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HOW MUCH OF HONG KONG'S IMPORT FROM MAINLAND CHINA IS RETAINED FOR DOMESTIC USE?

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Abstract

As the renminbi continues to appreciate against the US dollar, questions have been raised on how this appreciation would affect the inflation outlook in Hong Kong. Addressing this question requires a measure of the share of imports from Mainland China in Hong Kong's total imports retained for domestic use. Since there are no official statistics, the figures have to be estimated using the re-export margin. Using an alternative approach, this Note estimates that the share ranges from 9% to 17%, depending on the assumed re-export margins. However, even at these levels the impact of renminbi appreciation on Hong Kong's inflation would be limited.

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I. OVERVIEW

As the renminbi continues to appreciate against the US dollar, questions have been raised on how such appreciation will affect the inflation outlook in Hong Kong. The size of the impact depends on how much of Hong Kong's retained imports are from Mainland China (China). Direct data on retained imports are not available and have to be estimated using figures for total imports, re-exports and re-export margins compiled by the Census and Statistics Department (C&SD).[1] On this basis, it is estimated that retained imports of China origin amounted to HK$25 billion or only 4.3% of Hong Kong's total retained imports in 2005.

The estimated share of retained imports from Mainland China appears to be quite small considering the growing trade and economic links between Hong Kong and China. In fact, an analysis of various related statistics suggests that the published re-export margin of 23.5% for China could have been under-stated, probably as a result of the marked increase in round-tripping trade between China and Hong Kong in recent years. As a result, retained imports of China origin tend to be under-estimated.

This Note uses a number of methods to obtain estimates of retained imports from Mainland China. Based on different assumptions about re-export margins, it is estimated that the actual share of retained imports from Mainland China in 2005 could fall within a range of 9% to 17%, higher than the 4.3% figure derived from the headline re-export margin for China.

However, even if Hong Kong's retained imports from Mainland China are likely to be materially higher than the headline figure, the impact of renminbi appreciation on consumer price inflation in Hong Kong is still likely to be modest. A 10% renminbi appreciation is estimated to increase the Composite CPI inflation rate at most by 0.4 percentage points in Hong Kong, assuming that China's share of Hong Kong's retained imports is 14%, which is the mean of our estimates, and that there is complete exchange rate pass-through to consumer prices.

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[1] The C&SD only publishes data of total imports and do not differentiate between imports for re-exports and imports for domestic use. Retained imports are estimated using re-export margins compiled based on survey data.

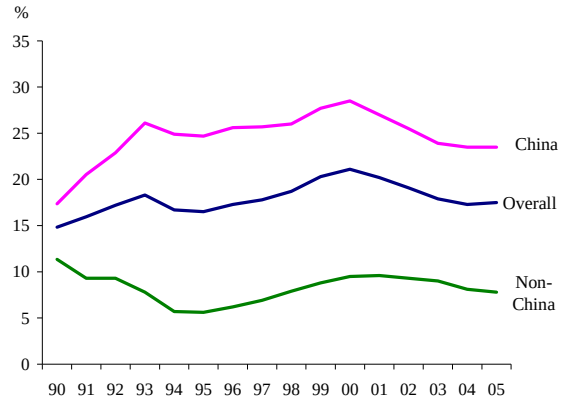
II. ESTIMATION OF RETAINED IMPORTS FROM CHINA

Trade statistics in Hong Kong mainly cover total imports, domestic exports and re-exports. No official statistics are available to directly measure the size of imports retained for domestic use, and the figure has to be estimated using re-export margin statistics. Re-export margin measures the price difference between re-exports and imports expressed as a percentage of re-export prices.[2] It captures the value-added to imports for re-export purposes. Given the re-export margin, retained imports can be derived by deducting re-exports measured at import prices from total imports. In other words, retained imports are equal to total imports minus re-exports discounted by the re-export margin, as represented by the following equation.

