【特集・Extended Abstract】

Intersectoral Resource Flows in China Revisited
---In Memory of the Late Professor Shigeru Ishikawa

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Professor Shigeru Ishikawa, who passed away in January 2014, can be said to be a great pioneer in the area of Chinese studies as well as development thinking in Japan. His contributions to this area are various, but what is particularly influential in the international academic circle of development studies is his studies on intersectoral resource flows in developing countries including China. His work on this issue has been followed by many authors who try to estimate intersectoral resource flows in other economies, including pre–war Japan. They were all motivated by Ishikawa's bright idea and creative framework to deal with this issue.

An issue of intersectoral resource flows (hereafter, ISRF) is originated from a seminal paper by Lewis (1954), then developed by Fei and Ranis (1964), who formulated capital flows between agriculture and industry in development process. Ishikawa extended their methodology to apply to four economies and estimated the real capital flows between these two sectors, to propose a new hypothesis regarding the agriculture's roles of industrialization fund provision within developing countries (Ishikawa's hypothesis).

Conventional wisdom indicates that agricul-

ture must provide industrialization fund at the initial stage of development. Historical experiences are supposed to support this wisdom, as for example in the case of Japan after the Meiji restoration. According to Preobrazhensky's theory of socialist industrialization, the rural (agricultural) sector as a domestic 'colony' is assumed to be obliged to provide the 'primitive accumulation fund' to the industrial sector. He insisted at the same time that agriculture's resource should be transferred indirectly to the state through skewed price mechanisms (scissors' prices).

Ishikawa stresses, on the other hand, that agriculture must be aided by non–agricultural sector in contemporary developing countries in order not to fall into the Ricardian trap[1]. He says that agriculture in today's developing countries needs more infrastructural investment by the state to escape from the trap

This hypothesis has attracted a wide

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1 Ricardian trap means the following linkage describing a vicious circle, i.e. underdeveloped agriculture →poor production of grains →rising grain price →industrial wage increase → industrial profit decrease →investment rate decline →declining growth → underdeveloped agriculture.

international interest by development economists. For example, Lee (1971) applied Ishikawa's hypothesis and his methodology to Taiwan's historical experiences, while Mundle (1981) reestimated agro–industrial capital flows in India and Ohkawa et al.(1978) as well as Teranishi (1982) focused on the ISRF in pre–war Japan.

Real ISRF between agricultural and industrial sectors or agricultural surplus can be described as follows.

Real ISRF: $S=X_a/p_a-X_i/p_i=(X_a-X_i)/p_a$
$+(1/p_a-1/p_i)X_i=(X_a-X_i)/p_a +(1-P_a/p_i)X_i/p_a$

where X_a is agricultural exports to, X_i its imports from industrial sector, P_a is price index of agricultural exports, p_i is price index of its imports, thus p_a/p_i is terms of trade for agricultural sector.

According to the above conventional wisdom, $X_a-X_i>0$, and $S>0$, however, Ishikawa's hypothesis shows $X_a-X_i<0$, and $S<0$.

What about China's ISRF, particularly during the period of "planned economy"? Several estimates have been made so far. These estimates can be classified as two types.

Type A such as Ishikawa(1967), Ishikawa (1990); Nakagane(1989), which basically supports Ishikawa's hypothesis.

Type B such as Sheng(1993), Knight and Song(1999), Huang et al.(2006), Yuan(2010), which basically denies this hypothesis.

Type A of estimates is based on official (planned) prices, and Preobrazhensky's theory of scissors' prices can be expressed as $p_a/p_i<1$.

Type B of estimates, on the other hand, is based on non–official, "appropriate" prices, which seem to reflect more correctly the real supply and demand relations than the official prices. Type B estimates of China's ISRF can be shown as $R^*=p_i^*X_i -p_a^*X_a$, where p_i^* and p_a^* represent certain "appropriate prices".

Preobrazhensky's theory of scissors' prices could be described as $p_i^*<p_i$, and $p_a^*>p_a$. Certainly, procurement prices of agricultural products were highly underpriced, while prices of industrial products for the agricultural sector were intentionally overpriced in Maoist China.

But what are the appropriate prices p^*, then? Are they market prices? If so, there are no sufficient data of market prices during the Maoist era, when any markets were squeezed and often shut down. Are they prices reflecting "labor values" inherent in the products? (e.g. Li 1985) But such prices can be derived on the basis of ambiguous assumptions about labor values.

If the intersectoral transactions had been made under the appropriate price system, hidden resource flows must be $R-R^*$, where R shows actual resource flows under the official (planned) price system, i.e. $R=p_iX_i – p_aX_a$. $R-R^*>0$, since $p_i>p_i^*$, $p_a^*>p_a$, as implied by Preobrazhensky's theory of scissors' prices.

This type of estimates of China's ISRF seems to be subject to subsequent problems:
1) Agricultural products consist of many items, and "price–distortions" of the agricultural products must be different by item. Therefore, it must be wrong to obtain "appropriate prices" by multiplying a single correction parameter to the official planned prices.
2) This approach does not take "overpriced" industrial goods into accounts.
3) But the most serious problem is availability of the appropriate prices of Chinese products during the era concerned.

If no domestic market price data were available for the Maoist era, how about applying the world price to the calculation of ISRF for the same period? Collecting both domestic and world prices of agricultural and industrial products for 1952–2000, Yuan (2010)

concluded that China's agriculture had long been taxed indirectly through the skewed planned price system.

But this approach is also subject to the following important problem. If market prices were applied in simulation analysis, transaction volumes also must have been changed under these prices. Assume that every transaction were made by free market with p^*, then $R^{\wedge}$, or resource flow under the truly free market system would be $p_i^* X_i^* - p_a^* X_a^*$.

Truly hidden intersectoral resource transfer, then, must be $R-R^{\wedge}$. This hidden transfer might be zero, because X_i^* could be more than X_i and X_a^* could be less than X_a.

How much has Chinese agricultural sector provided industrialization fund? In what way did it provide the fund? Is that through scissors' prices, or underpricing agricultural products as well as overpricing industrial products? There seems to be no definite and exact way of calculating ISRF for Maoist China.

However, it is undeniable that Chinese peasants have contributed to the national capital formation, by sacrificing themselves with low income in collectivized agriculture, forced procurement, and *hukou* (household registration) system. Industrial workers also sacrificed their life under the "rational low wage" system during the Maoist era, but their sacrifice was much lighter than their counterparts in the rural area. We should notice that almost no starvation occurred in the cities after the Great Leap Forward.

Market economy has been expanding in rural China since 1978, as the procurement system was eliminated in 1992, agricultural tax was abolished in 2006, *hukou* system has become relaxed, and last but not the least, the share of agriculture in national income has been declining.

However, as long as rural–urban divide exists, the ISRF issue still remains, though to a lesser extent than before. It must be a permanent issue until China's economy is fully marketized, and the divided two sectors are completely unified in the true sense.

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