

## 7.2 Money's Purchasing Power

### 1. The Great Ming Treasure Certificate Inflation

Overall, the Ming Dynasty's monetary economy suffered from a degree of constriction, much as had the Tang Dynasty's. It was not as expansionary as had been Song, Jin and Yuan. Though monetary depreciation occurred at its beginning and end, especially with the paper money inflation of the early years, which reached a high rate, most people used silver and coins, and prices calculated in silver and coins were very low.

In form, the Ming monetary system was a perfectly fine system, possessing a high degree of unity. Its denominations were convenient to use. For transactions from 100 cash up, paper money was used. For those below 100 cash they employed copper cash. Though the government [668]

saved a bit on labor with the large coins, it did not reduce the amount of metal in them, and this must have inhibited private coining.

This system was simpler than Wang Mang's, and more rational than those of the other dynasties. If it had not been for the excessive issue of paper currency, the people could surely have enjoyed relatively stable prices.

At the beginning of the hongwu period [1368-1399], the new dynasty pressed west to Dunhuang and attacked north to the Gobi Desert. Military requirements were heavy. There were then some 320 coin furnaces in the country, and their annual production was around 190 million coins, not a large amount. The population then was around 60 million, so this production figure was only around 3 cash per capita.

Naturally, this was insufficient to meet requirements, and so there was no choice but to issue paper money. The histories do not record the amount of paper money issued, but we can tell from the rise of the problem of redeeming certificates, that as early as hongwu 13, the phenomenon of currency inflation was already present. Since in hongwu 13 (1380), people frequently brought in "serviceable Certificates" to exchange for new ones, this shows that the number of notes was excessive, i.e. in excess of the quantity actually demanded. By that time there had also already appeared a difference between the purchasing power of the new and old notes.

Nevertheless, internal military activity had still not halted. In the north, the Mongols were thinking of making a comeback, and they remained in control of their territory in Yunnan. Xu Da and Fu Youde were attacking to the north and campaigning in the south over the course of several decades, and so it

was not possible to reduce the size of the paper money issue.

Manufacture of counterfeit certificates became a major activity among the people.<sup>1</sup> It was perhaps for just this reason that the reward for informers was increased to 250 ounces of silver. In addition, there were also large scale abuses among officials and clerks.<sup>2</sup> Unavoidably, this caused the actual quantity of notes in circulation to increase, and their purchasing power to fall.

By hongwu 23 [1390], 1 string of Treasure Certificates was only worth 250 cash in Liangzhe.<sup>3</sup> For this reason an order was issued changing the mone-

<sup>1</sup>Essay on Prince Zhaodai (*Mystical Observation Hall Collectanea*, with a preface dated hongwu 18, 10th month), "Counterfeit Certificates," Number 48: "Treasure Certificates circulated throughout the Empire, and made exchange convenient for the people. In Liangzhe, Jiangdong and Jiangxi, counterfeiters were terribly numerous among the people. Yang Mantou of Jurongxian rose in rebellion, and quite a few people from the district joined in his plot. . . . He was captured and taken to the officials. The road runs 90 li from the capital to Jurong, and the decapitated bodies were laid out all along the way, so extreme were the punishments. His Majesty thought there could not possibly be any further offenses, but in less than a year, the people of this district's villages were counterfeiting Treasure Certificates. Even when those in neighboring hamlets knew that their neighbors were engaged in this practice, it continued to go on, even after these deaths."

<sup>2</sup>Imperial System Large Bestowal Continued Compilation (*Mystical Observation Hall Collectanea*), "Certificate Treasury Abuses," Number 32: "The twenty Treasure Certificate Intendant's Office officials, including Feng Lang and Sun An, the officials communicating with the Board of Revenue, Li Shu and Guo Heng, the Revenue Measures Reviewing Policy Adviser Qu Shen and 580 certificate artisans have been taking certificates in the office. The daily wage of a certificate artisan can reach 0.1 ounce. An ordinary artisan only makes 0.07 ounce. Your Majesty understands that they have some energy remaining which enables them to obtain the 0.03 ounce difference without exhausting their ambitions. Later, the three offices formed a cabal, and the artisans exhausted their efforts on its behalf. Manufacture of Certificates began in hongwu 18, 2nd month, 25th day, and halted when the weather grew cold during the 12th month. By exhausting their energies, they had made 6,946,599 ingots worth of Certificates. They had hidden 1,437,540 ingots worth of Certificates in the Broad Origins Treasury next to the officially authorized quantity of Certificates. There were piles of Certificates in various places which had been paid in as commercial taxes. There had been officially authorized some 5,590,059 ingots worth of Certificates, and these had been mixed in with the piles of notes paid in as commercial taxes, to substitute for the commercial tax levies which had come in from the outside."

<sup>3</sup>Ming Veritable Records, 205.



tary system. In hongwu 24 (1391), the purchasing power of the old Certificates had fallen to half that of the new ones.<sup>4</sup>

People then were blaming the merchants for making excessive use of the procedures for exchanging old certificates, and there may have been some justification for such reproaches. Zhu Yuanzhang said that since all notes were 1-string, why should anyone distinguish between new and old ones? What he said was true enough, but the real problem was that too many had been issued. If new and old Certificates had not been treated differently, then the only alternative would have been for the whole stock of notes to have fallen in value. When we add in the abuses by officials, then no wonder people "crumpled and damaged them so as to exchange them for new ones."

One may say that there was no year up through hongwu 31 [1398] when soldiers were not being employed. The currency inflation was manifested not only through the difference in value between new and old Certificates, but still more clearly in the price of the notes in terms of copper cash.

In hongwu 27 [1394], in the Liangzhe, Jiangxi, Min and Guang region, a 1-string Treasure Certificate was only worth 160 copper cash.<sup>5</sup> That is to say, if we assume no changes in the purchasing power of copper cash, then prices calculated in Treasure Certificates had increased more than six-fold. If the copper cash here were ones dating to after the reduction in weight of the coinage, then the degree of the price increase was even more than this. This is why they were constrained

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to prohibit the use of coins.<sup>6</sup>

The people then turned to gold and silver, and so

in hongwu 30, 3rd month, gold and silver were prohibited as well.<sup>7</sup>

Actually, these measures were like the policy of an ostrich. They were not of the least help in raising or stabilizing the value of the Certificates, since the problem was the fall in value of the Certificates, and not a rise in price of copper cash, gold and silver. Even with the ban on use of copper cash, gold, and silver, prices still rose.

In hongwu 9 [1376], a 1-string Certificate or an ounce of silver were the equivalent of 1 picul of rice.<sup>8</sup> By hongwu 30 [1397], an ounce of silver could be commuted into 4 piculs of rice when paying the grain tax, but if notes were used, then 2 strings and 500 cash worth were required to commute 1 picul of rice.<sup>9</sup> This represented a ten-fold rise in the value of silver in terms of notes.

Of course there were some people then who understood the true cause for the rise in prices. For example, in yongle 2 (1404), the Capital Censor, Chen Ying, said that it was because "the court has issued too many Certificates, and has no method for withdrawing them that goods are heavily demanded and Certificates are lightly demanded."<sup>10</sup> He also proposed a Capitation Edible Salt Rule to call in and reduce the size of the currency supply.

This was to be a kind of salt exise levied on every adult in the country, each of whom would be obliged to consume 1 catty of salt per month and pay in a 1-string Certificate for that purpose. Minors would pay half that amount. That way 200-300 million strings of Treasure Certificates could be redeemed. This was a rather large figure, and the burden would have been distributed unequally among the people, but if enough certificates could be redeemed and no more issued, then the purchasing

<sup>4</sup>Investigation of Literary Remains Continued, "Investigation of Coins," hongwu 24: "8th month. The Board of Revenue was charged with publicizing Certificate regulations. At this time there were worn notes among the people. When merchants used them in trade, they mostly raised prices so as to discount them. Twice the number of old ones than new Certificates were needed." *Ming Veritable Records*, 211.

<sup>5</sup>*Ming Veritable Record*, 234, hongwu 27, 8th month, bingwu: "There was an edict prohibiting use of copper cash. At this time, the people of Liangzhe were demanding coins heavily, but Certificates lightly, mostly circulating the latter at a discount which fell to as little as 160 cash to discount a 1-string Certificate. The same rate held in Fujian, Liangguang and Jiangxi. This caused prices to jump, the Certificates to become still worse, and not circulate."

<sup>6</sup>*Book of Ming*, 3, "Annals of Taizu Emperor Gao, 3," hongwu 27, 8th month: "The Certificates were obstructed and spoiled. Use of coins was prohibited."