Retained imports = Total imports – Re-exports*(1 – re-export margin) (1)

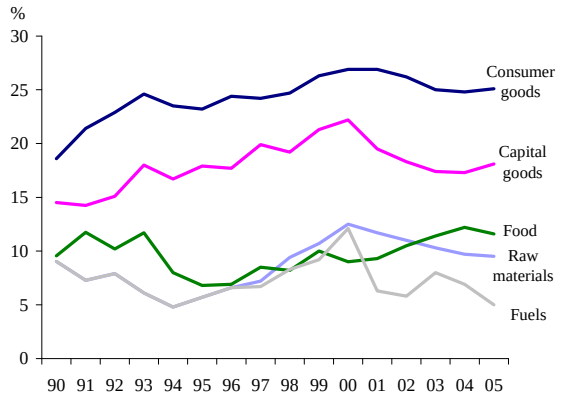
Based on survey data, C&SD has compiled the overall re-export margin, re-export margins for goods imported from China and non-China trading partners, and re-export margins by five end-use categories (Charts 1 and 2).[3] In terms of country of origin, the re-export margin for China has been much higher than that for other trading partners.[4] On the other hand, breakdown by end-use category shows that consumer and capital goods usually command higher re-export margins than fuels and raw materials.

Chart 1: Re-export margin by country of origin



Source: C&SD.

Chart 2: Re-export margin by end-use category



Source: C&SD.

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2 Re-export margin = (re-export prices – import prices) / re-export prices.

3 The five main types of goods by end-use category include foodstuffs, raw materials and semi-finished goods, consumer goods, capital goods and fuel.

4 The higher re-export margin for China may reflect the practice of transfer pricing, which is a profit-booking arrangement used by manufacturers for tax reasons.

The 2005 figures show that re-export margins for China and the rest of the world are 23.5% and 7.8% respectively, with the overall margin being 17.5%. Using equation (1), retained imports from China are estimated to be HK$25 billion, equivalent to 4.3% of total retained imports in Hong Kong. The share is relatively small compared with other major trading partners such as Japan and the US (Table 1).

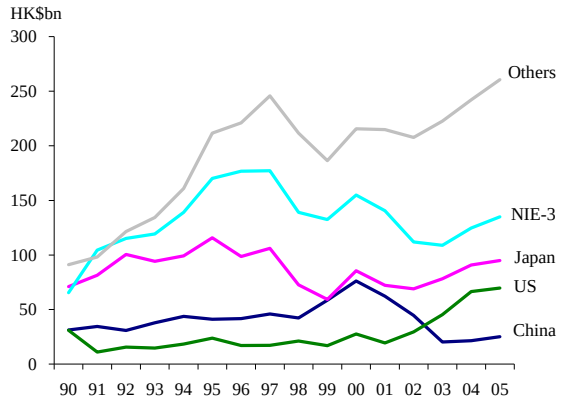
Table 1: Retained imports from major trading partners in 2005

2005 (HK$bn)	**Imports by origin**	**Re-exports by origin**	**Re-export margin[1] (%)**	**Retained imports**	**Share of HK's retained imports (%)**
Mainland China	1,030	1,313	23.5	25	4.3
US	106	64	7.8	46	7.9
Japan	266	186	7.8	95	16.2
Euro area	135	75	7.8	65	11.2
Taiwan	172	152	7.8	32	5.4
Korea	129	74	7.8	61	10.4
Others	492	249	7.8	261	44.7
Total	**2,329**	**2,114**	**17.5**	**585**	**100.0**

1. The re-export margin for non-China trading partners is estimated to be 7.8% on average for 2005.
Sources: C&SD and staff estimates.

