

Description of Price and Wage Data from Canton and Macao 1704-1833

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Below is a description of figures contained in the following two databases:

- 1) 'Canton and Macao Price Data 1704-1833'
- 2) 'Canton and Macao Wage Data 1729-1833'

All prices and wages are in Chinese *taels*.

The price and wage data from Canton and Macao are perhaps the most detailed we have for China, from 1704 to 1833, but they are not without their problems. The price data have 1,743 entries and include everything one could imagine from the price of eggs, cabbage and radishes, to live pigeons, pigs and cows. For some animals, such as ducks, geese, pigs and piglets the documents show their live weights and dressed weights, which provides excellent data for restructuring a wide range of food prices. Most provisions were sold by weight, but some items such as eggs, brooms and cows were sold by the piece (or each). The wage data include daily and monthly salaries of cooks, carpenters, barbers, coolies and others. Unless noted otherwise, prices and wages were standard throughout the delta (for reasons discussion in *The Canton Trade*, chapter four) so the figures are valid for Macao, Canton and all locations in between.¹

Data and Sources

The price and wage data before 1806 were extracted mostly from the records of the East India companies operating in China, which include the English East India Company (EIC), French East India Company (CFI), Ostend General India Company (GIC), Dutch East India Company (VOC), Swedish East India Company (SOIC) and Danish Asiatic Company (DAC). With the exception of the EIC, and five voyages that the DAC commissioned to China from 1820 to 1833, other East India companies ceased sending ships to there after 1806 (owing to bankruptcy and/or the Napoleonic wars). Thus, for the years 1807 to 1835, the price data were extracted primarily from American China trade records, with some data coming from the EIC and DAC. A very small percentage of data were collected from printed primary sources, with the majority coming from handwritten documents in the respective archives. The author was the sole person collecting the data, over many years, so we had complete control over which data to include and which data to reject. This means, however, that all mistakes contained therein are the author's alone.

Unlike Portuguese in Macao, who often record their prices in Patacas or Spanish Dollars making the figure difficult to use for this database, other foreigners in China (including Canton and Macao) usually recorded everything in Chinese *taels*. This was necessary in order to compare prices between the two cities. They bought their provisions in Macao from the same persons who provided them in Canton, but paid local prices. Officers of East India companies were responsible for keeping tabs on all market prices, which means there should be no difference between what they and Portuguese paid in Macao. It would have been an act of negligence, on their part, if that happened (explained below). With only a few exceptions, we found rates for goods and labourers in the lower

¹ Paul A. Van Dyke, *The Canton Trade: Life and Enterprise on the China Coast, 1700-1845* (Hong Kong: Hong Kong University Press, 2005; reprint, 2007).

delta to be the same as upriver so there was no need to create separate databases for the two cities.

A partial list of the sources and names of documents is contained in the table 'Canton and Macao Price Data 1704-1833'. A complete list of all sources can be found in the bibliography of *The Canton Trade* (see note 1). Because some figures were collected and added to these databases after the first printing of that book (which was 2005), we recommend using the bibliography in the second printing (2007), which is more complete. The data were taken from the collections and archives and also from printed primary sources listed in the 2007 bibliography.

Trade and Procedures

Foreigners (non-Portuguese) were required by imperial decree to engage a Chinese comprador (provision purveyor) to supply them with the food and labourers they needed during their stay in China. It took anywhere from about two to five months to unload and load foreign ships. Most East India companies had crews of 100 to 150 men on their ships so a huge volume of provisions was needed each day to feed them.

