Accounting for Emission Trading Schemes in SEEA

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Overview

- Emission trading schemes (ETSs)
  - Basics
  - Tax or asset?
  - Complicating factors
- Gaps in SNA accounting
  - Multinational ETSs
  - Free permits
  - Not fixed by proposed updates
- Proposed path for SEEA

Emission Trading Schemes

- Basics
  - Government issues quantity *Q* of permits ("cap")
  - These may be freely traded in markets ("trade")
  - A regulated entity that emits *q* units of pollution must surrender *q* permits

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Emission Trading Schemes

- Basics
  - Government issues quantity *Q* of permits (“cap”)
  - These may be **freely traded** in markets (“trade”)
  - A regulated entity that emits *q* units of pollution **must surrender** *q* permits
- **Tax** or **asset**?
  - These permits do not involve the use of a natural asset (there is no value placed on the atmosphere so it cannot be considered to be an economic asset) and are therefore classified as **taxes** . . . . It is inherent in the concept that the permits will be tradeable and that there will be an active market in them. The permits therefore constitute **assets** and should be valued at the market price for which they can be sold (SNA 17.363).

Emission Trading Schemes

- Basics
- Tax or asset?
- Complications
  - Free permits
  - Multinational schemes
  - Multi-year compliance periods
  - Permits held without intent to emit
  - Data availability

Emission Trading Schemes

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- Complications
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  - **Multinational schemes**
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SNA Guidance—Current

- ISWGNA (2011 and 2012)
  - Split asset
  - Financial asset (prepaid tax) at mean original sale price + NPNF asset representing price change
  - Corresponding financial liability (prepaid tax) for government
  - Tax recorded at surrender
- Issues:
  - Taxes overstated for businesses obtaining **permits for free** & understated for others
  - **International flows** explicitly ignored
  - NPNF value can go negative
  - Government's financial liability could persist indefinitely if unsurrendered permits do not expire
- Proposed updates summarized in WS.7 Guidance Note (Manolikakis and Tebrake, 2022)

SNA Guidance—Options

- Option 1
  - Permits considered as NPNF assets (permits to use natural resources)
  - Government revenues are recorded as sales of assets at issuance
  - While atmosphere is not an asset, government controls access to it as a sink for emissions
  - Those access rights can be considered an asset
  - All permits are valued at market price
  - Issues:
    - Existing SNA guidance says not to consider ETS permits as assets

SNA Guidance—Options

- ~~Option 1: NPNF assets~~
- Option 2
  - Permits considered as financial assets (natural resource leases)
  - Government holds a corresponding liability
  - *Does* explicitly recognize the atmosphere as an asset
  - Resource rent revenue recorded for the government at market value when permits are surrendered

SNA Guidance—Options

- ~~Option 1: NPNF assets~~
- ~~Option 2: Financial assets~~
- Option 3
  - Permits considered as NPNF assets (licenses to emit)
  - Government revenues are recorded as taxes on production at time of issuance

SNA Guidance—Options

- ~~Option 1: NPNF assets~~
- ~~Option 2: Financial assets~~
- ~~Option 3: NPNF assets, taxes recorded at issuance~~
- Option 4
  - Permits considered as financial assets
  - Government holds a corresponding liability
  - Taxes on production recorded at time of surrender, at original issuance price
  - If data constraints are a problem, taxes on production may be recorded at current market price

SNA Guidance—Options

- ~~Option 1: NPNF assets~~
- ~~Option 2: Financial assets~~
- ~~Option 3: NPNF assets, taxes recorded at issuance~~
- Option 4: Financial assets, taxes recorded at surrender
- Option 4(a)*
  - Essentially the status quo
  - Financial asset (prepaid tax) at original sale price + NPNF asset representing price change
  - Free permits are now explicitly valued at zero
  - International flows are ignored

SNA Guidance—Options

- ~~Option 1: NPNF assets~~
- ~~Option 2: Financial assets~~
- ~~Option 3: NPNF assets, taxes recorded at issuance~~
- Option 4: Financial assets, taxes recorded at surrender
- Option 4(a)*: Split asset, *status quo*
- Only option 1 addresses both the main gaps in SNA guidance noted earlier
  - Multinational ETSs
  - Permits allocated for free

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  - What do industries and households pay for their emissions?
  - How much state income comes from ETS revenue?
  - What are the international flows associated with multinational ETSs?
  - How big is the implicit subsidy to polluting industries when allocating permits freely?
  - How much arbitrage do polluting industries receiving permits for free undertake?