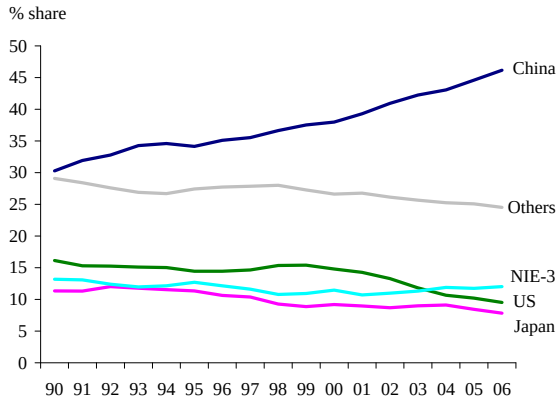
One noteworthy development is that while retained imports from most trading partners have been picking up along with rising domestic demand in recent years, retained imports from China have been declining (Chart 3). This trend seems to be at odds with the growing importance of China trade in Hong Kong compared with other economies (Chart 4), and raises question whether the re-export margins for goods originated from China are under-estimated. In particular, as 60% of re-exports in Hong Kong originates from China, even small sampling or reporting errors in the re-export margin statistics may have considerable impact on the estimate of retained imports from China.

Chart 3: Retained imports by country



Sources: C&SD and staff estimates.

Chart 4: Trade share by country



Sources: C&SD and staff estimates.

To test the sensitivity of the share of retained imports from China to changes in re-export margin, 5% and 10% deviations from the mean estimate are used to reflect sampling errors in the survey data.[5] Table 2 shows that if the actual re-export margin for China is 5% and 10% above the mean estimate, China's share of Hong Kong's retained imports would rise to 6.7% and 9.1% respectively for 2005. However, the share would turn negative if the actual re-export margin is 10% below the mean estimate, which is not a sensible outcome.

Table 2: Sensitivity of retained imports from China to re-export margins

2005	**Re-export margin for China (%)**	**Retained imports originated from China (HK$bn)**	**China's share of HK's retained imports (%)**
Mean - 10%	21.2	-5.8	-1.0
Mean - 5%	22.3	9.7	1.7
Mean estimate	23.5	25.1	4.3
Mean + 5%	24.7	40.5	6.7
Mean + 10%	25.9	55.9	9.1

Note: We assume that re-export margins for other trading partners will remain unchanged, and total retained imports will change along with different re-export margins used for China.

Sources: C&SD and staff estimates.

[5] Based on the sampling errors from the survey data, a 10% deviation from the mean estimate of re-export margin is equivalent to a 95% confidence interval within which the true re-export margin would fall.

The trend of declining retained imports from China suggests that the re-export margin of 23.5% for China appears to be under-stated. It is possible that the actual re-export margin for China is 10% higher than the published figure, yielding a margin of 26% for 2005. Assuming that re-export margins for other trading partners remain unchanged, the share of imports from China for domestic use would rise from 4.3% to 9.1%, while total retained imports in Hong Kong would increase from HK$585 billion to HK$616 billion.

III. THE BREAKEVEN RE-EXPORT MARGIN FOR CHINA

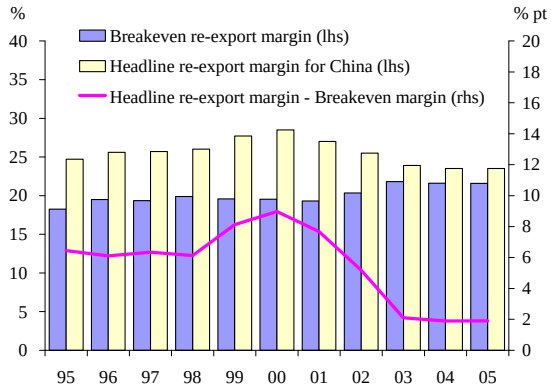
The hypothesis of a higher re-export margin for China could also be justified by past movements in the breakeven re-export margin and shifts in the product composition of re-exports originated from China. The breakeven re-export margin is defined as the margin which will lead to zero retained imports. It can be derived by re-arranging Equation (1) and setting retained imports to zero, that is,

$$\text{Breakeven re-export margin} = 1 - (\text{Imports} / \text{Re-exports}) \qquad (2)$$

In other words, the breakeven re-export margin is the difference between re-exports and imports expressed as a percentage of re-exports. Positive retained imports require the actual (or estimated) re-export margin to be higher than the breakeven re-export margin. The larger the difference between the two, the higher will be the retained imports.

