

# Chapter 1

## Connected Cross Reference in Conjunction with Revisions to Commodity Classification

NODA Yosuke

In using statistical data on global trade, the use of SITC, the traded commodity classification system, is unavoidable. In order to preserve SITC as a system which is suitable for economic analysis, SITC has been revised in conjunction with CCCN modifications in order to maintain its cross reference with them. However, the cross references have not necessarily been thoroughly consistent in terms of continuity and connectivity from SITC-R1 through SITC-R2 and into SITC-R3. For this reason, in some cases there have been changes to commodity coverage before and after revisions to commodity classifications, so it is necessary to be very careful when using trade statistics longitudinally. Specifically, it is necessary to be very careful when using annual monetary trade figures and quantities containing revised connection times.

There are cross references between SITC-R1 and SITC-R2, and between SITC-R2 and SITC-R3, created by the UN, which have been compiled in cross reference code tables so that they can be used for longitudinal connections in conjunction with revisions to SITC commodity classifications. The Institute of Developing Economies has modeled cross references based on commodity groupings and subgroupings (created by cutting groups) for these cross reference code tables. A collection of basic items which exist in a closed cross reference in an cross reference code table is a commodity group.

Subgroups based on a method known as "cutting" are critical for organizing cross references. Because the commodity groups and subgroups are determined based on the cutting method, the cutting method can be understood as an cross reference model for grouping and sub-grouping cross reference code tables.

### **Basic model GRT<sub>12</sub>[B]**

The cross reference code table for the SITC-R1 and SITC-R2 commodity classification is based on the cross reference obtained from *Standard International Trade Classification Revision 2*, which is published by the UN statistics bureau. SITC-R2, which is a revision of SITC-R1, essentially maintains the SITC-R1 structure except for (1) revisions made in order to expand the usefulness of classification in light of structural changes in external trade since the 1960s; and (2) revisions which were required in order to expand SITC-R1 as a result of progress in technology. However, the number of basic items has been revised significantly in SITC-R2.

In addition to the fact that this cross reference code table is not necessarily consistent, it is problematic in many areas. The Institute of Developing Economies has created an cross reference code table in which adjustments are made to these problems areas, and has provided this table for use with

trade statistics. The basic model  $GRT_{12}[B]$  covers the cross reference code table adjusted by the Institute of Developing Economies in modeling the cross reference.

#### **Basic model $GRT_{23}[B]$**

The cross reference code table for the SITC-R2 and SITC-R3 commodity classification is based on cross reference obtained from *Standard International Trade Classification Revision 3* which is published by the UN Statistics Bureau. This cross reference code table consists of uncut cross references, so  $GRT_{23}[B]$  is used as the basic model. The individual classification codes used with  $GRT_{23}[B]$  include two types (four digits and five digits) for SITC-R2 and three types (three digits, four digits and five digits) for SITC-R3. Codes which do not have 5 digits are not necessarily detailed classification codes; higher-level classification codes are also used. These include two codes--746 and 747--which are three-digit SITC-R3 individual classification codes.

#### **Cutting model $GRT_{23}[IDE]$**

The basic model  $GRT_{23}[B]$  creates a large number of relationships with cross references belonging to Type 4, as a result of changes to the classification criteria due to the changes made between SITC-R2 and SITC-R3, and as a result of the complex interrelationships due to newly established items. Commodity group types among Group 4 which have large numbers of cross reference factors need to be subgrouped by cutting in order to clarify the subgroup characteristics. The cutting model  $GRT_{23}[IDE]$ , which contains cut factors and commodity subgroups obtained by such cutting of the basic model  $GRT_{23}[B]$ , is a cutting model created by the Institute of Developing Economies.

We have decided not to cut clothing and steel products--groups in which the commodity group characteristics are clear even though there may be a large number of cross reference factors.

The three-digit codes of SITC-R3 which are used in the basic model are kept in  $GRT_{23}[IDE]$  as legacy codes. These three-digit codes are replaced by basic items in a revised version (Version 2) of the cutting model, called  $GRT_{23}[IDE(2)]$ .

