Methodological approach to measure drug trafficking-related IFFs

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Introduction

This work presents a set of guidelines to measure illicit financial flows (IFFs) related to illicit drugs market (IDM)

The estimation strategy is based on a bottom-up approach, which identifies and measures IFFs starting from the assessment of IDM-related operations

Estimates of the IDM-related economic flows ground on a conceptual framework that considers the supply-chain of illicit drugs, the characteristics of production processes and criminals' *modi operandi*

IFFs are identified by taking into account two types of economic operations characterising the working of IDM and agents' economic behaviour:

- **income generation operations (IGOs)**, which are transactions relating to the production and trafficking of illicit drugs

- **income management operations (IMOs)**, which are transactions concerning the use (for investments and final consumption) of the related proceeds

Statistical framework to measure IFFs in IDM
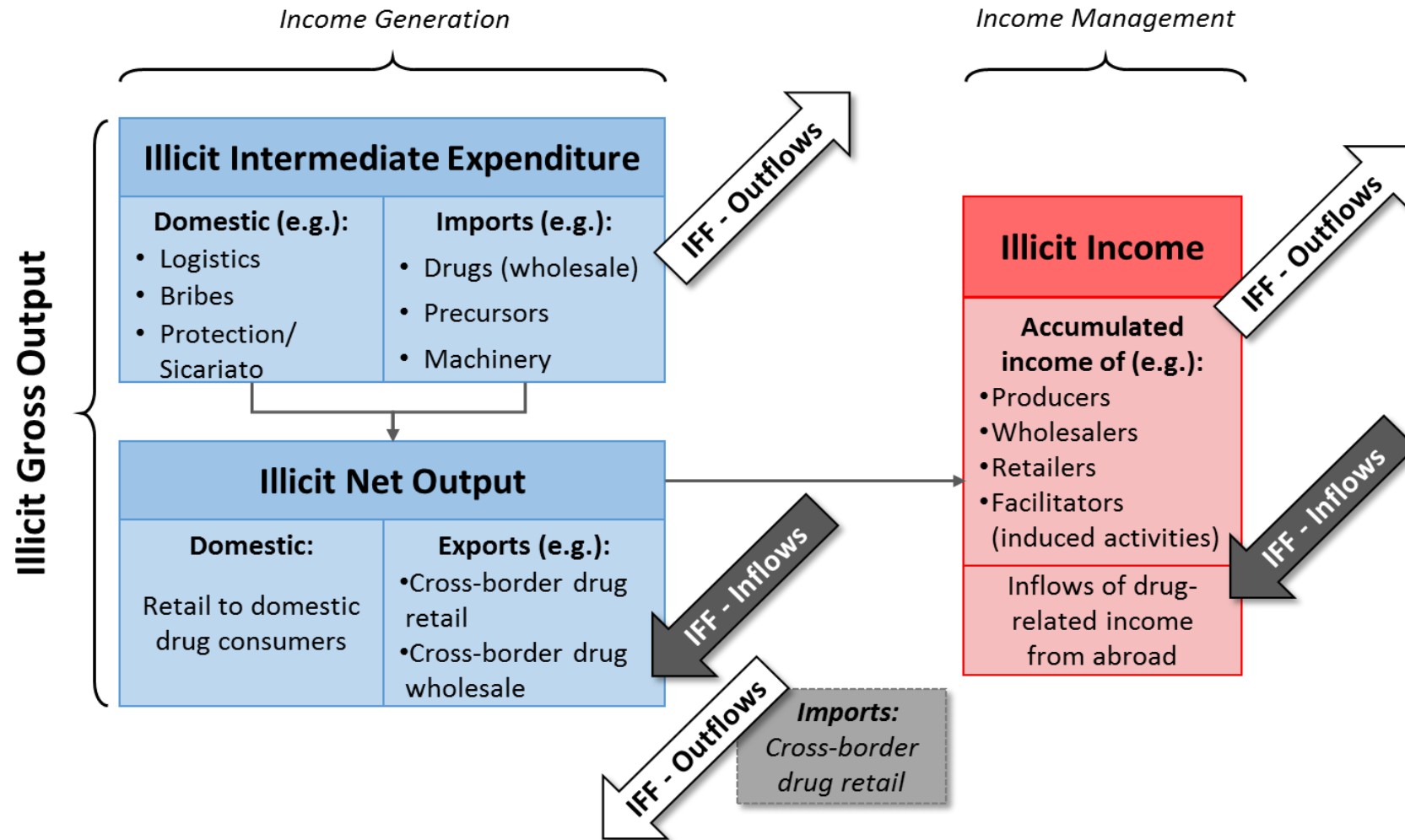
Measuring IDM-related operations
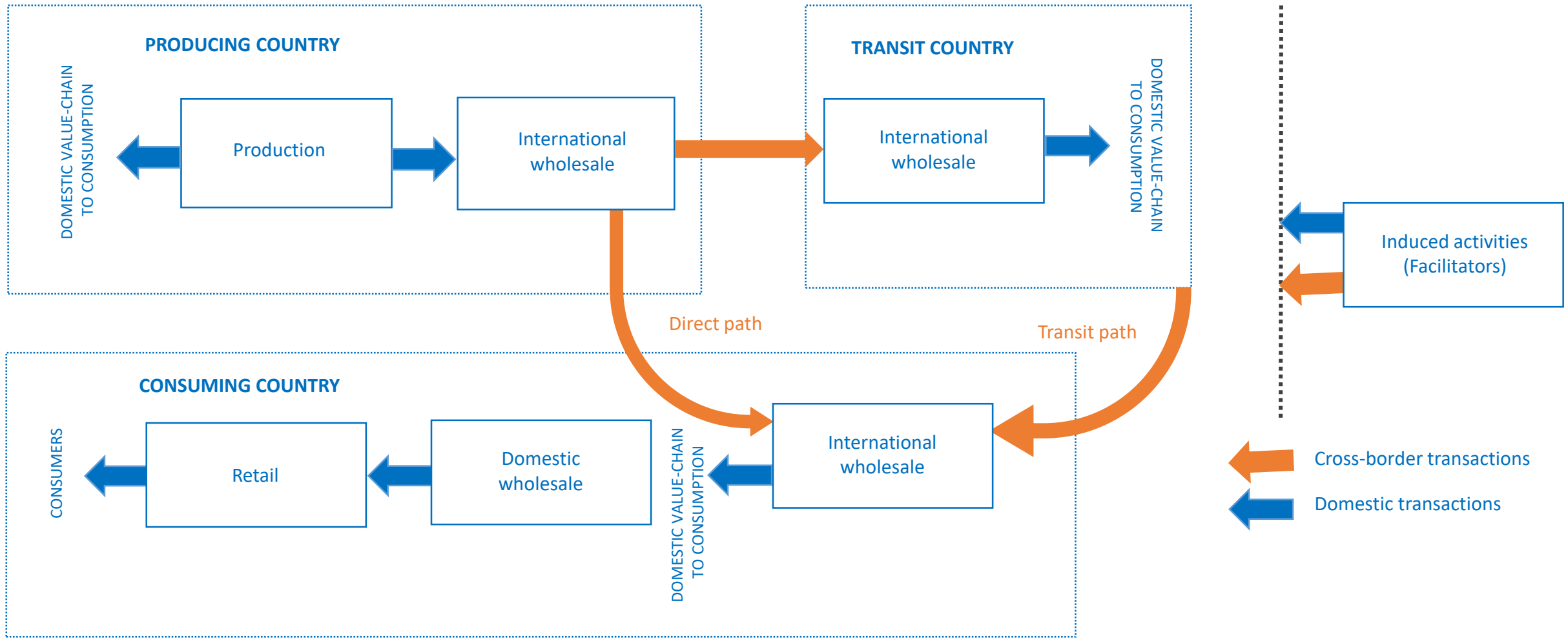
Measuring IDM-related operations

