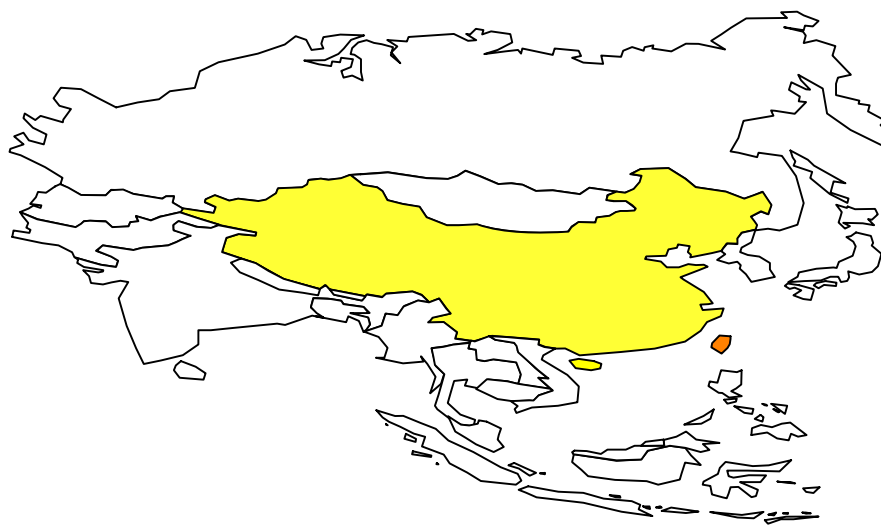


# Comments on

## *On the value chain and international specialization of China's pharmaceutical industry by Dawei Li et. al*

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\*The views expressed in this presentation are solely those of the presenter. They are not meant to represent in anyway the views of the U.S. International Trade Commission or any of its individual Commissioners.

Slide 1

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zhi.wang, 9/21/2007

# Major Empirical Results of Paper

- Provide empirical evidence for the nature of division of labor in world and China's pharmaceutical industry
  - Various trade indexes indicate the main type international division of labor in pharmaceutical industry is horizontal intra-industry trade among developed countries, and concentrated in final products; While China mainly supply raw material medicines to the world market and almost not participant such type intra-industry trade in final products, even significantly behead India;
  - Estimated domestic and foreign value-added share in China's exports show that similar to IC industry, China's pharmaceutical industry located in the low end of the global supply chain, but has a much higher domestic content share than China's IC industry.

## Key Assumptions of HIY Measure

- Intensity in the use of imported inputs must be the same whether goods are produced for export or for domestic final demand. This assumption is violated when processing exports are pervasive due to policy incentives, as in China and Mexico, and exported goods use much greater share of imported intermediate inputs.
- All imported intermediate inputs must contain 100% foreign value added. There can be no indirect domestic content in a country's imports, home country only exports final goods

# There are different ways to relax the first assumption –Sensitivity of the results

Koopman, Wang and Wei (2008) report much higher domestic value-added share for China's pharmaceutical industry

	Normal	Processing	total
Foreign value-added	8.9	66.2	18.6
Domestic value-added	91.1	33.8	81.4

However, their estimates on IC products also have a much lower domestic content share, therefore, conclusion of this paper on China's pharmaceutical industry has lower degree of vertical specialization but higher domestic value-added share compare with China's IC industry seems valid.

Industries	Processing exports in percent of industry exports	FIE exports in percent of industry exports	Non -processing		Processing		Weighted sum		Share in China's total exports to the World
			Direct domestic value-added	Total Domestic Value-added	Direct domestic value-added	Total Domestic Value-added	Direct domestic value-added	Total Domestic Value-added	
<b>Electronic computer</b>	<b>99.1</b>	<b>99.4</b>	<b>14.5</b>	<b>80.6</b>	<b>3.9</b>	<b>3.9</b>	<b>4.0</b>	<b>4.6</b>	<b>1.3</b>
<b>Telecommunication equipment</b>	<b>91.2</b>	<b>88.4</b>	<b>28.1</b>	<b>82.8</b>	<b>5.4</b>	<b>8.4</b>	<b>7.4</b>	<b>14.9</b>	<b>3.4</b>
<b>Cultural and office equipment</b>	<b>93.4</b>	<b>71.6</b>	<b>6.1</b>	<b>70.7</b>	<b>12.8</b>	<b>15.5</b>	<b>12.4</b>	<b>19.1</b>	<b>4.6</b>
<b>Other computer peripheral equipment</b>	<b>99.2</b>	<b>87.6</b>	<b>40.7</b>	<b>81.0</b>	<b>8.4</b>	<b>19.1</b>	<b>8.7</b>	<b>19.7</b>	<b>6.2</b>
<b>Electronic element and device</b>	<b>89.7</b>	<b>87.5</b>	<b>31.7</b>	<b>86.9</b>	<b>12.7</b>	<b>14.8</b>	<b>14.7</b>	<b>22.2</b>	<b>3.6</b>
<b>Radio, television and communication equipment and apparatus</b>	<b>90.6</b>	<b>62.3</b>	<b>35.5</b>	<b>77.9</b>	<b>8.2</b>	<b>31.2</b>	<b>10.8</b>	<b>35.5</b>	<b>5.6</b>
<b>Household electric appliances</b>	<b>79.1</b>	<b>56.9</b>	<b>27.5</b>	<b>88.0</b>	<b>7.1</b>	<b>23.7</b>	<b>11.4</b>	<b>37.2</b>	<b>2.1</b>
<b>Medical and pharmaceutical products</b>	<b>16.9</b>	<b>28.7</b>	<b>39.0</b>	<b>91.1</b>	<b>11.5</b>	<b>33.8</b>	<b>34.3</b>	<b>81.4</b>	<b>0.8</b>

Source: Koopman, Robert, Zhi Wang and Shang-jin Wei, 2008, NBER Working Paper 14109

# How to Measure Value-added Contribution in Production Chain: HIY Measure

- A country can participate in vertical specialization in TWO WAYS:
  - uses imported intermediate inputs to produce exports
  - exports intermediate goods that are used as inputs by another country to produce goods for exports
- Two measures of “vertical specialization”
  - VS: measure of the value of imported contents embodied in a country’s exports
  - VS1: measure of the domestic value-added of intermediate exports embodied in all other country’s exports to the final destination
- A complete picture of vertical specialization for a county’s position in a vertical integrated production network involves both measures, large share of VS1 associate with upstream countries, while large share of VS with downstream countries

# Sources of value-added in pharmaceutical products East Asia to the United States

## 2000

<i>Country</i>	<i>Total exports to the U.S.</i>	<i>Domestic value-added share</i>	<i>Foreign value added share</i>			<i>Indirect value-added exports via others in East Asia</i>
			<i>From all countries</i>	<i>From others in East Asia</i>	<i>From U.S.</i>	
China	694.3	89.5	10.5	3.3	0.9	1.1
Indonesia	24.7	75.3	24.7	6.3	1.8	22.6
Japan	956.2	92.7	7.3	1.2	0.9	2.7
Korea	56.9	76.1	23.9	5.6	3.0	14.8
Malaysia	2.3	63.1	36.9	12.5	4.0	470.6
Philippines	0.0	56.3	43.7	13.0	7.6	2069.2
Singapore	598.0	80.4	19.6	5.2	2.8	0.2
Thailand	1.4	67.8	32.2	10.8	4.0	219.7
Taiwan	23.6	73.0	27.0	5.8	4.0	31.2

Source: Author's estimate based on Asian IO table compiled by IDE of Japan