



**Common Agricultural Policy Regional Impact – The Rural Development Dimension**

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**Regional and National Data Sources Available for Turkey**

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## **1. INTRODUCTION**

The aim of this deliverable is to report the stock of national and regional data availability for Turkey to be used in the framework of the CAPRI-RD project.

CAPRI-RD intends to extend rural development analysis to all sectors by coupling agricultural sector models with the Computable General Models (CGE) at the regional level. This necessitates the identification of data availability at the various NUTS levels together with the time dimension.

This report consists of three parts following the data requirements of the analytical models to be used in CAPRI-RD. Data for all variables include both the available periods and regional dimension. The next part consists of macro and micro level data availability necessary for the construction of the CGE model for Turkey. Available data for the selected rural development indicators are presented in the third section. Finally, all data related to the agricultural sector are provided as a summary in the fourth section.

## **2. DATA NECESSARY TO CONSTRUCT CGE MODEL – MACRO ACCOUNTS**

Macro Accounts (I) table (Table 2.1) presents the list of available data for activities on the base of commodities, factors and government that are necessary in the modeling framework for CAPRI – RD. All data sources include time and regional dimension and sectoral details.

Table 2.1 summarizes the availability of the national and regional data in three major groups with twelve entities. Under the heading of ‘commodities’, the availability of data, regarding the i. Supply/Utilization (S/U) Tables, ii. Domestic Use, iii. Import Use, iv. Trade / Transport Margins and Input/Output (I/O) Tables, are listed. The availability of data related to the factors of production can be grouped as i. Labour Payments, ii. Employment, iii. Agricultural Employment, iv. Capital Payments, v. Land Payments and vi. Sectoral Value Added. The availability of the data related to the (i) Net tax on production and (ii) Agricultural Subsidies are stated in the third part of the table.

S/U Tables for 1996 and 1998 have no sectoral details. S/U table for 2002 is split into 59 sectors. Table for 2002 is the most recent one. The I/O Tables are available for the years of 1973, 1979, 1985, 1990 in the form of detail of 64 sectors. While data concerning the year of 1998 has sectoral details for 97 sectors, this number is 59 for the I/O Tables of the year of 2002. The year of 2002 also includes the available data for the Domestic Use, Import Use and Trade /Transport Margins; the data regarding these three entities available with the sectoral detail of 59 sectors again. As a final point at this stage, the whole data under the heading of commodities is available at the national scale; there are no regional and/or provincial breakdowns.

**Table 2.1: Macro Accounts (I)**

	Category	Sub-category	Availability				Sectoral Detail	
			NUTS3	NUTS2	NUTS1	NUTS0		
<b>ACTIVITIES</b>	<b>Commodities</b>	S/U Tables				1996, 1998	Aggregate	
		S/U Tables				2002	59 S	
		Domestic Use				2002	59 S	
		Import Use				2002	59 S	
		Trade / Transport Margins				2002	59 S	
		I/O				2002	59 S	
		I/O				1973, 1979, 1985, 1990	64S	
		I/O				1998	97S	
	<b>Factors</b>	Labor Payments				2006	26S	
		Labor Payments			1995-2001	1995-2001	Industry Aggregate	
		Employment				2000-2003	Aggregate	
		Agricultural Employment	1997	1997	1997+	1997+	Aggregate	
		Employment		2004-2009	2004-2009	2000, 2004-2009	9 S for year of 2000, AITS for the years 2004-2009	
		Capital Payments				2005 - 2006	Aggregate	
		Capital Payments				1973, 1979, 1985, 1990, 1998, 2002	59S	
		Land Payments	N. A.					
		VA		2004 - 2006+	2004 - 2006+	2004 - 2006+	AITS	
	<b>Government</b>	Net tax on production				2002	59S	
		Agricultural Subsidies				2006 Jan - present	Aggregate	

The availability of data for the factors of production shows much variation for every factor. Labor payments for 2006 are available for 26 sectors and at national scale. Total labor payments of the industry are available for the period between 1995 and 2001 both at the national and NUTS1 levels. As for the capital payments, the available data concerns the years of 1973, 1979, 1985, 1990, 1998 and 2002 includes sectoral details. However, the recent data for 2005 and 2006 has no sectoral details. Despite the existence of available data for labor and capital payments, the same assessment is not valid for the land payments. There is no data for land payments and rents. The data regarding the (sectoral) Value Added available in the case at NUTS2 level and has sectoral details under the classification of AITS.