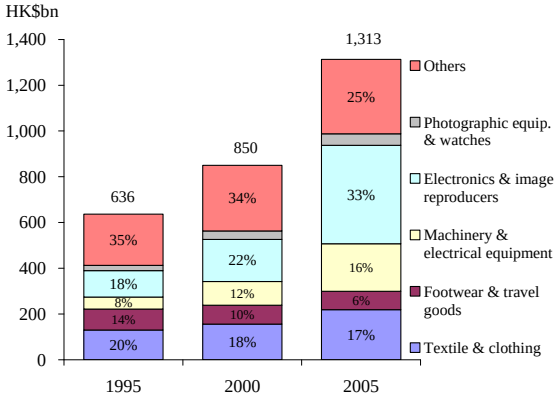
Past developments showed that the breakeven margin and headline re-export margin (published by C&SD) for China tended to move together during the period of 1995-2000, with the spread between the two widening gradually from 6 percentage points to 9 percentage points. However, the headline re-export margin has started to decline since 2001, meanwhile the breakeven margin has risen. As a result, the spread declined notably to 2 percentage points in 2005 (Chart 5). However, the composition of re-exports from China shows that manufacturers have shifted to produce goods with higher valued-added such as machinery and electronics products, whose combined share increased from 26% in 1995 to 49% in 2005 (Chart 6). This suggests that the profit margin for China-originated re-exports should have improved or at least remained stable, which is consistent with the rising breakeven margin (the blue column in Chart 5) but at odds with the falling headline margin (the yellow column in Chart 5).

Chart 5: Breakeven and headline re-export margins for China



Sources: C&SD and staff estimates.

Chart 6: Re-exports originated from China by commodity group



Sources: C&SD and staff estimates.

Supposing that the true re-export margin follows the movement of the breakeven margin as shown in Chart 5 and the spread between the two remains stable over time, the actual re-export margin for China would be higher than the headline figure of 23.5%. Using the average spread of 7 percentage points during 1995-2000, the derived re-export margin for China would rise to 28.6%, with a range estimate of 27.7%-30.6%. As a result, the share of imports from China for domestic use would increase to an average of 14.1% for 2005 (Table 3).

Table 3: Re-export margin for China derived from the spread between the breakeven and headline margins

	Spread for the period 1995-2000 (% point)	**Derived re-export margin for 2005 (%)**	**China's share of retained imports in 2005 (%)**
Smallest	6.1	27.7	12.5
Largest	9.0	30.6	17.4
Average	7.0	28.6	14.1
Breakeven re-export margin		*21.6*	

Note: We assume that re-export margins for other trading partners will remain unchanged, and total retained imports will change along with different re-export margins used for China.

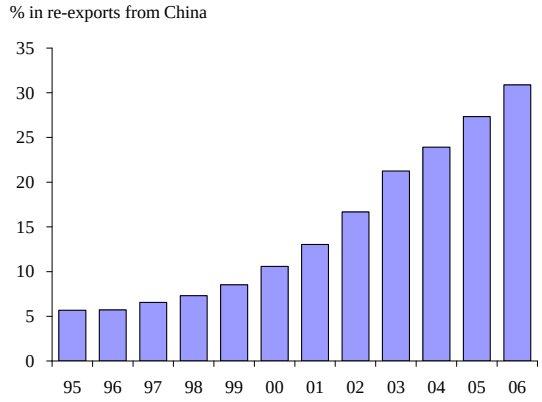
Sources: C&SD and staff estimates.

IV. ROUND-TRIPPING TRADE AND THE MEASUREMENT OF RE-EXPORT MARGINS

The above analysis suggests that the 23.5% re-export margin for China appears to be small and inconsistent with increased value-added contents in exports from China. While sampling errors have increased the uncertainty and variability in the estimation of re-export margins, the recent change in the trade pattern between Hong Kong and China could have distorted the measurement of re-export margins significantly. Specifically, the rise in round-tripping trade between Hong Kong and China, in which goods imported from China are subsequently re-exported back to China, might lead to under-estimation of the re-export margin for China.

