

Vaccines and vaccination programmes

Introduction

1. The aim of this GFS interpretation is to provide guidance on recording issues associated with government purchase of vaccines and their supply to the population.
2. For COVID-19 vaccines, the European Commission entered into advance purchase agreements with potential vaccine producers. Governments then concluded contracts with the individual producers, the vaccine producers only accepting contracts with governments or supranational organisations - it was not possible for private corporations to conclude contracts for the delivery of vaccines.
3. Upon vaccine delivery from producers, mass vaccination programmes of populations started. The vaccinations were administered either by non-market entities (public hospitals, government vaccination centres, etc.), by market entities (such as doctors or other private health care providers) or, perhaps most commonly, a combination of the two.

References in ESA 2010 and 2008 SNA

Change in inventories

4. When a stock of vaccines is delivered, a change in economic ownership generally occurs from the vaccine producer to the buyer of the vaccines. According to ESA 2010 paragraph 3.148, the change in economic ownership in goods should be reflected in changes in inventories (P.52). There are sub-categories of P.52, the two relevant ones here being 'materials and supplies' (AN.121) and 'goods for resale' (AN.125). The non-financial transaction is matched in the financial accounts, either by currency and deposits (F.2, in case of cash on delivery) or by trade credit and advances (F.81). The F.81 transaction could either be a reduction of prepayment asset (of government) or an increase in liabilities (of government) if payment will be made later; from what we understand of the early COVID-19 vaccine purchases, only the asset case is relevant, as extended prepayments were generally made.
5. When general government is considered the economic owner of the vaccines purchased, the impact on general government change in inventories (P.52), total expenditure and net lending / net borrowing (B.9) occurs at the time economic ownership changes: when the vaccines are delivered by the producers.
6. ESA 2010 paragraph 3.148 specifically recognises general government as the holder of 'materials and supplies'; although it does not do similarly for 'goods for resale', there is no exclusion of this possibility in ESA 2010 chapter 3 or any logical reason for such an exclusion. 'Goods for resale' seems applicable for some government units, notably for well-known cases though somewhat anecdotal (such as books or postal cards held for resale in museums) or for specific but significant inventories (such as strategic oil reserves, see the MGDD section 1.6.7 on central stock-holding entities).
7. In addition, 2008 SNA paragraph 10.148 indicates that "*By convention, goods acquired by the government for distribution as social transfers in kind but that have not yet been so delivered are also included in goods for resale*". This wording, which is omitted in ESA 2010, is called a convention presumably because the goods in question are not actually for resale, given that they are by definition supposed to be given away for free or for a token payment. This convention makes however sense if the goods acquired for distributions as social transfers in kind would not give rise to transformation, which could be the case if the transfer in kind is via market producers. This is less applicable if the social transfer in kind is via government units, because the

destocking must give rise to intermediate consumption of government and accordingly an output, and accordingly the inventories in question should be more of the materials and supplies type. Indeed, in contrast to goods for resale (AN.125), materials and supplies (AN.121) are “*goods that their owners intend to use as intermediate inputs to their own production processes, not to resell*” (ESA 2010 Annex 7.1).

8. ESA 2010 Annex 7.1 defines AN.125 as: “*Goods acquired by enterprises, such as wholesalers and retailers, for the purpose of reselling them without further processing (that is, not transformed other than by presenting them in ways that are attractive to the customer).*” (underline added.) While the mention of enterprises may seem to exclude general government, it should be presumed that ESA 2010 is focussing on the most common situation in that it will typically be wholesale and retail enterprises that acquire goods for resale. In addition, some activities by government units may be assimilated to wholesaling or retailing (as seen above), which may involve some goods for resale, including encompassing cases of whole ‘enterprises’ classified inside general government when failing market/non-market tests.
9. There thus seems to be a contradiction between ESA 2010 and 2008 SNA on the recording of general government inventories, for goods intended to be distributed as social transfers in kind. 2008 SNA prescribes the recording of ‘goods for resale’ by convention, while ESA 2010 allows for the possibility to record ‘goods for resale’ in case of social transfer in kind via market producers and to record ‘materials and supplies’ in case of social transfers in kind via government units.