The data regarding the side of government available at national scale for both categories. While data regarding the net tax on production concerns the year of 2002 and has sectoral details, the data concerning agricultural subsidies has no sectoral detail and available for the recent years.

Macro Accounts (II) table (Table 2.2) shows the availability of the data regarding twelve categories: i. Industrial Production, ii. Agricultural Production, iii. Indirect Taxes, iv. Import Tax, v. Imports, vi. Labor Income, vii. Capital Income, viii. Land Income, ix. Profit Transfers, x. Factor Tax, xi. Consumption and finally xii. Income Tax. Data on capital income and land income are not available directly and should be estimated.

**Table 2.2: Macro Accounts (II)**

	Category	Sub-category	Availability				Sectoral Detail
			NUTS3	NUTS2	NUTS1	NUTS0	
<b>COMMODITIES</b>	<b>Activities</b>	Industrial Production				2005-current	NACE Rev 1.1
		Agricultural Production	1991-2008	1991-2008	1991-2008	1991-2008	Detailed Crop
	<b>Government</b>	Indirect Taxes				2005-2008	Aggregate
		Import Tax				2000-2005	Aggregate
		Import Tax			2006 Jan - current	2006 Jan - current	Aggregate
	<b>ROW</b>	Imports				1992-2010+	HS6

<b>FACTORS</b>	<b>Households</b>	Labor Income:				1987 1st Quarter-2006 4th Quarter	12S
		Capital Inome	N. A.				
		Land Income	N. A.				
	<b>Firms</b>	Profit Transfers	N. A.				
	<b>Government</b>	Factor Tax:				2000-2008+	Aggregate

<b>HOUSEHOLDS</b>	<b>Commodities</b>	Consumption:		2003	2003	2002 - 2008 +	Very detailed
		Consumption:				2000-2007	Agricultural Products
	<b>Government</b>	Income Tax	1998 - 2008+	1998 - 2008+	1998 - 2008+	1998 - 2008+	Aggregate

Agricultural production data is available for 17 years (from 1991 to 2008) at NUTS3 level including the crop detail. Industrial production figures are available for recent years and at both national level and sectoral detail with NACE Rev. 1.1 classification. Government category shows the availability of data concerning two entities: Indirect Taxes for the period of 2005-8 at national level without any sectoral detail. Import Taxes, like in the case of S/U Table and I/O Tables, have two varied dataset: National scale for the period from 2005 to 2008 and at the NUTS1 level starting from January of 2006 to present. Related with the ROW, import figures are available 1992 to present for all commonly used trade classifications.

Quarterly labor income is available for the period 1987-2006 at national scale and has a sectoral detail of twelve sectors. Factor Tax is available from 2000 to time at the national scale without a sectoral detail.

Rich dataset is available for the household consumption. The data is available for the period of 2002 to present at the aggregate level with the exception of 2003 date which can be found at NUTS2 level. Consumption data have rich commodity detail too. The data is also available for the consumption of agricultural products; this figures include the years between 2000-07 at the national scale.

Table 2.3 displays the availability of data on the third part of Social Accounting Matrix (SAM) that is necessary to built CGE model. The categories are: i. Dividends, ii. Corporate Tax, iii. Net Factor payments from abroad, iii. Profit Transfers from abroad, iv. Interest Income from abroad, v. Gross Fixed Investment, vi. Government Consumption, vii. Transfer Payments, viii. Subsidies, ix. Foreign Dept Interest Payments, x. Transfers to abroad, xi. Government Investments, xii. Foreign Investment and finally xiii. Investments.

Data about Corporate Tax is available from 1998 to 2008 at NUTS3 level without any sectoral detail. The three categories, namely ‘net factor payments to abroad’, ‘profit transfers from abroad’, ‘interest income from abroad’ that constitute the ROW aspect are derived from the database of the Central Bank of Republic of Turkey; aggregate data is available from 1984 to present without any sectoral detail. Gross Fixed Investment is available for the years between 2004-8 at national level with 9 sectors.