Compradors were licensed by the Chinese government, and were bound by written contracts to supply goods at market prices and no more than what anyone else paid. If, for example, the French found the Dutch paying less for bananas, then their comprador would be obligated to match that lower price. Compradors had little choice in this matter, because everything was supplied on credit, and any unjustified charges were simply deducted from their monthly payments. Owing to intense competition, compradors were never able to monopolize markets or prices so data from Canton and Macao are perhaps as reliable as any from the eighteenth century.²

In order to appreciate what the numbers represent, we need further explanation. As mentioned, the figures were collected from many sources, but the sources are not consisted. In some years, we have an enormous amount of data, and in other years, we have very little. As a result, some items might have only one entry in one document showing its price, whereas other items may have hundreds of entries, in dozens of documents, in several languages. The provision data for 1704, for example, are from only one source, but the prices shown for the 1760s (and many other decades), are from hundreds of entries each year. The databases, however, only show one figure. When using the data, it must be kept in mind that a price might have 100 or 200 entries, in several languages, supporting it.

Unfortunately, users of these databases have no way of knowing which figures have many references backing them up and which have only one. Overall, the cross-referencing between English, French, Dutch, Danish, Swedish, Belgian and American archives gives the figures credibility and makes them a good source to understand price trends in the delta region. But it should be kept in mind that an anomaly could be the result of a single entry that was entered incorrectly in the original sources. Sometimes a price was recorded "per catty", when it should have been "per picul", and others were recorded "per each" when they should have been "per catty". When we found

² For the story of the compradors' trade and a copy of a comprador contract with all prices listed, see Van Dyke, *The Canton Trade*, chapter four and plate 13.

questionable entries of this nature, they were omitted from the databases, but there may be others included that were not so obvious at the time.

Containers and Packaging

Many items were sold in their packages such as baskets, boxes and cages so the weight of those containers needed to be deducted from the weight of the provisions to determine the amount owed. There were a couple ways to compensate for the packages, which varied according to the compradors' agreements. In some cases, the average weight of a package (i.e. baskets used for rice, vegetables, fruit, etc.) was deducted from the total weight. In other arrangements, a percentage was deducted from the total weight of all items (10 percent was common), and then the specific weights of each sized package were ignored. Containers were returned to compradors after items were consumed so compradors did not need to include their cost in prices.

The exception to this latter rule was when ships stocked up on provisions for their return passages, and then needed containers to store them in. In those cases, packages were listed as separate entries, because if they were included in the price of goods then officers would appear to be paying more than what was stated in the compradors' contracts. If the cost of the container was the same, per weight, as the cost of the specific food, per weight, then both could be sold together. But we have found no examples of this happening.

The normal practice was to keep the cost of packages and goods completely separate so they did not affect the prices of the goods, or the amounts that were consumed. The latter consideration needs to be kept in mind, because companies' officers were given strict orders to follow regarding food consumption. They were responsible to feed crews according to very specific diets, per man per week. Including packages in the weight of goods would inflate the amount crews were consuming, and make officers look bad (and probably responsible for paying excesses over what was allowed) so they were keen to keep packaging and goods separate.

For many small private traders, such as Americans, there were no such restrictions or regulations. But by the time they arrived in Canton in 1784, all of these practices were firmly in place. As far as we can tell, packages were not included in their provision prices either. The prices that appear in their records are comparable with what East India companies paid so we assume most of them handled provisions and packages in a similar manner. In these price and wage databases, we have not used data from private traders from India so their experience is irrelevant to this discussion.

Weights and Weighing

The size of Chinese dodgins (weights) used to weigh items in the delta varied widely so foreigners often checked them against their own to be sure compradors were not cheating them. In some cases, compradors were given foreign dodgins and told to use them when weighing items for a company. In other cases, compradors' dodgins were used but were checked for their exact weight and then marked so foreigners could recognize the ones they had approved. Overall, foreigners trading in Canton made sure their compradors were using dodgins that compared with what others were using (Swedes using the same

as the English, etc.). Foreign officers periodically reported to their superiors of the differences in Chinese and foreign weights so they could show they were paying comparable prices.³

All items included in the price database were weighed in Chinese units of picul (133⅓ English pounds) or catty (1/100th of a picul), or not weighed and charged according to the number of pieces. Most of the prices and wages in these two databases were recorded in the original documents in Chinese *taels* (not Spanish dollars). The formulas that were used to convert Chinese piculs to foreign units (such as English pounds) varied somewhat, but were usually close to about 133⅓ English pounds (or 122½ Dutch pounds) to one picul.