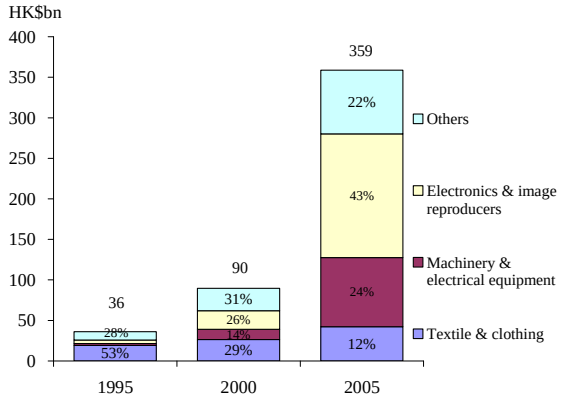
In recent years, the share of round-tripping trade in re-exports originated from China has increased markedly, rising from around 10% in 2000 to above 30% in 2006 (Chart 7). This has coincided with the fall in the headline re-export margin for China over the same period (see Chart 5). Although there is limited information about the nature and motive of the round-tripping trade, breakdown by commodity group suggests that the re-export margin for this type of trade has been improving, reflecting the rising share of high value-added goods such as machinery and electronics in the product mix. Their combined share increased from 19% in 1995 to 66% in 2005 (Chart 8).

Chart 7: Share of the round-tripping trade in re-exports from China



Sources: C&SD and staff estimates.

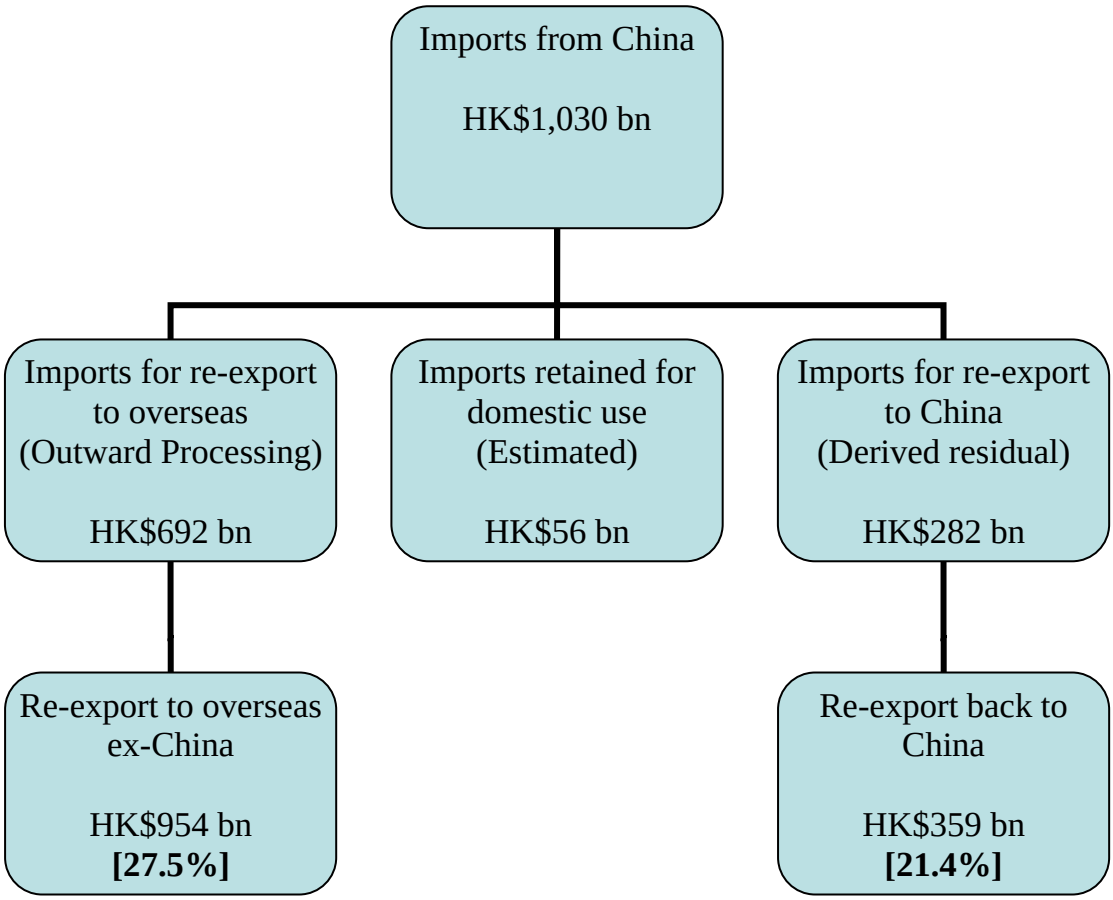
Chart 8: Product composition of the round-tripping trade with China



