

National Accounts



Input-output tables

Draft input-output table for South Africa, 2009

Discussion document: D0404.1

March 2013



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Draft input-output table for South Africa, 2009

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List of abbreviations

CPC	Central Product Classification
EU	European Union
Eurostat	Statistical office of the European Communities
ESA 1995	European System of National Accounts
GDP	Gross domestic product
I-O tables	Input-output tables
ISIC	International Standard Industrial Classification of all Economic Activities
NPISH	Non-profit institutions serving households
nr	Number
SARB	South African Reserve Bank
SARS	South African Revenue Service
SIC	Standard Industrial Classification of all Economic Activities
SNA	The System of National Accounts
Stats SA	Statistics South Africa
SU-tables	Supply and use tables
UN	United Nations
VAT	Value added tax

1. Introduction

An input-output table (I-O table) is a theoretical framework that focuses on the relationship between industries and their production and use of products. It represents the economy in a matrix form by listing the consuming industries as columns, and the supplying industries as rows¹.

This discussion document continues work developed in the previous publication, that was published in March 2012 as a discussion document 'The status of input-output tables for South Africa' (discussion document number: D0404) and is available online at www.statssa.gov.za. It is recommended that the previous discussion document is consulted for a better understanding of the development of the draft I-O table for South Africa.

The draft I-O table published in this discussion document is available separately in Microsoft Excel² spreadsheets, downloadable from www.statssa.gov.za. The draft I-O table is an industry-by-industry table consisting of 50 industries³. It was developed using the supply and use tables (SU-tables) as a basis.

SU-tables are used in the System of National Accounts (SNA) and these tables are regarded as a cornerstone of the National Accounts framework. SU-tables can be used to compile the gross domestic product (GDP) at both constant and current prices. SU-tables allow for detailed analysis of industries and products, although it uses separate classifications for industries and products. The classifications used in the symmetric I-O tables must coincide with the classifications used in the SU-tables (however, only one classification form is used for each type of I-O table)⁴.

The industry-by-industry I-O table will use the industry classification of the country's SU-tables. In the case of South Africa, this will be the Standard Industrial Classification of all Economic Activities (SIC). The industry-by-industry I-O table allows for the analysis of industries within an economy, and shows the dependency of industries in relation to each other.

Differences between SU-tables and I-O tables⁵:

- SU-tables are industry-by-product matrices using both industry and product classifications;
- SU-tables are two separate tables, one describing the supply of commodities and the other describing the use of commodities; and
- An I-O table has both supply and use data in a single symmetric matrix.

¹ United Nations – Studies in Methods, Handbook of Input-Output table compilation and analysis, 1999

² Microsoft Excel 2007

³ See annexure 1

⁴ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

⁵ Turkish Statistical Institute – Supply –Use and Input-Output tables, backward and forward linkages of the Turkish economy

The purpose of this discussion document is to:

- Present the draft I-O table for South Africa (for the 2009 reference year);
- Explain the methodology used in the compilation of the draft I-O table and the I-O table framework for South Africa; and
- Provide recommendations for the way forward regarding the compilation of future I-O tables by Statistics South Africa (Stats SA).

2. Compilation of input-output tables

In order to develop the draft I-O table for South Africa, it was necessary to examine other countries' experiences in I-O table compilation first to gain experience and prepare guidelines to assist with the compilation of the draft I-O table for South Africa. Following this research⁶, Stats SA began the compilation of the draft I-O table for South Africa. This was undertaken using an approach sanctioned by Eurostat⁷. Eurostat is the statistical organisation that represents the European Union (EU) and offers guidelines for the development of National Accounts and I-O table compilation to its member countries. It is Eurostat's goal to develop quality data for the European System of National Accounts (ESA 1995)⁸.

The compilation method undertaken by Stats SA was to transform the existing SU-tables into an I-O table; the advantages of transforming existing SU-tables were numerous⁹, including cost factors, and the success attained by Eurostat countries using this process assisted the decision to pursue this method. This chapter will discuss the compilation of the draft I-O table for South Africa. The draft I-O table required some assumptions for the compilation thereof and these will be discussed within this chapter.

2.1 Background on input-output table methodology

For a detailed examination of the methodologies examined in the compilation of the draft I-O table for South Africa, please refer to the previous publication, published in March 2012 as a discussion document '*The status of input-output tables for South Africa*' (discussion document nr: D0404), it is available online at www.statssa.gov.za. This section is a summation of more detailed research covered in the previous discussion document (nr: D0404).

The focus of Stats SA was to firstly develop the industry-by-industry I-O tables. The feasibility of compiling product-by-product I-O tables will also be examined and investigated further as a future improvement. According to Eurostat, SU-tables can be used to form a basis which, once certain assumptions are applied, will allow symmetric I-O tables to be compiled¹⁰.

The industry-by-industry I-O tables are regarded as symmetric I-O tables because of the matrix form used. The row and column totals of the corresponding industry or product¹¹ are equal. This implies that for each industry or product, input must equal output; hence total supply must equal total use. The total output of supply and use will therefore equal those within the existing SU-tables¹².

⁶ Please consult Statistics South Africa – The status of input-output tables for South Africa (D0404, March 2012)

⁷ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables,

⁸ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

⁹ Please consult Statistics South Africa – The status of input-output tables for South Africa (D0404), March 2012

¹⁰ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

¹¹ In the case of a product-by-product I-O table

¹² Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

In order to transform SU-tables into an I-O table¹³, certain mathematical assumptions need to be applied to SU-tables data. According to Eurostat, the transformation can be based on four different core assumptions. Two of the assumptions focus on the transformation of SU-tables into an industry-by-industry I-O table, while the other two assumptions focus on transforming SU-tables into a product-by-product I-O table. It is also possible to use a combination of the two industry-based assumptions, or the two product-based assumptions to better fit an economy's output or production structure. The four core assumptions used by Eurostat are¹⁴:

- **Product technology assumption Model A** - this model assumes that each product is produced in its own specific way, irrespective of the industry where it is produced. Negative values may occur;
- **Industry technology assumption Model B** - this model assumes that individual industries have unique ways of production, irrespective of any product mix produced. Negative values will not occur;
- **Fixed industry-output structure assumption Model C** - this model assumes each industry, despite its product mix, has a unique output structure. Negative values may occur; and
- **Fixed product-output structure assumption Model D** - this model assumes that each product has its own specific output structure, regardless of which industry produces it. Negative values will not occur

Models A and B are used for the compilation of a product-by-product I-O table. The transformation to an industry-by-industry I-O table is primarily based on the output structure and models C and D are used¹⁵. Stats SA used Model C for the compilation of the draft I-O table for South Africa.

The total supply and total use by industry are still the same in the I-O table when compared to the SU-tables. The major conceptual difference between an I-O table and the SU-tables framework is that, within the SU-tables framework, the relationship between industries and products is examined, whereas an I-O table framework links industries to industries (or industry-production output), or in the case of a product-by-product I-O table, it links products to products (examining similar production units)¹⁶.

In order to compile the I-O table framework from SU-tables the following data is required¹⁷:

- Supply table at basic prices; and
- Use table at basic prices

The intermediate consumption matrix¹⁸ at basic prices is critical for the transformation and compilation of the I-O table framework. The use table is typically reflected in purchasers' prices. Hence, in order to continue with the transformation of SU-tables into I-O tables, the intermediate consumption matrix needs to be converted to basic prices. This presents a problem due to a lack of available data and therefore certain assumptions need to be made in order for the conversion to basic prices to take place. This is dealt with in Chapter 2.2 of this discussion document.

¹³ Either product-by-product or industry-by-industry

¹⁴ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

¹⁵ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

¹⁶ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

¹⁷ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

¹⁸ Primary matrix of the use table

The 1993 SNA defines purchasers' prices as 'the amount paid by the purchaser, excluding any deductible VAT or similar deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser; the purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place¹⁹.' The 1993 SNA defines basic prices as 'the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, plus any subsidy receivable on that unit as a consequence of its production or sale; it excludes any transport charges invoiced separately by the producer²⁰.'

To re-compile the intermediate consumption matrix²¹ from purchasers' prices to basic prices, the following must be subtracted from the purchasers' prices:

- Taxes on products;
- Subsidies on products²²;
- Trade margins; and
- Transport margins.