For the most part, because foreigners used different currencies, weights and measures that varied over time. Except when noted, we have not attempted to convert foreign units into Chinese units. A few entries were converted to Chinese *taels*, from other currencies, but that was done only because the conversion rate was clearly stated in the documents and the figures were needed to fill in blank years. We have noted these entries in the databases with comments explaining the original price and conversions used.

As a general practice, we ignored prices and wages that were not in Chinese units. Converting them can be very confusing and problematic, for some goods, because items such as pepper and spices could actually have different sized piculs when sold as a commodity (such as picul being equal to 150 catties rather than 100 catties). But when those items show up as provisions, they were usually sold and purchased according to the standard picul of 100 catties.

Deceptions and Malpractice

Having dodgins of equal size did not necessarily mean weights would be determined fairly, because there were other ways of altering them. The balance, which consisted of a beam with dodgins on one end and the item to be weighed on the other, with a fulcrum in the middle, was the most common tool used in the delta. Even large tea chests were weighed in this manner. The balance could, however, produce a different result every time if the fulcrum was moved slightly to one side or the other or if pressure was applied to one side of the beam. And it was a simple matter to add mud or other foreign material to birds' feathers, or fill animals full of water before weighing them so some fudging occurred.⁴

Officers of East India companies were very keen to these deceptions and kept a constant eye out for them. Competition between compradors was so intense that most of them would not risk losing a patron for the sake of an easy buck, but small private traders suffered these humiliations, on occasion. For the prices from 1704 to 1806, these artificial manipulations are not an issue because of the many protections that were built into the East India companies' trade. Many wages and prices after 1806 were taken from private American records so they are more prone to being inflated by deceptions. Users should therefore keep in mind that a high price in one particular year could be the result of

³ For an example of compradors' weights being compared to company weights in 1739, see Paul Arthur Van Dyke, 'Port Canton and the Pearl River Delta, 1690-1845' (Ph.D. diss., University of Southern California, 2002), 243-4.

⁴ For other examples of compradors' deceptive practices, see Van Dyke, 'Port Canton', chapter three.

malpractice rather than a rise in *actual* market price. Using trends over five-year periods, rather than single years, would even out these types of anomalies.

Inflation and Exchange Rates

Besides deceptive practices, there was also the problem of different currency exchanges in use in the delta. Inflation existed throughout this period and officers of foreign companies often had much pressure placed on them from superiors, to contract with their compradors at rates that were no higher than previous years. This practice, of course, only worked as long as those items were still available at the lower rate. One of the ways foreigners and compradors dealt with this problem was to fudge on exchange rates.

Foreigners might insist that compradors keep provision prices at previous rates, but then compensate them for inflation by allowing a better exchange rate (such as 74 candrin per Spanish dollar, rather than 75 candrin). This might seem strange to modern accountants but it was indeed a common business practice in the eighteenth century, and made the officers of the companies look good on paper. Officers might be expected to list the unit price of everything they purchased, but were then not required to list the exchange rate every year (because it usually did not change). This meant that they could compensate for a high price by fudging on the exchange rates, without it being detected.

This practice is one of the reasons why some prices and wages in the databases appear constant for 10 or 20 years but then all of a sudden rise. In reality, they might have been rising all along, but the fudging of exchange rates made them appear stationary. There was a limit to how long prices could be artificially manipulated like this, and eventually they had to rise with inflation. Taking data from many different companies has helped to even out these individual practices, and using long-term trends will hide anomalies of this nature.

Coins and Currencies

There was no Chinese currency in use in delta other than the small coins know as "cash" (1,000 to a *tael*). Cash were strung together in stings of 70 to 100 small coins, which made them very cumbersome and inefficient to use. As a result, foreigners always paid for their merchandise with imported silver coins.

