

Converting 2001 Pakistan SAM to GTAP format

The main data used to prepare a Pakistan database was a 34-sector 2001-02 Pakistan SAM prepared by Dorosh, Niazi and Nazli. Their data sources were: the 1990-91 Input-Output Table (97 sectors), 2001-02 National Accounts (value added for 15 sectors), 2001-02 Pakistan Integrated Household Survey (consumption disaggregation), the 2001 Pakistan Rural Household Survey (household income disaggregation), and the 2001-02 Pakistan Economic Survey (sector/commodity data on production, prices, trade).

Conversion to GTAP format was performed by Mark Horridge and funded by the South Asia Rural Development Unit (SASRD) of the World Bank.

The Dorosh SAM was prepared to analyse certain agricultural issues, and contained much detail not needed by GTAP. After aggregation to remove such un-needed detail, the SAM distinguished the 28 sectors listed at left of Table 1 below. The classification is fairly coarse, particularly in manufacturing. Moreover, the Dorosh categories differ from GTAP categories in small details. For example, the SAM categories OCRP and HORT correspond roughly to the GTAP groups ocr and v_f. However, according to GTAP, potatoes belong in v_f: Dorosh places them in OCRP.

To get more detail, and to map more precisely to the GTAP sectors, we expanded the SAM to the 97 sectors of the 1990-91 Pakistan Input-Output Table. That is, SAM cells were split using ratios drawn from the larger table. As an alternative description, we block-scaled the IO table so that it agreed with the coarser SAM. Additional scaling was then needed to establish costs=sales at the 97 sector level, whilst maintaining consistency with the SAM. The mapping between SAM and IO sectors was supplied by Dorosh.

The expanded 97 sector SAM was then aggregated to remove sectoral detail unneeded by GTAP. This resulted in the 46 "special" sectors shown at left of Table 2 below. The final column of that table shows the GTAP sectors corresponding to each "special".

Indirect taxes on dom and imp were treated as commodity taxes (rather than as production taxes or tariffs). A satellite matrix from Dorosh was used to split out tariffs.

Finally the whole database was scaled so that GDP agreed with the dollar total independently established at Purdue. A comparison between GDP components collected by Purdue, or derived from the Dorosh SAM, appears below.

GDP \$USm 2001	Purdue	SAM/IOTable
1 Cons	44089	46408
2 Inv	9349	8198
3 Gov	6017	6203
4 Stk	0	0
5 Exp	11640	10431
6 NegImp	-12550	-12694
Total	58546	58546

References:

Distributional Impacts of Agricultural Growth in Pakistan: A Multiplier Analysis, Paul Dorosh, Muhammad Khan Niazi and Hina Nazli, mimeo [describes SAM] .

After July 2005, additional material relating to this data preparation may be downloaded from: <http://www.monash.edu.au/policy/archivep.htm>

Table 1: Relation between SAM and IO table sectors.

SAM	97 IO 1991 sectors
1 WHT	Wheat
2 PAD	Rice
3 COTT	Cotton
4 CANE	SugarCane
5 OCRP	Tobacco OthCrops Pulses Potatoes OilSeeds Oth
6 HORT	Fruits VegetSpice
7 LiveStk	Livestock
8 FOR	Forestry
9 FISH	Fishries
10 MINE	Coal CrudeOilNatG OthMineral
11 VEGO	VegetOilsEtc
12 RIC	Milling BakeryProds
13 SUG	Sugar
14 OTHF	OthFoodProds Beverages TobaccoPrd
15 TEX	GinCottonLnt CottonYarn CottonCloth ArtSilk MadeUpTxtGds Knitwear Carpets Garments OthTextilPrd
16 LEAT	LeatherProds FootWear
17 WOOD	WoodenProds PaperProds
18 CHEM	Pharmaceut FertPesticide
19 CEM	BricksTiles Cement
20 PETR	PetrolRefin
21 MANF	ChemicalsHou RubberPlasPr OthChemicals OthNMMInPrds BscMetalProd OthMetalPrds NonElecMachn ElectEquip OthTranspEqp SurgicalInst Handicrafts SportsGoods Jewellery OthManufac
22 ENRG	ElecWater GasSupply
23 CONS	Construction
24 TRAD	TradeWholsle TradeRetail HotelRestrnt
25 TRNS	TrnsptRail TrnsptRoad TrnsptWater TrnsptAir TrnsptStore Communicatin
26 HSNG	RealEstateSv OwnDwelling
27 PRISV	BankingCent BankingOthM BankingOthC BankingNomi Insurance BusinessSvcs Education HealthCare OthSocCltsvc PersHouSvcs
28 PUBS	PubAdmnDfnce

Table 2: Mapping IO table sectors to GTAP sectors.

Special	IO sectors	GTAP
1 pdr	Rice	pdr
2 OthCereals	Wheat	wht gro
3 pfb	Cotton	pfb
4 c_b	SugarCane	c_b
5 v_f	Potatoes Fruits VegetSpice	v_f
6 osd	OilSeeds	osd
7 OthCrop	Tobacco OthCrops Pulses Oth	ocr
8 Livestock	Livestock	ctl oap rnk wol
9 for	Forestry	for
10 fsh	Fishries	fsh
11 col	Coal	col
12 oilnatgas	CrudeOilNatG	oil gas
13 omn	OthMineral	omn
14 vol	VegetOilsEtc	vol
15 pcr	Milling	pcr
16 sgr	Sugar	sgr
17 OthFoodProds	BakeryProds OthFoodProds	cmt omt mil ofd
18 b_t	Beverages TobaccoPrd	b_t
19 tex	GinCottonLnt CottonYarn CottonCloth ArtSilk MadeUpTxtGds Carpets OthTextilPrd	tex
20 wap	Knitwear Garments	wap
21 lea	LeatherProds FootWear	lea
22 lum	WoodenProds	lum
23 ppp	PaperProds	ppp
24 p_c	PetrolRefin	p_c
25 crp	Pharmaceut FertPesticide ChemicalsHou RubberPlasPr OthChemicals	crp
26 nmm	BricksTiles Cement OthNMMinPrds	nmm
27 BscMetalProd	BscMetalProd	i_s nfm
28 OthMetalPrds	OthMetalPrds	fmp
29 TranspEqp	OthTranspEqp	mvh otn
30 ele	ElectEquip	ele
31 ome	NonElecMachn	ome
32 omf	SurgicalInst Handicrafts SportsGoods Jewellery OthManufac	omf
33 ElecWater	ElecWater	ely wtr
34 gdt	GasSupply	gdt
35 cns	Construction	cns
36 trd	TradeWholsle TradeRetail HotelRestrnt	trd
37 otp	TrnsptRail TrnsptRoad TrnsptStore	otp
38 wtp	TrnsptWater	wtp
39 atp	TrnsptAir	atp
40 cmn	Communicatin	cmn
41 ofi	BankingCent BankingOthM BankingOthC BankingNomi	ofi
42 isr	Insurance	isr
43 dwe	OwnDwelling	dwe
44 obs	RealEstateSv BusinessSvcs	obs
45 osg	PubAdmnDfnce Education HealthCare	osg
46 ros	OthSocCltSvc PersHouSvcs	ros

