic activity.

There was an increase of four economies compiling annual GDP-E at current prices to 175 economies at the end of 2021, from 171 economies at the end of 2018. The number of economies compiling annual GDP-P at current prices remained the same in the period under review. There was also no change to the number of economies compiling annual GDP-P and GDP-E at constant prices.

[11] For economies using the *Chained Laspeyres* may have low risks associated with remote benchmark years. https://www.imf.org/external/pubs/ft/wp/2016/wp16133.pdf.

[12] With 50 percent share of these are using *Fixed Weight Laspeyres* for calculating the volume/constant price estimates for GDP. https://www.imf.org/en/Publications/WP/Issues/2022/02/11/2020-Global-Stocktaking-of-National-Accounts-Statistics-Availability-for-Policy-and-513070.

[13] *2008 SNA* para 16.47 and 16.48.

Table 3. Economies Compiling of Annual GDP-P and GDP-E

	2018		2021	
	Annual GDP-P	Annual GDP-E	Annual GDP-P	Annual GDP-E
GDP at Current Prices				
World	**187**	**171**	**187**	**175**
Advanced Economies	37	37	37	37
Emerging and Developing Economies	150	134	150	138
MENA, Afghanistan, and Pakistan	22	20	22	20
Emerging and Developing Europe	12	12	12	12
Sub-Saharan Africa	43	42	43	43
Latin America and the Caribbean	32	30	32	30
Commonwealth of Independent States	11	10	11	11
Emerging and Developing Asia	30	20	30	22
GDP at Constant Prices				
World	**187**	**162**	**187**	**162**
Advanced Economies	37	37	37	37
Emerging and Developing Economies	150	125	150	125
MENA, Afghanistan, and Pakistan	22	17	22	17
Emerging and Developing Europe	12	12	12	12
Sub-Saharan Africa	43	40	43	40
Latin America and the Caribbean	32	24	32	24
Commonwealth of Independent States	11	11	11	11
Emerging and Developing Asia	30	21	30	21

Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

V. Quarterly GDP by Production and Expenditure Approaches

The number of economies compiling quarterly GDP has increased to 144 economies at the end of 2021 from 133 at the end of 2018. These 11 additional economies are Emerging and Developing Economies. The information obtained provides an indication on the areas where more efforts are needed from authorities, as it was observed particularly in the Sub-Saharan Africa as well as the Middle East and North Africa (MENA), Afghanistan, and Pakistan regions that more economies are recorded as not compiling quarterly GDP-P or GDP-E in both vintages.