In order to estimate IFFs related IGOs and IMOs for illicit drug market, three main components have to be measured

- Imports of drugs (and productive inputs)
- Exports of drugs

Income generation

- Net output of productive activities connected with IDM

Income management

Available information is usually:
- Produced quantity
- Consumed quantity
- Seizures (i.e. losses)
- Prices (at different stage of the value chain)

Measuring IDM-related operations

Concerning Imported and Exported Quantities...

We don't have direct estimates of these quantities, therefore, there have to be measured indirectly

The starting point, for each illicit drug, is represented by following identity:

$$Production + Imports = Consumption + Exports + Losses$$

Measuring IDM-related operations

The **Produced Quantity (PQ)** represents the amount of illicit drug (at the given level of purity) that is manufactured by domestic producers

$$PQ = Extension\ of\ plantation\ in\ (HA) * Quantity\ per\ HA$$

$$PQ = Seizures * Conversion\ coefficient$$

The **Consumed Quantity (CQ)** represents the amount of illicit drug (at the given level of purity) that is available for final consumption in the domestic market

$$CQ = Number\ of\ consumers * Number\ of\ doses * Quantity\ per\ dose$$

Measuring IDM-related operations

Illicit substances are generally characterised by different levels of **Purity (P)** according to the stage of the supply-chain

Taking into account purity is a necessary condition in order to normalise quantities considered along the estimation procedure

