China: Input-Output Tables 1992-2010

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Why?

• Data base for MUDAN model
• Check consistency of Chinese data
• Examine structural change
• Economic imbalances?
• Energy use
• CO2 generation
Basic Data Sources

• CSY data in electronic format from 1995-2011
• China Labor Statistics Yearbook: 2001-2010
• China Economic Census Statistics 2004, 1995
• Bilateral Trade model data base
• National Bureau of Statistics of China (monthly data)
Major Problem Areas

• Major changes in scale—GDP revised up 10% in 2009 without revisions in production data
• Tables (CSY) appear and disappear
• Labor (employment) data weak
• Factor income data at national level is nonexistent
Major Strengths

• Historical tables relatively consistent
• Gradually improving data base – especially for services
• Agriculture and Industry data (Mining, Manufacturing and Utilities) are consistent enough over time to be useable
• Expanding detail from the national accounts
Plan I

• Balance tables in current prices
• Balance full four quadrant IO tables at one time—intermediate (59) sectors, final demands and value added (wages, depreciation, taxes less subsidies, surplus)
• Use at much data as can be gleaned from the CSY and other data sources—methods vary greatly due to coverage, general appropriateness, etc.
Plan II

• For each cell in the large matrix attempt to construct a consistent time series between IO table years—e.g. 1992-1997, 1997-2002, etc

• Then “benchmark” the end points based on the IO table and generate a “fix” file for starting points for the intervening years

• This is applied for all gross output of all sectors
Plan III

• Balance backwards and forwards—starting points are important—e.g. balance 1992-96 going forward and the balance 1997-93 going backwards – Remember interdyme can operate backwards as well as forwards in time.

• Use estimates from both of the estimates as a starting point for final balance
Plan IV

• After balancing table we then balance bridge matrices for investment – 52 investing industries (columns) and 59 rows

• Similar household consumption matrices—urban (59 rows, 24 columns), rural (59 rows, 10 columns)
Plan V

• Deflate the table to obtain constant price estimates
• “Known” prices: (1) gross output; (2) import prices (3) export prices (4) rural consumption prices and (5) urban consumption prices
• Implicit prices for each row of the table are implied—(1) domestically produced goods for particular uses are necessarily different from production prices—e.g. Urban and rural households; (2) user prices (mixture of domestic and import prices).
• “User” prices are used for deflation
Plan VI

• Check estimate of deflated GDP with NA
• How different? Why?
• Estimate service industry output prices—value added prices are the only ones published and these only implicitly
• Assume the implicitly published prices are constructed using a double deflation method
Plan VII

• Estimate new service industry “output” prices that are consistent with “deflated” valued added and the in the IO Table

• Use the resulting matrices as the basis for estimating MUDAN

• Reconcile 2002 estimates for GDP with National Accounts
Strengths of Plan

• Internal consistency
• Ability to examine any series as a time series and not just a point estimate
• Ease of updating – documentation – all preparation work is done starting with excel tables in the CSY followed by G7 add files (scripts) preparing the work for interdyme which integrates and completes the work.
Weaknesses

• Estimates of GDP in 2002 prices not consistent with National Accounts
• Only total household consumption (rural and urban) is available in constant price units on product side national accounts
• Some estimates of the implied prices of domestic production for domestic consumption are not reasonable—indicating a defect in data or method
Some Results
GDP and Components

2002 = 1.

Note: Log scale

Rural HH

Exports
Imports
GDP

Log gdpR
Log cr R sum
Log cu R sum
Log i f a R sum
Log ex R sum
Log i m R sum
1 Farming in 2002 prices

Note: Log Scale

GDP = dom dem in 2002

Output & Domestic demand

Households

Imports

Exports

Missing Or wrong data

Health care, sports and social welfare

Prices of output, exports, imports, domestic use

PRICES

Output

GDP

Urban HH

Rural HH

Urban HH
Electronic and communication equipment prices of output, exports, imports, domestic use

GDP
Rural HH
Urban HH
Output
Exp&Imp

prices39
priceexp39
priceimp39
pricecu39
pricecr39
gdpD
Thank You!