The process described above would result in the purchasers' price data being changed to basic price levels. Once the use table (including the intermediate consumption matrix) has been changed to basic prices, it can be transformed into an I-O table. An industry-by-industry I-O table is compiled by transferring inputs and outputs across rows. The result of this process, is the product classification of the rows (from the SU-tables) being transformed into the industry classification of the columns. Two different assumption models are used for this approach; either the assumption of fixed industry output structure (Model C), or the assumption of the fixed product output structure (Model D)²³. The fixed industry-output structure (Model C) will be discussed below as this is the model that Stats SA based the draft I-O-table framework on, and therefore will provide a brief background as to the transformation process of the draft I-O table for South Africa.

The fixed industry output structure (Model C) states that 'each industry has its own specific output structure, irrespective of its product mix'²⁴. To compile an industry-by-industry I-O table using this assumption, all secondary or off-diagonal production output from an industry must be treated as primary production. Table 1 below contains an example of SU-table data, whilst Table 2 demonstrates the procedure described above²⁵.

¹⁹ Organisation for Economic Cooperation and Development - System of National Accounts 1993

²⁰ Organisation for Economic Cooperation and Development - System of National Accounts 1993

²¹ This process is also applied to the final demand matrix in the use table

²² Subsidies are added to the purchasers' prices

²³ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

²⁴ Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

²⁵ Please consult Statistics South Africa – The status of input-output tables for South Africa (D0404, March 2012)

Table 1: Model C – industry-by-industry input-output table compilation (example)

	Use table				Supply table		
	Agriculture	Manufacturing	Final demand	Total	Agriculture	Manufacturing	Total
Agriculture products	0	70	50	120	120	0	120
Manufacturing products	62	40	140	242	22	220	242
Wages and salaries	50	30		80			
Operating surplus	30	80		110			
Total	142	220	190		142	220	

Source: Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

In the above table (Table 1), using agriculture as an example, the 22 units of manufacturing output produced by the agricultural industry need to be redistributed as primary output of the agricultural industry. This is because of the assumption of fixed industrial output structure (the products being produced must be regarded as being sold in the same manner). Table 2 shows the transformation matrix using this approach.

Table 2: Model C - industry-by-industry input-output table compilation (example)

	Use table				Supply table		
	Agriculture	Manufacturing	Final demand	Total	Agriculture	Manufacturing	Total
Agriculture products	0	+12,8	+9,2	22	+22	0	22
Manufacturing products	0	-12,8	-9,2	-22	-22	0	-22
Wages and salaries	0						
Operating surplus	0						
Total	0	0	0		0	0	

Source: Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

On the use table, manufacturing products is added to agriculture products. This is because it is treated with the agricultural output structure from the agricultural industry. The distribution of manufacturing products produced within agriculture is determined by using the same proportions as the primary products (agricultural products in this example). Therefore, mathematically it is row 1, column 1, 2 and 3 divided by the total output of the row multiplied by the transferred product (22 manufacturing products in this example). Table 3 below shows the SU-tables after the Model C industry-by-industry I-O table coefficients have been applied.

Table 3: Model C - industry-by-industry input-output table compilation (example)

	Use table				Supply table		
	Agriculture	Manufacturing	Final demand	Total	Agriculture	Manufacturing	Total
Agriculture products	0	82,8	59,2	142	142	0	142
Manufacturing products	62	27,2	130,8	220	0	220	220
Wages and salaries	50	30		80			
Operating surplus	30	80		110			
Total	142	220	190		142	220	

Source: Eurostat – Eurostat Manual of Supply, Use and Input-Output Tables, 2008

For a more detailed examination of the mathematical steps for Model C and the other Models please consult the discussion document published in March 2012 (nr: D0404). In a real-world scenario, the compilation of an I-O table is made more complex by rectangular SU-tables. In South Africa, the published SU-tables contain 171 industries and 104 products, while the unpublished SU-tables contain 292 industries and 105 products. The industries are classified according to SIC, while the products are classified according to the Central Product Classification (CPC).

South Africa has more industries than products in current SU-tables and it is therefore necessary for South Africa to assign multiple industries to a single product, or in other words, aggregate the industries until they link to products²⁶. This would reduce the number of industries represented and in effect, allow products and industries to link directly. Unfortunately, the disadvantage of this would be mixing industry input-output structures and product technologies. Care must be taken when aggregating industries to make sure they are compatible. The annexure contains the current I-O table industry classifications used within the draft I-O table for South Africa.

²⁶ In order to maintain the most accurate product and industry links some products are aggregated

2.2. Methodology adopted for the compilation of the input-output table for South Africa

The compilation of the draft I-O table for South Africa will focus on the conversion and transformation of SU-tables into an I-O table. The compilation of an I-O table using transformed SU-tables requires a number of fundamental steps:

- SU-tables need to be converted to square tables;
- The square SU-tables need to be balanced without a discrepancy;
- Imports need to be transferred from the supply table to final demand;
- Purchases by non-residents domestically and purchases by residents abroad need to be distributed based on data provided by the Tourism Satellite Account;
- The square intermediate consumption matrix²⁷ must be converted to basic prices;
- Either Model A, B, C or D must then be mathematically applied across the square supply and use (at basic prices) tables²⁸; and
- The resulting use table needs to be balanced, resulting in an I-O table.

Following the compilation of the I-O table, both direct and indirect coefficients need to be calculated allowing the I-O table to be fully utilised in an analytical capacity. In the current industry-by-industry I-O table the resulting analysis would be able to provide data on, among others:

- The effects of fiscal policies; and
- The effects of taxation and subsidies on industries and the economy as a whole.

The compilation of the South African draft I-O table is a draft compilation, using the theoretical backdrop sanctioned by Eurostat. The draft I-O table for South Africa are based on the 2009 SU-tables. The SU-tables have been aggregated to 50 industries by 50 products (from the original 292 industries and 105 products). The products are classified according to the CPC (version 2), whereas the industries are classified according to SIC (5th edition).

These two classifications require certain aggregations to directly link some industries and products, unlike the CPC (version 2) and the International Standard Industrial Classification of all Economic Activities (ISIC), 4th revision. The result is that currently²⁹ the 50 industries by 50 products is the most reliable and accurate linking of SIC (5th edition) and CPC (version 2) possible.

