

K.1 Introduction

When analyzing the impact of developing policies in developing countries, the availability of data is a major obstacle for modelers and other researchers. Long series of economic aggregates are not always available and even if they are available, their quality and reliability is controversial. Computable general equilibrium modeling is a major force in overcoming the absence of long and reliable series. In this case, data from a year of good quality can be used to conduct policy analyzes and perform shock simulations on the different sectors of the economy. The Center for Global Trade Analysis (CGTA) through the Global Trade Analysis Project (GTAP) has been carrying out country and regional analyzes for several years on the basis of data provided by the countries. These national accounting data, which can be either Supply-Use Tables (SUT), or Social Accounting Matrices (SAM) or Input-Output Tables (IOT), are processed according to a given format and inserted into the GTAP database. To this end, it is essential that data from Chad be produced so that analyzes of economic policy in general can be carried out and the impact of the Continental Free Trade Area in particular. In this document, the sources of the data will be briefly described.

K.2 Data Sources

The main source of data is Supply and Uses Table (SUT) of the National Accounts. These data are composed of 34 major branches subdivided into 51 sub-branches. The SUT data for the year 2016 was measured in millions of CFA francs. They are composed of:

1. The production matrix highlights the different goods and services produced by the different branches of activity;
2. The import matrix shows the goods and services imported by the country.
3. The table of intermediate consumption indicates the use of goods and services used by the branches in their production process.
4. The final consumption table shows the final consumption of households, general government and non-profit institutions serving households.
5. The export table shows the goods and services exported to the rest of the world.
6. The gross fixed capital formation matrix indicates the investments made.

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7. The inventory variation matrix completes the various operations in the supply and use balance.

In addition to the various tables listed, we have matrices relating to the margins and matrices relating to the various taxes:

- Two matrices for product trade and transportation margins.
- Three product tax matrices.

K.3 Strengths and limitations of the original data

The various tables and matrices made it possible to lay out the essential elements for the GTAP database. Several treatments were carried out.

Strengths

1. The basic SUT offers matrices and allows different operations to be distinguished.
2. The supply and use table is balanced.

Limitations

1. One of the main limitations of the SUT is that for the various economic transactions (intermediate consumption, final consumption, gross fixed capital formation and change in inventories), the difference between national production and imports is not made.
2. The return on capital is very low in the water and electricity industries. This situation is justified by the fact that they are public companies and that the number of practicing staff is very large.
3. The return on capital in the livestock and fishing sector is important given the fact that in these branches of activity, there is very little paid labor.
4. The consumption of petroleum products is relatively high given the fact that the electricity coverage rate is less than 10%.
5. The construction of buildings and civil engineering works are accounted for in the same branch of activity.
6. There is no compensation for the land.

K.4 Data processing

In the development of the various tables and matrices, given that the imports of products and services is global, it was necessary to make adjustments to distribute the imports for each operation. National production is distributed proportionally among the various operations. Then, to obtain the level of a given operation, national production was supplemented by imports. The import balance is transferred to the stock to maintain the balance and the initial level of imports.

K.5 Conversion of SUT to IOT GTAP format

The GTAP nomenclature is made up of 65 sectors. Among these sectors, there are sectors which must be present. This is mainly in the agricultural sector. To this end, each GTAP sector should be matched to a product or branch of the national accounts nomenclature. This work has therefore made it possible to dispose of these sectors. The nomenclature below provides all the details.

Table 8.24: Nomenclature National Accounts-Sectors GTAP

Aggregate level (NA)	Code (NA)	Disaggregated level (ND)	Code (ND)	Code GTAP	Sectors	Designation
Subsistence farming	011	Paddy rice	0111	pdr	1	Paddy rice
Subsistence farming	011	Autres céréales	0112	wht	2	Wheat
Subsistence farming	011	Sorghum-Millet-Maize	0113	gro	3	Cereal grains, not elsewhere classified (n.e.c.)
Subsistence farming	011	Fruits-Vegetables and legumes	0114	v_f	4	Vegetables, fruit, nuts
Subsistence farming	011	Oilseeds	0115	osd	5	Oil seeds
Subsistence farming	011	tubers	0116	pfb	7	Plant-based fibers
Cash crop and industrial agriculture	012	Sugar cane	0121	c_b	6	Sugar cane, sugar beet
Cash crop and industrial agriculture	012	Seed Cotton-Gum arabic	0122	ocr	8	Crops n.e.c.
Livestock, forestry, fishing	013	Cattle-Sheep, goats	0131	ctl	9	Cattle, sheep, goats, horses
Livestock, forestry, fishing	013	Other livestock and hunting products	0132	oap	10	Animal products n.e.c.
Livestock, forestry, fishing	013	Other livestock and hunting products	0133	rmk	11	Raw milk
Livestock, forestry, fishing	013	Other livestock and hunting products	0134	wol	12	Wool, silk-worm cocoons
Livestock, forestry, fishing	013	Forestry products	0135	frs	13	Forestry
Livestock, forestry, fishing	013	Fish products	0136	fish	14	Fishing
Hydrocarbon extraction	021	not available	0211	coa	15	Coal
Hydrocarbon extraction	021	Crude oil	0210	oil	16	Oil
Hydrocarbon extraction	021	not available	0212	gas	17	Gas
Other extractive activities	022	Sand and gravel-Other extraction products n.e.c.	0220	oxt	18	Other extraction (formerly omn Minerals n.e.c.)

