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TECHNICAL ASSISTANCE REPORT—NATIONAL ACCOUNTS STATISTICS MISSION

September 2022

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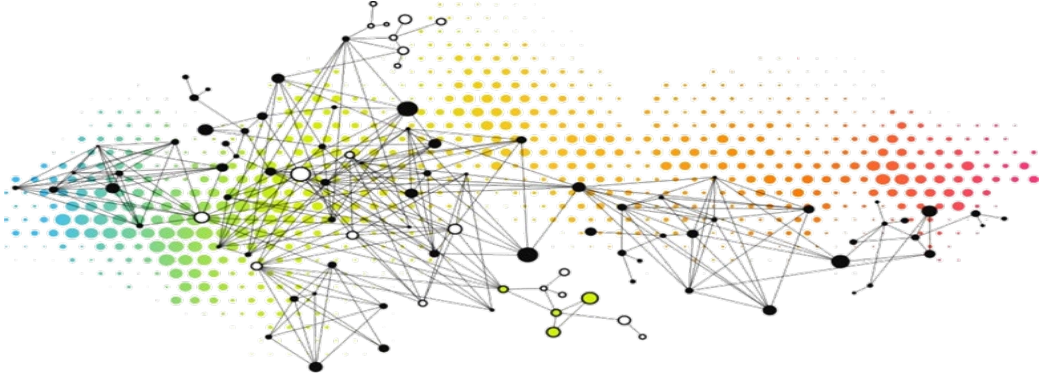

VIETNAM

FEBRUARY 2021

REPORT ON NATIONAL ACCOUNTS STATISTICS MISSION (NOVEMBER 30–DECEMBER 4, 2020)

Prepared by Gregory Legoff

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Glossary

GSO	General Statistics Office
IOTs	Input-output tables
SUTs	Supply and Use Tables
TA	Technical assistance

SUMMARY OF MISSION OUTCOMES AND PRIORITY RECOMMENDATIONS

1. At the request of the General Statistics Office (GSO) of Vietnam, a technical assistance (TA) mission was conducted remotely with the headquarters of the statistical office during November 30–December 4, 2020. The purpose of the mission was to prepare the next rebase of national accounts with a focus on a better incorporation of non-observed activities as well as the development of supply and use tables (SUTs) and input-output tables (IOTs) for the new benchmark year. The mission also followed up on previous TA missions conducted by the IMF. This mission was funded by the IMF's Data for Decisions project.[1] Further TA will be required to assist the GSO in rebasing its national accounts.

2. The GSO plans to compile a new national benchmark for 2020 to support decision making by providing updated representative volume measures of GDP. The current base year 2010 needs to be updated to incorporate recent structural changes. The Vietnamese economy has been growing by 2.91 percent in volumes in 2020 compared to 2019 but the economic impact of the COVID-19 pandemic will produce unusual patterns in the 2020 national accounts, for example for tourism-related activities, affecting the new benchmark. Due to long-term plans and collection programs already initiated or ongoing, postponing the benchmark would not be desirable. The use of chain-linked volume estimates will reduce the risk of distortions of future volume measures because, by construction, chaining volume indices will update annual economic structures compared to the existing methodology based on fixed structures. This property will mitigate the negative implications of using 2020 as the new benchmark. However, the introduction of chain-linking represents significant compilation challenges and major changes for users. Outreach activities should be planned accordingly. It is expected that the rebase will be completed in 2023.

3. Comprehensive national accounts, including non-observed activities, are essential for evidence-based policy making. The exclusion of some activities underestimates the size of the economy, can bias GDP growth rates, and hinders international comparisons. The rapid growth of the service industry and its informal component represents measurement challenges for the GSO. Results from the economic census planned to be conducted during March-August 2021 will cover informal activities. Census results will be a significant input to improve the coverage of economic activities. A systematic analysis of all non-observed activities will guide the development of measurement strategies. Growing economic activities enabled by digital platforms should require attention. The compilation of SUTs and IOTs will significantly assist in improving the overall quality of the new benchmark for 2020 and particularly to identify and address data gaps related to non-observed activities.