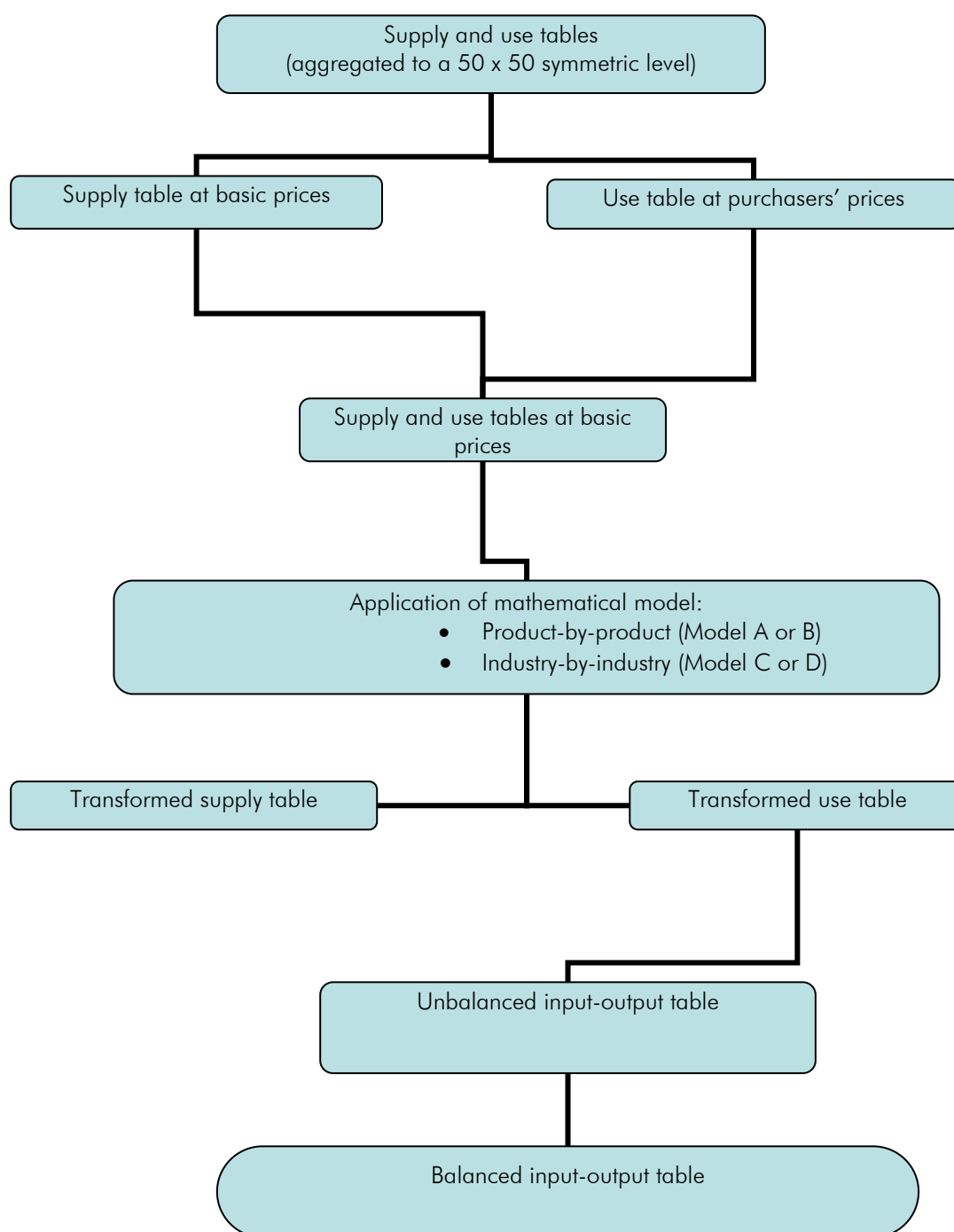
To develop and compile the draft I-O table for South Africa the development of a draft I-O table compilation framework was required. The I-O table framework ultimately provides the direct link between the SU-tables and the I-O table, and being a system allows the development of I-O tables on an annual basis. Figure 1 below is a representative diagram of the compilation process for an I-O table (it outlines the core functions of the I-O table framework).

²⁷ The final demand matrix is also converted to basic prices

²⁸ Stats SA used Model C to compile the draft input-output table for South Africa

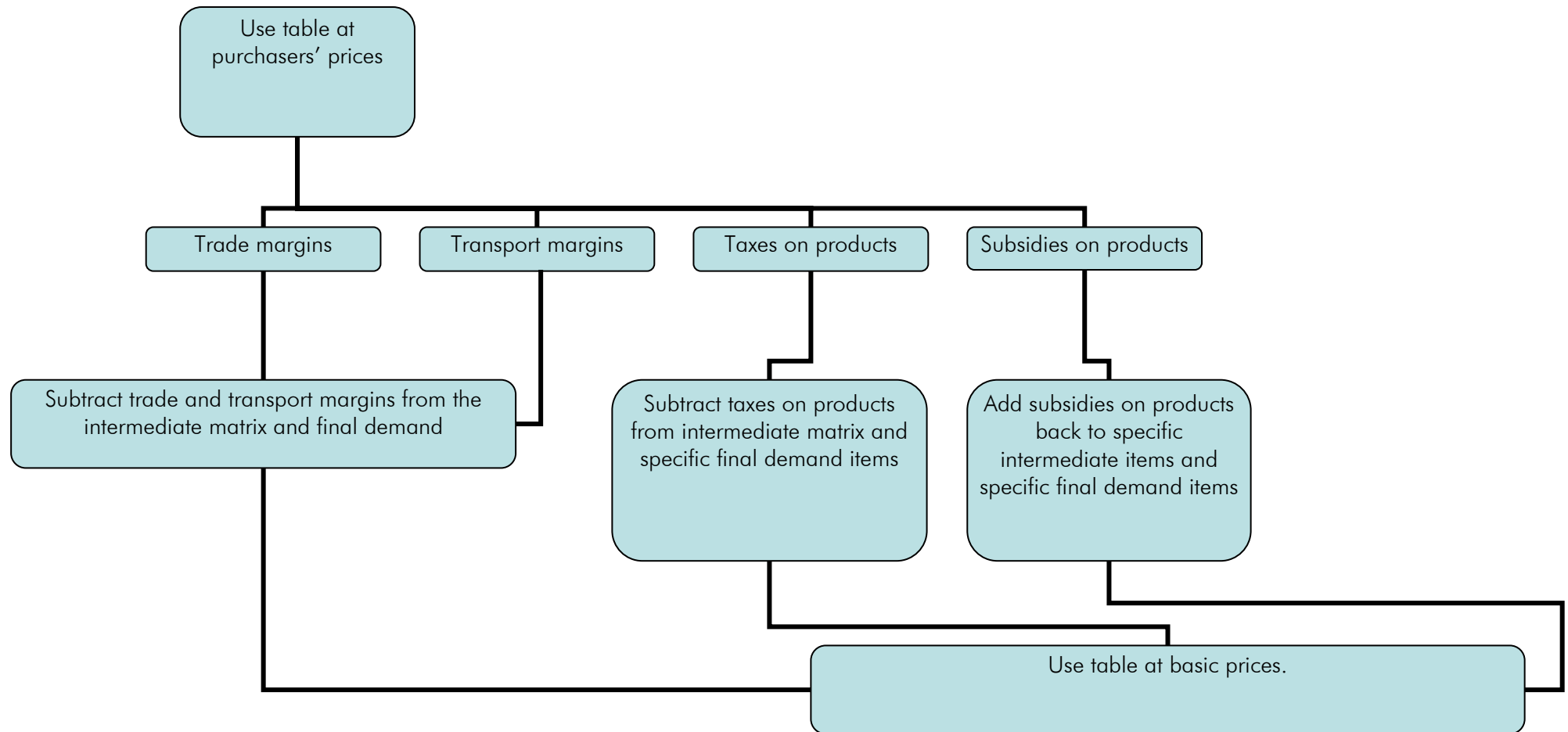
²⁹ March 2013

Figure 1: A visual representation of the input-output table compilation process



The use table is published at purchasers' prices, while an I-O table is published at basic prices. To begin the mathematical application of the four I-O models, the use table will need to be converted into basic prices. Figure 2 below details the process of converting the use table into basic prices.

Figure 2: A visual representation of converting the use table to basic prices



In order to remove taxes on products from the use table the identified tax sub-groups were treated (and removed) individually, this allowed a greater control and improved accuracy as assumptions specific to various taxes could be applied, the tax sub-groups are:

1. Value added tax (VAT);
2. Excise duty;
3. Customs duty; and
4. Other taxes.

The intermediate consumption matrix at basic prices forms the basis for the transformation model to be applied. The I-O table framework developed has three stages:

- The conversion of the use table (intermediate and final demand matrices) into basic prices;
- The application of Model C; and
- The balancing of the unbalanced I-O table (the converted use table).

The models, as seen in chapter 2.1 of this discussion document, are effectively formulas applied in slightly different ways to the supply table, which shows the transfer of output to or from various industries. This transfer is then distributed into the use table. The distribution's structure is what varies per model.

The unbalanced I-O table was checked for consistency and correctness. There is a possibility that negative numbers can occur with Model C, therefore careful checks were put in place to test for negative numbers. Once the unbalanced draft I-O table was completed, the I-O table was subsequently balanced. This I-O table (shown in chapter 3) was then used to create direct, indirect coefficients and the GDP multiplier³⁰, for use in analytical functions.

The draft I-O table for South Africa is based on the 2009 SU-tables, however, the I-O table framework has been constructed with the intention of allowing future I-O tables to be produced to allow for a time series to be created.

³⁰ The input-output table, direct and indirect coefficients, GDP multipliers etc are available in Microsoft Excel 2007 spreadsheets for ease of use

3. The draft input-output table for South Africa, 2009

The draft industry-by-industry I-O table for South Africa for the reference year 2009 is presented in this chapter. This draft I-O table is available freely on the web for download in Microsoft Excel³¹ spreadsheet format (www.statssa.gov.za).