<sup>7</sup>*Ming Veritable Records*, 251, hongwu "30, 3rd month, jiazi. The people were prohibited from using gold and silver in exchange. At this time in the commanderies of the Hangzhou region, merchants set all prices, whether of expensive or cheap goods, in gold and silver. Because of this the Certificates were obstructed, and public and private interests were hurt. Hence this order was issued."

<sup>8</sup>*Ming Veritable Records*, 105, hongwu 9, 3rd month, jichou: "The people were ordered to use silver, Certificates, coins and heavy silk to pay this year's taxes. The Board of Revenue memorialized that 1 ounce of silver, 1,000 cash, a 1-string Certificate would be discounted for 1 picul of rice. Wheat was worth 20 percent less. A bolt of cotton, ramie or linen was commuted to 6 *dou* of rice or 7 *dou* of wheat. A bolt of hemp was commuted to 4 *dou* of rice or 5 *dou* of wheat."

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<sup>9</sup>*Ming Veritable Records*, 225.

<sup>10</sup>*Ming History*, 81, "Treatise on Food and Money, 5."



power of the paper money could have been raised.

The reign of the Yongle Emperor [1403-25] was, however, the most inflationary of the Ming Dynasty. There was inflation in culture, as well as in military affairs, and in construction. For example, the building of Beijing required the moving of 10,000 households from Shanxi, and mobilizing a million laborers. Attacks against the Tatar Khan required 500,000 soldiers. In addition to this, Zheng He paid a number of visits to the South Seas.

These were all expensive undertakings. As a consequence, the Capitation Edible Salt Rule merely became a kind of fiscal measure, and we cannot say it was a monetary policy. The quantity of money continued to increase without interruption, and its value continued to fall.

Ming Dynasty official salaries were calculated in terms of rice and paid in Treasure Certificates. During the hongwu period, 1 string was discounted to 1 picul. By yongle 1 [1403], this ratio had changed to 10 strings per picul. By hongxi 1 (1425), this had increased to 25 strings per picul.<sup>11</sup>

Hence with the hectic military activity of the yongle period, the cost of rice had increased to 25 times what it had been at the beginning of hongwu. In other words, over the course of fifty years, the cost of rice had increased 25-fold.

This was just the overly high price the government calculated for paper money when distributing Treasure Certificates. When it redeemed Treasure Certificates, it set their price even lower.

For example, in commuting various taxes in kind, a 1-string Certificate still commuted 1 picul of rice during hongwu 9, but by yongle 5, this had increased to 30 strings per picul, a thirty-fold increase in the price of rice over the course of 32 years.

This increase was probably closer to the market price. By yongle 5 [1407], various items of daily use which could be used in substitution for payment of taxes had also had their rate of commutation increased, wheat and beans by thirty-fold,

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large ramie cloth and small cotton cloth by forty-fold.<sup>12</sup>

In hongxi 1 (1425), Emperor Renzong himself said that "I have observed that prices of various goods among the people have increased several dozen fold over their levels during the hongwu period."<sup>13</sup> At that time the official purchase price for a bolt of plain cloth was 50 strings in coin, and 6 strings for a catty of cotton bolls.<sup>14</sup> The market price may have been still higher.

Peng Zhu was already advocating reform of the monetary system, saying that the Certificates were disturbing the market, and were of no help in meeting the state's requirements.<sup>15</sup>

During Emperor Xuanzong's reign [1426-36], the policy was to increase taxes. The number and variety of excise taxes were increased so as to draw in and thereby constrict the size of the money supply, as well as to increase demand for Treasure Certificates among the people.

In xuande 1 (1426), locally imposed fines were to be commuted to Treasure Certificates at a rate five times the market price.<sup>16</sup> In xuande 3, they also

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30 strings per bolt; small ramie, 20 strings per bolt; large ramie, 25 strings per bolt; large cotton cloth, 30 strings per bolt; small cotton cloth, 25 strings per bolt. (Cf. also chapter 6.2.4, note 22, above, "Calculation of Value of Stolen Goods During the Hongwu Period.")

<sup>13</sup>*Hongxi Veritable Record*, 9, latter part.

<sup>14</sup>*Xuande Veritable Record*, 2.

<sup>15</sup>*Ming History*, 161, "Biography of Peng Zhu."

<sup>16</sup>*Xuande Veritable Record*, 22, xuande 1, 10th month, yilai: "The Board of Revenue said: Recently, the Certificates have been obstructed, and the court has frequently issued severe prohibitions. Up to the present, they have not been seen to be in circulation. This is because many have been issued, and few taken in. We request that henceforth all officials, soldiers and civilians pay in Certificates for remission of capital offenses and theft of horses and mules at the following rates: Horses, 3,000 strings per head; mules, 8,000 strings; donkeys, 2,000 strings; cattle, 1,000 strings; . . . a goose, 80 strings; 30 strings per chicken or duck. The pardon extends to the end of hongxi 1 for fish and fish bladders, at 25 strings; fish oil at 10 strings; tea, 5 strings; 10 strings per 100 feathers; 300 strings per ox hide; 150 strings per sheep or lesser animal's hide; 25 strings per bundle of firewood. For stealing various objects of gold and silver: 8,000 strings per ounce of gold; 2,000 strings per ounce of silver; 200 strings per catty of copper or tin; 50 strings for iron; 100 strings for lead; 2,500 strings per bolt of ramie, silk floss or gauze; 2,000 strings for damask; 1,000 strings for thin silk; 500 strings for official heavy silk; 250 strings for small heavy silk; 200 strings for official cotton cloth; 150 strings for small cotton cloth; 100 strings for small ramie cloth; 200 strings for Fujian plain cloth or washed white Summer plain cloth; 1,000 strings for Korean plain cloth. For articles not specified, each is to be discounted into certificates at a rate five times its current price.

<sup>11</sup>*Ming History*, 82, "Treatise on Food and Money, 6."

<sup>12</sup>According to *Ming Collected Statutes and Investigation of Literary Remains Continued*, in yongle 5 the commutation price of various goods was as follows: gold, 400 strings per ounce; silver, 80 strings per ounce; rice, 30 strings per picul; wheat and beans, 25 strings per picul; barley, 15 strings per picul; green grains, buckwheat, 10 strings per picul; salt, 100 strings per large voucher; silk floss, 40 strings per catty; cotton, 25 strings per catty; large heavy silk, 50 strings per bolt; small heavy silk,



halted manufacture of new Certificates, and decreed that damaged and worn ones were to be destroyed by burning. In xuande 4, even vegetable gardens, fruit orchards, house rentals, shops for mounting paintings, cart hall shops, oil shops, millers, timber merchants, brick and tile works, ox carts and small carts all had to pay their taxes in Certificates.

This policy simultaneously aimed at stabilizing the value of money and serving as a source of revenue, since military campaigns continued during the reign of Emperor Xuanzong.

Prices, however, continued to rise. In xuande 4, a picul of rice, a bolt of cotton cloth or a catty of silk each cost 50 strings worth of Certificates.<sup>17</sup>

This was a fifty-fold rise from the hongwu 9 base. In xuande 7, a 1-string Treasure Certificate was probably only worth 5 actual cash.<sup>18</sup> In xuande 8 [1433], a bolt of heavy silk was commuted to 400 strings worth of Certificates, and plain cloth to 200 strings.<sup>19</sup> This was an increase of more than 330 fold over the hongwu 9 [1376] level.<sup>20</sup> In this case, however, the aim was to sop up Certificates, and does not necessarily reflect an actual price.

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Inner and outer commercial excise tax stations' rates are all to remain at their prior levels."

<sup>17</sup>*Xuande Veritable Record*, 58, xuande 4, 9th month, renzi: "The Board of Revenue advised in a memorial that a bolt of heavy silk was equal to 1 picul 2 *dou* of food; that a bolt of cotton cloth was equal to 1 picul; a bolt of ramie cloth to 7 *dou*; a catty of silk to 1 picul; 50 strings worth of notes to 1 picul; 1 catty of cotton bolls wool to 2 *dou*; 5 strings of Certificates to a bundle of hay. This was accepted." (These prices held for Ying-tian, Suzhou and Songzhou prefectures in Zhejiang.)

<sup>18</sup>Kobata Jun, *Studies in the History of Medieval Sino-Japanese Trade*, p. 402, quoting *Jingjue yaochao*.

<sup>19</sup>*Xuande Veritable Record*, 100, xuande 8, 3rd month, gengchen, the Acting Secretary of the Board of Revenue and Board of Rites of the Travelling Court, Hu Yong, memorialized: "Payments in Certificates grow ever more numerous, and the Certificates are ever more obstructed. I request that the 7th year division of salary grain be reduced to the old quantity and be commuted to 15 strings of Certificates per picul. Of the total, 70 percent should be commuted to official heavy silk, with each bolt equal to 400 strings of Certificates, and 30 percent should be commuted to official cotton cloth, with each bolt commuted to 200 strings of Certificates. Salary rice of civil and military officials should be commuted to Certificates at 25 strings worth per picul. Banner Army monthly provisions should be discounted to 10 strings or 5 strings. I request that henceforth capital officials be reduced to 15 strings per picul. . . . This was accepted."