**Table 2.3: Macro Accounts (III)**

Category	Sub-category	Availability				Sectoral Detail	
		NUTS3	NUTS2	NUTS1	NUTS0		
<b>FIRMS</b>	<b>Households</b>	Dividends	N. A.				
	<b>Government</b>	Corporate Tax	1998 - 2008+	1998 - 2008+	1998 - 2008+	1998 - 2008+	Aggregate
	<b>ROW</b>	Net Factor payments to abroad				1984 - 2010	Aggregate
		Profit Transfers from abroad				1984 - 2010	Aggregate
		Interest Income from abroad				1984 - 2010	Aggregate
	<b>S/I</b>	Gross Fixed Investment				2004 - 2008	9S
<b>GOVERNMENT</b>	<b>Commodities</b>	Government Consumption:				2006- 2009	40S
	<b>Households</b>	Transfer Payments				2006- 2009	Aggregate
	<b>Firms</b>	Subsidies				2006- 2009	Aggregate
	<b>ROW</b>	Foreing Debt Interest Payments				2006- 2009	Aggregate
		Transfers to abroad				2006- 2009	Aggregate
	<b>S/I</b>	Government Investment				2006- 2009	40S

ROW	<b>Commodities</b>	Exports				1992-2010+	HS6
	<b>Households</b>	Net Payments Abroad	Factor from			1984 - 2010	Aggregate
		Net Payments Abroad	Factor from			1968 - 2006	Aggregate
	<b>Firms</b>	Profit from abroad	Transfers from abroad			1984 - 2010	Aggregate
		Interest from abroad	Income from abroad			1984 - 2010	Aggregate
	<b>S/I</b>	Foreign Investment				1984 - 2010	Aggregate

S/I	<b>Commodities</b>	Investment				1992-2010+	
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The data regarding the government consumption and investment is available for the years 2006-09 for 40 sectors. Aggregate data on transfer payments, subsidies, foreign debt interest payments and transfers to abroad are available for the same period. All data in this category is available at the national level.

### 3. SELECTED RURAL DEVELOPMENT INDICATORS

Following the work of Bryden et al. (2002), rural development indicators can be grouped under four main categories: those concerned with demographics, rural welfare, rural economic structure and performance, and regional infrastructure. Our search on data availability for rural development indicators focused on the Regional databases of TURKSTAT. The following two tables summarize our findings.

The first table, Table 3.1 states the availability of the data concerning the demographic, rural welfare and regional infrastructure; it is preferred to illustrate the availability of the data regarding rural economic structure and performance in an independent table.

**Table 3.1 : Rural Development Indicators I (Demographics, Rural Welfare, Rural Infrastructure)**

Category	Sub-category	Availability			
		NUTS3	NUTS2	NUTS1	NUTS0

<b>RURAL DEVELOPMENT INDICATORS I</b>	<b>Demographics</b>	Population density	2007-2009+	2007-2009+	2007-2009+	2007-2009+	
		Age decomposition of population	2007-2009+	2007-2009+	2007-2009+	2007-2009+	
		Average annual population change	2007-2009+	2007-2009+	2007-2009+	2007-2009+	
		Regional net migration balance	2008-2009+	2008-2009+	2008-2009+	2008-2009+	
		Infant mortality rate	2000	2000	2000	2000	
	<b>Rural Welfare</b>	Accessibility to public services (health, education, local government)	THE NECESSITY OF DEFINITION				
		Employment structure (part-time emp., self emp. )	2009+	2004-2008+	2004-2008+	2004-2008+, 2009+	
		Average household earnings per capita			2006+	2006+	
		House ownership	2000	2000	2000	2000	
	<b>Regional Infrastructure</b>	Supply of broadband services	2004-2005	2004-2005	2004-2005	2004-2005	
		Health infrastructure	2000-2008+	2000-2008+	2000-2008+	2000-2008+	
		Education	1994-current	1994-current	1994-current	1994-current	
		Electricity	2001-2008+	2001-2008+	2001-2008+	2001-2008+	
		Water	Needs to be estimated				
		Roads	1967-current	1967-current	1967-current	1967-current	

Table 3.2 shows the availability of necessary data regarding the rural economic structure and performance. The heading of rural economic structure and performance consists of sectoral gross value added per capita, the share of high-tech sectors in GVA, the new business



formation rate, Research and Development expenditure, number of university students, share of work force with higher qualification, sectoral employment shares, enterprise size structure, farm net value added per holding, hectare and AWU, farm business employment, firm size distribution and tourism and recreation.