The matrix consists of 50 industries and it is classified according to SIC (5th edition). Each industry is allocated an industry number. The industry number (ranging from 1 to 50) is aimed at making it easy to follow the various industries within the matrix. For a complete list of the industries classified, please see the annexure in this discussion document (the industry descriptions have been shortened in Table 4 to allow for easier viewing).

³¹ Microsoft Excel 2007

Table 4: Draft industry-by-industry input-output table for South Africa, 2009

Industry number	Industry description	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10
I1	Agriculture	2 585	248	26	7	15	1	47 926	5 712	3 192	29
I2	Forestry	0	0	0	0	0	0	0	0	0	0
I3	Fishing	0	0	0	0	0	0	1 797	0	0	0
I4	Coal; lignite	19	0	0	9	3 329	705	755	105	322	82
I5	Metal ores	0	0	0	0	3	0	0	0	0	0
I6	Other mining; quarrying	928	89	9	78	346	39	300	0	10	0
I7	Food	12 598	1 210	125	5	7	0	34 108	1 822	26	0
I8	Beverages; tobacco	0	0	0	118	239	12	190	9 620	0	0
I9	Spinning; textiles	1 193	115	12	52	399	50	0	119	3 569	4 151
I10	Knitted fabrics, fur	0	0	0	54	270	33	0	0	54	1 728
I11	Leather; luggage	0	0	0	39	82	10	0	0	33	0
I12	Footwear	0	0	0	16	250	41	0	0	0	1
I13	Wood	388	26	1	55	2 357	92	2 188	1 237	115	43
I14	Paper	30	12	3	20	137	36	2 563	1 345	180	90
I15	Publishing; printing	6	2	1	3	19	3	56	4	18	5
I16	Coke oven; petroleum	4 552	437	47	501	2 782	538	17	0	0	0
I17	Basic chemicals; nuclear fuel	0	0	0	76	1 487	164	1 636	1 128	1 671	285
I18	Other chemicals	12 163	1 170	121	1 288	8 700	1 368	608	204	514	211
I19	Rubber	203	19	3	441	1 423	249	0	0	12	30
I20	Plastic	166	16	2	97	468	92	3 966	1 461	265	157
I21	Glass; glass products	13	1	0	12	55	7	178	1 303	1	0
I22	Non-metallic minerals	216	22	3	62	699	45	0	0	0	0
I23	Furniture	0	0	0	2	17	3	0	0	0	0
I24	Recycling; nec	0	0	0	23	652	102	47	6	6	7
I25	Basic iron; steel	86	8	0	73	992	127	0	0	105	2
I26	Precious; non-ferrous metals	15	1	0	14	266	26	2	0	41	0
I27	Structural metal products	2 489	235	22	943	7 158	832	0	26	30	42
I28	General; special machinery	1 039	100	10	854	6 617	971	0	0	0	0

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description										
		I1	I2	I3	I4	I5	I6	I7	I8	I9	I10
I29	Electrical machinery	111	10	1	408	1 341	187	0	0	5	0
I30	Electronic equipment	0	0	0	88	197	28	0	0	0	0
I31	Medical; other appliances	0	0	0	4	21	3	0	0	0	0
I32	Motor vehicles; coachwork	985	95	10	487	2 028	360	258	58	17	17
I33	Electricity, gas; hot water	1 342	129	13	1 100	5 792	1 389	2 864	265	558	219
I34	Distribution of water	320	31	4	215	1 431	174	222	771	18	8
I35	Construction	171	16	2	334	1 630	205	513	227	21	104
I36	Trade	6 955	668	69	1 023	6 363	937	11 900	4 390	1 712	1 390
I37	Hotels; restaurants	3	0	0	20	66	10	56	20	7	6
I38	Transport	14 856	1 428	149	14 878	15 495	6 353	11 546	1 900	941	628
I39	Post; Telecommunications	127	11	0	182	525	216	1 002	252	288	399
I40	Financial intermediation	2 615	74	198	958	1 584	2 083	1 195	322	310	464
I41	Insurance; pension funding	1 447	139	14	198	513	106	415	79	85	70
I42	Auxiliary financial	0	0	0	992	2 887	1 866	0	0	0	0
I43	Real estate activities	38	3	0	30	398	256	1 885	394	329	282
I44	Renting of machinery	0	0	0	0	0	0	341	38	21	14
I45	Research; development	0	0	0	0	0	0	15	4	7	2
I46	Business; computer activities	180	17	2	608	1 752	709	7 184	1 492	444	276
I47	Other community activities	0	0	0	0	0	0	0	0	0	0
I48	Education	0	0	0	0	1	2	55	21	6	5
I49	Health; social work	3 428	329	35	0	0	0	0	0	0	0
I50	Other services; nec	2 132	205	20	1 861	4 858	1 762	14 559	7 670	2 793	1 708
	Total	73 397	6 870	901	28 224	85 650	22 192	150 349	41 997	17 721	12 458
	Net taxes on products	1 652	160	16	307	1 558	278	1 279	3 906	584	811
	Gross value added	52 835	8 460	2 294	42 075	128 153	26 095	44 876	20 546	3 629	4 633
	Compensation of employees	15 529	1 658	792	12 919	50 673	9 927	24 632	8 514	2 774	4 096
	Other taxes less subsidies	-488	110	13	463	1 114	149	-170	206	1	18
	Gross operating surplus	37 794	6 693	1 489	28 693	76 366	16 020	20 414	11 826	854	520
	Total output	127 884	15 491	3 211	70 607	215 361	48 565	196 503	66 449	21 934	17 903

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I11	I12	I13	I14	I15	I16	I17	I18	I19	I20
I1	Agriculture	2 693	393	19	78	44	66	78	384	721	8
I2	Forestry	0	0	4 799	6 233	53	0	0	33	25	0
I3	Fishing	0	0	0	0	0	0	0	0	0	0
I4	Coal; lignite	8	1	177	2 990	23	7 878	392	120	78	14
I5	Metal ores	0	0	27	0	1	35	0	0	0	0
I6	Other mining; quarrying	0	0	257	1	138	58 133	3 226	1 779	0	263
I7	Food	1	0	2	247	0	0	516	2 251	0	0
I8	Beverages; tobacco	0	0	0	0	0	0	0	0	0	0
I9	Spinning; textiles	14	184	32	365	207	11	0	427	443	2
I10	Knitted fabrics, fur	0	0	0	0	0	0	0	0	0	0
I11	Leather; luggage	251	1 106	0	30	1	0	0	0	0	0
I12	Footwear	2	350	0	0	0	0	0	0	0	0
I13	Wood	5	31	5 470	718	48	878	245	1 336	10	52
I14	Paper	14	65	237	12 861	5 546	179	189	2 251	14	187
I15	Publishing; printing	1	3	7	108	1 317	11	7	80	4	22
I16	Coke oven; petroleum	0	0	10	158	23	474	2 784	814	151	32
I17	Basic chemicals; nuclear fuel	242	401	216	2 517	141	1 699	33 545	15 062	3 676	8 367
I18	Other chemicals	42	36	515	1 674	1 435	76	1 996	11 120	966	634
I19	Rubber	1	274	86	1	23	0	33	0	418	105
I20	Plastic	25	45	301	130	178	211	283	2 638	137	1 015
I21	Glass; glass products	0	0	71	0	12	3	5	633	0	3
I22	Non-metallic minerals	0	0	33	21	1	55	0	99	0	13
I23	Furniture	0	0	0	1	0	0	0	0	0	0
I24	Recycling; nec	1	2	80	13	206	6	54	42	3	12
I25	Basic iron; steel	2	18	314	0	1	76	135	154	324	97
I26	Precious; non-ferrous metals	0	0	72	45	61	218	9	101	0	18
I27	Structural metal products	101	75	424	62	264	0	737	41	142	546
I28	General; special machinery	0	0	10	0	0	0	1	0	0	1