#### **Connected model $GRT_{123}[IDE]$**

The cross reference between the SITC-R1 and SITC-R2 commodity classification is organized in the basic model  $GRT_{12}[B]$ , and the relationships between SITC-R2 and SITC-R3 are organized in the basic model  $GRT_{23}[B]$  or the cutting model  $GRT_{23}[IDE]$ .  $GRT_{12}[B]$  and  $GRT_{23}[IDE]$  can be used to determine the cross references from SITC-R1 to SITC-R3, in which the above-mentioned two cross references are connected. This cross reference model is called a connected model. The connected model created by the Institute of Developing Economies is  $GRT_{123}[IDE]$ .  $GRT_{23}[IDE]$  was selected as the cross reference between SITC-R2 and SITC-R3 because it provides more detailed classification of commodity groups than  $GRT_{23}[B]$  does, thus providing a more detailed connection model.

Commodity groups of the  $GRT_{12}[B]$  are

$$GRT_{12}[B]: G_i(j) \quad i=1 \cdots m, j=1 \cdots n_i$$

where  $G_i(j)$ : Commodity groups,  $i$ : Serial number for the group,  $j$ : Serial number for the sub-group.

Commodity groups of  $GRT_{23}[IDE]$  are

$$GRT_{23}[B]: G_i(j) \quad i=1 \cdots m, j=1 \cdots n_i$$

A subgroup "0" indicates a cut factor. The commodity groups of the connected model  $GRT_{123}[IDE]$  are obtained from these two cross reference models, and are expressed as

$$CG_i(j) \quad i=1 \cdots m, j=1 \cdots n_i$$

The connected model  $GRT_{123}[IDE]$  contains relation information as well as cross references, and comprises (1) an index in which the basic items for each SITC version included in the model is sorted in ascending order; and (2) cross reference table of  $GRT_{123}[IDE]$ .

The symbols of the individual items in the cross references of the connected model  $GRT_{123}[IDE]$  and the information they represent are expressed as follows.  $CG_i(j)$ : Connected commodity group,  $i$ : Serial number for the group,  $j$ : Serial number for its subgroups.  $CTp$ : Sub-group cross reference type.  $M$ : Type of cross reference or cross reference model. The cross reference is expressed as 12 for SITC-R1 and SITC-R2 (for the basic model  $GRT_{12}[B]$ ), and is expressed as 23 for SITC-R2 and SITC-R3 (for the cutting model  $GRT_{23}[IDE]$ ).  $G_i(j)$ : Commodity group,  $i$ : Serial number of the group,  $j$ : Serial number of the sub-group.  $Tp$ : Sub-group cross reference type.  $R^{\#}_{1-f}$ : Frequency of SITC-R1 when  $M$  is 12; frequency of SITC-R2

when  $M$  is 23.  $R^{\#}_1$ : SITC-R1 when  $M$  is 12; SITC-R2 when  $M$  is 23.  $R^{\#}_2$ : SITC-R2 when  $M$  is 12; SITC-R3 when  $M$  is 23.  $R^{\#}_{2-f}$ : Frequency of SITC-R2 when  $M$  is 12; frequency of SITC-R3 when  $M$  is 23.

An index in which the basic items for each SITC version are sorted in ascending order is required for determining the applicable connected model from a specific SITC. When a basic item is found, it is possible to determine the connected commodity group to which that basic item belongs, as well as the commodity groups contained in that group. In addition, it is possible to determine the cross reference location for that basic item from the connected model  $GRT_{23}[IDE]$  connected commodity group and commodity group.

The three-digit codes of SITC-R3 which are used in the cutting model are kept in  $GRT_{123}[IDE]$ . These three-digit codes are replaced by basic items in  $GRT_{23}[IDE(2)]$ . This cutting model is incorporated into the connected model  $GRT_{123}[IDE(2)]$ , which does not contain three-digit codes.