The data regarding the R&D expenditures is the only one available at national level from 1990 to 2007. The data concerning farm net value added and farm size distribution is available at NUTS 1 level. The data related with the employment structure, namely sectoral employment shares and enterprise size structure is presented at NUTS 2 level again and available for the years 2003, 2004 and 2006. The last data that available at NUTS 2 level concerning the entity of farm business employment and the covers the years between 2004 and 2008.

The only data available at provincial level is the new business formation rate, number of university students and tourism and recreation. The common feature of the data concerning these data is time dimension; they all cover post-2000 period. While the data regarding new business formation rate is available from 2002 to date, the data concerning the number of university students is available from 2000 to date. The data concerning the tourism and recreation like number of beds, rooms, duration of stay is available for the years of 2000-03 and 2006-07.

**Table 3.2 : Rural Development Indicators (Rural Economic Structure and Performance)**

Category	Sub-category	Availability			
		NUTS3	NUTS2	NUTS1	NUTS0
<b>Rural Economic Structure and Performance</b>	Sectoral GVA per capita		2004-2006	2004-2006	2004-2006
	%GVA in high-tech sectors		2004-2006	2004-2006	2004-2006
	New business formation rate	2002-2009+	2002-2009+	2002-2009+	2002-2009+
	R&D expenditures				1990-2007
	No. university students	2000-2010	2000-2010	2000-2010	2000-2010
	Share of workforce with higher qualification		2004-2008	2004-2008	2004-2008
	Sectoral employment shares		2003-2004, 2006	2003-2004, 2006	2003-2004, 2006
	Rural employment			2005	2005

	Enterprise size structure		2003-2004, 2006	2003-2004, 2006	2003-2004, 2006
	Total agricultural gross output	1995-2008	1995-2008	1995-2008	1995-2008
	Farm net value added per holding, hectare and AWU			2006+	2006+
	Farm business employment		2004-2008	2004-2008	2004-2008
	Farm size distribution (area/output)			2006+	2006+
	Tourism and recreation(no. beds, rooms, duration of stay)	2000-2003, 2006-2007	2000-2003, 2006-2007	2000-2003, 2006-2007	2000-2003, 2006-2007

#### 4. AGRICULTURAL SECTOR DATA

Table 4.1 deals with the production, subsidies and inputs related to agriculture. The data concerning the production site has two time dimensions. While the data covering the period of 1925-98 is presented at the national scale, the data that encompasses the years 1991-2008 available at NUTS3 level. The data has sectoral detail on the base of agricultural activity. However, the same assessment related with the sectoral detail is not valid for the data regarding the subsidies; the data concerning the subsidies do not have any sectoral detail and presented at the national level. The subsidy concerning data is covering the post-2000 period.

Data on various types of land and agricultural land use are available for the period 1991-2007 at NUTS 3 level. Labor data is not available at the regional level for the post-2000 period.

Fertilizer production, imports, exports and use are available at national scale from 1981 to present for all types of fertilizers. The data on crop irrigation requirements is available for the years of 1983 and 1986 at NUTS 3 level. The price of irrigation per hectare available for the years between 1999 and 2006 at NUTS 3 level again. The data concerning the last two entities has sectoral detail based on the agricultural activity.

**Table 4.1. : Agricultural Statistics (I)**

Category	Sub-category	Availability				Sectoral Detail
		NUTS 3	NUTS2	NUTS1	NUTS0	
<b>Production</b>		1991-2008	1991-2008	1991-2008	1925-1991, 1991-2008	Activity
<b>Subsidies</b>					2000- current	Aggregate
<b>Inputs</b>	Total Land	1991-1997	1991-1997	1991-1997	1991-1997	Activity
	Irrigated Land	2001	2001	2001	2001	Aggregate
	Rainfed Land	2001	2001	2001	2001	Aggregate
	Fruits and Nuts	1995- 2008+	1995- 2008+	1995- 2008+	1933-1998, 1995-2008+	Activity
	Crops	1995- 2008+	1995- 2008+	1995- 2008+	1933-1998, 1995-2008+	Activity
	Vegetables	1995- 2008+	1995- 2008+	1995- 2008+	1968-1998, 1995-2008+	Activity
	Labor	2000	2000	2000	1923-2009	Aggregate
	Machinery	1995-2008	1995-2008	1995-2008	1995-2008	Aggregate
	Fertilizer				1981-2009	Aggregate
	Production				1981-2009	Aggregate
	Imports				1981-2009	Aggregate
	Exports				1981-2009	Aggregate
	Use				1981-2009	Aggregate
	Irrigation					
	Crop Irr. Req.	1983, 1986	1983, 1986	1983, 1986	1983, 1986	Activity
	Volume	N. A.				
Price per Ha	1996-2006	1996-2006	1996-2006	1996-2006	Activity	
Pesticide				1923-1998	Aggregate	