<sup>20</sup>During the hongwu period, a bolt of heavy silk was commuted to 1 picul 2 *dou* of rice. (Cf. *Ming Collected Statutes*, 29, "Tax Collections," hongwu 18 section.) Therefore, I extrapolate that at the beginning of the period, the price of heavy silk must

The people were no longer using certificates, only gold and silver. An ounce of silver was then worth 100 strings in Certificates.<sup>21</sup> This was a hundred times more than in the hongwu 9 base period.

After Emperor Yingzong ascended the throne (1436), rice and wheat were ordered commuted to silver in collecting the land tax, and the ban on use of silver was rescinded. Now that silver had been legalized, the number of places using it increased. The government still-recognized the Treasure Certificates' power to circulate, but their purchasing power declined step by step.

There were internal and external wars during the zhengtong period [1436-50], and in zhengtong 9 a picul of rice was commuted to 100 strings worth of Certificates.<sup>22</sup> This was double the xuande 4 price, and a hundred times the early hongwu level. In zhengtong 13, the price of Treasure Certificates in copper cash, for both new and old certificates, ranged from 1 or 2 to 10 cash per string of Certificates.<sup>23</sup>

In the 7th month of Emperor Jing's jingtai 3 (1452), salaries of capital officials were ordered paid in silver in accord with contemporary prices, and 500 strings of Certificates yielded 1 ounce of silver.<sup>24</sup> This was merely public acknowledgement that the silver price of Treasure Certificates had fallen to one-five-hundredth of its former level.

Thereafter, the price of Certificates plunged straight down. In Emperor Xianzong's chenghua 1 (1465) a 1-string Treasure Certificate was commuted to 4 cash in coin, and in chenghua 6 to 2 cash.

In chenghua 23, Qiu Jun proposed his reform of the monetary system.<sup>25</sup> A distinction was to be

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have been 1 string 200 cash per bolt.

<sup>21</sup>*Ming Collected Statutes* says that this was in xuande 4. *Investigation of Literary Remains Continued* says it was in xuande 7.

<sup>22</sup>*Ming Collected Statutes*, 29, "Tax Collections." At that time commutation of official salaries was still only between 15 and 25 strings per picul. (Cf. *Ming History*, [676]

82, "Treatise on Food and Money, 6.") That, however, was really a reduction in official salaries, and cannot be used to represent the price of rice."

<sup>23</sup>*Investigation of Literary Remains Continued*, zhengtong 13, 5th month: "At this time, the Certificates had long since stopped circulating. One string of new Certificates was then calculated at only 10 cash, and old Certificates at only 1 or 2 cash. Even if piled up in the market stalls, passersby would pay no attention to them. If 10 strings of Certificates were commuted from 1 picul of salary rice, then a *dou* of rice was 1 cash."

<sup>24</sup>*Investigation of Literary Remains Continued*.

<sup>25</sup>*The Academy Expounded, Addendum*, "Copper and Mul-



drawn between the face values of new and old Treasure Certificates. A new Certificate was to be worth 10 cash per string. An old Certificate with the four corners intact and with no rips in its

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middle, was to have a face value of 5 cash per string. A torn note would be worth 3 cash. A worn note having the 1-string denomination label still readable would be worth 1 cash. Their market price then was less than 1 cash per string.

Seven hundred strings of official salary Certificates were commuted into 1 ounce of silver in Emperor Xiaozong's hongzhi 1 (1488). Seven copper coins were then worth 0.01 ounce of silver.<sup>26</sup>

Therefore a 1-string Certificate was equal to 1 copper cash. During hongxi and xuande [1425-36], there were still small 100-cash Certificates in circulation, but by chenghua and hongzhi times [11465-1506], only large 1-string notes remained.<sup>27</sup>

By Emperor Shizong's jiajing 14 (1535), 1,000 strings in Treasure Certificates were only worth 0.4 ounces of silver. Silver had risen 2,500 fold against Treasure Certificates. A thousand copper cash were then equal to 1.43 ounces of silver, and so 1,000 strings in notes were only worth around 280 copper cash. Copper cash had risen 3,570 fold against paper notes.<sup>28</sup> In jiajing 45 [1566], 5,000 strings were only worth 1 ounce of silver.<sup>29</sup>

In wanli 46 (1618), military provisions were still being paid for in Treasure Certificates, with each officer being given several hundred strings in Certificates, worth only several dozen cash. Probably 10

strings were only equal to 1 cash. The soldiers would immediately bring their Treasure Certificates in to redeem them for ready cash, and so they would flow back into the government's coffers.<sup>30</sup>

The price of Certificates varied to some extent according to location, and the government's own buying and selling prices for them also differed. In fact, after the hongzhi period [1488-1506], Treasure Certificates no longer had any significance in the monetary economy, and people made everyday purchases with silver and copper cash. Paper notes had long since gone out of use.<sup>31</sup>

Some suppose that the failure of the early Ming monetary system occurred because it ought not to have used both coins and Certificates. By this they mean to say that if Treasure Certificates alone had

<sup>30</sup>In the Summer of wanli 46, the Board of Revenue Secretary, Li Ruhua offered a "Petition on Temporary Changes in Relief Measures": "Each army officer is given several hundred strings of Certificates, which are only worth several dozen cash, and which they carry off to exchange. Nine firms of coin and certificate houses take them in by the month. They both take them in and exchange them. As the circulation and redemption of certificates in particular places has long been a vexatious business, there is nothing which can be done about this." (Cheng Kaiyu (ed.), *Chou liao shou hua*, Wanli year gengshen, Tiandu edition, 8.)

<sup>31</sup>The figures for silver and coins in the following table which are in parentheses are all extrapolations. For example, under hongwu 19, according to *Investigation of Literary Remains Continued*, "the annual delivery of tax in coins and Certificates is difficult because of dangers of the road. Those who bring taxes may exchange them for gold and silver . . . 1 ounce of silver for 1 ingot's worth of Certificates." At that time the price of silver was around 1,000 cash per ounce. Hence I have added a figure of 200 cash per string to the "Official Price --Coin" column, but in parentheses.

Also, for example, under hongwu 28, the histories record no Certificate prices, but the *Ming History Draft*, "Treatise on Food and Money," gives a national schedule for land tax payment commutation of plain cloth, heavy silk, cotton bolls and gold and silver. One ingot in Certificates commuted 1 picul of rice; 1 ounce of silver commuted 2 piculs of rice. From this we can calculate that 1 string of Certificates was worth 0.1 ounce of silver, and can then convert this into a figure for copper coins.

Also in the table, under chenghua 1 and 23, the market price of 0.9 cash means that a 1-string Certificate was not even worth 1 cash. The chenghua 13 silver market price of 0.00045 means that 1,000 strings in Certificates was only worth 45 cash.

The silver price of cash assumed is the official price. Prior to chenghua, I use a price of 1,000 cash per ounce of silver in my calculations. Beginning with chenghua 1, I use a price of 80 cash per ounce. Beginning with hongzhi 1, I use a price of 70 cash per ounce.

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<sup>26</sup>*Ming Collected Statutes*, 35, "Tax Rates, 4." *Book of Ming*, 83, "Treatise on Food and Money": "At the beginning of chenghua, 2 strings of Certificates were commuted into 4 cash, and in chenghua 6 the rate fell to 2 cash."

<sup>27</sup>Lu Rong, *Pulse Garden Miscellaneous Record*.

<sup>28</sup>*Ming Collected Statutes*, "Tax Rates, 4." *Book of Ming*, 81, "Treatise on Food and Money": "During jiajing, the Censor Wei Youben sent up a message. . . . Each Certificate is 1 string; a thousand of them are 1 piece. The current price for 1 piece is 0.8 ounce of silver. The official price per piece is 3 ounces of silver. . . . The official price of 0.1 ounce of silver is 70 good coins. The current price of 0.1 ounce of silver is only 30 good coins."

<sup>29</sup>*Investigation of Literary Remains Continued*, longqing 1, 8th month: "It was ordered that the Nanjing impost in Certificates be commuted into silver at different rates for new and old Certificates. Tax offices under Yingtianfu were ordered to discount impost certificates dated prior to jiajing 45 into 2 hao of silver per string before accepting them in payment of taxes. For those dated after longqing 1, each string was to be commuted to 6 hao of silver."



been used, the system could not have failed. This very much requires discussion.