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I11	I12	I13	I14	I15	I16	I17	I18	I19	I20
I29	Electrical machinery	0	0	0	0	0	0	2	0	0	0
I30	Electronic equipment	0	0	0	0	193	0	12	0	0	0
I31	Medical; other appliances	0	0	0	0	0	0	0	1	0	0
I32	Motor vehicles; coachwork	3	5	66	36	42	48	38	111	10	31
I33	Electricity, gas; hot water	40	53	400	976	196	718	5 913	2 382	253	373
I34	Distribution of water	2	2	13	28	7	28	66	38	9	14
I35	Construction	6	67	168	40	1 022	4 204	383	94	8	81
I36	Trade	319	458	1 400	3 923	2 053	3 496	5 656	6 442	991	1 705
I37	Hotels; restaurants	2	3	14	19	32	19	34	44	7	64
I38	Transport	141	290	1 948	2 246	1 336	2 093	3 045	6 557	601	1 057
I39	Post; Telecommunications	41	124	331	305	834	64	637	753	110	286
I40	Financial intermediation	86	114	417	153	464	101	153	1 379	125	285
I41	Insurance; pension funding	13	21	120	117	101	97	185	209	38	90
I42	Auxiliary financial	0	0	0	0	0	0	0	0	0	0
I43	Real estate activities	44	100	362	490	598	262	464	804	155	441
I44	Renting of machinery	3	4	22	237	52	24	68	84	20	15
I45	Research; development	3	2	2	27	31	81	15	39	1	3
I46	Business; computer activities	64	107	638	908	1 282	852	1 707	6 528	495	394
I47	Other community activities	0	0	0	0	0	0	0	0	0	0
I48	Education	2	1	6	22	15	1	28	47	8	9
I49	Health; social work	0	0	0	0	0	0	0	0	0	0
I50	Other services; nec	570	597	2 173	9 140	4 256	2 904	6 049	8 314	698	2 628
	Total	4 741	4 934	21 237	46 919	22 237	85 000	68 689	73 188	10 640	18 870
	Net taxes on products	31	461	110	463	190	316	1 267	757	181	188
	Gross value added	433	1 566	8 307	10 706	10 647	24 365	18 510	22 220	3 973	9 932
	Compensation of employees	377	974	6 116	6 038	9 613	2 808	7 618	13 847	2 465	8 821
	Other taxes less subsidies	-16	28	43	-73	91	243	-1 870	163	-19	-95
	Gross operating surplus	72	564	2 148	4 741	944	21 314	12 762	8 210	1 526	1 207
	Total output	5 205	6 961	29 654	58 088	33 075	109 681	88 466	96 166	14 794	28 990

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I21	I22	I23	I24	I25	I26	I27	I28	I29	I30
I1	Agriculture	13	57	20	1 060	9	34	36	98	68	0
I2	Forestry	0	0	347	24	0	0	0	0	0	0
I3	Fishing	0	0	0	58	0	0	0	0	0	0
I4	Coal; lignite	27	1 608	34	17	2 246	14	62	34	20	4
I5	Metal ores	0	0	0	414	41 960	12 258	4 189	3 534	4 789	1 204
I6	Other mining; quarrying	918	7 655	2	4 600	153	48	19	204	0	3
I7	Food	0	0	0	552	0	0	0	13	0	0
I8	Beverages; tobacco	0	0	0	1	0	0	0	0	0	0
I9	Spinning; textiles	0	1	311	240	0	0	8	80	24	30
I10	Knitted fabrics, fur	0	0	0	94	0	0	0	0	0	0
I11	Leather; luggage	0	0	354	20	0	0	0	0	0	0
I12	Footwear	0	0	0	0	0	0	0	0	0	0
I13	Wood	52	341	2 935	124	171	18	282	126	44	68
I14	Paper	36	307	118	384	52	15	76	165	93	33
I15	Publishing; printing	2	6	5	4	5	2	12	22	10	3
I16	Coke oven; petroleum	0	30	0	30	3 526	246	2	18	608	0
I17	Basic chemicals; nuclear fuel	85	289	465	675	661	2 808	166	712	798	109
I18	Other chemicals	38	674	306	95	554	39	668	244	292	4
I19	Rubber	0	1	52	472	0	0	18	286	4	39
I20	Plastic	75	139	312	405	68	16	69	315	780	78
I21	Glass; glass products	1 622	17	113	8	0	0	1	68	39	1
I22	Non-metallic minerals	0	3 139	19	171	76	5	57	42	29	0
I23	Furniture	0	0	159	0	4	0	0	0	0	0
I24	Recycling; nec	2	17	31	6 553	4 520	472	1 091	267	103	2
I25	Basic iron; steel	0	106	426	140	8 084	754	18 611	11 656	3 446	209
I26	Precious; non-ferrous metals	0	54	188	419	6 188	2 393	4 938	699	3 869	23
I27	Structural metal products	0	121	1 484	43	70	0	3 323	2 380	1 465	75
I28	General; special machinery	0	0	1	3	52	0	349	3 531	299	0

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I21	I22	I23	I24	I25	I26	I27	I28	I29	I30
I29	Electrical machinery	0	0	2	31	11	0	202	2 114	1 528	674
I30	Electronic equipment	0	0	0	16	10	0	48	3 874	2 786	2 510
I31	Medical; other appliances	0	0	0	1	0	0	0	0	0	0
I32	Motor vehicles; coachwork	23	55	20	36	35	8	188	185	161	4
I33	Electricity, gas; hot water	480	775	171	267	3 697	1 615	725	466	323	44
I34	Distribution of water	11	20	6	13	111	60	19	13	12	2
I35	Construction	8	40	11	45	332	118	298	183	59	74
I36	Trade	492	1 732	1 275	1 748	4 739	1 075	5 377	4 232	2 796	445
I37	Hotels; restaurants	5	24	6	15	8	3	26	54	35	7
I38	Transport	328	2 821	1 234	735	4 082	334	1 602	1 806	938	313
I39	Post; Telecommunications	83	228	229	183	189	66	810	987	371	129
I40	Financial intermediation	79	375	338	357	167	138	854	1 062	339	75
I41	Insurance; pension funding	22	76	70	53	199	36	167	194	109	22
I42	Auxiliary financial	0	0	0	0	0	0	0	0	0	0
I43	Real estate activities	77	186	404	280	191	64	859	808	338	151
I44	Renting of machinery	16	37	16	20	38	8	68	69	21	11
I45	Research; development	3	2	1	7	17	2	8	49	3	51
I46	Business; computer activities	247	688	438	356	1 485	197	904	962	984	141
I47	Other community activities	0	0	0	0	0	0	0	0	0	0
I48	Education	3	5	3	3	20	3	11	37	438	4
I49	Health; social work	0	0	0	0	0	0	0	0	0	0
I50	Other services; nec	542	2 622	1 935	1 113	6 620	1 530	4 023	4 564	3 097	525
	Total	5 288	24 247	13 841	21 885	90 351	24 379	50 168	46 153	31 119	7 067
	Net taxes on products	48	138	133	182	1 346	178	256	301	355	39
	Gross value added	2 296	10 595	3 377	14 285	19 168	11 841	19 766	20 661	7 928	2 454
	Compensation of employees	1 670	3 353	3 044	3 374	11 168	2 661	16 588	13 619	6 773	1 746
	Other taxes less subsidies	9	-21	-2	2	32	-48	-121	-707	44	-4
	Gross operating surplus	617	7 263	335	10 909	7 968	9 229	3 298	7 750	1 111	713
	Total output	7 631	34 980	17 350	36 352	110 865	36 398	70 189	67 115	39 403	9 560