Social transfers in kind

10. When a population is being vaccinated without charge, or at prices lower than the costs, this is considered as a social transfer in kind (D.63, as defined in ESA 2010 paragraph 4.108). 2008 SNA paragraph 9.94 is more explicit on this particular case than ESA 2010. It notes the example of vaccinations that may provide external benefits to the community, but essentially the service provided is of an individual nature. In other words, expenditure on vaccinating should be reflected in government individual consumption expenditure (P.31), which is the equivalent category to social transfers in kind (D.63).¹
11. Social transfers in kind consist of two sub-categories: social transfers in kind – general government and NPISHs non-market production (D.631) and social transfers in kind – market production purchased by general government and NPISHs (D.632).
12. ESA 2010 paragraph 4.111 defines the time of recording of social transfer in kind as “[...] *the time the services are provided [...]*”.

Social transfers in kind – general government and NPISHs non-market production (D.631)

13. ESA 2010 paragraph 4.109 defines these as “[...] *individual goods and services provided directly to the beneficiaries by non-market producers.*”
14. Social transfers in kind – general government non-market production (D.631) is not shown in the GFS presentation (see ESA 2010 paragraph 20.72), which instead solely reflects the actual production costs of government, here intermediate consumption (P.2) corresponding to the use of vaccine purchased. A recording of D.631 here implies production by general government (being the sum of costs), with an impact on general government output (P.1, P.132), which is then deemed consumed by government (P.31). For the vaccine delivery programme, there is no impact, upon vaccination, on general government gross value added (B.1g) other than for any compensation of employees of own staff in relation to it, since output (P.1) otherwise equals intermediate consumption (P.2) here. It has no impact either on total expenditure (nor on total revenue or B.9), as the intermediate consumption recorded at the time of vaccination is offset by the withdrawal from inventories of the vaccines used (negative P.52).

¹ Such that the following accounting identity must hold for general government (S.13) and NPISH (S.15): D.63=P.31.

Social transfers in kind – market production purchased by general government and NPISHs (D.632)

15. ESA 2010 paragraph 4.109 defines these as including “[...] *individual goods and services [...] provided directly to the beneficiaries by market producers from which general government purchases the corresponding goods and services.*”
16. Social transfers in kind – market production purchased by general government (D.632) is shown as a specific expenditure item in the GFS presentation distinct from intermediate consumption. A recording of D.632 implies government purchasing the vaccination service from market producers such as private health care providers, which in national accounts is recorded as a social transfer in kind from government to households who then acquire the service from these providers as part of their actual individual consumption (P.41) expenditure. As there is no general government production here, the general government production account is not impacted here - the production being made instead by the private health care providers. The amount recorded in individual consumption expenditure (P.31) is the same as D.632. Similarly to the D.631 case, there is no impact on general government value added (B.1g) nor on total revenue. For total expenditure, part of the D.632 transfer is offset by the negative P.52 at the time the service is delivered, leaving as B.9 impact, at time of vaccination, the vaccination service cost billed by the market producer.

COFOG

17. For COVID-19 vaccinations, some groups of the population were prioritised, for example healthcare workers, the elderly and retail workers. From a COFOG point of view, nonetheless, the primary purpose of the vaccination campaign would appear to fit a recording in an individual ‘health’ group. 2008 SNA recognises that an individual service (such as public health) can have collective benefits but that this does not change the boundaries drawn between individual and collective services. A vaccination provided to one individual will reduce the amounts of vaccine available for other individuals. The positive externalities – which seem the overall purpose of the vaccination campaign –, to eliminate or reduce community transmission of the virus and/or the overburdening of the health system, do not change the individual nature of the consumption.
18. Taking the examples of retail or hospitality workers being vaccinated, the primary purpose is not to provide assistance to supermarkets or the hospitality industry (COFOG group 04.7, ‘other industries’, collective), but instead to achieve a reduction in the effects of the pandemic and notably hospitalisations.
19. From a COFOG point of view, the primary purpose of the vaccination campaign covering the population as a whole fits a recording in an individual group of COFOG division 07 ‘health’.
20. The description of COFOG group 07.4 ‘public health services’ mentions specifically among public health services the “*operation or support of public health services such as [...] immunisation*” and “*inoculation*” among preventive measures. It seems prescribed to record the costs of the vaccination campaign in COFOG 07.4.
21. COFOG group 07.1 covers ‘medical products, appliances and equipment’, which contains “*serums and vaccines*”. The vaccines entry into and exit from inventories might potentially be recorded within this group.