GREAT MING TREASURE CERTIFICATE PRICE TABLE

Year	Official Price (per string in)		Market Price (per string in)		Source
	Coin (cash)	Silver (oz)	Coin (cash)	Silver (oz)	
<b>hongwu 9</b>					
(1376)	1,000	1.0	1,000	1.0	Ming His.
19 (1386)	(200)	0.20			InvLitRemCon
24 (1391)		0.20			MingVerRec
25 (1392)			160		Ming His
27 (1394)			160		InvLitRemCon
28 (1395)	(100)	(0.10)			MingHisDraft
30 (1397)	(71)	0.07153			MingCollStat
<b>yongle</b>					
5 (1407)	(12)	0.0125			InLitRemCon
11 (1413)	(47)	0.0476			MingCollStat
during			0.012		Book of Ming
<b>xuande 1</b>					
(1426)		0.0025			MingVer Rec
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<b>xuande 4</b>					
(1429)	(10)	0.01			MingCollStat
7 (1432)	(10)	0.01			MingCollStat; MingVerRec
<b>zhengtong</b>					
1 (1436)			0.0009		InvLitRemCon; MingVerRec
13 (1448)			1-10		InvLitRemCon
<b>jingtai</b>					
3 (1452)	(2)	0.002			InvLitRemCon
7 (1456)		0.00142			InvLitRemCon
<b>chenghua</b>					
1 (1465)	4	(0.005)	0.9		MingCollStat
3 (1467)	4	(0.005)			MingCollStat
6 (1470)	2	(0.0025)			MingCollStat
7 (1471)			2-3		MingHis
13 (1477)	(4)	0.005	0.00045		InvLitRemCon
16 (1480)	(4)	0.005			InvLitRemCon
23 (1487)	(20)	0.025	0.9		InvLitRemCon
<b>hongzhi</b>					
1 (1488)	1-2	0.001428-			MingCollStat;
		0.003			InvLitRemCon
6 (1493)	(2.1)	0.003			MingCollStat
during			0.001333		BookofMing
14 (1501)	0.3-	0.000444-			MingHis,
					"Punishments"
		0.4375	0.000625		
<b>zhengde</b>					
2 (1507)	0.301				MingHis

6 (1511)		0.00143			MingHis
<b>jiajing</b>					
4 (1525)	(2.1)	0.003			MingHis
6 (1527)		0.001143			InvLitRemCon
7 (1528)	1.57	0.009			JiajingVerRec
8 (1529)	(2.1)	0.003 (0.24)	0.0008		InvLitRemCon
19 (1540)		0.00032	0.0001		Petition by Liang Cai
45 (1566)		0.0002			InvLitRemCon
<b>longqing</b>					
1 (1567)		0.0006			InvLitRemCon
<b>wanli</b>					
46 (1618)		0.1	(0.00018)		Petition by Li Ruhua

The instability in the value of early Ming money was entirely due to the paper

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money being issued excessively. Even if they had not used copper coins, the price of the Certificates could still have fallen.

As for the system itself, simultaneous use of coins and Certificates is like having two weights on a scale. Only if the two are kept in balance, is there a stable equilibrium. If a discrepancy between their prices appears, then you know that either too many of one of them have been issued, or too few of the other.

From the point of view of the best interests of the people, when using copper cash, one cannot tell how much inconvenience or harm comes from a reduction in their quantity. With a continuous fall in the value of paper money, however, people can only enjoy relatively stable prices by using copper cash.

At such a time a partial return to a natural economy is easy to explain. This point may be elucidated from the forms of payment of official salaries. The proportion of Ming official salaries paid in money was not large. According to the hongwu 13 regulations, only between a little over 20 percent and something over 40 percent was to be paid in money. The major portion was in salary rice, and the portion paid in money was not in copper cash, since few coins were being minted during early Ming, but in Treasure Certificates. These were called salary Certificates.

Because a portion of early Ming salaries were commuted to Treasure Certificates, the real incomes of officials fell in parallel with the fall in the purchasing power of Treasure Certificates.

At the beginning of hongwu [1368], a regular first rank official got 120 hectoliters of rice per month. At that point, the entire amount was paid in rice. In xuande 8 [1434], a portion was drawn in Treasure Certificates, and as a consequence such a



salary was only equal to 46 hectoliters of rice. During the zhengtong period [1436-50], the proportion in Treasure Certificates increased, and a regular first rank official's monthly income was only equal to 34 or 35 hectoliters of rice. By chenghua 7 [1471], it had been reduced to less than 20 hectoliters, equal to that of a seventh rank official of Tang's kaiyuan period. Moreover, a Ming regular first rank official often got less, and so the most he obtained was only a bit over 10.

As for lower ranking officials, though they got a smaller proportion of their incomes in Treasure Certificates, their real incomes also gradually diminished in the same way. For example, a following ninth rank official got 8 hectoliters of rice per month at the beginning of hongwu. During zhengtong, this fell to 2.5 hectoliters, and by chenghua times to 1.7 hectoliters.

MING DYNASTY OFFICIALS' MONTHLY SALARIES  
(in hectoliters rice)<sup>32</sup>

Rank	hngwu 13	hngwu 20	xunde 8	zhngtng 9	chnghu 7
1	116.32	93.41	45.94	34.80	21.02
2	98.42	65.50	32.21	24.40	14.73
3	80.53	37.58	21.76	14.00	8.35
4	62.63	25.77	14.86	9.60	5.80
[674]					
5	33.10	17.18	12.70	6.40	3.86
6	18.79	10.74	8.01	4.75	3.46
7	14.32	8.05	6.69	3.56	2.59
8	10.74	6.98	5.79	3.08	2.23
9	8.50	5.91	5.90 <sup>33</sup>	2.61	1.90

<sup>32</sup>The official salary figures are derived from *Ming History*, 82, "Treatise on Food and Money." The hongwu 13 rice price was 1 string per Ming picul. For the hongwu 29 system, I calculate on the basis of the entire amount being given in rice. In xuande 8, I calculate on the basis of equating 1 bolt of heavy silk with 1 picul 2 *dou* (using the Ming picul) of rice, and a price of 50 strings per picul. Under the zhengtong schedule, a picul was commuted to 25 strings of certificates, but the actual price was 100 strings. Under the chenghua schedule, the entire amount was commuted into plain cloth for conversion into Certificates. One bolt of plain cloth had a face value of 250 cash, a picul of rice was worth 0.476 ounce of silver, and an ounce of silver was equated with 800 copper cash. The Ming picul was equal to 1.0737 hectoliters.

<sup>33</sup>The figure for xuande 8 is based on the hongwu 25 schedule. High ranking officials were issued 40 to 50 percent of their salaries in rice, and lower ranking ones were issued 70 to 80 percent of their salaries in rice. The remainder was issued in Certificates. Only those of ninth rank and below were paid entirely in

Follow-  
ing 9 8.05      5.37      5.37      2.54      1.73

rice. That is why a ninth rank official's income turns out to have been higher than that of an eighth rank official. There must have been some procedure then for correcting this anomaly.

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### 2. Purchasing Power of Pre-Wanli Copper Coins

In the course of the Ming Dynasty's paper money inflation, the economic life of the people came to depend upon the protection of silver and coins, just as a traveller would take shelter under a roadside pavilion during a heavy storm. Though some rain might still be blown in, it was much more secure than standing outside.

From beginning to end, the purchasing power of copper coins remained very high. Rice, for example, at the beginning of hongwu ranged from 500 to 1,000 cash per picul. In chenghua 18 [1482], natural disasters on both sides of the Yangtze drove the cost of a *dou* of rice to 70-80 cash, and it was said "the people looked as though they were starving, and the countryside was littered with the corpses of starving people."<sup>1</sup> Evidently the price of rice in terms of copper cash had not risen or fallen by much. Various unofficial histories and novels also allow us to see that the purchasing power of copper cash remained high during the whole course of the Ming period.<sup>2</sup>

<sup>1</sup>*Ming Officials' Memorials of Advice*, 2, Wang Shu, "Petition Requesting the Taking Back of the Middle Official Wang Jing."

<sup>2</sup>*Unusual Things Seen in Ancient and Modern Times*, 9, "Running into a Dongting Red While In Transit Along the Han": "It is said that during the chenghua period of this dynasty, outside the gates of Suzhou there was a man with the family name of Wen, and the given name of Ruoxiu. . . who met a blind gentleman. He put his hand into his purse to take out a coin. He grasped it firmly

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and asked its value."