4. Following a previous mission's recommendation to increase inter-agency cooperation, the GSO has signed memoranda of understanding with ten ministries to

[1] See https://www.imf.org/en/Capacity-Development/D4D.

obtain additional information. Large data collection programs such as the economic census planned in 2021 or the ongoing household living standard survey will provide key source data for the new benchmark. By confronting supply and use estimates at a very detailed level in the SUTs statistical framework, the GSO will be able to systematically identify data gaps using a variety of data sources. Developing SUTs was a recommendation made by an IMF mission in April 2019 to improve the consistency of estimates. The IOTs will provide important tools for policy makers to support various policies such as industrial or fiscal reforms. The compilation of these tables also represents significant challenges and will require training, adequate IT tools, and specific organizational arrangements. Further compliance with the System of National Accounts 2008 should also be pursed but was not discussed during the mission due to limited time and the progress already made by the GSO in recent years, including with TA from the IMF in April 2019.

5. Data and metadata accessibility could be improved. Detailed data and metadata available in English are limited. For example, the metadata available in English only provide outlines of the systems of national accounts. Timely and frequent economic indicators should be developed. The IMF followed up on the development of a monthly indicator of economic growth initiated in March 2019.

6. To support progress in the above work areas, the mission recommended a detailed action plan with the following priority recommendations carrying particular weight to make headway in improving national accounts.

Table 1. Vietnam: Priority Recommendations

Target Date	Priority Recommendation	Responsible Institutions
March 2021	List and prioritize non-observed activities and identify possible indicators.	**GSO**
August 2021	Develop methodologies to improve the coverage of the non-observed economy.	**GSO**
June 2022	Compile SUTs and IOTs for 2020.	**GSO**

Further details on the priority recommendations and the related actions/milestones can be found in the action plan under *Detailed Technical Assessment and Recommendations*.

DETAILED TECHNICAL ASSESSMENT AND RECOMMENDATIONS

Table 2. Vietnam: Detailed Recommendations

Priority	Action/Milestone	Target Completion Date
Outcome: Data are compiled and disseminated using the concepts and definitions of the latest manual/guide		
H	List and prioritize the non-observed activities and identify possible indicators.	March 2021
H	Develop methodologies to improve the coverage of the non-observed economy.	August 2021
M	Finalize the data collection for the new benchmark year 2020.	December 2021
M	Populate the SUTs for 2020 incorporating non-observed activities and new source data including from administrative sources, the economic census, the agriculture, forestry and fishery survey, the household living standard survey, and the capital investment survey.	March 2022
M	Develop methodologies and procedures to compile chain-linked volume estimates for annual and quarterly GDP estimates.	March 2022
M	Balance the SUTs for 2020.	May 2022
H	Finalize the SUTs and IOTs for 2020.	June 2022
M	Develop a strategy and methodologies to backcast national accounts estimates aligned with the new benchmark.	August 2022
M	Organize outreach events to users to communicate on the rebase and new methodologies.	September 2022
M	Backcast national accounts estimates.	November 2022
M	Start pilot-testing the compilation and preparation of quarterly national accounts using chain-linking.	December 2022
M	Publish rebased national accounts and backcasted series.	March 2023

A. Background

7. The existing base year 2010 has become outdated and a detailed new benchmark is needed to update the structure of the economy in the national accounts. A new benchmark should be compiled at least every five years. When using constant prices to measure volumes, prices are fixed to the pricing period of the benchmark year and volume estimates become less representative due to structural changes of the economy. This gradually distorts the measurement of volume estimates.

8. The compilation of new benchmark will be the opportunity to improve data sources and methodologies. A better coverage of non-observed activities is expected to have an impact

on GDP levels. The robustness of the benchmark will be reinforced by the compilation of SUTs supplemented by IOTs. The adoption of chain volume estimates should improve the data quality, but it will pose significant compilation challenges for the GSO. It will also represent a significant change for users who may not be familiar with some features of chain-linked estimates such as the loss of additivity.