Discussion of the issue

22. For COVID-19 vaccines, the European Commission entered into advanced purchase agreements with several (potential) vaccine producers. It was then up to the EU Member States to conclude contracts with individual vaccine producers. Currently, vaccine producers only accept contracts with governments or supranational organisations; i.e., it is not possible for private companies to conclude contracts for the delivery of vaccines. Vaccines were delivered from producers to governments from December 2020 onwards.

23. For logistical reasons, there is a time lag between delivery of vaccines and the vaccinations, sometimes significant. Naturally, this time lag can cross two quarters and, by extension, two years.

Economic ownership of the vaccine

24. As the contracts for COVID-19 vaccines could only be concluded by governments, it can be assumed that it is general government purchasing the COVID-19 vaccines, even in cases where physical delivery is made directly to private health care providers that perform the vaccinations.
25. When general government takes delivery of stocks of vaccines, a change in economic ownership occurs from the vaccine producer to government, irrespective of whether the delivery is actually to government warehouses or directly held by the private health care providers concerned. General government is thus viewed as the economic owner of the stock of vaccines it purchases, irrespective of how the vaccine programme is delivered.

COFOG

26. The total expenditure recorded for the vaccination programme is comprised of two parts : firstly, the value of the vaccine and, secondly, the remuneration for a non-government vaccination delivery service / cost of general government units vaccinating the population. The question is whether this expenditure should be recorded in separate COFOG groups, i.e., whether the vaccine itself should be allocated separately in COFOG from the cost of administering the vaccine.
27. The COFOG TF considered that the vaccine and the vaccination should be recorded together in one COFOG group, namely COFOG group 07.4 'public health', because the function is a part of preventive health care.
28. Furthermore, the COFOG TF considered that a recording in COFOG group 07.4 'public health' implied the vaccine is an input to the vaccination service, with the two being impossible to separate: a vaccination programme is useless without vaccines, and having a stock of vaccines is useless without a vaccine delivery programme. The individual is then deemed to consume the vaccination service. For this, both the vaccine and the vaccine delivery programme by health care professionals are necessary.
29. One alternative option for the acquisition of stock of vaccines is COFOG group 07.1 'medical products, appliances and equipment'. Drugs that can be administered by individuals (such as prescribed tablets) are recorded in COFOG group 07.1. The vaccines here differ from that case, as they need to be administered by qualified practitioners as part of a public health vaccination programme. Therefore, the same function was considered relevant for both the vaccination service and the acquisition of vaccine stocks.
30. By analogy with medicines administered in hospitals being part of COFOG group 07.3 'hospitals', rather than 7.1 'medical products, appliances and equipment', the COFOG TF considered that vaccines should be part of the vaccination service and thus recorded in COFOG group 07.4.
31. Allocating the expenditure on vaccines and vaccination together as one purpose to COFOG group 07.4 is consistent with the [published advice](#) for System of Health Accounts (SHA). This states that "*Cost of vaccination (once vaccine is available) including costs of vaccine, service charge for doctors or nurse and distribution costs is to be recorded in HC62*", part of 'preventive care'. According to the [COFOG manual](#) (table 9, part of chapter 4.3.4), COFOG group 07.4 has a broad correspondence with health care function HC6.