*Journey to the West*, chapter 59: "Outside the gate he saw only a young man, pushing a red cart, standing beside the gate, and calling out that he was selling steamed dumplings. Great Sage plucked out a fine hair, and turned it into a copper coin, with which he asked the fellow if he could buy some dumplings. That fellow took the coin, not checking if it was good or bad, and opened up the cover on the cart, letting the steam puff out,



Actually, copper cash had a tendency to rise in terms of silver. At the beginning of hongwu [1368], an ounce of silver was equal to 1,000 copper cash.<sup>3</sup> During the chenghua period [1465-88], the amount fell to 800 cash.<sup>4</sup> At the beginning of hongzhi [1488], it was further reduced to 700 cash.<sup>5</sup> During the zhengde period [1506-22] it was the same.<sup>6</sup> The

took out a dumpling, and handed it to the travellers."

The *Partition Curtain Flower Shadow* (written during the jiajing period), chapter 18: "Fine-pearl said, 'There are few good people these days. A butcher, Two Pebble Mouth, has received our family's beneficence day after day, but when we hit a bad patch, he is unwilling to lend us a single coin to buy a steamed dumpling for brother Hui to eat.'"

The *Artful Garden* (written during the wanli period), 4, "Jade Dragon Mountain Umbrella Play": "Jin laughed and said, 'Stupid child! What can I say to you! I give you several tens of coins, and tell you to go to the village shop for a bit of stillbeer to drink so as to pass a peaceful night, but you've given them to a man, and gotten thoroughly drunk. . . ."

<sup>3</sup>*Ming Collected Statutes*, 179, "Calculating the Value of Stolen Goods," equates 1,000 copper cash with 1 ounce of silver. Cf. chapter 6.2.4, note 22, above. *Ming History*, 81, "Treatise on Food and Money, 5": "[In hongwu 8], each 1-string Certificate was equal to 1,000 cash or 1 ounce of silver. Four strings were equal to an ounce of gold."

<sup>4</sup>*Emperor Xianzong's Chenghua Veritable Record*, 33, chenghua 2, 8th month, xinchou: "The Reviewing Policy Adviser Qiu Hong spoke on eleven matters. . . . Item: The Coinage System. Recently, coins have not been circulating in the capital, and trade has been inconvenienced. An order ought to be issued that the salary Certificates of the civil and military officials in the two capitals, and the salary silver of the military men should be paid half in coin, with 1 string of Certificates being converted to 4 cash, and 0.1 ounce of silver being converted to 80 cash. . . . The Ruler assented to this." *Ibid.*, 210, chenghua 16, 12th month, jiazi: "The Board of Revenue said that the soldiers and civilians of the capital were saying that prior to this the silver price of coins in the capital was only 0.1 ounce of silver for 80 cash. . . ." *Ibid.*, 212, chenghua 17, 2nd month, wuwu: "The Ruler said that henceforth it would only be permitted to employ coins from earlier dynasties, along with Hongwu, Yongle and Xuande coins, with 80 cash commuting 0.1 ounce of silver."

<sup>5</sup>*Emperor Xiaozong's Hongzhi Veritable Record*, 11, hongzhi 1, 2nd month, xinchou: "The Board of Revenue requested . . . that 7 coins be taken in commutation of 0.01 ounce of silver. . . . Accepted." *Ibid.*, 74, hongzhi 6, 2nd month, gengxu: "An edict was received to gather the court officials to advise the Ruler on three matters. . . . Henceforth each 1-string Certificate is to be commuted in collecting taxes to 0.003 ounce of silver, and 7 coins to 0.01 ounce of silver."

<sup>6</sup>*Emperor Wuzong's Zhengde Veritable Record*, 9, zhengde 1, 1st month, xinai: "The Board of Revenue said that 700 cash

official price was not moved further during the jiajing period.<sup>7</sup> The market price of 1 ounce was only, however, 300 good coins.<sup>8</sup>

By the beginning of longqing [1567], silver was in greater circulation, and the price of coins had fallen, with 1 ounce commuted to 800 gold-reverse coins, and 1,000 fire-lacquer and lathed-edge coins.<sup>9</sup> The same was the case in wanli 4 [1576]. Later, the gold-reverse rose in price, and 5 were equal to 0.01 ounce of silver, but Jiajing gold-reverse were only priced at 4 to the 0.01 ounce.<sup>10</sup>

would commute 1 ounce of silver." *Ming History*, "Treatise on Food and Money, 5": "Zhengde 3 . . . the words of the Taijian, Zhang Yong, were followed, and Tiancai Treasury and Board of Revenue Cloth Administration Office Treasury cash were issued, and for collection of taxes, 70 cash was commuted to 0.1 ounce of silver."

<sup>7</sup>*Ming Collected Statutes*, jiajing 3: "Henceforth, only good coins are to be used, with 0.1 ounce of silver for 70 cash, and for lower coins 140 cash per 0.1 ounce of silver." *Ming History*, "Treatise on Food and Money, 5": "In jiajing 4, the branch tax offices were ordered when collecting taxes to commute a 1-string Certificate into 0.003 ounce of silver, and 7 cash into 0.01 ounce of silver." The same regulation was repeated in jiajing 33.

<sup>8</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," jiajing 8, 9th month. The Zhili Inspector, Wei Youben, memorialized: "If we speak in terms of coins, in all places, low quality coins circulate in abundance, and good coins are hard to obtain. The official price is 0.1 ounce of silver for 70 good coins. The present price for 0.1 ounce of silver is only 30 cash in good coins."

<sup>9</sup>*Ming History*, "Treatise on Food and Money, 5." *Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," says that in longqing 4, 8 gold-reverse coins commuted to 0.01 ounce of silver, and 10 fire-lacquer or lathed-edge coins were commuted to 0.01 ounce of silver.

<sup>10</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5" says that in wanli 4, all Jiajing, Longqing and Wanli gold-reverse coins exchanged with silver at the rate of 8 for each 0.01 ounce, and fire-lacquer and lathed-edge coins exchanged at the rate of 10 per 0.01 ounce, while old coins traded at 12 per 0.01 ounce. *Emperor Shenzong's Wanli Veritable Record*, 49, wanli 4, 4th month, renshen, also states: "The provinces are only permitted to mint coins with lathed edges. Ten of these may exchange for 0.01 ounce of silver." However, *Ibid.*, 187, wanli 15, 6th month, xinwei, states: "Hence 5 Jiajing gold-reverse coins were equated with 0.01 ounce of silver and 8 Wanli gold-reverse coins with 0.01 ounce of silver, [685]

and that this had been so for more than a day. In the course of two months, all of the Jiajing gold-reverses had gone out of use, and only Wanli gold-reverses were being used."

The two books do not give the same price for the Jiajing gold-reverse. However, the *Ming History*, "Treatise on Food and



On the basis of the Board of Revenue's recommendation, in wanli 13 [1585] the Wanli gold-reverse was changed to 8 coins per 0.01 ounce of silver. In wanli 15, the Board of Revenue stated that 5 Jiajing gold-reverses would commute 0.01 ounce of silver, as would 8 Wanli gold-reverses, and that this had been the case for some time. Evidently by wanli 13 the Jiajing gold-reverse was already being commuted at 5 to the 0.01 ounce. In wanli 17, Wanli gold-reverses seem also to have been running at 5 to the 0.01 ounce, and by wanli 39 the market price was 66 to 0.1 ounce of silver.<sup>11</sup>

Therefore a string of standard coins could exchange for ever larger amounts of silver.

#### MING DYNASTY STANDARD COIN EXCHANGE PRICES

Period	Number of Ounces per String
hongwu 1 (1368)	1.00
chenghua 2 (1466)	1.25
hongzhi 1 (1488)	1.42857
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jiajing 8 (1529)	
official price	1.42857
market price	3.33
longqing 4 (1570)	1.25
wanli 4 (1576)	1.25
13	1.25-2.00
17	2.00
39	1.515

The reasons for the rise in the price of coins were first, that the price of copper had risen, that is, that the silver-copper exchange price had changed. Based on the hongwu 1 [1368] list of stolen goods values, 100 catties of copper were then worth 5 ounces of silver. In jingtai 4 [1453], 100 catties of red copper were worth 6 ounces. In wanli 5 [1577], according to a memorial by the Shanxi Inspector, Gao Wenjian, 100 catties fetched 7 ounces. After wanli 25 [1597], the price per 100 catties was 10.5 ounces.<sup>12</sup> So by the wanli period, the silver price of

Money, 5" states: "When first minted, 10 gold-reverses were equal to 0.01 ounce of silver. Now it takes 5 of the Wanli gold-reverses, and 4 of the Jiajing gold-reverses to get 0.01 ounce of silver. The same price holds for fire-lacquer and lathed-edge coins. Within a decade, not only had demand halved the number provided, but the weight of the coins and their price had both jumped up."

