

Senegal

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Senegal, on the western tip of Africa, is economically in the middle rank of African countries. Although poverty is widespread and unemployment is high, the country has one of the region's more stable economies (BBC, 2015). Agriculture drives the Senegalese economy; tourism and remittances are a source of foreign exchange. Important industries include fishing, fish processing, peanuts and phosphate mining. Energy sources are biomass (firewood) and imported oil. Although the country is working on iron ore and oil exploration projects, the I-O table that we use does not include any coal or oil production. Extensive port facilities at Dakar, the capital, serve Senegal and neighboring countries such as Mali. The population is about 14.13 million (2013).

The SAM was constructed by Abdoulaye Diagne and François Joseph Cabral from the Consortium pour la recherche économique et sociale (CRES), in the framework of the capacity-development project “Realizing the Millennium Development Goals through socially inclusive macroeconomic policies”, which the Development Policy and Analysis Division of the United Nations Department of Economic and Social Affairs (DPAD/UN-DESA) implemented, in close collaboration with the United Nations Development Programme in Senegal.¹ Conversion of I-O data to GTAP format was performed by Angel Aguiar for the 2nd GTAP Africa Project funded by the World Bank and Netherlands Partnership Program.

Some features of the SAM are:

- Reference year is 2005
- 53 commodities and 46 activities
- 6 types of factor endowments: 3 labor categories, 2 categories of capital, and land
- Final demands: households, government, investment, exports
- Direct and indirect taxes (vectors)
- Tariff information

The GTAP format requires separate full matrices of basic and tax components for each of domestic and imported goods. To produce these from the SAM we:

- Pro-rated the tax vector over users to produce separate basic and tax matrices. We assumed that exports and inventories paid no tax.
- Pro-rated the imports vector over non-export users to produce separate imported and domestic basic use matrices. The tax matrix was split using the basic imp/dom shares
- aggregated sectoral detail

The result was a 31-sector I-O table of the format required by Purdue. Table 1 shows the mapping between original commodity classification to the aggregated sector and Table 2 shows the original activity classification mapped to the aggregated sector. Finally, Table 3 shows the mapping of the aggregated sectors to the 57 GTAP sectors.

¹ Data was downloaded from: http://www.un.org/en/development/desa/policy/capacity/output_sam.shtml

Table 1. Mapping between SAM commodities and aggregate sectors²

Name	Description	MAPPING
c-milletsorg	millet and sorghum	s1
c-corn	corn	s1
c-rice	rice	s1
c-veget	vegetables	s1
c-fruits	fruits	s1
c-othagr	other agriculture	s1
c-peanut	peanut	s1
c-cotton	cotton	s1
c-othagrind	other agriculture; industrial	s1
c-livestock	livestock and hunting	s2
c-forest	forestry	s3
c-fish	fishing	s4
c-extract	extractive activities	s5
c-meat	processing and preserving of meat, fish	s6
c-fats	manufacture of edible fats	s7
c-grainmnf	grain work, manufacturing	s6
c-cerealmnf	manufacture of food grain	s6
c-sugar	sugar production, processing	s8
c-othfood	other food manufacturing	s6
c-beverage	beverage manufacturing	s9
c-tobacco	manufacture of tobacco products	s9
c-textile	cotton ginning and textile manufacturing	s10
c-leather	manufacture of leather	s11
c-wood	woodworking and manufacture of wood	s12
c-paper	manufacture of paper, cardboard	s13
c-oilrefining	oil refining, coking	s14
c-chemical	chemical Manufacturing	s15
c-rubber	rubber product manufacturing	s15
c-glass	manufacture of glass, pottery	s16
c-metal	metallurgy, foundry, manufacturing	s17
c-machines	manufacturing machinery, equipment, apparatus	s18
c-vehic	building material transport	s19
c-othmnf	other manufacturing	s20
c-water	water	s21
c-gas	gas	s22
c-const	construction	s23
c-commerce	commerce	s24
c-hotels	lodging and restaurants	s24
c-transp	transportation	s25
c-communic	posts and telecommunications	s26

