HOW TO REPORT FDI DATA TO THE OECD USING SDMX

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The aim of this document is to provide guidance on how to report FDI statistics according to *OECD Benchmark Definition 4th Edition* to the OECD, using SDMX.

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INTRODUCTION

The SDMX (**Statistical Data and Metadata Exchange**) Data Structure Definition (and related documentation[1]) for Foreign Direct Investment (FDI-DSD), is the standard for the transmission of FDI statistics according to OECD Benchmark Definition 4th Edition / IMF-Balance of Payment manual 6th Edition. It was prepared in close cooperation between Eurostat, IMF and OECD, under the auspices of the SDMX Technical Group on Macro-Economic Statistics.

The FDI-DSD is one of the key elements in the implementation of the SDMX standard in IT systems for the compilation and the transmission of data to and between International Organisations (IOs).

V1.8 version of the FDI DSD which was released in January 2021 (as well as previous versions up to V1.7) for global use are available on the SDMX Global Registry ((https://Registry.SDMX.org)). There is authentication required for accessing the Registry.

The FDI Data Structure Definition is structured as showed in Table 1. It is composed of 18 dimensions and 12 attributes. A detailed description of each dimension and attribute is included in the FDI-DSD Excel file and in the *Guidelines for using FDI-DSD*, available on the SDMX website (http://sdmx.org/?page_id=1747). An Excel file including all FDI data requests of Eurostat, IMF and OECD (FDI_IO_DATA_REQUEST_CODIFICATION.xls) can also be downloaded from this website.

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[1] *Guidelines for using FDI-DSD* and an Excel file including FDI data requests codification of Eurostat, IMF and OECD

Table 1. FDI Data Structure Definition

- **Dimensions**

Position in key	Version	Concept Mnemonic/Identifier	Concept Name	Description	Code List Mnemonic	Code List Name	Type; Min and max	Maint. Org
1	2.0	FREQ*	Frequency*	Frequency	CL_FREQ*	Frequency code list*	String - Min=1; Max=1	SDMX
2	1.0	MEASURE_PRINCIPLE	Measurement principle	The basis for measuring transactions and positions	CL_MEASURE_PRINCIP	Measurement principle code list	String - Min=1; Max=2	OECD
3	1.13	REF_AREA*	Reference country or area*	Reference country or area	CL_AREA*	Area code list*	String - Min=2; Max=5	IMF
4	1.13	COUNTERPART_AREA*	Counterpart Area*	Counterpart Area	CL_AREA*	Area code list	String - Min=2; Max=5	IMF
5	1.11	REF_SECTOR*	Reference Sector*	Institutional sector in the Reference country or area	CL_SECTOR*	Institutional sector code list	String - Min=2; Max=7	Eurostat
6	1.0	LEVEL_COUNTERPART	Level of counterpart	Identifies the level FDIR	CL_LEV_COUNTERPART	Level of counterpart code list	String - Min=3; Max=3	OECD
7	1.1	FLOW_STOCK_ENTRY*	Flows and stocks indicator*	Flows and stocks indicator	CL_FSENTRY*	Flow or stock entry code list	String - Min=1; Max=3	IMF
8	1.4	ACCOUNTING_ENTRY*	Accounting entries*	Types of accounting entries (i.e. credit, debit, balance)	CL_ACCOUNT_ENTRY*	Accounting entry code list	String - Min=1; Max=3	IMF
9	1.6	INT_ACC_ITEM*	International accounts item*	Item classification for international accounts statistics	CL_ACCOUNTS_ITEM*	Item classification code list	String - Min=1; Max=8	IMF
10	1.10	FUNCTIONAL_CAT*	Functional category*	Classification by functional of the financial investment	CL_FUNCTIONAL_CAT*	Functional category code list	String - Min=1; Max=6	IMF
11	1.10	INSTR_ASSET*	Instrument and assets classification*	Breakdown by financial instruments and assets	CL_INSTR_ASSET*	Financial instruments and assets classification code list	String - Min=1; Max=7	Eurostat
12	1.1	TYPE_ENTITY	Type of entity	Breakdown by type of enterprise	CL_TYPE_ENTITY	Type of entity code list	String - Min=3; Max=3	OECD
13	1.14	UNIT_MEASURE*	Unit of measure*	Unit of measure for reporting the time-series	CL_UNIT*	Unit of measure code list	String - Min=2; Max=15	IMF
14	1.0	FDI_RELATIONSHIP	FDI relationship	Breakdown by FDI relationship	CL_FDI_RELATION	FDI relationship code list	String - Min=1; Max=1	OECD
15	1.6	VALUATION*	Valuation*	Price valuation	CL_VALUATION*	Valuation code list	String - Min=1; Max=2	Eurostat
16	1.0	STAT_UNIT	Statistical unit	Aggregation level for reporting data	CL_STAT_UNIT	Statistical unit code list	String - Min=1; Max=2	OECD
17	1.7	ACTIVITY**	Industrial activity, NACE and ISIC	Industrial activity according to ISIC4/NACE Rev.2	CL_ACTIVITY	Industrial activity code list	String - Min=1; Max=9	Eurostat
18	1.0	ACTIVITY_ALLOC	Activity allocation	Identifies reference entity to classify economic activity	CL_ACTIVITY_ALLOC	Activity allocation code list	String - Min=1; Max=2	OECD

