

## **Figures, Facts and Fallacies**

Most of us are aware, figures are like games, you can play with it. Facts speak for themselves and are not susceptible to distortion. Misrepresentation and misreading of figures can result in policy fallacies and can lead to seemingly correct but erroneous conclusions.

Such problems can be exacerbated by findings published by reputable institutions which may have handled figures with insufficient qualifications on methodology and assumptions, and worse using inaccurately defined data. For a piece of serious research work, rigorous checks on data sources and verification of figures used are thus paramount.

For all good intents and purposes, a fruitful policy analysis can be denied due to lack of robustness in research discipline, especially for studies which have far reaching socio-political and economic implications. A recent study on “Prices and Earnings” by UBS is a case in point which we will elaborate further.

## **Comments on UBS Report**

The “UBS Prices and Earnings Report 2009 – A Global Purchasing Power Comparison” attempts to compare and rank the purchasing power of average wages and relative cost of living across 73 global cities using New York as the benchmark. According to the UBS Wealth Management Research, the UBS Report on “Prices and Earnings Comparison” was first published in 1971, has generated “high level of interests” based on “frequent inquiries received”. The UBS Report was updated in August 2010.

It is an ambitious undertaking. Unfortunately, UBS used a number of simplifying assumptions and standardisations. Comparisons across cities were made from New York to Manila, Nairobi to Singapore, regardless of their employment situation, occupational profiles and consumption structure. One should be cautious, as we attempt to show, in using the findings of the UBS Report to undertake policy analysis and draw conclusions. At least we found their various findings on Singapore, and we believe for some other cities too, are markedly different from studies conducted by Asia Competitiveness Institute (ACI) at Lee Kuan Yew School of Public Policy, National University of Singapore

Upon examining the UBS case on Singapore, we found some of the assumptions made inevitably result in a significant downward bias in the purchasing power of our wages.

Firstly, the UBS Report understates wages in Singapore.

- a. UBS uses a common occupational profile, based on global averages, to derive the average wage of each city. This occupation profile, however, severely understates the percentage of Professionals, Executives & Technicians (PMETs) in Singapore, thus resulting in an average wage that is much lower than the true average wage in Singapore. The percentage of PMETs in our resident workforce in 2009 was 54%, way higher than the 9% assumed by UBS which was not mentioned in the report but kindly made available upon request.
- b. The downward bias is more severe in Singapore’s case compared to some of our other Asian neighbours which have relatively less PMETs in their workforce. Singapore’s percentage of Production, Transportation Operators and General Labours (PTOGLs) and Clerical, Sales & Service Workers (CSRWs) which are respectively 21% and 25%, lower than the 58% and 33% assumed by the UBS Report, thus again resulted in an average wage much lower than the true average wage in Singapore.

- c. UBS also appears to have excluded Central Provident Fund (CPF) contributions from the calculation of net wages for Singapore. However, our CPF system is in fact a defined contribution system with individual accounts where the CPF contributions, apart from providing for retirement, are also extensively used for housing, medical and educational expenses prior to retirement. It is different from the typical western social security system which involves transfers from one group to another. Therefore CPF contributions should be included as part of wages and not be considered as tax payments.

Secondly, price levels constructed by UBS overstates the cost of living in Singapore

- a. The report uses a common European basket of goods and services to reflect costs of living across all cities. This would have caused an upward bias in the cost of living in Singapore as Western consumption goods tend to be more expensive in Asian cities. In the case of Singapore, we found weights on basket of goods and services for food, clothing and household appliances quite different from the European baskets commonly adopted in the UBS Report, which again can lead to significant distortions.
- b. UBS uses rents of private housing in the construction of the price levels (including rental). In Singapore's case, however, the majority of our population stay in public housing and median rents in public housing are more than 30% lower than the figure used in the UBS Report.
- c. These problems of methodology are accentuated by the small sample sizes of the data collected in the UBS study. The occupational wages and prices in the UBS Report cannot be safely viewed as representative, since only approximately 3 data points per item or occupation were collected for each city. This leads to some oddities in price comparisons. For example prices of home electronics and household appliances: The UBS report puts Singapore's price level above that of Mumbai, which is counterintuitive since we know anecdotally that visitors from India spend much on electronics in Singapore. On restaurants, UBS report puts Singapore's price level slightly above that of many Western European cities including Paris, which are known for their expensive restaurant meals. The discrepancies may have resulted from the small number of data points for each city.