² Sector number 31 is the dwelling sector

Name	Description	MAPPING
c-realstate	real estate activities	s27
c-infra	infrastructure	s28
c-pubadm	public administration	s28
c-edup	public primary education	s28
c-edus	public secondary education	s28
c-edus-tech	public technical education	s28
c-edut	public university education	s28
c-edupng	private primary education	s28
c-edusng	private secondary education	s29
c-edusng-tech	private technical education	s29
c-edutng	private university education	s29
c-health	public health	s28
c-healthng	private health	s29
c-sanitation	sanitation	s28
c-othsvc-non-trade	other activities of a collective or personal	s29
c-othsvc	other market services	s30

Table 2. Mapping between SAM activities and aggregate sectors³

Name	Description	MAPPING
a-subfar	subsistence farming	s1
a-agrind	agriculture industrial or export	s1
a-livestock	livestock and hunting	s2
a-forest	forestry	s3
a-fish	fishing	s4
a-extract	extractive activities	s5
a-meat	processing and preserving of meat, fish	s6
a-fats	manufacture of edible fats	s7
a-grainmnf	grain work, manufacturing	s6
a-cerealmnf	manufacture of food grain	s6
a-sugar	sugar production, processing	s8
a-othfood	other food manufacturing	s6
a-beverage	beverage manufacturing	s9
a-tobacco	manufacture of tobacco products	s9
a-textile	cotton ginning and textile manufacturing	s10
a-leather	manufacture of leather	s11
a-wood	woodworking and manufacture of wood	s12
a-paper	manufacture of paper, cardboard	s13
a-oilrefining	oil refining, coking	s14
a-chemical	chemical Manufacturing	s15
a-rubber	rubber product manufacturing	s15
a-glass	manufacture of glass, pottery	s16
a-metal	metallurgy, foundry, manufacturing	s17
a-machines	manufacturing machinery, equipment, apparatus	s18
a-vehic	building material transport	s19
a-othmnf	other manufacturing	s20
a-water	water	s21
a-gas	gas	s22
a-const	construction	s23
a-commerce	commerce	s24
a-hotels	lodging and restaurants	s24
a-transp	transportation	s25
a-communic	posts and telecommunications	s26
a-realstate	real estate activities	s27
a-infra	infrastructure	s28
a-pubadm	public administration	s28
a-edup	public primary education	s28
a-edus	public secondary education	s28
a-edus-tech	public technical education	s28

³ Sector number 31 is the dwelling sector

Name	Description	MAPPING
a-edut	public university education	s28
a-edupng	private primary education	s29
a-edusng	private secondary education	s29
a-edusng-tech	private technical education	s29
a-edutng	private university education	s29
a-health	public health	s28
a-healthng	private health	s28
a-sanitation	sanitation	s28
a-othsvc-non-trade	other activities of a collective or personal	s29
a-othsvc	other market services	s30

Table 3. Mapping between aggregate SAM sectors and GTAP sectors

No.	Aggregated SAM Sectors	GTAP Sectors
1	s1	PDR
2	s1	WHT
3	s1	GRO
4	s1	V_F
5	s1	OSD
6	s1	C_B
7	s1	PFB
8	s1	OCR
9	s2	CTL
10	s2	OAP
11	s2	RMK
12	s2	WOL
13	s3	FRS
14	s4	FSH
15	s5	COA
16	s5	OIL
17	s5	GAS
18	s5	OMN
19	s6	CMT
20	s6	OMT
21	s7	VOL
22	s6	MIL
23	s6	PCR
24	s8	SGR
25	s6	OFD
26	s9	B_T
27	s10	TEX
28	s10	WAP
29	s11	LEA
30	s12	LUM
31	s13	PPP
32	s14	P_C
33	s15	CRP
34	s16	NMM
35	s17	I_S
36	s17	NFM
37	s17	FMP
38	s19	MVH
39	s19	OTN
40	s18	ELE
41	s18	OME
42	s20	OMF
43	s28	ELY
44	s22	GDT
45	s21	WTR
46	s23	CNS

No.	Aggregated SAM Sectors	GTAP Sectors
47	s24	TRD
48	s25	OTP
49	s25	WTP
50	s25	ATP
51	s26	CMN
52	s30	OFI
53	s30	ISR
54	s27	OBS
55	s29	ROS
56	s28	OSG
57	s31	DWE

References

- Diagne, Abdoulaye, François Joseph Cabral, Fatou Cissé, and Anne-Sophie Robilliard. Country Study: Assessing Development Strategies to Achieve the MDGs in the Republic of Senegal. United Nations Department for Social and Economic Affairs, March 2011.
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