Coefficients to adjust for adulteration have to reflect the differential in purity along the different stages of the supply-chain and can be defined as:

$$\gamma(i,j) \;=\; P(i) \,/\, P(j)$$

where i and j represent the different types of quantity that characterise the different (relevant) stages along the supply-chain: imports (im), exports (ex), production (p), international wholesale (iw), domestic wholesale (dw), retail trade (rt) and consumption (c)

Measuring IDM-related operations

Losses (L) of illicit drugs are mainly connected with seizures of illicit substances by law enforcement authorities

Assuming S being the total amount of annual seizures in quantity, and defining $\pi(i)$ as the share of seizures related to the given stage of the supply-chain, the amount of seizures in quantity for each stage can be determined as:

$$L(i) \ = \ \pi(i) \ * S$$

where i represents the different types of quantity that characterise the different (relevant) stages along the supply-chain: imports (im), exports (ex), production (p), international wholesale (iw), domestic wholesale (dw), retail trade (rt).

Measuring IDM-related operations

The **Exported Quantity (EQ)** represents the amount of illicit drug (at the given level of purity) that is exported abroad by resident agents

Different methods can be used to estimate Exported quantity:

- Using known quantities to trace-back the unknown oneRegional Flow model (stima puntuale)

$$EQ = \alpha * (Relevant)\ Quantity$$

where α is a non-negative integer that is set equal to 0 if exports are negligible

The (Relevant) Quantity to determine exports may depend on the characteristics of the given country (consumption for consuming countries, seizures for transit countries, production for producing countries)

- Using regional flow model to define the exported quantity

To obtain the **value of exports**... *Exported quantity * Export price*

Measuring IDM-related operations

The **Imported Quantity (IQ)** represents the amount of illicit drug (at the given level of purity) that is imported from abroad by resident agents

$$IQ = CQ + EQ - PQ + L(i)$$

Taking into account previous definitions, IQ can be also written as:

$$IQ = \gamma(c, im) * \big(CQ + L(CQ)\big) + \gamma(ex, im) * \big(EQ + L(EQ)\big) - \gamma(p, im) * \big(PQ - L(PQ)\big) + L(IQ)$$

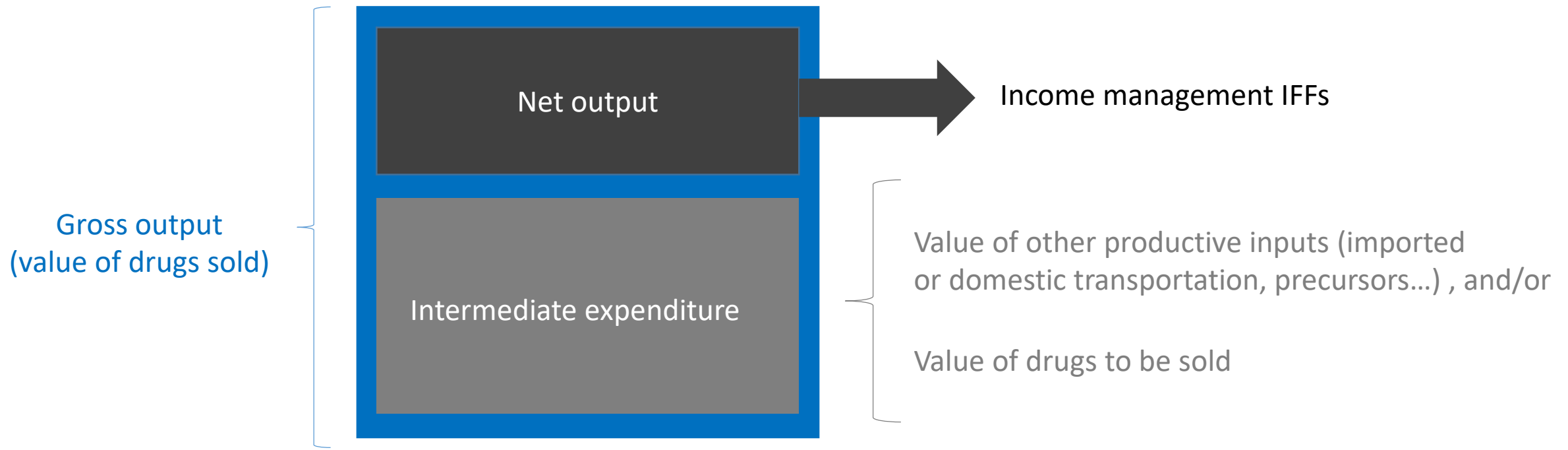Consumed quantity   Exported quantity   Produced quantity   Losses

where $\gamma(i, j)$ are the coefficients to adjust for differences in purity between the imported and the other quantities

To obtain the **value of imports**... *Imported quantity * Import price*

Measuring IDM-related operations

Concerning net output from IDM-related activities…

For each stage of the supply-chain (Production, International wholesale, Domestic wholesale, Retail trade, Induced activities), the net output is defined as the difference between gross output and intermediate expenditure