Table 4.2 deals with the agricultural statistics related to domestic use and prices. Domestic use consists of consumption, seed and feed use, production loss, stock changes, industrial use and processing. The data in this category from 2000 until 2007 at national scale and has activity detail.

Several data sets are available for the agricultural commodity prices for various periods. Regional prices are also available. While the data that regarding producer prices and encompasses the period between the years of 1991 and 2007 at NUTS 2 level. Consumer prices are for the fruits, vegetables and processed food between the month of January of 2005 and to date.

**Table 4.2. : Agricultural Statistics (II)**

Category	Sub-category	Availability				Sectoral Detail
		NUTS 3	NUTS2	NUTS1	NUTS0	
<b>Domestic Use</b>	Consumption				2000-2007	Activity
	Seed use				2000-2007	Activity
	Feed use				2000-2007	Activity
	Production loss				2000-2007	Activity
	Stock exchanges				2000-2007	Activity
	Industrial use				2000-2007	Activity
	Processed				2000-2007	Activity
<b>Prices</b>	Price indices				2003 Jan-current	Aggregate
	Crop prices	1980-1993	1980-1993	1980-1993	1980-1993, 2003 Jan - current	Activity
	Dairy prices	1980-1993, 1994 Jan-2008 Jan +	1980-1993, 1994 Jan-2008 Jan +	1980-1993, 1994 Jan-2008 Jan +	1980-1993, 1994 Jan-2008 Jan +, 2003 Jan-current	Activity
	Producer price	2005 Jan-current	2005 Jan-current	2005 Jan-current	2005 Jan-current	F, V, PF
	Consumer price	sampling / 1994 Jan - 2004 Dec	sampling / 1994 Jan - 2004 Dec	sampling / 1994 Jan - 2004 Dec	sampling / 1994 Jan - 2004 Dec	F, V, PF

Table 4.3 is about the livestock sector. As the first point, it is necessary to note that all relevant data has activity detail going down to NUTS3 level. Data about the prices in this category is available from the 1980 to date. While the data regarding numbers of adult and young bovines covers the years from 1991 to date, the data on the number of slaughtered bovines and volume of meat production is avail since 2007. Finally, the price indices for both ovine and bovine are also available monthly at the national level.. The important problem at the point is that price indices for the meat and milk production are not very long.

**Table 4.3.: Agricultural Statistics - Livestock**

	Category	Sub-category	Availability				Sectoral Detail
			NUTS 3	NUTS2	NUTS1	NUTS0	
<b>LIVESTOCK</b>	<b>Bovine</b>	Prices	1980-2007 +	1980-2007 +	1980-2007 +	1980-2007 +, 2003 Jan-current	Activity
		Number					Activity
		Adult	1991-2008+	1991-2008+	1991-2008+	1991-2008+	Activity
		Young	1991-2008+	1991-2008+	1991-2008+	1991-2008+	Activity
		Slaughtered	2007-2008+	2007-2008+	2007-2008+	2007-2008+	Activity
		Meat Production	2007-2008+	2007-2008+	2007-2008+	2007-2008+	Activity
	<b>Ovine</b>	Prices	1980-2008+	1980-2008+	1980-2008+	1980-2008 +, 2003 Jan-current	Activity
		Number	1991-2008+	1991-2008+	1991-2008+	1991-2008+	Activity
		Slaughtered	2007-2008+	2007-2008+	2007-2008+	2007-2008+	Activity
		Total	1991-2008	1991-2008	1991-2008	1991-2008	Activity
		Meat Production	2007-2008+	2007-2008+	2007-2008+	2007-2008+	Activity
	<b>Apiculture</b>		1991-2008+	1991-2008+	1991-2008+	1991-2008+	Activity
	<b>Poultry</b>		1991-2008+	1991-2008+	1991-2008+	1991-2008+	Activity