

Trade in value added (TIVA)

Introducing TIVA

Trade flows between countries are traditionally measured on a 'gross' basis. For example in 2009 official estimates⁵ state that Australia exported over US\$45 billion worth of goods and services to China and imported just over US\$30 billion worth of goods and services from China. For each final good and service exported, regardless of whether its components (ie intermediate inputs) originated in Australia, its traded value is recorded in the official trade statistics as an export. The same applies for imports of goods and services.

Trade in value added (TIVA) on the other hand, recognises that many goods and services are assembled using inputs from multiple industries, across multiple countries – using global value chains (GVC's). Trade in value added endeavours to measure the value added by industries within each country involved in the production of goods and services, to give a better understanding of the country-to-country trade relationships within GVC's. The concept is analogous to the approach for compilation of National Accounts.

In a joint project, the Organisation for Economic Cooperation and Development (OECD) and the World Trade Organization (WTO) have constructed a database containing TIVA indicators for 1995, 2000, 2005, 2008 and 2009, for OECD and selected other countries, as well as for the European Union as a whole. The indicators enable analysis of value added trade on the bases of country-to-country and selected industry (including service industries), with a view to future expansion by time and by number of indicators.

The database shows that on a value added basis, Australia's exports to China in 2009 totalled just under US\$30 billion, while imports of value added from China totalled approximately US\$21 billion⁶.

TIVA outputs

Current 'trade in value added' outputs enable users to analyse country-to-country and industry trade statistics. They provide answers to the following sorts of questions:

- What is the domestic value your country has added, embodied in the foreign final demand of other countries (commonly interpreted as 'exports of value added' by country)?
- What is the value other countries have added, embodied in your domestic final demand (commonly interpreted as 'imports of valued added' by country)?
- What do foreign countries value add in terms of your own exports?
- What is the value added to exports contributed by each industry and how much do service industries contribute?
- In which industries do you exhibit a revealed comparative advantage and how does that compare to other countries?

These sorts of questions can be addressed by TIVA outputs and, used in conjunction with traditional 'gross trade' statistics, can provide a more complete view of trading relationships.

Examples for Australia: TIVA versus gross trade statistics

Analysis of trade statistics on a value added basis highlights a number of differences when compared to gross flow statistics. **Charts 1 and 2** below display some comparative statistics for Australia.

Chart 1 displays the proportion of Australia's exports accounted for by the top six export markets in 2009, together with their corresponding share of Australia's value added exports. China, India and the United Kingdom all suffer a fall in share, in value added terms relative to gross terms – most notably the United Kingdom. Japan's share of exports remains steady, while the United States share of exports rises from 6 per cent to nearly 11 per cent on a value added basis, suggesting Australian value added embodied in goods and services exported by other countries to the United States.

⁵ Using data published by the OECD.

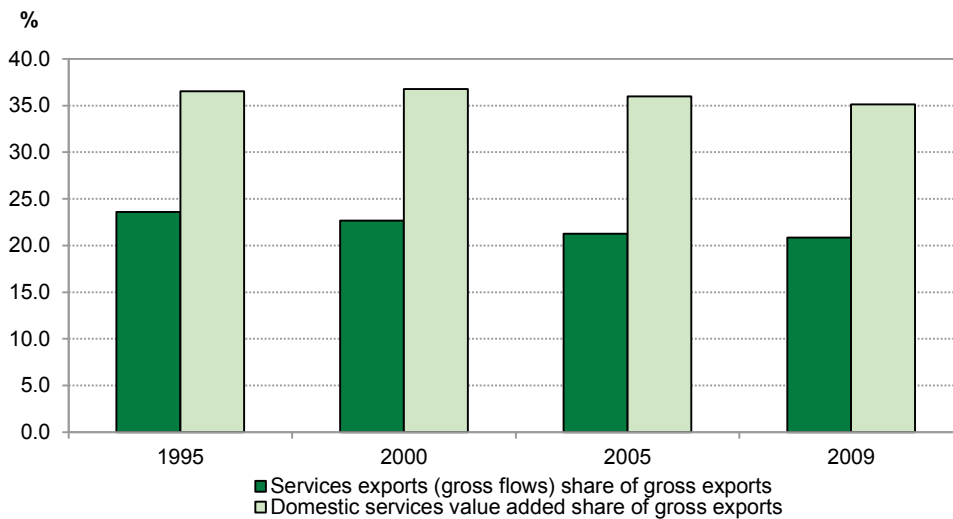
⁶ Domestic value added embodied in foreign final demand (exports) and foreign value added embodied in domestic final demand (imports).

Chart 1 – Share of TIVA vs gross exports, 2009



Source: OECD TIVA database.

Chart 2 – Services contribution to exports: gross flows vs domestic services value add



Source: OECD TIVA database.

Because many services are not traded directly, services contributions to exports are more fully captured on a value added basis. For instance land transport and electricity services used up in the mining and export of resources are reflected in trade on a value added basis, but not on a gross exports basis.

In **Chart 2** it can be seen that in 2009 services exports accounted for only one-fifth of gross exports and this proportion had fallen since 2005. However the contribution of domestic services to gross exports of goods and services measured on a TIVA basis amounted to over a third of gross exports (and remained relatively constant between 1995 and 2009).

Further reading and TIVA going forward

The OECD-WTO joint project on trade in value added forms the basis for TIVA data availability to date. This project is expected to deliver updates over time (ie beyond 2009) as well as broadening indicators to cover 'trade in jobs and skills' and 'income distribution' associated with knowledge based assets. The OECD has also released a publication on the subject, entitled 'Interconnected Economies: Benefitting from Global Value Chains', as well as individual country notes which provide a more detailed account of Australia's TIVA statistics. The TIVA database is located at: [http://www.oecd.org/sti/ind/measuringtradeinvalue addedanoecd-wtojointinitiative.htm](http://www.oecd.org/sti/ind/measuringtradeinvalueaddedanoecd-wtojointinitiative.htm).

The publication is located at: <http://www.oecd.org/sti/ind/global-value-chains.htm>.

The country note for Australia is located at: http://www.oecd.org/sti/ind/TIVA_AUSTRALIA_MAY_2013.pdf.

The Reserve Bank of Australia has released a paper entitled 'Value added trade and the Australian Economy'. The analysis presents various estimates of value added trade for Australia, that complement the traditional estimates. The paper is located at: <http://www.rba.gov.au/publications/bulletin/2013/mar/pdf/bu-0313-4.pdf>.

The Department of Foreign Affairs and Trade also expects to provide more TIVA analysis to users, with a focus on Australia and its key trading partners.

Author: Brent Perkins
Trade Advocacy and Statistics Section
Resources, Competitiveness & Trade Analysis Branch
statssection@dfat.gov.au

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