<sup>11</sup>The above exchange prices are all based on *Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5."

copper was double the level at the beginning of Ming.

The second reason was that the weight of the standard coin had been increased on several occasions. The Hongwu coin weighed 0.1 ounce. The Hongzhi coin weighed 0.12 ounce. The Jiajing coin weighed 0.13 ounce. This increased the intrinsic value of the standard coin.

The third reason was connected with the promotion of Treasure Certificates by the authorities. Not many coins were minted. The Dazhong Circulating Treasure was minted on two occasions, but the total produced was only 42,220 strings, some of which were large coins later reminted into small Hongwu coins. As for the quantity of Hongwu coins minted, the histories only record the hongwu 1 figure of some 89,000 strings, and the hongwu 8 figure of 199,849 strings and 832 cash.<sup>13</sup>

According to the regulations of hongwu 26 [1393], in addition to Nanjing, there were 326.5 furnaces in the entire country, and these were capable of annual production of 190,414 strings and 800 cash.<sup>14</sup> In fact, however, this was not the year

<sup>12</sup>Xiang Mengyuan, *Winter Official's Record of Affairs*. This price also held for wanli 44. The wanli 25 price refers to twice-fired brass. The wanli 44 price was for four-times fired brass.

<sup>13</sup>Emperor Taizu's *Hongwu Veritable Record*.

<sup>14</sup>The production for hongwu 26 is recorded differently in various sources. *Ming Collected Statutes*, 194, "Minting of Coins," gives the following breakdown:

Location	No. Furnaces	Annual Quantity Minted
Beiping	21	12,830,400 cash
Guangxi	15.5	9,039,600
Shaanxi	39.5	23,036,400
Guangdong	19.5	11,372,400
Sichuan	10	5,832,000
Shandong	22.5	12,122,000
Shanxi	40	23,328,000
Henan	22.5	13,122,000
Zhejiang	21	11,664,000
Jiangxi	115	67,068,000
TOTAL	326.5	189,414,800 cash

However, Fu Weilin, *Book of Ming*, 81, "Treatise on Food and Money," says that during the hongwu period there were 325 minting furnaces in the country, and Tan Rumu's *Date Grove*



by year production, since minting was periodically halted.<sup>15</sup>

Even during years when coins were being minted, the set amount might not necessarily have been turned out. The number of Yongle coins minted was even smaller, since they only began to be minted in the capital region six years into the reign, and only after nine years were Zhejiang, Jiangxi, Guangdong and Fujian told to start producing them.

Minting of Xuande coins only began in xuande 8, and even then only the Board of Works in the capital and four local mints turned them out. The histories say that only 100,000 strings were minted.<sup>16</sup> Even if they had continued to turn out this quantity for several years, it would not have amounted to much.

After xuan-  
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de [1436] there was probably no minting for six or seven decades. It was not until hongzhi 16 [1503] that Hongzhi coins began to be minted. The number of furnaces turning out Hongzhi coins seems to have been increased, because in addition to restoring the furnaces originally used during hongwu times, they added furnaces in Huguang, Fujian, Yunnan, and

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*Miscellaneous Table*, "Coin Furnaces," section's figures do not match these either. It says that Beiping, Shandong and Yunnan each had 22 furnaces; Shanxi had 40; Zhejiang had 20; Jiangxi had 115; Guangxi and Sichuan each had 10; Shaanxi had 39; and Guangdong had 19.

If we examine the details, we can discover that each of these sources contains errors. The production figure for each furnace then seems to have been fixed. Each was to turn out 7,832 strings per annum. If we apply this standard to the material in the *Ming Collected Statutes*, then we can see that Beiping had 22 rather than 21 furnaces. On this point *Date Grove Miscellaneous Table* is correct. Zhejiang had 20 rather than 21 furnaces, and *Date Grove's* figures here are also correct. *Auspicious Sheep (Mystical Observation Hall Collectanea)* records 20 furnaces. Of the remainder, only for Shandong do the number of furnaces and quantity of coins not correspond, but if we change the figure for quantity of coins from over 12 million to over 13 million, then that pair of figures also agree with each other. I am almost entirely certain that this figure ought to be changed, and that therefore the number of minting furnaces in hongwu 26 must have been 326.5, and the annual production of coins was 190,414,800 cash.

None of the sources records the number of furnaces or coins minted in Fujian and Huguang, but a large number of Hongwu coins bear the character *fu* on their reverses.

<sup>15</sup>Cf. section 7.1, above, "Monetary Systems."

<sup>16</sup>*Emperor Xuanzong's Xuande Veritable Record*, 106, xuande 8, 9th month, yihai.

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Guizhou. The quantity minted in Nanjing also increased. Annual production could have amounted to 250,000 strings.<sup>17</sup> This, however, was merely the schedule fixed by the authorities. There was no way to consistently maintain this rate.<sup>18</sup>

The annual production of Jiajing Circulating Treasure was probably only around 100,000 strings.<sup>19</sup> In jiajing 23 [1544], the large coins

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<sup>17</sup>The figures for furnaces minting Hongzhi Circulating Treasure are calculated as follows: That for Beijing is based on the old figure for Beiping in the early years, and Nanjing's figure is double that for Beijing. Shandong, Shanxi, Henan, Zhejiang, Jiangxi, Guangdong, Guangxi and Sichuan are calculated at the old rate, but the production of the four additional provinces is added: Huguang at the same rate as Zhejiang, Fujian at the Guangdong figure, Yunnan and Guizhou at the Sichuan figure. That would make the total number of furnaces 429, and annual production capacity 250,776 strings.

<sup>18</sup>*Emperor Xiaozong's Hongzhi Veritable Record*, 213, hongzhi 17, 6th month, gengchen: "The Board of Works again memorialized. In Nanjing . . . Yang Shouzhi discussed the matter of reductions in minting. He said that the Nanjing Treasure Origins Office was to mint 25,660,000 copper Hongzhi Circulating Treasure coins. The expense was not small. At present many places have suffered harm from natural disasters. Damage has been especially severe in Nanjing, and a temporary halt in minting is requested. After a year, and an abundant harvest, it can be discussed again. An order to reduce the original figure to a third was issued."

*Ibid.*, 224, hongzhi 18, 5th month, jichou: "Prior to this, the Taichang Temple memorialized that because Hongwu coins were not circulating in the market, shopkeepers found it inconvenient to set prices. The Ruler ordered the Board of Revenue to investigate the reasons for this. The Board of Revenue said that our dynasty originally minted coins like the Hongwu Circulating Treasure, but they have long since gone out of use among the people. Terribly many of them have been hoarded in the official treasuries. . . . The Hongzhi Circulating Treasure being minted at various locations are now only being turned out at 10 or 20 percent of capacity."

<sup>19</sup>*Ming Collected Statutes* says that in jiajing 6 the Beijing Treasure Origins Office minted 18,830,400 cash, and the Nanjing Treasure Origins Office minted 22,660,800 cash. The Board of Works was also ordered to send officials to Zhili, Henan, Min and Guang to mint coins according to the rules of the yongle and xuande periods. The figures for the Treasure Origins Offices could be in error, because they differ only by one digit from those for former periods. If the methods for turning out Hongzhi Circulating Treasures were used, then the Beijing Treasure Origins Office must have made 12,830,400 cash, and the Nanjing Treasure Origins Office twice that amount, or 25,660,800 cash. In any event, however, since it is said that the yongle and xuande precedents were to be followed, the quantity of coins minted was probably only around 100,000 strings.



minted were still smaller in number, because only the Beijing Board of Works was minting them. Only an extremely small number have survived. As for the so-called supplementary minting of the coins of nine year-periods, this was probably simply never carried out. The Longqing Circulating Treasure was minted for more than a year, and the Board of Revenue only put out 2 million of them.

The number of coins minted remained small right down to the beginning of the wanli period, with annual production of only 20,000 ingots worth. This was increased to 150,000 ingots in wanli 13 [1585], and to 90,000 ingots in wanli 20.<sup>20</sup> Only after wanli 27 [1599] did the number of furnaces increase.

Therefore, during the more than two centuries down to the end of the sixteenth century, the Ming Dynasty did not mint many coins. I suspect the total was only some 10 million strings, and a large proportion of these remained in the official treasury,<sup>21</sup> and did not participate in circulation. Old coins from former dynasties and privately coined cash constituted the bulk of the coins in actual circulation. The Ming court often limited tax payment to standard coins of the current dynasty, or accepted old coins at a discount of two as the equivalent of one standard coin.<sup>22</sup>

Standard coins were the coins minted by the official furnaces of the current dynasty. This term was

used to contrast these with old coins of former dynasties and private coins of the current dynasty. The term standard coin [*zhi qian*] was first used during the Ming Dynasty. Under such circumstances, the exchange price of standard coins was, of course, raised.