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- SEEA is for environmental-economic questions
- When necessary to fulfill its purpose, SEEA can and should diverge from SNA
- Minimum requirements for SEEA ETS accounting
  - Cleanly and consistently accommodate
    - **Multinational schemes**
    - **Permits allocated for free**
    - Multi-year compliance periods
    - Permits held without intent to emit
  - Reported and actual government revenue from ETSs should match
  - Government financial position should not be affected by ETS secondary markets

Proposed Path for SEEA

- We suggest a refinement of option 1, discussed earlier, in which ETS permits are
  - Considered NPNF assets (permits to use natural resources)
  - Created by government through Other Change in Volume of Assets account (OCVA)
  - Sold or transferred for free to businesses like any asset and recorded accordingly
  - Always valued at market price, and revalued when market price changes
  - Extinguished from industry accounts through OCVA when surrendered
- We suggest that in the case of ETSs with multi-year compliance periods
  - Compliance obligations incurred in early years of the compliance period be represented as NPNF liabilities valued at the market price for the corresponding quantity of permits and created in the business accounts via the OCVA
  - That an environmental compliance expense in the same amount be recorded in the business accounts
  - That this liability be revalued with changes in the market price of permits
  - That this liability be extinguished via the OCVA when the obligation is satisfied

Example 1: Permit Creation, Auction, and Free Allocation

The government creates 1000 permits. 500 are sold at auction, while 500 are allocated for free. Newly created permits are valued at the price revealed in the subsequent auction.

	Accounts of industry A				Accounts of government			
	Transactions		Balance Sheet		Transactions		Balance Sheet	
Account name	Δ Assets	Δ Liabilities	Assets	Liabilities	Δ Assets	Δ Liabilities	Assets	Liabilities
OCVA			0	0	1000		1000	0
Capital account	500				-500			
Cash	-500		500	0	500		500	0
Capital account	500		1000	0	-500		0	0

Example 2: Multinational ETS

Industry A in country X sells $250 worth of permits to industry B in country Y. Industry B immediately surrenders them to country Y to meet its compliance obligations. The permits (NPNF asset) are extinguished from the accounts of the business via OCVA. Neither country's government accounts are impacted.

Country X	Accounts of industry A				Rest-of-world accounts	
	Transactions		Balance Sheet		Transactions	
Account name	Δ Assets	Δ Liabilities	Assets	Liabilities	Δ Assets	Δ Liabilities
Cash	250				-250	
Capital account	-250		750	0	250	

No effect on government accounts

Country Y	Accounts of industry B				Rest-of-world accounts	
	Transactions		Balance Sheet		Transactions	
Account name	Resource/ Δ Assets	Uses/ Δ Liabilities	Assets	Liabilities	Δ Assets	Δ Liabilities
Cash	-250				250	
Capital account	250		250	0	-250	
Expense	250					
OCVA	-250		0	0		

No effect on government accounts

Example 3: Revaluing and Multi-Year Compliance Period

Revaluation to market prices at year end. Environmental compliance expenses (at current market price of permits) incurred at year end. Compliance liability (NPNF liability) created at end of year 1, and revalued at end of year 2. Satisfied compliance liability (NPNF liability) and surrendered permits (NPNF assets) extinguished at end of year 2.

		Accounts of industry A				Accounts of government			
		Transactions		Balance Sheet		Transactions		Balance Sheet	
	Account name	Resources/ Δ Assets	Uses/ Δ Liabilities	Assets	Liabilities	Resources/ Δ Assets	Uses/ Δ Liabilities	Assets	Liabilities
End year 1	Revaluation	500		1500	0			0	0
	Expense	750							
	OCVA		750	1500	750			0	0
End year 2	Revaluation	-700	-350					0	0
	Expense	320							
	OCVA	-720	-400					0	0

Recommendations

- Specific and detailed guidance be given on accounting for ETSs as one of the environmental activity accounts.
- Guiding principles emphasize in this treatment should include
  - Accurate recording of government revenues and financial position
  - Recording of compliance expenses to businesses in the period that emissions occur
- As detailed in the accompanying paper, that the SEEA CF treat ETS permits as non-produced, non-financial assets
  - Governments can and do control the right of access to the atmosphere for use as a sink for emissions
  - This right may properly be considered an asset
- That the SEEA CF allow for the recording of non-produced, non-financial liabilities representing compliance obligations incurred one or more periods before the corresponding permits must be surrendered
- The example transactions in the accompanying paper be included in the SEEA CF.

Thank you! We look forward to your comments and feedback.