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Aggregate level (NA)	Code (NA)	Disaggregated level (ND)	Code (ND)	Code GTAP	Sectors	Designation
Slaughtering and processing of meat and fish	031	Slaughter products and meat processing-Fish processing products	0311	cmt	19	Meat: cattle, sheep, goats, horse
Slaughtering and processing of meat and fish	031	Slaughter products and meat processing-Fish processing products	0312	omt	20	Meat products n.e.c.
Manufacture of oils	034	Cottonseed Oil-Peanut Oil-Other Oil	0340	vol	21	Vegetable oils and fats
Other agro-food industries	039	Dairy products	0391	mil	22	Dairy products
Other agro-food industries	039	Husked seed rice	0392	pcr	23	Processed rice
Other agro-food industries	039	Refined sugar and other products	0393	sgf	24	Sugar
Manufacture of cereal products	035	Manufacture of cereal products	0350	ofd	25	Food products n.e.c.
Manufacture of beverages-Manufacture of tobacco products-Other agro-food industries	037-038-039	Manufacture of beverages-Manufacture of tobacco products-Other agro-food industries	0370	b_t	26	Beverages and tobacco products
Cotton ginning, textile industry, clothing industry, manufacture of leather products	042	Cotton seeds-Cotton fiber	0421	tex	27	Textiles
Cotton ginning, textile industry, clothing industry, manufacture of leather products	042	Textile and clothing products	0422	wap	28	Wearing apparel

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Aggregate level (NA)	Code (NA)	Disaggregated level (ND)	Code (ND)	Code GTAP	Sectors	Designation
Cotton ginning, textile industry, clothing industry, manufacture of leather products	042	Leather products and shoes	0423	lea	29	Leather products
Wood and furniture industry	043	Wood and furniture industry	0430	lum	30	Wood products
Manufacture of paper, cardboard and published and printed products	044	Manufacture of paper, cardboard and published and printed products	0440	ppp	31	Paper products, publishing
Oil refining	045	Oil refining	0450	p_c	32	Petroleum, coal products
Chemical manufacturing	046	Chemical manufacturing	0460	chm	33	Chemical products
Chemical manufacturing	046	Chemical manufacturing	0460	bph	34	Basic pharmaceutical products
Chemical manufacturing	046	Chemical manufacturing	0460	rpp	35	Rubber and plastic products
Manufacture of other non-metallic mineral products and building materials	047	Cement	0470	mmm	36	Mineral products n.e.c.
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	i_s	37	Ferrous metals
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	nfm	38	Metals n.e.c.
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	fmp	39	Metal products

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Aggregate level (NA)	Code (NA)	Disaggregated level (ND)	Code (ND)	Code GTAP	Sectors	Designation
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	ele	40	Computer, electronic and optical products
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	eeq	41	Electrical equipment
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	ome	42	Machinery and equipment n.e.c.
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	mvh	43	Motor vehicles and parts
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	otn	44	Transport equipment n.e.c.
Manufacture of transport equipment and other industrial activities	049	Manufacture of transport equipment and other industrial activities	0490	omf	45	Manufactures n.e.c.
Production and distribution of electricity, gas and water	050	Production and distribution of electricity, gas and water	0501	ely	46	Electricity
Oil refining	045	Oil refining	0450	gdt	47	Gas manufacture, distribution
Production and distribution of electricity, gas and water	050	Production and distribution of electricity, gas and water	0502	wtr	48	Water
Construction	060	Building construction and civil engineering works	0600	cns	49	Construction

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Aggregate level (NA)	Code (NA)	Disaggregated level (ND)	Code (ND)	Code GTAP	Sectors	Designation
Trade-Repairs	071-072	Trade-Repair Service	0712	trd	50	Trade
Hotels and restaurants	080	Hotels and restaurants	0800	afs	51	Accommodation, Food and service activities
Transportation	090	Transport services, annexes and transport auxiliaries	0900	otp	52	Transport n.e.c.
		not available	0901	wtp	53	Sea transport
Transportation	090	Transport services, annexes and transport auxiliaries	0900	atp	54	Air transport
Transportation	090	Transport services, annexes and transport auxiliaries	0900	whs	55	Warehousing and support activities
Posts and telecommunications	100	Postal and telecommunications services	1000	cmn	56	Communication
Banks and insurance	112	Financial intermediation services	1121	ofi	57	Financial services n.e.c.
Banks and insurance	112	Insurance services	1122	ins	58	Insurance (formerly isr)
Real estate activities	121	Real estate activities	1210	rsa	59	Real estate activities
Business service activities	122	Business services n.e.c.	1220	obs	60	Business services n.e.c.
Personal and collective service activities	160	Leisure and other services	1600	ros	61	Recreation and other services
Public administration activities	130	Public administration and defense	1300	osg	62	Public administration and defense
Education	140	Education	1400	edu	63	Education

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Aggregate level (NA)	Code (NA)	Disaggregated level (ND)	Code (ND)	Code GTAP	Sectors	Designation
Human health and social work activities-Veterinary activities	151-	Human health and social work activities	1512	hht	64	Human health and social work activities
	152					
Construction	060	Building construction and civil engineering works	0600	dwe	65	Dwellings

K.6 Verification of sector balance and non-negativity conditions

After converting the SUT to the format required by the GTAP database, checks for sector balance and non-negativity were performed. The new database passed the verification requirements.