Not only were few coins made during Ming, but a portion of them flowed abroad. During the yongle period, eunuchs were sent annually to foreign countries, and to the northwest to buy horses and other commodities, bringing with them on each occasion several tens of millions of copper coins.<sup>23</sup>

At that time, Java and Sanfoqi (or Bolin) in the South Seas employed Chinese coins, and Ceylon also used them.<sup>24</sup> The copper coins in such places were probably mainly of Song date, but Japan imported quite a few Ming coins. Most of these were Hongwu and Yongle coins, with Xuande coins coming next in frequency.

Japan's Kamakura Bakufu had long since fallen, and the Ashikaga clan had risen to replace it. This period of 180 years (1392-1573) is called the Muromachi period. The Japanese did not mint coins themselves, but because of the development of commerce, its demand for currency was very great, and the local feudal leaders (called daimyo) relied en-

to one of the new coins."

<sup>23</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," yongle 19, 4th month: "The Expectant Discussor, Zou Ji, said the court annually orders the Empire's offices to mint copper coins. It sends eunuchs to bestow them on foreign countries, and to the northwest to buy horses and receive goods. What is expended is often several tens of millions, and what is taken in does not come up to 10 or 20 percent of this."

<sup>24</sup>According to Huang Shengceng, *Tribute of the Courts of the Western Seas Annotated Record*, trade in these two countries was carried on entirely with Chinese coins of former dynasties. This was the situation at the time of Zheng He's expeditions. *Investigation of Literary Remains Continued*, 11, quoting Ma Huan's *Overall Survey of the Ocean Shores*: "The state of Java uses Chinese copper coins of former dynasties. The state of Jiugang also uses Chinese copper coins. Ceylon especially likes Chinese copper coins, and will exchange a pearl for one of them." When sixteenth-century Dutchmen first reached that region, they too said that copper coins with holes were in use there. For example, Lindchoten, in his *Itinerarie Voyage* wrote: "In sunda there is also no other kind of money than certain copper

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mynt called 'caixa', of the bigness of a Hollâdes doite, but not half so thicke, in the middle where of is a hole to hang it on a string, for that commonlie they put two hundred or a thousand upon one string." (Quoted by R. Charlmer, *History of Currency in British Colonies*, p. 372.)

<sup>20</sup>*Ming Collected Statutes*, 194, "Minting of Coins."

<sup>21</sup>*Emperor Xiaozong's Hongzhi Veritable Record*, 29, hongzhi 2, 8th month, jiyin: "Based on the memorial of the Prefect of Chongqing, Sichuan, Mao Tai, the Board of Revenue requested the minting of coins. He had said that the state's Hongwu, Yongle and Xuande coins were all being hoarded and not used, and they ought to be circulated." *Emperor Wuzong's Zhengde Veritable Record*, 29, zhengde 2, 8th month, renshen: ". . . Though many Hungwu and Yongle coins have been hoarded in the Treasury, few have been given as gifts." In wanli 4, 12th month, the Reviewing Policy Adviser, Si Shun, said: "The Silver Treasuries have amassed coins in the tens of millions, and they have piled up in such profusion that official salaries ought to be ordered paid 40 percent in silver and 60 percent in coin."

<sup>22</sup>*Investigation of Literary Remains Continued*, quoting *Remaining Dreams of Spring Brightness*: "During the hongzhi period . . . they minted Hongzhi Circulating Treasure coins. When officials were paid their salaries, they were given Circulating Treasure coins. When taxes were paid in to local offices, half was in standard coins of the hongwu, yongle and xuande periods. Those without such standard coins could, as a favor, pay 2 old coins to commute 1 such standard coin." *Five Mixed Tables*: "In Shandong, silver and coins were used intermixed. The coins used all had Song year-period names. Two of these were equal



tirely on merchants who carried on overseas trade to serve as their economic supports, in exchange for which they provided the merchants with political protection.

A number of merchants had been dispatched abroad by them, and a goodly amount of the trade was controlled by the Bakufu. On the pretext of promoting local goods, they came to exchange these goods for Chinese copper coins. China treated this as "bringing tribute,"

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for which they gave coins in exchange according to a schedule which set prices at very high levels.

For example, in yongle 2 [1404], the ambassador from Japan was given 50 ingots worth of Certificates and 1,500 strings in cash.<sup>25</sup> Such practices became common thereafter.<sup>26</sup> At times they even gave rise to quarrels.<sup>27</sup>

<sup>25</sup>Emperor Taizong's *Yongle Veritable Record*, 39, yongle 3, 11th month, xinchou.

<sup>26</sup>According to Emperor Taizong's *Yongle Veritable Record*, the Ming court sent an embassy to Japan in yongle 5, 5th month, carrying as gifts 1,000 ounces of silver and 15,000 strings of copper cash. In yongle 6, 5th month, the emissary from Japan was given 100 ingots worth of Certificates and 100,000 cash. In yongle 9, the middle official Wang Jin was sent to Japan with a gift of 50 strings of cash. Emperor Yingzong's *Zhengtong Veritable Record*, 236, jingtai 4, 12th month, jiashen: "The Board of Rites memorialized, 'The King of Japan has brought additional tribute. . . . It is several tens of times more than of old. Because of old the Japanese have left with a profit, they have now come with many times more goods. If they are requited according to the former rate, in addition to the commutation into heavy silk and plain cloth, the copper coins will total 217,732 strings and 100 cash.'"

<sup>27</sup>In chenghua 5, the Japanese Bakufu leader, Ashikaga Yoshimasa, sent three ships to China. According to *Good Neighbor States Treasure Record*, the Japanese credential read: "The register of copper coins is presented to the Superior State. We have long come. Now we seek two things, and bow down, hoping that our memorial will reach its goal so as to satisfy our desires.' The list was seen on the left side. During the yongle period, many copper coins were given. Recently, this had not been proposed. Now the Treasury is constricted. How will this profit the people? A decision is anxiously awaited."

*Ming Veritable Records* also mentions this matter. Emperor Xianzong *Veritable Record*, 62, chenghua 5, 1st month, bingzi, Board of Rites memorial: "The tribute of the state of Japan falls into the category of knives and swords. The precedent is to requite it with coin and heavy silk. Hitherto, this has all been done on a scheduled basis, but the increase has harmed the quantity involved. Moreover, recently the values of coins and Certificates have diverged widely . . . and the emissary Kiyokei has been disputing the rules to be followed." *Ibid.*, 2nd month, bingxu,

Prior to the xuande period [1426], the Ming court was promoting Treasure Certificates, and copper cash were not in wide circulation. At times their circulation was even prohibited, and large quantities of standard coins accumulated in the official treasuries, and so were often used to make payments to foreigners.

In xuande 10 [1435], 12th month, the Prefect of Wuzhou, Li Ben, memorialized for permission to circulate coins alongside Certificates. Thereafter, the Ming court was no longer very willing to make gifts of copper coins. As a consequence, a number of private Japanese merchants decided to carry away copper coins in the course of conducting ordinary trade.

The Ming court had, however, a closed door foreign trade policy. Ever since the time of the founding Emperor, Taizu, not so much as an inch of timber was permitted to go to sea, and export of copper cash was still more strictly banned. There were even regulations for foreigners engaging in trade.

For example, after jiajing 6 [1527], the Japanese were only permitted to come once per decade, bringing a hundred emissaries on three ships. No one in excess of this limit would be received. However, the copper coins carried off by the Japanese were not necessarily standard coins. I suspect that the majority of them were old coins and private coins.

At that time in China 1 ounce of silver could exchange for 700 to 800 copper cash, whereas in Japan 1 ounce of silver could only exchange for 250 copper cash.<sup>28</sup> Therefore copper cash spontaneously flowed toward Japan.

When Japanese merchant vessels came to China then, they moored at Fujian's Yuegang and Zhejiang's Shuangyu. In the course of trade, copper

first day of moon: "The Japanese emissary Kiyokei, with three ships . . . The local official Xuan Shu memorialized on these three vessels, saying that because they had encountered winds at sea, there had been loss of life and goods, and requested that a like amount of goods be given as rewards for their return to their nation. The Prince of Shu saw no fault in this. The matter was sent to the Board of Rites, which said . . . it would be difficult to give an equal amount. The Ruler said . . . but there is a king who is able and obedient, and we may make a special gift to this king of 100 bolts of heavy silk, and 10 of patterned damask. Then Xuan Shu memorialized to request a gift of 5,000 strings of copper cash. . . . The Ruler said, Xuan Shu might be given another 500 strings of copper cash to hurry them off."