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I31	I32	I33	I34	I35	I36	I37	I38	I39	I40
I1	Agriculture	15	183	9	0	5	21	245	2	2	0
I2	Forestry	0	0	0	0	0	0	0	0	0	0
I3	Fishing	0	0	1	0	0	0	78	2	2	0
I4	Coal; lignite	0	10	19 722	1 845	0	0	62	140	131	0
I5	Metal ores	0	8 565	0	0	0	0	0	0	0	0
I6	Other mining; quarrying	0	62	23	17	5 968	0	12	490	460	0
I7	Food	0	0	63	0	0	1 033	2 649	69	64	0
I8	Beverages; tobacco	0	0	0	0	0	0	5 359	1 177	1 105	0
I9	Spinning; textiles	34	1 593	0	0	1 440	0	67	571	536	4
I10	Knitted fabrics, fur	0	0	14	0	0	872	11	86	81	1
I11	Leather; luggage	0	3 255	0	0	0	0	0	0	0	0
I12	Footwear	0	0	0	7	256	93	0	0	0	0
I13	Wood	7	865	101	33	2 911	1 614	49	757	641	0
I14	Paper	30	741	41	7	430	13 372	43	1 120	946	112
I15	Publishing; printing	3	30	29	5	78	12 245	97	255	258	291
I16	Coke oven; petroleum	0	16	923	107	6 940	7 445	107	17 113	16 063	212
I17	Basic chemicals; nuclear fuel	137	1 257	56	197	0	0	0	96	90	1
I18	Other chemicals	19	1 725	191	634	4 020	2 418	526	1 703	1 599	109
I19	Rubber	7	2 130	4	39	0	58	0	2 377	2 231	19
I20	Plastic	168	2 275	4	7	6 138	6 101	0	225	169	0
I21	Glass; glass products	156	657	40	18	832	29	32	40	38	0
I22	Non-metallic minerals	0	1 006	48	37	25 852	579	98	713	669	3
I23	Furniture	0	0	0	7	178	850	14	68	64	35
I24	Recycling; nec	4	85	7	3	35	1 119	35	418	364	1 188
I25	Basic iron; steel	100	16 665	414	130	14 098	0	0	811	761	0
I26	Precious; non-ferrous metals	76	7 336	0	34	0	0	0	11	11	0
I27	Structural metal products	125	4 651	456	447	24 095	3 775	163	645	606	55
I28	General; special machinery	23	2 467	265	551	1 006	3 620	3	740	695	1

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description										
		I31	I32	I33	I34	I35	I36	I37	I38	I39	I40
I29	Electrical machinery	118	1 574	2 300	211	9 626	687	37	689	646	11
I30	Electronic equipment	1 065	4 373	0	0	0	664	0	407	382	160
I31	Medical; other appliances	64	0	1	13	0	0	2	1	1	15
I32	Motor vehicles; coachwork	14	31 395	86	30	0	7 545	0	6 026	3 819	50
I33	Electricity, gas; hot water	75	1 291	6 297	326	713	3 637	917	2 328	406	487
I34	Distribution of water	3	36	8	11 122	63	1 438	63	207	36	33
I35	Construction	22	391	21	243	13 160	468	422	6 370	3 763	69
I36	Trade	334	15 184	1 309	445	21 162	18 105	2 169	16 735	13 002	653
I37	Hotels; restaurants	13	75	39	10	358	583	179	2 262	1 270	25
I38	Transport	222	4 861	1 719	490	6 307	20 269	2 300	16 942	8 384	768
I39	Post; Telecommunications	248	1 018	312	195	5 370	18 777	2 816	5 592	2 350	4 661
I40	Financial intermediation	564	624	2 780	1 293	2 610	16 242	850	4 802	1 590	6 581
I41	Insurance; pension funding	35	289	223	91	1 115	3 502	160	3 095	196	504
I42	Auxiliary financial	0	0	0	0	0	0	0	0	0	27 099
I43	Real estate activities	240	1 194	66	48	2 764	29 603	2 584	3 962	2 791	2 649
I44	Renting of machinery	13	100	9	72	1 792	2 222	54	2 686	481	404
I45	Research; development	3	105	0	0	0	6	0	37	10	472
I46	Business; computer activities	144	4 259	1 310	502	20 478	24 201	2 552	12 414	8 515	2 550
I47	Other community activities	0	0	0	0	0	0	0	922	608	75
I48	Education	5	31	17	80	0	235	26	452	64	1 026
I49	Health; social work	0	0	35	0	0	0	0	973	642	1 786
I50	Other services; nec	683	16 941	80	133	3 967	1 170	2 398	12 460	8 227	427
	Total	4 767	139 322	39 022	19 429	183 766	204 598	27 179	128 990	84 770	52 533
	Net taxes on products	34	2 485	270	53	2 427	2 228	1 781	4 700	4 411	41
	Gross value added	1 654	24 253	48 689	11 732	73 143	211 425	23 501	127 614	58 811	109 033
	Compensation of employees	869	17 546	16 748	2 970	32 338	114 834	7 821	43 080	18 729	45 498
	Other taxes less subsidies	29	-462	-509	-544	758	4 583	494	1 406	510	1 613
	Gross operating surplus	755	7 170	32 450	9 307	40 047	92 007	15 185	83 127	39 572	61 922
	Total output	6 455	166 060	87 981	31 214	259 336	418 250	52 460	261 304	147 992	161 607

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I41	I42	I43	I44	I45	I46	I47	I48	I49	I50
I1	Agriculture	0	0	37	4	1	51	239	29	152	3 476
I2	Forestry	0	0	0	0	0	0	0	0	0	75
I3	Fishing	0	0	4	0	0	6	55	3	15	236
I4	Coal; lignite	0	0	0	0	0	0	961	12	66	132
I5	Metal ores	0	0	0	0	0	0	0	0	0	29
I6	Other mining; quarrying	0	0	0	0	0	0	1 218	139	732	2 840
I7	Food	0	0	717	70	22	983	1 387	128	676	3 543
I8	Beverages; tobacco	0	0	0	0	0	0	787	15	77	3 050
I9	Spinning; textiles	0	0	0	0	0	0	550	38	202	1 544
I10	Knitted fabrics, fur	0	0	28	3	1	39	397	113	599	599
I11	Leather; luggage	0	0	0	0	0	0	74	20	106	101
I12	Footwear	0	0	0	0	0	0	176	31	164	120
I13	Wood	0	0	366	1	0	65	708	129	538	1 481
I14	Paper	13	6	2 529	221	71	3 248	1 204	285	1 376	1 043
I15	Publishing; printing	35	15	3 303	325	109	4 702	1 704	423	2 019	1 050
I16	Coke oven; petroleum	25	11	3 087	303	96	4 236	3 755	160	843	3 038
I17	Basic chemicals; nuclear fuel	0	0	7	1	0	9	253	175	923	840
I18	Other chemicals	13	6	1 404	138	44	1 926	10 406	565	2 985	3 771
I19	Rubber	2	1	65	6	2	90	374	22	114	257
I20	Plastic	0	0	342	1	0	61	47	24	44	2 305
I21	Glass; glass products	0	0	14	1	0	19	262	29	153	334
I22	Non-metallic minerals	0	0	114	11	4	156	1 108	36	189	2 904
I23	Furniture	4	2	316	31	10	433	150	69	363	229
I24	Recycling; nec	142	62	776	81	29	1 204	448	117	461	842
I25	Basic iron; steel	0	0	0	0	0	0	267	6	33	1 388
I26	Precious; non-ferrous metals	0	0	0	0	0	0	45	0	0	134
I27	Structural metal products	7	3	981	96	31	1 347	3 120	133	703	5 080
I28	General; special machinery	0	0	1 488	146	46	2 042	808	111	585	498