Sources: C&SD and staff estimates.

If the re-export margins of the round-tripping trade and re-exports to overseas (both originated from China) are expected to improve over time, in what ways would the growing importance of the round-tripping trade lead to under-estimation of the re-export margin for China? This hinges on whether the profit margin of re-exports back to China is lower than that of other places. Since such a breakdown is currently not available, re-export margins by destination have to be estimated based on some broad assumptions.

In general, imports originated from China can be used for three purposes, that is, for re-export to overseas markets (excluding China), for domestic use, and for re-export back to China (round-tripping trade), which can be illustrated by the following diagram.



Note: Bold figures in square bracket are derived re-export margins

Figures in the above diagram are trade flows from China to Hong Kong for 2005. Assuming a re-export margin of 26%, which is 10% above the headline margin published by C&SD, imports from China retained for domestic use is estimated to be HK$56 billion (see Table 2). Given total imports of China

origin is HK$1,030 billion, the remaining HK$974 billion should be for re-export purposes. To disaggregate the balance into re-exports to overseas market and back to China, it is assumed that imports involving outward processing in China, which amount to HK$692 billion, will be subsequently re-exported to overseas markets except China.[6] As a result, the derived re-export margin for this type of trade is 27.5%. The remaining imports, which amount to HK$282 billion, are expected to be re-exported back to China, with a derived re-export margin of 21.4%.

If the re-export margin for goods shipped to overseas markets is generally higher than for those shipped back to China, the rising share of the round-tripping trade may drag down the overall re-export margin for China as the chance of selecting samples with lower re-export margins in the re-export margin survey increases. This possibly explains the steady decline of the headline re-export margin for China since 2001, when the share of round-tripping trade started to pick up (see Chart 7). Anecdotal evidence also suggests that some of the round-tripping trade involve little further processing and value-added activities in Hong Kong.[7] Nevertheless, the validity of a higher re-export margin for goods shipped to overseas markets relative to China hinges on the estimate of retained imports and the assumption made on imports related to outward processing. Any under- or over-statement of these figures could lead to substantial changes in the estimates of re-export margins.

V. RETAINED IMPORTS AND IMPORTED INFLATION

Based on an assumed range of 26%-31% for the re-export margin, the share of imports from China retained for domestic use could lie between 9% and 17% for 2005 (Table 4). The mean estimate of China's share of retained imports in Hong Kong is 14% given a re-export margin of 28.5%, higher than the 4.3% share calculated from the headline re-export margin. The higher 14% share of retained imports from China seems to be in line with the general perception that a growing portion of consumer and capital goods sold in Hong Kong are made in

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[6] The usual outward processing arrangement is to export raw materials or semi-finished goods from or through Hong Kong to China for processing and assembly, with a contractual arrangement for subsequent re-importation of the processed goods into Hong Kong. It is believed that the majority of imports related to outward processing will be re-exported to overseas markets through Hong Kong. Although some of these outward-processing-related imports may be retained for domestic use or re-exported back to China, their proportions are assumed to be small.

[7] Some possible motives for the round-tripping trade could include tax reasons, restrictions of selling exported products in domestic markets, profit booking and logistic arrangements.

China. It is also comparable to the levels seen in the early 2000s.

Table 4: Retained imports from China under different assumptions on re-export margin

2005	**Re-export margin for China**	**China's share of retained imports**
Headline (published by C&SD)	23.5%	4.3%
Headline + 10%	25.9%	9.1%
Spread over the breakeven margin	28% - 31%	13% - 17%
Plausible range	***26% - 31%***	***9% - 17%***
Mean estimate	***28.5%***	***14%***

Note: We assume that re-export margins for other trading partners remain unchanged, and total retained imports change along with different re-export margins used for China.
Sources: C&SD and staff estimates.