Estimating the purchasing power of wages in an economy requires reliable and internationally comparable information on costs of living and nominal wages. Hence, the statistics provided by the World Bank International Comparisons Program (ICP) on costs of living and from the International Labour Organizations (ILO) and the US Bureau of Labour Statistics (BLS) on nominal wages are our main sources for research and policy analysis.

### **Wages amongst Six Major Cities: UBS Study versus ACI Estimates**

Based on data from official sources in each city, we attempted a rough comparison of prices and earnings in a few cities – London, Tokyo, Taipei, Hong Kong, Singapore and the US metropolitan area of New York-Northeastern NJ. The data used does not suffer from the small sample size problem. However, it is not possible to make similar comparisons across 73 cities, as most do not publish the relevant data.

We similarly created a purchasing power index by adjusting wages for price differences using two methods: (i) UBS's price indices and (ii) using PPP (Purchasing Power Parity) rates, i.e. exchange rates, adjusted for price differences between countries. The results are similar as shown in Table 1. Even using UBS's price indices, Singapore's purchasing power-adjusted

wages are far closer to those in cities like London and Tokyo than the UBS study suggests. They are also comparable if not higher than those of Taipei and Hong Kong. The discussion above shows that we need to be careful in the use and interpretation of data. The UBS Report picked a western basket of goods and services to construct the price index, and a third world occupational structure to construct the wage index for each city. For a city like Singapore, these assumptions lead to distorted results.

**Table 1: Comparison of Purchasing Power of Wages**

	UBS Prices and Earnings Report~	ACI estimates of monthly wages based on official sources, adjusted by UBS's price index^ and market exchange rates	ACI estimates of monthly wages based on official sources, adjusted by IMF's PPP (Purchasing Power Parity) exchange rates#
<b>Index (New York* =100)</b>			
<b>New York*</b>	100.0	100.0	100.0
<b>London</b>	81.5	106.7	88.3
<b>Tokyo</b>	72.6	105.8	88.1
<b>Taipei</b>	47.9	63.8	76.6
<b>Hong Kong</b>	41.6	63.3	74.0
<b>Singapore</b>	32.7	70.1	79.1
<b>Rankings</b>			
<b>New York*</b>	1	3	1
<b>London</b>	2	1	2
<b>Tokyo</b>	3	2	3
<b>Taipei</b>	4	5	5
<b>Hong Kong</b>	5	6	6
<b>Singapore</b>	6	4	4

Footnotes

~UBS's estimate of gross wage, adjusted by UBS's price index^ and market exchange rates

^ UBS's price index refers to its cost of entire basket of commodities excluding rent.

\* UBS Report refers to New York City; our estimates are based on New York-Northeastern NJ metropolitan area.

# PPP rates are market exchange rates, adjusted for price differences between economies. The rates used here are from the International Monetary Fund World Economic Outlook Apr 2011. As PPP rates are only available at country level and price levels tend to be higher in cities, Method (ii) is biased in favor of New York, London, Tokyo and Taipei. Monthly wage data for countries are based on national statistics, with some adjustments to make them more comparable due to slightly different data definitions.

The difficulty in the interpretation of the results and various technical and data shortfalls means that the reader should not over-rely on the UBS Report, which has understated wage levels and overstated price levels in Singapore. Hence UBS unjustifiably ranked Singapore at the bottom one-third amongst the 73 cities, which cannot be correct. Using more representative data from the World Bank and government statistical agencies, we have shown that purchasing power of wages in Singapore is better than the UBS Report suggested. The UBS Report is indeed a classic case of comparing not even between apples and oranges, but a mistaken case of treating a highly valuable jewel as stone.

By  
Dr Tan Khee Giap, Co-Director  
Dr Tan Kong Yam, Co-Director  
Dr Vu Minh Khuong, Senior Research Fellow  
Dr Gu Qingyang, Senior Research Fellow  
Asia Competitiveness Institute  
Lee Kuan Yew School of Public Policy  
National University of Singapore