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	I41	I42	I43	I44	I45	I46	I47	I48	I49	I50
I29	Electrical machinery	1	1	334	33	10	458	2 405	44	231	3 899
I30	Electronic equipment	19	8	0	0	0	0	8 278	542	2 864	1 468
I31	Medical; other appliances	2	1	312	31	10	428	280	13	68	40
I32	Motor vehicles; coachwork	6	3	391	110	19	912	10 943	713	3 901	2 251
I33	Electricity, gas; hot water	58	25	5 942	120	29	4 227	1 964	699	1 584	1 865
I34	Distribution of water	4	2	527	11	3	375	356	62	141	151
I35	Construction	8	4	3 382	124	53	4 107	2 110	140	483	1 118
I36	Trade	78	34	16 825	1 055	424	20 167	10 041	635	3 238	9 144
I37	Hotels; restaurants	3	1	210	81	10	631	703	176	110	367
I38	Transport	92	40	1 708	358	408	6 634	16 724	110	650	4 320
I39	Post; Telecommunications	556	244	3 229	629	185	12 605	28 927	1 423	5 820	6 306
I40	Financial intermediation	38 819	12	17 732	1 753	49	7 608	7 372	92	427	3 265
I41	Insurance; pension funding	2 004	26	1 091	117	14	1 170	2 560	74	716	779
I42	Auxiliary financial	3 234	49 495	0	0	0	0	0	0	0	11 389
I43	Real estate activities	316	139	4 734	278	58	8 049	6 464	1 042	5 799	5 281
I44	Renting of machinery	48	21	156	328	21	574	30	159	512	860
I45	Research; development	56	25	56	6	65	52	9	484	1 598	794
I46	Business; computer activities	304	133	6 457	603	149	7 067	33 196	7 697	13 823	14 393
I47	Other community activities	9	4	0	0	0	0	81 233	0	9 016	87
I48	Education	122	54	197	10	22	642	1	58	95	565
I49	Health; social work	213	93	7 513	411	180	8 752	15 783	2 317	418	3 433
I50	Other services; nec	51	22	11 065	626	269	12 987	3 431	1 324	762	5 682
	Total	46 248	50 493	97 437	8 122	2 445	118 063	263 313	20 613	66 374	118 397
	Net taxes on products	4	2	1 023	82	31	1 356	11 244	130	606	2 265
	Gross value added	48 709	46 846	144 234	5 509	1 629	88 600	343 165	18 309	51 136	184 634
	Compensation of employees	21 677	32 122	8 134	1 644	1 578	58 473	298 850	8 508	22 656	73 377
	Other taxes less subsidies	1 149	673	13 300	109	-9	743	3 561	309	959	154
	Gross operating surplus	25 883	14 050	122 801	3 756	59	29 384	40 753	9 491	27 521	111 103
	Total output	94 961	97 341	242 694	13 713	4 105	208 019	617 721	39 051	118 116	305 295

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (continued)

Industry number	Industry description	Total	Exports	Imports	Household	General Government	Capital formation	Changes in inventories	Total output
I1	Agriculture	70 090	14 596	-7 065	50 411	0	0	-148	127 884
I2	Forestry	11 590	140	-96	3 914	0	0	-57	15 491
I3	Fishing	2 259	515	-58	499	0	0	-4	3 211
I4	Coal; lignite	44 155	26 179	-1 455	633	0	0	1 095	70 607
I5	Metal ores	77 009	140 651	-3 557	0	0	0	1 258	215 361
I6	Other mining; quarrying	91 161	29 088	-70 735	557	0	0	-1 506	48 565
I7	Food	64 886	8 722	-20 629	144 497	0	0	-973	196 503
I8	Beverages; tobacco	21 750	5 573	-3 967	43 990	0	0	-898	66 449
I9	Spinning; textiles	18 618	1 434	-5 851	7 710	0	13	10	21 934
I10	Knitted fabrics, fur	5 078	495	-19 656	33 102	0	0	-1 116	17 903
I11	Leather; luggage	5 481	557	-1 486	819	0	0	-165	5 205
I12	Footwear	1 507	116	-5 539	10 920	0	0	-43	6 961
I13	Wood	29 719	2 245	-2 499	738	0	0	-549	29 654
I14	Paper	54 077	7 275	-6 021	7 342	0	0	-4 585	58 088
I15	Publishing; printing	28 722	1 027	-1 778	10 043	0	1	-4 940	33 075
I16	Coke oven; petroleum	82 260	10 276	-22 244	44 097	0	431	-5 139	109 681
I17	Basic chemicals; nuclear fuel	83 124	28 736	-22 257	216	0	0	-1 353	88 466
I18	Other chemicals	81 957	8 389	-29 825	36 468	0	0	-823	96 166
I19	Rubber	11 990	1 799	-5 476	6 485	0	2	-7	14 794
I20	Plastic	31 823	1 428	-5 572	3 067	0	6	-1 762	28 990
I21	Glass; glass products	6 823	495	-1 671	2 143	0	0	-159	7 631
I22	Non-metallic minerals	38 332	1 250	-5 264	1 361	0	9	-708	34 980
I23	Furniture	3 008	2 568	-3 303	10 959	0	4 726	-609	17 350
I24	Recycling; nec	21 739	13 655	-9 424	12 467	0	1 132	-3 216	36 352
I25	Basic iron; steel	80 620	43 532	-10 560	0	0	0	-2 726	110 865
I26	Precious; non-ferrous metals	27 308	34 799	-24 615	0	0	173	-1 267	36 398
I27	Structural metal products	69 649	7 990	-10 668	3 917	0	374	-1 073	70 189
I28	General; special machinery	28 931	26 945	-79 191	1 487	0	90 258	-1 315	67 115

Table 4: Draft industry-by-industry input-output table for South Africa, 2009 (concluded)

Industry number	Industry description	Total	Exports	Imports	Household	General Government	Capital formation	Changes in inventories	Total output
I29	Electrical machinery	29 943	5 953	-50 364	14 040	0	39 954	-124	39 403
I30	Electronic equipment	29 991	2 660	-32 871	8 779	0	1 085	-83	9 560
I31	Medical; other appliances	1 309	2 647	-18 211	4 288	0	16 512	-89	6 455
I32	Motor vehicles; coachwork	73 632	43 154	-86 270	57 733	0	93 224	-15 413	166 060
I33	Electricity, gas; hot water	66 526	671	-1 022	21 807	0	0	0	87 981
I34	Distribution of water	18 307	4	-1	12 904	0	0	0	31 214
I35	Construction	46 922	374	-571	1 825	0	210 786	0	259 336
I36	Trade	236 500	51 493	-2 038	103 970	0	28 326	0	418 250
I37	Hotels; restaurants	7 716	40 824	-22 643	26 564	0	0	0	52 460
I38	Transport	194 983	42 919	-49 433	68 838	0	3 997	0	261 304
I39	Post; Telecommunications	111 026	8 820	-6 544	34 690	0	0	0	147 992
I40	Financial intermediation	131 930	6 005	-1 389	25 061	0	0	0	161 607
I41	Insurance; pension funding	22 766	5 167	-1 668	68 696	0	0	0	94 961
I42	Auxiliary financial	96 963	924	-545	0	0	0	0	97 341
I43	Real estate activities	88 754	922	-1 766	137 475	0	17 308	0	242 694
I44	Renting of machinery	11 785	0	0	1 928	0	0	0	13 713
I45	Research; development	4 155	110	-160	0	0	0	0	4 105
I46	Business; computer activities	192 789	2 326	-11 129	21 114	0	2 920	0	208 019
I47	Other community activities	91 953	0	0	18 438	507 330	0	0	617 721
I48	Education	4 458	0	0	34 593	0	0	0	39 051
I49	Health; social work	46 339	784	-1 195	72 187	0	0	0	118 116
I50	Other services; nec	184 174	20 945	-10 026	110 202	0	0	0	305 295
	Total	2 786 589	657 174	-678 308	1 282 972	507 330	511 236	-48 487	5 018 507
	Net taxes on products	52 667	0	0	170 915	0	4 499	0	228 081
	Gross value added	2 179 251	0	0	0	0	0	0	2 179 251
	Compensation of employees	1 081 639	0	0	0	0	0	0	1 081 639
	Other taxes less subsidies	27 920	0	0	0	0	0	0	27 920
	Gross operating surplus	1 069 692	0	0	0	0	0	0	1 069 692
	Total output	5 018 507	657 174	-678 308	1 453 887	507 330	515 735	-48 487	7 425 839

4. Conclusion and way forward

The I-O table is an important part of the National Accounts framework. It complements the SU-tables framework by offering an alternative approach to display information contained within SU-tables. Furthermore, I-O tables offer extensive analytical ability in both the industry-by-industry and product-by-product frameworks.

Industry-by-industry I-O tables allow for analysis that aims to examine:

- Tax structures and reforms;
- The effect of a change in compensation of employees;
- The effects of fiscal policy; and
- The effect of monetary policy.

The I-O table offers a more complete National Accounts framework. Despite their benefits, many countries have not undertaken I-O tables, as they can be costly and data intensive. In the 1993 SNA I-O tables are not regarded as a requirement to the core National Accounts.

Stats SA last published I-O tables in 1995 for the 1993 reference year, but these were discontinued in favour of further developing SU-tables. SU-tables offer substantial flexibility in statistical measurement, as well as analytical function and they are regarded as a cornerstone to the SNA. Stats SA is now in a position to publish both SU-tables and industry-by-industry I-O tables.