Social transfers in kind

32. When general government provides the vaccination service, there is no other choice of recording available than D.631: the vaccination cannot be considered as market activity as it is performed by non-market producers. It is valued for the value of vaccines purchased as well as for the other additional costs assigned.
33. When market producers provide vaccinations and the vaccine is distributed to them for free, two

- recording options could be envisaged: recording D.631 or D.632 for the vaccination service.
34. Recording D.631 for the vaccination service. This implies that market producers' output is solely the vaccination service (performing and registering the jab, observing the vaccinated person, etc.), deemed purchased by government. This implies that the market producers do not take economic ownership of the vaccine and that general government continues to have the risks and rewards of the vaccine (bad preparation of vaccine doses, general wastage, ...). Recording D.631 might appear consistent with recording 'materials and supplies', as the latter implies government production, i.e., involving some kind of transformation.
 35. A variant would be to record D.631 solely for the amounts of the vaccines consumed, and record as D.632 the vaccination fees charged. Such a partial recording of D.631 might appear in contradiction with recording 'materials and supplies', as this implies government production, i.e., involving some kind of transformation which does not appear to take place here.
 36. Such a variant of partial recording of D.631 may also appear contradictory with the recording favoured by the COFOG TF : to record the vaccine as an input to the vaccination programme, i.e., to exclude the option of recording government production for the vaccine itself and to instead consider the acquisition and use of the vaccine along with the administering of the vaccine together in COFOG group 07.4.
 37. Recording D.632 for the vaccination service. This implies that market producers deliver the vaccination and use the vaccine as part of the service (as an input). They would be deemed to perform the whole vaccination of the individuals. It implies that market producers take economic ownership of the vaccines: that they take on the risks and rewards in relation to the storage and use of the vaccine, i.e., that they are not simply contracted for the delivery part. A good used up as an input to a production process is intermediate consumption (P.2) for the market producers. The transaction can be shown by recording a reduction in changes in inventories (-P.52) in the general government accounts, matched by an input (P.2) of the market producer². The value of the D.632 is then comprised of the remuneration for the vaccination delivery service, plus the value of the vaccine. This recording seems more aligned with 'goods for resale' in government accounts, as government is here merely acting as a temporary holder of inventories. Government production is not impacted.
 38. When the market entities physically collect the vaccines, they might nonetheless not be seen as taking economic ownership of them because they do not sufficiently bear the risks and rewards of ownership. For example, if there is a faulty batch they would not take legal responsibility for it, and if there are surplus stocks they are returned to government. Importantly, they could also not legally sell on the vaccines. However, within their delivery agreement, they may have responsibility for storage and safe vaccination, and they clearly have physical control.
 39. However, the service of providing the vaccination cannot easily be separated from taking some responsibility over the vaccine (such as safe storage and preparation for use).
 40. The vaccine can be seen as an inseparable input to the service of providing the vaccination, so that any provider of vaccinations uses part of the vaccine stock when making vaccinations. Similarly, vaccines cannot normally be provided separately from the market producer vaccination service, in contrast to other medicines, some of which can be self-administered.
 41. The GFS TF favoured the recording of D.632 for vaccines when vaccinations are performed by market producers. This is consistent with the view of the COFOG TF to record the vaccine and the vaccination service together in COFOG group 07.4 'public health'.
 42. The value of the social transfers in kind – purchased market production D.632 is then made up of the cost of the vaccine (identical to the value of withdrawals from vaccine inventories of

² Formalistically, the market producer can also be seen as adding the vaccines to their inventories first (+P.52) which are then immediately destocked upon use (-P.52). Such a split would lead to the following decomposition of counter-entries in the accounts of the market producer (looking here only at the vaccines): P.52/F.8L and then immediately (-)P.52/P.2 and P.1/(-)F8L. In the accounts of households, one has P.3/D.632.

government, both recorded at the time the vaccination is made) and the costs of providing the service (government payments to the market entity, again accrued to the time the service is delivered).