A higher portion of imports from China retained for domestic use is expected to increase inflationary pressure in Hong Kong given the continued strengthening of the renminbi. Assuming China's share of retained imports is 14% and there is a one-to-one exchange rate pass-through to consumer prices, a 10% renminbi appreciation could increase the Composite CPI inflation by 0.4 percentage points, as tradable goods only account for 30% of household expenditure in the Composite CPI basket (that is, 10%*0.14*0.3). However, the overall impact of a stronger renminbi on consumer price inflation could be larger or smaller than the above estimate, depending on the degree of exchange rate pass-through, the indirect impact on service prices, and the actual share of retained imports from China.

Although Hong Kong's retained imports sourced from China are likely to be materially higher than the headline figure, the upwardly revised share of retained imports from China is not large compared to other major trading partners. This suggests that the impact of renminbi appreciation on consumer price inflation in Hong Kong is still likely to be modest. Moreover, since a significant portion of retained imports originates from countries other than China

and the US, inflationary pressures on domestic consumer prices due to the general weakness in the US dollar should be more significant than the effect due to renminbi appreciation.

VI. CONCLUSION

To summarise, our analysis suggests that the share of retained imports from China is likely to be within a range of 9%-17%, higher than the 4.3% estimated based on the headline re-export margin of 23.5% for China. In comparison with other major trading partners, the mean estimate of a 14% share for China would make it one of Hong Kong's largest source of imported goods for domestic use (Table 5).

Table 5: Retained imports from key major trading partners based on revised re-export margin for China

2005 (HK$bn)	**Imports by origin**	**Re-exports by origin**	**Re-export margin (%)**	**Retained imports**	**Share of HK's retained imports (%)**
Mainland China	1,030	1,313	28.5	91	13.9
US	106	64	7.8	46	7.1
Japan	266	186	7.8	95	14.6
Euro area	135	75	7.8	65	10.0
Taiwan	172	152	7.8	32	4.9
Korea	129	74	7.8	61	9.3
Others	492	249	7.8	263	40.3
Total	**2,329**	**2,114**	**20.7**	**652**	**100.0**

Note: We assume that re-export margins for other trading partners will remain unchanged, and total retained imports will change along with different re-export margins used for China.

Sources: C&SD and staff estimates.

While a higher re-export margin of 28.5% is plausible for goods of China origin, it at best serves as an alternative estimate to the headline re-export margin published by C&SD, as the validity of the assumptions used to come up with the estimate is yet to be tested. Inferring the "actual" re-export margin based on historical relationships between the breakeven and headline re-export margins also has its own shortcomings. In view of these caveats, the purpose of this analysis is to identify factors that could have distorted the estimation of the re-export margin and retained imports for China.

In general, there are two major sources of errors which render the estimation of retained imports imprecise. First, since re-export margins are estimated based on survey data, sampling and reporting errors may under-estimate retained imports if the re-export margin is under-reported by the respondents.[8] Secondly, since imports and re-exports from the same origin could not be mapped or traced based on official Customs trade data, measurement errors may result in considerable mismatch between these two sets of statistics, which further complicates the estimation of retained imports by country of origin.[9]

To improve the estimation of re-export margins, one needs to increase the sample size to enhance the precision of the estimates at detailed breakdowns. It would also be useful to research further the nature, motives and characteristics of the round-tripping trade between Hong Kong and China.

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[8] There could be incentive for trading firms to under-state their re-export margins due to tax considerations and other commercial reasons.

[9] For example, goods assembled in Hong Kong and re-exported to overseas markets may involve components from more than a single place of origin. However, exporters in Hong Kong may report the place of origin of the key component which contributes most to the formation of the final product, such as China, in the trade declaration form. As a result, the value of re-exports originated from China could be over-stated as the value of imports only covers the key component of the finished product.