Figure 3. Economies Compiling Quarterly GDP

Figure 3a: 2018

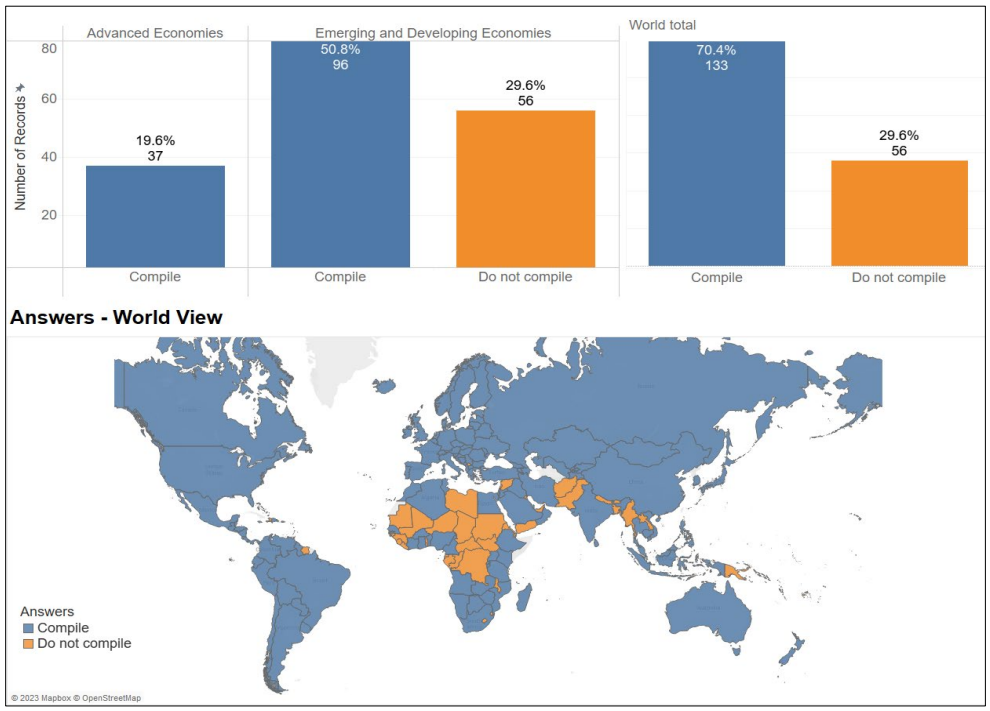
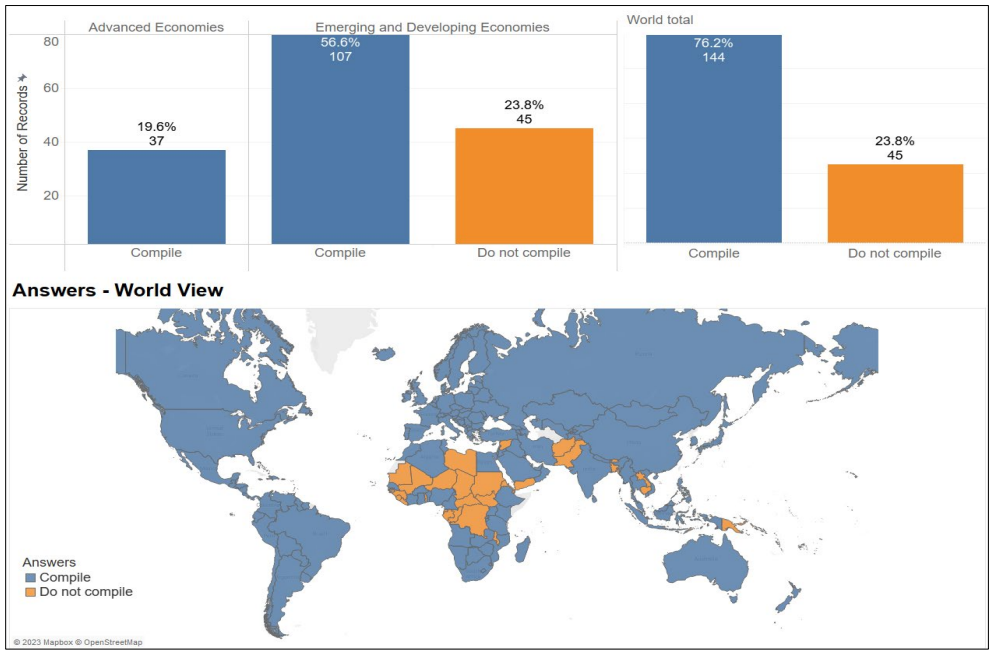


Figure 3b: 2021



Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

In terms of quarterly GDP at current prices (see Table 5.1 and Figure 5.2), there was an increase of 18 economies that compiled quarterly GDP-P at current prices to 137 economies at the end of 2021 from

119 economies at the end of 2018, of which seven economies are in the Sub-Saharan African sub-region. There were seven more economies that started compiling quarterly GDP-E at current prices during the focus period. Availability and access to high-frequency indicators, including administrative data, led to improvements in that it supported the compilation of quarterly GDP in Emerging and Developing Economies.

The compilation of quarterly GDP at constant prices shows similar results in most of the sub-regions, except in Sub-Saharan Africa. In total, there were 12 economies that started compiling quarterly GDP-P at constant prices during the period between the end of 2018 and the end of 2021, while four additional economies started compiling quarterly GDP-E at constant prices in the same period.

In both years, quarterly GDP-P at constant prices was compiled by more economies than quarterly GDP-P at current prices. However, this was not the case for the quarterly GDP-E, as more economies compiled estimates at current prices than at constant prices.