B. The New Benchmark Year

9. The economic impact of the COVID 19 in 2020 will produce unusual patterns in the national accounts. The Vietnamese economy has been growing in 2020 and restrictions of movements have been limited but the impact of the global recession will affect some industries such as the accommodation, food services, and transportation industries due to the significant decrease in foreign tourist arrivals. Therefore, 2020 will not be representative and it is generally not recommended to use a year with unusual characteristics for the benchmark because the weights will not be representative, and the intra-annual information will also be severely affected. Further details are provided in Appendix 1.

10. The GSO has already initiated large data collection programs such as the ongoing household living standard survey and it would not be desirable to change long-term plans and the choice of the benchmark year. Other data collection programs have already been scheduled, notably the economic census planned to be conducted during March – August 2021. The GSO will therefore maintain the choice of 2020 for the new benchmark. Scrutiny and additional analysis should be undertaken when compiling benchmark estimates for activities which have been affected by the pandemic. Data sources used to compile estimates for periods following the pandemic should also be carefully analyzed as volatility will be expected.

11. The use of chain-linked volume estimates will improve the quality of estimates by constantly updating the weights in volume estimates. The compilation of chain volumes involves compiling estimates in previous years' prices and chaining these estimates. This process automatically incorporates new weights in the estimates and therefore gradually corrects the bias from fixed-based years estimates which tend to become less representative over time. Details involved in the compilation of chain-linking are discussed in the following section.

C. Methodological Changes

12. Shifting from a fixed-base year to chain-linked volume estimates is a significant methodological change. While in theory the adoption of chain-linking is superior due to the regular update of the weights in the volume estimates, the IMF showed that for some countries the difference of GDP growth using the two approaches—fixed base year or chaining—was limited and did not behave in the consistent way found in advanced countries.[2] However, given the context of the pandemic and its impact on the benchmark for 2020, chaining will reduce the

[2] See https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Fixed-Base-Year-vs-44069?utm_source=mandiner&utm_medium=link&utm_campaign=mandiner_202009.

risk of distortions compared to using fixed-base year volume estimates.

13. Adopting chain volume estimates will require training of staff and outreach to users of the national accounts. The annual compilation of chain volume is more complicated than constant price estimates. An overview of the methodologies involved in annual chain-linking is provided in Appendix 2. The complexity of the calculation significantly increases for quarterly estimates when benchmarking to annual estimates, either using the quarterly or the annual overlap approaches.[3] A software should be used to limit the risk of compilation errors.

14. The loss of additivity created by the chaining can be a major source of confusion for non-experienced users. The GSO should reach out to users to prepare them this this significant change. Re-referencing the estimates every year or every two years to maintain the additivity for recent years could be envisaged as explained in Appendix 2. Some options When compiling SUTs in volumes annually, previous years' prices should be used for volume measures.

15. Further compliance with the System of National Accounts 2008 should be envisaged during the next rebase. However, given previous efforts undertaken by the GSO to comply with the latest manual update, a balanced approach should be taken to prioritize the coverage of non-observed activities and the compilation of SUTs and IOTs which will be a major undertaking. The IMF has already provided TA on the implementation of the System of National Accounts 2008[4] but further guidance could be envisaged as needed.

D. Improving the Coverage of Non-Observed Activities

16. The compilation of a new benchmark is the opportunity to incorporate new data source and to improve the coverage of economic activities. Non-observed activities are currently partially included in GDP and a careful analysis of the existing coverage and data gaps will guide the GSO on a way forward. Non-observed activities cover those currently excluded from the estimates due to statistical deficiencies, but also household production for own-final consumption, underground activities, informal activities, as well as illegal activities. The distinction between these categories is not always clear. A detailed training course on definitions and compilation strategies was conducted during the mission.