Net output → Income management IFFs

Gross output
(value of drugs sold)

Intermediate expenditure

Value of other productive inputs (imported or domestic transportation, precursors…) , and/or

Value of drugs to be sold

Measuring IFFs in IDM – IGOs

IGOs include transactions that are connected with the production processes characterising the different functions involved in IDM, considering illicit substances themselves and other productive inputs

Taking the definition of IFFs, measurement has to include IGOs implying an exchange with non-resident agents

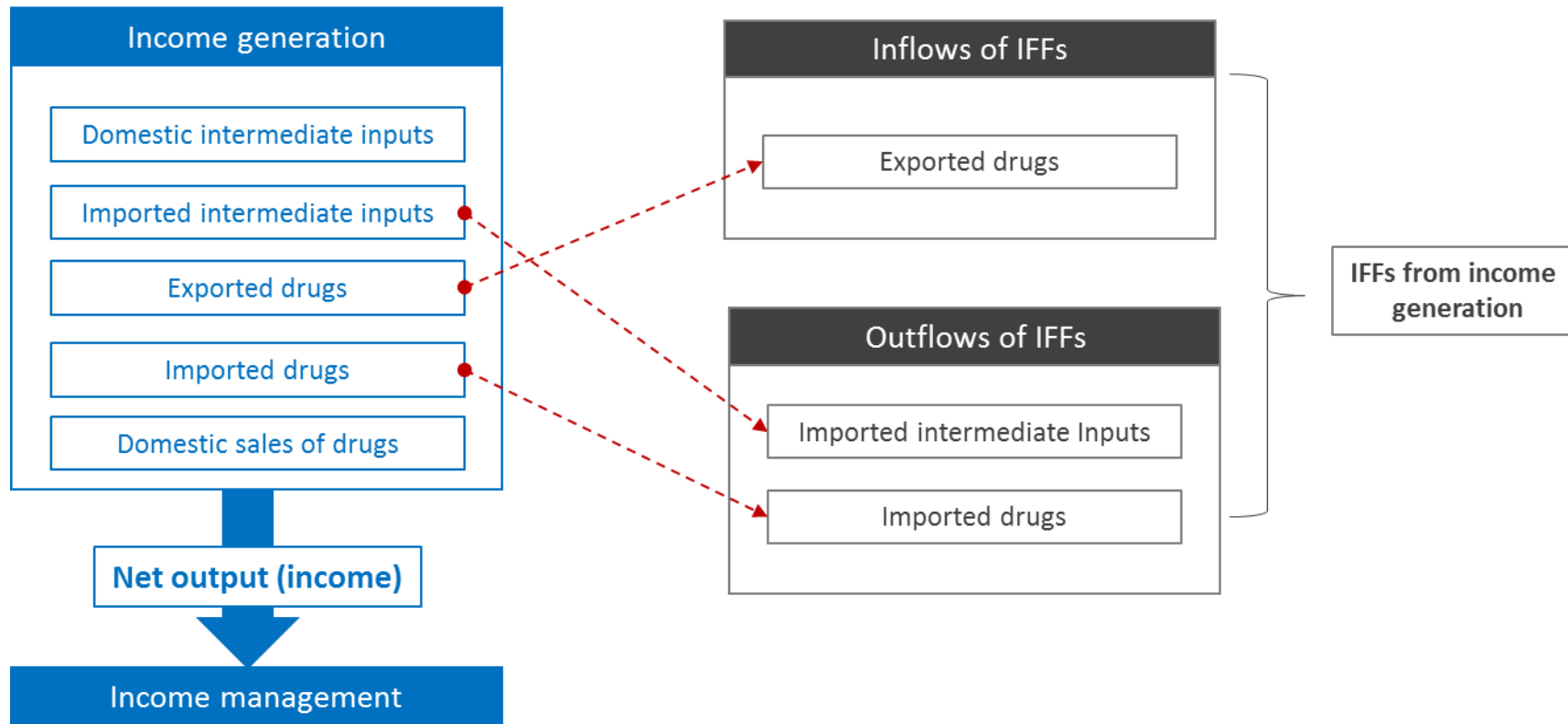IFFs generated by IGOs have two components:

- Transactions in illicit substances (Imports – outward IFFs – and Exports – inward IFFs)

- Transactions in other productive inputs (Imports of illicit inputs – outward IFFs)

In particular:

$$OutIFFs(IGOs) = Imports\ of\ drugs + Imported\ intermediate\ expenditure$$

$$InIFFs(IGOs) = \ Exports\ of\ drugs$$

Measuring IFFs in IDM – IGOs

Thank you.
Gracias.

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