Table 4. Economies Compiling Quarterly GDP-P and GDP-E

	2018		2021		Increase	
	Quarterly GDP-P	Quarterly GDP-E	Quarterly GDP-P	Quarterly GDP-E	Quarterly GDP-P	Quarterly GDP-E
Quarterly GDP at Current Price						
World	**119**	**94**	**137**	**105**	**18**	**11**
Advanced Economies	34	37	34	37	0	0
Emerging and Developing Economies	85	57	103	68	18	11
MENA, Afghanistan, and Pakistan	11	5	14	6	3	1
Emerging and Developing Europe	10	11	12	12	2	1
Sub-Saharan Africa	16	6	23	10	7	4
Latin America and the Caribbean	25	17	28	19	3	2
Commonwealth of Independent States	11	9	11	11	0	2
Emerging and Developing Asia	12	9	15	10	3	1
Quarterly GDP at Constant Price						
World	**132**	**91**	**144**	**99**	**12**	**8**
Advanced Economies	37	37	37	37	0	0
Emerging and Developing Economies	95	54	107	62	12	8
MENA, Afghanistan, and Pakistan	11	3	14	4	3	1
Emerging and Developing Europe	10	11	12	12	2	1
Sub-Saharan Africa	24	6	26	10	2	4
Latin America and the Caribbean	27	17	29	17	2	0
Commonwealth of Independent States	11	8	11	10	0	2
Emerging and Developing Asia	12	9	15	9	3	0

Source: *2018 - 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

Figure 4. Economies Compiling Quarterly GDP-P at Current Prices

Figure 4a: 2018

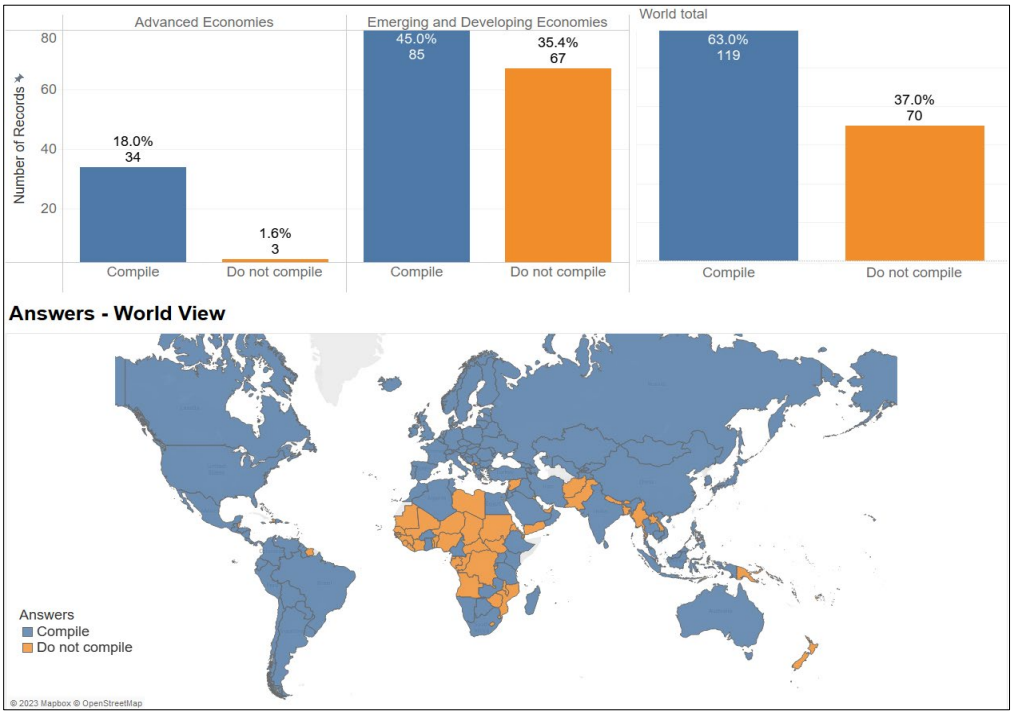
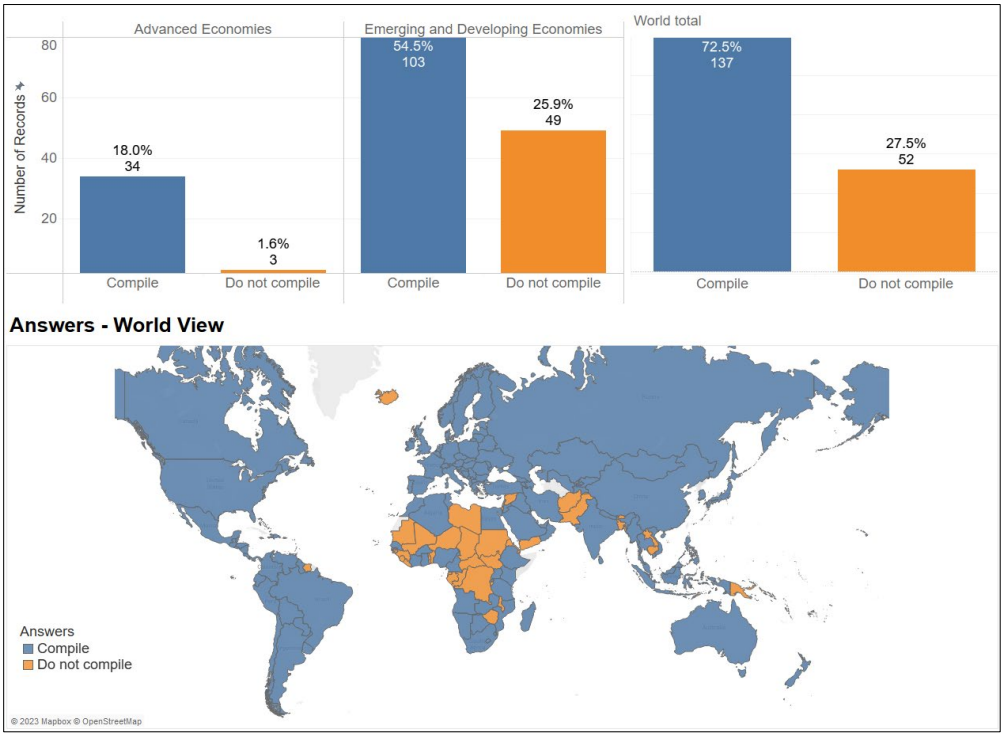