Foreign coins, of course, came in many different forms. Among the most common used in China were Piaster, Pieces of Eight, Spanish and Mexican Dollars, and French Crowns. Except for French Crowns, which were sometimes valued at 2 percent higher, compradors valued all of these other coins at the same rate and used them interchangeably. In fact, British and Americans often refer to all of these currencies as "dollars", even though technically they were not.⁵

There are a few exceptions to this practice such as Mexican dollars being slightly less in value to old Spanish dollars and compradors asking for a small reimbursement because of a coin's lower silver content. And sometimes Spanish dollars had slightly

⁵ Many entries in Morse's *Chronicles of the East India Company* are listed as "dollars" but in reality, any generic reference like this could refer to any one of the coins above. H. B. Morse, *The Chronicles of the East India Company Trading to China 1635-1834*, 5 vols. (Cambridge: Harvard University Press, 1926. Reprint, Taipei: Ch'eng-wen Publishing Co., 1966).

different alloy content. *Hong* merchants, who dealt in huge volumes, paid very close attention to these variations, but compradors usually treated them equally. The variations were so minute that it had little effect on their smaller volumes of trade (compared to *Hong* merchants). These currency variables are another reason why we tried to use figures given only in Chinese *taels* in the original documents.

Throughout the period in question, we have found no provision or wage data that deviated from the exchange rate range of 72 to 75 candrins per dollar (including all forms of silver coin above). Even French crowns fell within this range, because their higher silver content was compensated by using different dodgins to weigh the coins. Compradors would usually only accept exchange rates within this range. *Hong* merchants regularly accepted 72 or 74 candrins per dollar throughout the period in question, as did compradors. But there are references to compradors sometimes accepting an exchange rate of 75 candrins to one dollar.⁶

Wages and Lodgings

The wage figures can sometimes be deceiving as well, because they are not always what they seem. With some Chinese employees, such as fulltime compradors and house servants, rice and lodging were included in their monthly salaries. Day labourers, on the other hand, usually received no additional compensation. But if workers were hired for several weeks or months, they might be supplied with meals as well. If labourers were hired in Whampoa for an extended period of time, they might be given a sampan to sleep in so they would not waste time returning home every evening and returning in the morning. It is impossible to include all of these variables in the data, because the documents do not usually provide that information.

These variables may account for some of the differences between wages of each labourer. In the monthly wage table we show Coolies A and B and Barber A and B, with different salaries. These were separated into two groups because there were different rates recorded for many years. The daily wage table also shows three rates for coolies, carpenters and bricklayers. One possibility for there being multiple wage rates are the compensations (food and lodging) that offered to some, but not to others.

Another possibility for the different rates is different skill levels. It would be unusual for head carpenters to be paid the same as apprentices, and the former often needed underlings to help him transport materials and carry out the work so they had to be hired together, at the same time. There are many entries in the records stating that an "expert bricklayer and his mate" were hired, or a "chief cook and his mate". And there were chief carpenters, common carpenters, and apprentices. Apprentices served as porters for the other two. Foreigners had all of these rankings among their crews as well. All of these types of skills were learned as apprenticeships, with foreigners and Chinese alike.

Unfortunately, the records do not always tell us why there were different wages paid so we have simply listed them as "A" and "B" or "1", "2" and "3". Users need to keep in mind that there are several factors that could bring this about, one being extra compensations being offered and another being various skill levels of the workers. But there is yet another factor that needs to be considered, the time of year.

⁶ For an example of compradors using an exchange rate of 75 candrins, see Morse, *Chronicles*, 3:373.

Some wages in the tables show off-season and on-season rates, which require explanation. The trading season began when ships arrived (usually August and September) and lasted until they departed (usually late-December or January). We call this period the "trading season" (or "on-season"), and the rest of the year (when the ships were gone), the "off-season". Foreigners in the eighteenth century used these terms so we have adopted them as well. Owing to pressures of supply and demand, off-season wages could be lower than on-season wages, so we tried to include that distinction in the data. One of the exceptions to this rule (there were others) was full-time employees who worked year round for the foreigners. Their wages did not change with the seasons.

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Contact Information

Researchers interested in knowing more about the data and their limitations may contact the author.

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