Conclusions on the recording in government finance statistics

43. General government is the economic owner of the stock of vaccines it purchases, irrespective of how the vaccine programme is delivered. An addition, changes in inventories (P.52) is to be recorded at the time that general government takes ownership of the vaccines.
44. When general government provides itself the vaccination service, the costs involved are recorded as social transfers in kind – general government and NPISHs non-market production (D.631).
45. When market entities provide the vaccination service, the costs involved are recorded as social transfers in kind – market production purchased by general government and NPISHs (D.632).
46. In both cases, the vaccination involves withdrawals from vaccine inventories (P.52), with for counterpart intermediate consumption (P.2, when government provides vaccination services) or social transfer in kind (D.632, when vaccination is carried out by market producers). In the former case, the applicable inventory is preferably 'materials and supplies', while it is 'goods for resale' in the latter case.
47. The expenditure for both the service of vaccinating the population and acquiring the stock of vaccines is recorded in COFOG group 07.4 (public health) in both cases.

Illustration / T-accounts

Example 1: government delivery of the vaccination programme

In period 1 government pre-pays for 80 of vaccine stocks. In period 2 the vaccine is produced and delivered to government's ownership. In period 3 general government delivers the vaccination programme, incurring costs of 20 (15 in staff costs, 5 in intermediate consumption on venues, storage etc.).

Period 1 (prepayment by government to vaccine suppliers)

Transactions

S.13	
Uses/Assets	Resources/Liabilities
B.9/B9f	0
F.2	-80
F.81	+80

S.11/S.2 (supplier of vaccines)	
Uses/Assets	Resources/Liabilities
B.9/B9f	0
F.2	+80
	F.81
	+80

Period 2 (delivery of the vaccines to government by the supplier)

Transactions

S.13	
Uses/Assets	Resources/Liabilities
P.52	+80
B.9/B9f	-80
F.81	-80

S.11/S.2 (supplier of vaccines)	
Uses/Assets	Resources/Liabilities
	P.11
	+80
B.9/B9f	80
	F.81
	-80

Period 3 (vaccinations take place)

Transactions

S.13	
Uses/Assets	Resources/Liabilities
D.1	+15
P.2	+80+5
D.631/P.31	+100
P.52	-80
B.9/B9f	-20
F.2	-20

S.14	
Uses/Assets	Resources/Liabilities
	D.1
	15
P.41	+100
D.631	+100
B.8/B.9/B9f	+15
F.2	+15

S.11 (some other supplier)	
Uses/Assets	Resources/Liabilities
	P.11
	+5
B.9/B9f	+5
F.2	+5

Example 2: market producers deliver the vaccination programme

In period 1 government pre-pays for 80 of vaccine stocks. In period 2 the vaccine is produced and delivered to government's ownership. In period 3 general government contracts to market producers to deliver the vaccination programme, paying them 25 for their services. As in the first example, the provider of vaccination services incurs 15 in staff costs.

Period 1 (prepayment by government to vaccine suppliers)

Transactions

S.13	
Uses/Assets	Resources/Liabilities
B.9/B9f	0
F.2	-80
F.81	+80

S.11/S.2 (supplier of vaccines)	
Uses/Assets	Resources/Liabilities
B.9/B9f	0
F.2	+80
F.81	+80

Period 2 (delivery of the vaccines to government by the supplier)

Transactions

S.13	
Uses/Assets	Resources/Liabilities
P.52	+80
B.9/B9f	-80
F.81	-80

S.11/S.2 (supplier of vaccines)	
Uses/Assets	Resources/Liabilities
B.9/B9f	80
F.81	-80
P.11	+80

Period 3 (vaccinations take place)

Transactions

S.13	
Uses/Assets	Resources/Liabilities
D.632/P.31	+25+80
P.52	-80
B.9/B9f	-25
F.2	-25

S.14	
Uses/Assets	Resources/Liabilities
P.41	+25+80
B.8/B.9/B9f	+15
F.2	+15
D.1	+15
D.632	+25+80

S.11 (supplier of vaccination services)	
Uses/Assets	Resources/Liabilities
D.11	+15
P.2	+80
B.9/B9f	+10
F.2	+25-15
P.11	+25+80