Figure 4b: 2021



Source: *2018 and 2021 - IMF staff based on the Annual Global Survey on the SNA Statistical Programs.*

VI. Conclusion

There were significant strides made by national authorities in improving the national accounts compilation in recent years to reflect the true size and structure of their economies. In doing so, many adopted the *2008 SNA* as their conceptual framework to produce consistent and internationally comparable macro-economic statistics. It was noted that in most developing economies, the *2008 SNA* had not been fully implemented due to practical challenges related to national priorities, laws, availability, and access to detailed source data critical for implementing aspects of the SNA framework.

Migration to the *2008 SNA* is mainly associated with the update of benchmark years. Economies with untimely and infrequent benchmarks in many cases use older vintages of the SNA. Even though these improvements have been observed, the Emerging and Developing Economies still have more of these benchmarks, when compared to the Developed Economies. In Developing and Emerging Economies, particularly Africa, the migration to the *2008 SNA* is delayed by infrequent benchmarks. Many economies shortened the lag between benchmarks between the end of 2018 and the end of 2021. With the ongoing update of the *2008 SNA*, the differences in the vintages will further hamper comparison among economies and regions once the updates are incorporated in the new SNA.

The number of economies compiling annual GDP-P at current and constant prices remained the same over the analyzed period. While almost all economies compile annual GDP, the implementation of regular updates and publications have been weak in many of them.

It was noted that 11 economies from the Emerging and Developing Economies indicated that they started compiling quarterly GDP in the period under review. It was particularly observed that in the Sub-Saharan Africa and MENA, Afghanistan and Pakistan sub-regions there was a larger number of economies that did not compile quarterly GDP-P and quarterly GDP-E in both current and constant prices.

It was worthy noting that even though the authorities are compiling annual and quarterly GDP-P and GDP-E timely dissemination and accessibility has not been assessed in this paper. Authorities are encouraged to use platforms like the NSDP apart from their own country websites. In addition, data should be published in downloadable formats unlike PDF formats.

The IMF Statistics Department will continue to discuss and share the database with the UNSD, Regional organizations, and country authorities. This information is useful for IMF member countries to benchmark their national accounts programs with regional and global benchmarks.

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