17. A systematic review of all non-observed activities will guide the GSO in selecting appropriate data sources and indicators to measure non-observed activities. While some activities such as agriculture, construction, transport services, and trading services have typically large non-observed components, new activities related to the use of digital platforms—e.g. Uber or equivalent applications for taxi rides, Airbnb for accommodation services—will require attention. The mission recommended listing all non-observed activities and exploring possible

[3] See *Quarterly National Accounts Manual – 2017 Edition*, IMF, chapter 6.

[4] See *Report on national Accounts Mission April 8-12, 2019*, by Rob Dippelsman and Emmanuel Manolikakis.

data sources for each activity. Further TA can be provided by the IMF as needed.

E. Developing SUTs and IOTs for 2020

18. The GSO will develop a plan for compiling SUTs. The compilation of detailed estimates at the product level and the balancing of SUTs will be used to identify data gaps, inconsistencies, and incoherence in the estimates. The resolution of these inconsistencies will strengthen the data quality and will provide a framework to derive coherent estimates of the three GDP measures.

19. The compilation of SUTs and IOTs entails significant challenges and will require training, a software for balancing, and a good management of the workflow. The mission provided training to GSO compilers on key concepts and compilation strategies for both SUTs and IOTs.[5] More training might be needed. The finalization of the tables involves small adjustments which cannot, and should not, be resolved manually. Indeed, due to the number of consequential adjustments involved at the end of the balancing period, a software solution is required. In addition, when the manual balancing involves values which are below the level or accuracy of the national accounts, an automatic procedure should be used.

20. Manual balancing remains necessary to resolve large imbalances. A software solution does not adjust data based on economic and statistical principles but purely on mathematical criteria—such as proportional iterative fitting explained during the mission. The IMF can assist with the implementation of a balancing procedure and a possible automatization of the procedures to derive IOTs from SUTs. Due to the long period needed to compile the tables and the large number of staff usually involved, clear and efficient organizational structures should be developed to manage responsibilities of workstreams, version controls of the tables, and documentation. Teams of experts should focus on specific parts of the tables to propose adjustments. Proposed adjustments should be coordinated across teams to ensure consistency.

F. Improving the Dissemination of Data and Metadata

21. Data and metadata access could be improved to facilitate the use of national accounts. The availability of an annual or quarterly national accounts publication does not appear readily available on the GSO Internet site https://www.gso.gov.vn/en/national-accounts/press-release/. Quarterly GDP estimates are published in Vietnamese only.[6] The GSO currently publishes infra-annual estimates in English for the first nine months of the year. Publishing quarterly estimates in English would facilitate data access to the international community. Metadata published are limited to outlines of the systems of national accounts. It would be useful for users to access detailed information regarding data sources and methods. The online tool used to extract data seems to provide aggregated estimates. For example, only the total for Agriculture, forestry and fishing seems to be available for 2018.

[5] See also Chapter 14 of the *System of National Accounts 2008*.

[6] See https://www.gso.gov.vn/bao-cao-tinh-hinh-kinh-te-xa-hoi-hang-thang/.

22. Further advice could be provided on dissemination best practices. Assistance could be provided during future missions on national accounts. The IMF also provides guidance on the dissemination of broader macroeconomic statistics in the context of the dissemination standards[7] missions.

G. Development of a Monthly Indicator of Economic Growth

23. Further technical assistance will be needed to develop a monthly indicator of economic growth. The IMF will explore options for further assistance following the technical assistance provided in 2019. This development will also support the improvement of quarterly economic indicators.