The recommended way forward for Stats SA in the development of the I-O table framework is as follows:

1. To update the industry-by-industry I-O tables for 2010 and 2011;
2. Compile direct and indirect coefficients and GDP multipliers for 2010 and 2011;
3. Identify data gaps within the I-O table framework, and address the data issues to successfully improve the draft I-O table quality;
4. Determine improvements suggested by users to the industry-by-industry I-O table; and
5. Determine the feasibility³² of compiling a product-by-product I-O table.

Developing an I-O table represents an analytical step forward, as an I-O table can allow for the use of direct, indirect coefficients, GDP multipliers etc. These tools are effective in sensitivity analysis demonstrating the effects of changes in a particular value, such as tax on a particular industry or on the economy as a whole. An industry-by-industry I-O table can therefore provide a detailed analysis of current and proposed fiscal policies.

Stats SA welcomes any feedback on this discussion document. Any comments and/or suggestions can be sent to Kevin Geddes (KevinG@statssa.gov.za) by 31 July 2013.

³² This would include discussions with users, and an examination of available data

5. Glossary

Basic prices	The amount receivable by the producer from the purchaser for a unit of a good or service as output minus any tax payable, and plus any subsidy receivable by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.
Central product classification	A classification based on the physical characteristics of goods or the nature of the services rendered. It covers products that are an output of economic activities, including transportable goods, non-transportable goods and services.
Gross domestic product	The total value of goods and services produced within the geographic boundaries of a country for a specified period of time.
Industry	Groups of establishments engaged in the same or similar kinds of activity. Note: The definition of industries is based on the 1993 SNA and is in line with that contained in the Standard Industrial Classification of all Economic Activities, Fifth Edition, Report No. 09-90-02 of January 1993 (SIC).
Institutional unit	An economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities
Intermediate consumption	Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets. Consumption of fixed assets is recorded as consumption of fixed capital.
International Standard Industrial Classification of all Economic Activities	The United Nation's version of a classification system used to classify businesses according to their economic activity.
National accounts	Serves as a framework for statistical systems. It also serves as a point of reference in establishing standards for related statistics. The internationally agreed framework that guides the compilation of national accounts is contained in the 1993 SNA.

Production	A process, carried out under the responsibility, control and management of an institutional unit, in which labour and assets are used to transform inputs of goods and services into outputs of other goods and services. All goods and services produced as outputs must be of such a nature that they can be sold on markets, or at least be capable of being provided by one unit to another, with or without charge.
Purchaser's price	The amount paid by the purchaser, excluding any VAT or similar tax deductible by the purchaser, in order to take delivery of a unit of a good or a service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place.
Standard Industrial Classification of all Economic Activities	A South African version of a classification coding system used to classify an enterprise according to its economic activity. Note: It is based on the United Nations' ISIC with a number of adaptations for local conditions.
System of national accounts	An internationally-agreed standard system for macro-economic accounts. The latest version is described in the System of National Accounts 2008.

6. References³³

Eurostat, 2008. *Eurostat Manual of Supply, Use and Input-Output Tables*, Luxembourg

Organisation for Economic Co-operation and Development, 1993, *System of National Accounts 1993*, Brussels/Luxembourg

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United Nations (UN), 1999. *Studies in Methods: Handbook of National Accounting, Handbook of Input-Output Table Compilation and Analysis*, New York.

³³ References for the previous research on I-O tables are located in the previous publication (D0404)

Annexure

Below is the industry list for the I-O table, it is based on the SU-tables' SIC (5th version) classification. It includes the 50 aggregated industries. Table 6 shows a brief description of each of the final demand items in the draft I-O table for South Africa, 2009.

Table 5: Industry-by-industry input-output table industry list

Industry number	SIC Code	Description
I1	SIC 11	Agriculture, hunting and related services
I2	SIC 12	Forestry, logging and related services
I3	SIC 13	Fishing, operation of fish hatcheries and fish farms
I4	SIC 21	Mining of coal and lignite
I5	SIC 23 & 24	Mining of gold, uranium and metal ores
I6	SIC 25	Other mining and quarrying
I7	SIC 301-4	Manufacture of food products
I8	SIC 305-6	Manufacture of beverage and tobacco products
I9	SIC 311-2	Spinning, weaving, finishing of textiles and manufacture of other textiles
I10	SIC 313-5	Manufacture of knitted, crocheted fabrics, wearing apparel, fur articles and dyeing of fur
I11	SIC 316	Tanning and dressing of leather, manufacture of luggage, handbags, saddler and harness
I12	SIC 317	Manufacture of footwear
I13	SIC 321-2	Manufacture of products of wood, cork, straw and plaiting materials; and sawmilling and planing of wood
I14	SIC 323	Manufacture of paper and paper products
I15	SIC 324-6	Publishing, printing and service activities related to printing; and reproduction of recorded media
I16	SIC 331-2	Manufacture of coke oven products; and petroleum refineries/synthesisers
I17	SIC 333-4	Processing of nuclear fuel; and basic chemicals
I18	SIC 335-6	Manufacture of other chemical products, and man-made fibres
I19	SIC 337	Manufacture of rubber products
I20	SIC 338	Manufacture of plastic products
I21	SIC 341	Manufacture of glass and glass products
I22	SIC 342	Manufacture of non-metallic mineral products (nec)
I23	SIC 391	Manufacture of furniture
I24	SIC 392 & 395	Manufacture nec and recycling nec
I25	SIC 351 & 353	Manufacture of basic iron and steel and casting of metals
I26	SIC 352	Manufacture of precious metals and non-ferrous metals
I27	SIC 354-5	Manufacture of structural metal products, tanks, reservoirs and steam generators, and other fabricated metal products, metalwork service activities

Table 5: Industry-by-industry input-output table industry list (concluded)

Industry number	SIC Code	Description
128	SIC 356-9	Manufacture of general purpose machinery, special purpose machinery, household appliances, and office, accounting and computing machinery
129	SIC 36	Manufacture of electrical machinery and apparatus nec
130	SIC 371-3	Manufacture of electronic valves, tubes, other electric components; television and radio transmitters, apparatus for line telephony and line telegraphy; and television and radio receivers, sound or video recording or reproducing apparatus and associated goods
131	SIC 374-6	Manufacture of medical appliances and instruments and appliances for measuring, checking, testing, navigating and other purposes; manufacture of optical instruments and photographic equipment; and watches and clocks
132	SIC 381-387	Manufacture of motor vehicles, bodies (coachwork) for motor vehicles, locomotives, aircraft, spacecraft, trailers and semi-trailers; motor vehicle and engine parts and accessories; building and repairing ships and boats, and manufacture of transport equipment not elsewhere classified.
133	SIC 41	Electricity, gas steam and hot water supply
134	SIC 42	Collection, purification and distribution of water
135	SIC 5	Construction
136	SIC 61 & 62 & 63	Wholesale and commission trade, retail trade; and sale, maintenance and repair of motor vehicles and motor cycles, retail trade in automotive fuel
137	SIC 64	Hotels and restaurants
138	SIC 71 & 72 & 73 & 74	Transport (land, water, air); and supporting and auxiliary transport activities, activities of travel agencies
139	SIC 75	Post and telecommunications
140	SIC 81	Financial intermediation, except insurance and pension funding
141	SIC 82	Insurance and pension funding, except compulsory social security
142	SIC 83	Activities auxiliary to financial intermediation
143	SIC 84	Real estate activities
144	SIC 85	Renting of machinery and equipment, without operator, and of personal and household goods
145	SIC 87	Research and development
146	SIC 86 & 88	Computer and related activities; and other business activities
147	SIC 94 (Gov)	Other community, social and personal service activities
148	SIC 92	Education
149	SIC 93	Health and social work
150	SIC 9 (Other services NEC)	Other service activities nec

Table 6: Industry-by-industry input-output table final demand description

Name	Description
Exports	Export of goods and services
Imports	Imports of goods and services
Household	Final consumption expenditure incurred by households
General Government	Final consumption expenditure incurred by general government
Capital formation	Gross fixed capital formation
Changes in inventories	Changes in inventories