*Common concepts between FDI and BOP DSD

**Common concepts between FDI and NA DSD

- **Attributes**

Attachment Level	Version	C/M (1)	Concept Mnemonic/Identifier	Concept Name	Code List Mnemonic	Type; Min and max	Maint. Org
Series	1.0	C	TIME_FORMAT	Time format	CL_TIME_FORMAT	String - Min=3; Max=4	SDMX
Observation	2.1	M	OBS_STATUS	Observation status	CL_OBS_STATUS	String - Min=1; Max=1	Eurostat
Observation	1.2	M	CONF_STATUS	Confidentiality status	CL_CONF_STATUS	String - Min=1; Max=1	SDMX
Observation		C	PRE_BREAK_VALUE	Pre-break value	Uncoded	Double – Max=15	IMF
Observation		C	COMMENT_OBS	Comments to the observation value	Uncoded	String – Max=4000	IMF
Series		C	COMMENT_TS	Title complement: Detailed description of the series	Uncoded	String – Max=1050	IMF
Series		C	TITLE	Short title	Uncoded	String – Max=200	IMF
Series	1.1	M	UNIT_MULT	Unit multiplier	CL_UNIT_MULT	String - Min=1; Max=2	SDMX
Series	1.0	M	DECIMALS	Decimals	CL_DECIMALS	String - Min=1; Max=2	SDMX
Series	1.0	C	REF_PERIOD_DETAIL	Reference period detail	CL_REF_PERIOD_DTL	String - Min=1; Max=3	Eurostat
Series	1.10	C	COMPILING_ORG	Compiling organisation	CL_ORGANISATION	String - Min=3; Max=6	IMF
Series	1.10	C	DISS_ORG	Organisation disseminating the data	CL_ORGANISATION	String - Min=3; Max=4	IMF

(1) C/M=Conditional/Mandatory

NB: also the two following primary concepts are part of the DSD:
TIME_PERIOD, the period to which the measured information refers; its presentation is a "Date/time stamp" ObservationalTimePeriod .
OBS_VALUE, field for reporting the actual value of the observation.

SDMX MESSAGE FORMAT

The preferred SDMX format for data messages is SDMX-ML, ideally the 2.1 Compact format and if not possible 2.0 Compact one. Less preferable are the other SDMX-ML 2.0/2.1 formats (Generic, Cross-reference) but they will be preferred to the formats not quoted before.

The OECD will accept other SDMX formats such as SDMX-EDI, SDMX-ML v1.0, but there are less reusable tools, data may take longer to process, and the OECD cannot offer technical assistance.

SDMX TRANSMISSION METHOD

SDMX supports these methods of data transmission:

- Pull method: The collector gets the data via a query
- Push method: The publisher sends the data to the collector in files
- Data hub: The Data-hub method acts as a central data repository. Publishers send data to the hub using push or pull technologies. Collectors later retrieve the data from the hub repository.

The OECD's preferred method for FDI data is :

- Pull from a SDMX web service conforming to the SDMX web service API standards at http://sdmx.org/wp-content/uploads/2013/09/SDMX_2_1-SECTION_07_WebServicesGuidelines_2013-04.pdf
- Push method: The publisher sends the data to the collector in files. See the DATA FLOWS AND ASSOCIATED INFORMATION section for the mailbox where to send the data

If implementing the pull method, the SDMX web service standards should be strongly adhered to. The SDMX-Reference Infrastructure software (SDMX-RI) is a practical way to implement the pull method while following the standards with little or no development required. See the SDMX-REFERENCE INFRASTRUCTURE (SDMX-RI) section below.

SDMX-REFERENCE INFRASTRUCTURE (SDMX-RI)

The SDMX Reference Infrastructure (SDMX-RI) provides a free, open-source SDMX technical implementation. It is a free-standing implementation that requires no development. The source code is also freely available and the application may be customised if needed. It includes:

- a SDMX web service used to query and disseminate data
- a Mapping Assistant tool used to create mappings to transform data structures. It may be used to map existing local data structures to SDMX Data Structure Definitions without having to change the local structures
- Data connectors that link your existing Oracle or SQL Server database to the mappings and SDMX web service

A typical implementation connects the SDMX-RI to the local dissemination data-warehouse, therefore as soon as data is published through to the dissemination data-warehouse it is also available via the SDMX web service.

More details can be found here:
https://webgate.ec.europa.eu/fpfis/mwikis/sdmx/index.php/SDMX_Reference_Infrastructure_SDMX-RI

The OECD promotes and provides technical assistance for implementation of the SDMX Reference Infrastructure (SDMX-RI) for its member countries.

SDMX CONTACTS

TECHNICAL SUPPORT

sdmx.support@oecd.org

SUBJECT-MATTER (FOREIGN DIRECT INVESTMENT)

Emilie Kothe – emilie.kothe@oecd.org

OECD FDI DATA FLOWS AND ASSOCIATED INFORMATION

Countries willing to report FDI data to the OECD using SDMX should use the following dataflows:

Domain	DSD/Registry link	Data flow ID/ Registry link	Data flow description	Push data mailbox
Foreign Direct Investment	**FDI-DSD** https://Registry.SDMX.org	**BMD4_FDI_AL**	This dataflow includes includes annual and quarterly FDI macro-economic aggregates according to the asset/liability principle, to be reported to the OECD every quarters. It also includes corresponding aggregates on a directional basis, for countries who do not report all necessary breakdowns allowing for the conversion into the directional basis.	FDI-SDMX@oecd.org
	FDI-DSD https://Registry.SDMX.org	**BMD4_FDI_DP**	This dataflow includes OECD-BMD4 annual FDI statistics according to the directional principle, to be reported to the OECD.	FDI-SDMX@oecd.org

A detailed composition of OECD-FDI dataflows (including the codification of series) is available in the file '***SDMX-OECD-FDI-Data-codification.xls***' available at the following address: http://www.oecd.org/daf/inv/Reporting-BMD4-FDI-statistics.htm (under 'SDMX' section).