H. Officials Met During the Mission

Name	Title	Department
Dương Mạnh Hùng	Director	SNA department
Nguyễn Thị Mai Hạnh	Deputy Director	SNA department
Nguyễn Diệu Huyền	Senior Statistician	SNA department
Nghiêm Thị Vân	Senior Statistician	SNA department
Nguyễn Thùy Dương	Senior Statistician	SNA department
Vũ Thị Hải Anh	Senior Statistician	SNA department
Nguyễn Thị Hậu	Senior Statistician	SNA department
Hà Quang Hải	Senior Statistician	SNA department
Nguyễn Phương Anh	Senior Statistician	SNA department
Ngô Như Vẻ	Statistician	SNA department
Nguyễn Thị Ngân	Statistician	SNA department
Đặng Thị Bích Hồng	Statistician	SNA department
Lê Thị Phương	Statistician	SNA department
Đặng Ngọc Tú	Statistician	SNA department
Ngụy Thị Thu Hường	Statistician	SNA department
Nguyễn Thị Ngọc Mai	Statistician	SNA department
Phạm Thị Thùy	Senior Statistician	Agriculture, forestry and fishery Statistics Department
Nguyễn Thị Thùy Dung	Statistician	Agriculture, forestry and fishery Statistics Department
Nguyễn Nam Phương	Statistician	Industrial and Construction Statistics Department
Ngô Thị Ngân	Statistician	
Nguyễn Thu Quỳnh	Senior Statistician	Trade and Services Statistics Department
Nguyễn Quang Huy	Statistician	
Nguyễn Thị Thư	Statistician	Price Statistic Department

[7] See https://dsbb.imf.org/egdds/country/VNM/category.

Nguyễn Thị Huyền	Statistician	
Vũ Quang Hà	Senior Statistician	Integral Statistics and Statistical Information Dissemination Department
Lê Thị Hiền	Statistician	
Vũ Thị Như Trang	Senior Statistician	Statistical Methodology and Quality Management Department
Lê Vũ Thanh Nhàn	Senior Statistician	
Nguyễn Thị Thủy	Statistician	Statistical Data Collection and Information Technology Application Department
Phạm Đình Mạnh Hùng	Statistician	

Appendix I. Is 2020 a Good Choice for a New Benchmark Year for GDP?[8]

The IMF recommends that countries produce benchmark estimates of GDP every five to ten years (with five years the preferred interval). For some countries, their next scheduled benchmark year is 2020. It is recommended that countries choose an alternative year to produce GDP benchmarks. Furthermore, the shock may be prolonged and continue into 2021. Thus, it is advisable that countries that planned to produce benchmark estimates of GDP for the year 2021 consider adjusting their plans and likewise choose an alternate benchmark year if local conditions warrant.

The first reason for this is that the benchmark year should be representative. Developing benchmark estimates in a year when there is an acute or ongoing economic shock is unadvisable since the shock may cause significant temporary shifts in production and consumption patterns. When selecting a benchmark year, it is best if the year reflects "normal economic activity" for a given country. This is because countries often use their benchmark estimates as weights to aggregate detailed indexes to more aggregated indexes.

Benchmark estimates also serve as interpolation points when generating a time-series. If poor interpolation techniques are used when one of the benchmarks is an outlier the compiler could introduce a smoothing effect that does not reflect economic reality. This will cause distortions in the measurement of the business cycle and tend to mute the rapidity of declines and the subsequent recovery. However, good interpolation techniques maintain turning points and reflect historical trends regardless of outlier observations.

The second reason it is not advisable to use 2020 as a benchmark year is because the COVID-19 pandemic has had a major impact on data collection activities and therefore the source data used by compilers may be of inferior quality. In some cases, national statistical offices (NSOs) were unable to collect data from respondents because respondents were shut down for a period of time or their offices were closed, and they were working from home and therefore difficult to contact. In many cases, the provision of data to NSOs took a back seat to more pressing priorities. Finally, the type of transactions taking place during this period are unusual and therefore are more susceptible to mis recording. Using these "inferior" data sources to establish benchmarks goes counter to the goal of establishing benchmarks in the first place. Governments invest heavily in their data operations in a benchmark year. If during the benchmark year there are widespread challenges in collecting or processing data, then the investment would be better spent in another period.

The third reason is data collection activities for 2020 are more severely affected by intra-

[8] See Special Series on COVID-19, "Benchmarking and Rebasing National Accounts" by Anthony Silungwe https://www.imf.org/en/Publications/SPROLLs/covid19-special-notes#stats. This note is mainly focused on the used of a fixed-base year for the compilation of volume estimates, but many issues remain valid when using chain-linking.

annual information, so even if the annual information used for the benchmark year were adequate, the estimation of quarterly "benchmark" series may be flawed. There are major disadvantages of having poor quarterly data in the benchmark year, including:

- These poor benchmark quarterly series will not be revised until the next benchmark year.
- The first annual GDP estimate is generated from an extrapolation of quarterly series, so there may be a bias in the first signal and thus large revisions when the first annual compilation is produced.
- Severe distortions in the quarterly series will hamper backwards linking, seasonal adjustment, and analyses.

Plans made by the GSO to develop a new benchmark for 2020 are now too advanced to select another benchmark year. The implementation of chain-linking will correct possible biases. As explained in the Appendix II, chain-linking involves the compilation of estimates in previous years' prices. This process automatically updates the weights due to price changes. However, a detailed analysis of data collected for 2020 relating to activities affected by the pandemic and future related source data is recommended.

Appendix II. Compilation of Chain Volume Measures

At the request of the GSO staff a basic numerical example has been developed to explain the calculations involved to chain-link annual volumes estimates with two items and three periods.

Appendix Table 1. Vietnam: Chain-Linking Example

	PERIOD 0			PERIOD 1				PERIOD 2			
	P0	Q0	V0	P1	Q1	V1	Annually rebased	P2	Q2	V2	Annually rebased
Bananas	1	5	5	2	8	16	8	3	13	39	26
Pineapple	4	3	12	4	5	20	20	5	10	50	40
Total (current)			17			36				89	
Total (annually rebased)							28				66
Index			100				164.7				183.3
Chain volume index			100				164.7				302.0
Chain volume estimate			17				28.0				51.3
Constant prices			17			28				53	
Constant prices growth						64.7%				89.3%	
Chain volume growth											83.3%

In the example above P0 indicates the price in period 0, Q0 the quantity in period 0 and V0, the current value in period 0, is P0 x Q0.

Annually rebased estimates are values in previous years' prices. For example, in period 1, the value of bananas is P0 x Q1 = 1 x 8 = 8. The current price estimate is P1 x Q1 = 2 x 8 =16. By construction annually rebased estimates across different periods are not priced using the same pricing period and are not time series. Time series are obtained by chaining the indices.

Volume indices are obtained as the ratio of the annually rebased value by the current value of the previous period multiplied by 100 or 28 / 17 x 100 = 164.7 for period 1 and 66 / 36 x 100 = 183.3. This means that volumes of both commodities increased by 64.7 percent in period 1 compared to period 0 and by 83.3 percent in period 2 compared to period 1.

Chaining volume indices are obtained by multiplying indices. For period 2 the chain volume index, referenced to period 0, is 164.7 x 183.3 / 100 = 302. The chain volume estimate is then obtained by multiplying the chain volume index by the current value of the first period: 17 x 302 / 100 =51.3.

This is the formula corresponding to the Laspeyres chain volume presented in the *System of National Accounts 2008*, paragraph 15.40:

$$L_Q = \frac{\sum_{i=1}^{n} p_i^0 q_i^1}{\sum_{i=1}^{n} p_i^0 q_i^0} \times \frac{\sum_{i=1}^{n} p_i^1 q_i^2}{\sum_{i=1}^{n} p_i^1 q_i^1} \times \ldots, \frac{\sum_{i=1}^{n} p_i^{t-1} q_i^t}{\sum_{i=1}^{n} p_i^{t-1} q_i^{t-1}}$$

Chain volume estimates are no longer additive after two periods. The chain volume estimate referenced to period 0 for bananas is 13 for period 2 and for pineapples this value is 40. The sum of these two items is 53. This is the same as the constant price estimate using period 0 as the pricing period and is higher than the chain volume estimate of both commodities which is 51.3.

One option to maintain the additivity in recent periods is to re-reference every year or every two years. However, re-referencing adds complexities to the compilation process.