<sup>28</sup>*Compiled Illustrations for Sea Planning*, "Ancient Cash Coins," note: "The Wa do not themselves mint coins, but merely use ancient Chinese coins. For 1,000 cash the price is 4 ounces of silver. If new coins are made privately in Fujian, 1,000 have a price of 1.2 ounces of silver. Only the Yongle and Inaugural coins are not used."



coins flowed out through these two places. Private coining was also most prevalent in Fujian and Zhejiang, and it is probable that most coin exports to Japan were private coins. These private coins were worth 1.2 ounces of silver per thousand, and 3 of them were equal to 1 standard coin.

Nevertheless, on the whole the quantity of copper coins flowing into Japan from xuande times on must not have been large, because Japanese merchants had begun to import Chinese commodities, and these commodities could be sold for very high prices in Japan.

For example, the price of silk during xuande and zhengtong [1426-50] was 250 cash per catty in China, and 5 strings per catty in Japan.<sup>29</sup> The profit from this was far greater than from importing copper coins, and so as to gain profit from importing such commodities, Japanese merchants sometimes even exported copper coins to China.<sup>30</sup>

For all of the above reasons the purchasing power of standard coins was very high. During the hongwu period [1368-99], the price of rice was around 500 cash per picul. During zhengtong [1436-50], it was only around 300-400 cash.<sup>31</sup> A price of 300 cash per picul is recorded for both chenghua 5 [1469] and 8.<sup>32</sup> In chenghua 11, the commutation

price was only 160 cash.<sup>33</sup>

Since, however, most Ming rice prices were calculated in silver, these few figures cannot be taken as representative of the trends in standard coins' purchasing power in rice.

If we convert the average price in silver of rice to standard coins, then during the hongwu period a hectoliter of rice was worth 460 cash, 285 cash during the yongle period, 290 cash during the xuande period, a little over 250 cash during the zhengtong period, 400 cash during jingtai times, 250-260 cash during tianshun,

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some 350 cash during chenghua, over 360 cash during hongzhi, some 330 cash during zhengde, from 170 or 180 to 400 cash during jiajing, over 470 cash during longqing, and falling from 600 to something over 300 cash during wanli.

The significance of such commutation calculations is not, however, great, since by no means were all the coins in people's hands standard coins. Frequently they were old or privately made coins.

Actually, because Treasure Certificates were being promoted prior to xuande, circulation of copper cash was often prohibited, and such bans were not removed until xuande 10 [1435].

Most of the coins on the market were, however, old and private coins. Standard Hongwu and Yongle coins were kept in the treasury and not issued. That is to say, although the purchasing power of standard coins was high, prices in coin were not altogether stable. The situation was very complex. Only the official coins were relatively stable, and even appreciating in value against silver. Old and privately made coins were, on the contrary, unstable, and in unpredictable ways.

By old coins I mean pre-Ming coins. Prior to the wanli period, many more of them were in circulation than were Ming coins. Most old coins weighed around 0.1 ounce, and were generally well made and uniform, except that having been in use for a long time they were inevitably somewhat worn.

The Ming Dynasty generally treated old coins that were intact just as though they were Ming coins.<sup>34</sup> It was only during hongzhi [1488-1506] be-

<sup>29</sup>Kobata Jun, *History of the Circulation of Money in Japan* (revised and expanded edition), p. 594, quoting the words of Kusuba Nyudo (who accompanied xuande and zhengtong period Japanese voyages to China).

<sup>30</sup>In zhengde 6, when a Japanese ship arrived at Ningbo, the broker Sun Zan brought copper coins to sell to the ship master, but could not trade them. After xuande times, no more copper coins flowed to Japan. Recently, a hoard of ancient coins was unearthed in Miyasaki Prefecture, Kyushugun. Of the total of 7,719 coins, there were 9 Xuande Circulating Treasure and 2 Hongzhi Circulating Treasure. Compared with the number of Hongwu and Yongle coins, these are hardly worth mentioning. There were 1,273 Hongwu Circulating Treasure, and another 123 Japanese imitations. There were 200 Yongle Circulating Treasure, 2,590 Japanese imitations, and 3 Vietnamese imitations.

<sup>31</sup>*Emperor Yingzong's Zhengtong Veritable Record*, 68, zhengtong 5, 6th month, wuyin: "Now [the Guangxi] Intendant-Inspector's Office has memorialized 'The Aid-the-State General and Assistants in Restoring Obedience, Tu Sheng and Lei Geng are collecting salary rice in Xing'anxian, with each picul compelled to be commuted to 700 cash, or even to 1,500 cash, which is three or four times the price recently. How can the people bear this?'"

<sup>32</sup>*Emperor Xianzong's Chenghua Veritable Record*, 71, chenghua 5, 9th month, renchen: "[In Shandong] each picul of rice is discounted into 0.25 ounce of silver, or one large cotton cloth bolt, or 300 cash." *Ibid.*, 111, chenghua 8, 12th month,

gengwu: "[In Shandong] each

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picul of provisions was bought officially for 300 copper cash or 0.35 ounce of silver."

<sup>33</sup>*Ibid.*, 145, chenghua 11, 11th month, xinwei.

<sup>34</sup>*Ming Collected Statutes*, 194, "Minting of Coins": "In tianshun 4 it was ordered that except for counterfeits and tin coins, all coins in circulation among the people from previous dynasties, and Hongwu, Yongle and Xuande coins, as well as 2-



cause the authorities were promoting Hongwu and later standard coins, that the regulations prescribed using two old coins in place of one standard coin when paying taxes.<sup>35</sup>

It was, however, also possible for commutation to occur among the public.<sup>36</sup> During the jiajing period, old coins were again distinguished by denomination, and old 2-cash coins of the middle sort were equated with 1 good coin.<sup>37</sup>

Oscillations in the prices of Ming Dynasty coins were manifested mainly among private coins. The problem of private coins arose right from the beginning of the hongwu period.

Because private coins were interfering with the smooth circulation of standard coins, in hongwu 6 the authorities began to buy them up for reminting at a set price. They offered 190 official coins for each catty of private coins.<sup>38</sup>

During the early period, when the authorities were promoting Treasure Certificates, copper coins may well have been kept in hoards, and not even private minting would have been profitable. Later,

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cash and 3-cash coins, could be used according to their face values, with no discrimination among them permitted." *Emperor Xianzong's Chenghua Veritable Record*, 210, chenghua 16, 12th month, jiazi: "Aside from counterfeits, damaged and tin coins, which are not to be used, no discrimination will be made among the others, whether their year-periods are remote or recent."

<sup>35</sup>Cf. note 22.

<sup>36</sup>*Emperor Wuzong's Zhengde Veritable Record*, 83, zhengde 7, 1st month, gengwu: "At first, the Office of Ceremonial Overseership Chief Inspector, Zhang Yong, memorialized that Hongwu, Xuande and Hongzhi coins are circulating along with old coins from earlier dynasties. However, within, they are not being issued by the officials; outside, they are not being collected in taxes. Above and below, they are avoiding the junctions, and so we should order the people to commute two for one." *Investigation of Literary Remains Continued*, 11, zhengde 7: "The Board of Revenue again assented to publication of a placard saying that for both soldiers and civilians, both near and far, whether coins are large or small, but if they are roughly whole copper coins, 7 of them will be worth 0.01 ounce of silver, and it is not permitted for two to be commuted for one."

<sup>37</sup>*Ming Collected Statutes*, jiajing 6: "It was again ordered that it be proclaimed inside and outside the capital walls by travelling Board of Revenue personnel that henceforth, aside from privately minted new coins, broken coins, lead or iron coins, which officials will buy but no longer use, roughly whole old coins of the middling sort may be equated with silver at the rate of 140 coins per 0.1 ounce of silver, and are to freely circulate alongside Hongwu and Yongle type coins."

<sup>38</sup>*Emperor Taizu's Hongwu Veritable Record*, 86, hongwu

however, when Treasure Certificates had fallen in value relative to copper coins, and few of the Ming Dynasty's standard coins were being minted, the purchasing power of copper coins rose to a very high level, and private minting flourished.

Private minting of copper coins was always prohibited by every dynasty. In hongwu 1, the Ming Dynasty proclaimed a severe prohibition on private minting. Over the course of Chinese history, however, private minting was only rarely halted by legal measures. On the contrary, the proliferation of prohibition orders reflected the ubiquity of private minting. Actually, the Ming Dynasty merely banned private coining. It did not ban the circulation of private coins.

Due to the proliferation everywhere of private coining, in jingtai 7 [1456], another ban was announced. Private coining then mainly centered in the south, in Suzhou and Songjiang. The coins were then transported to Beijing for distribution. All private coins were adulterated with iron and tin, and their purity of metal was very low. Some of the army artisans in Beijing also made a living from private coining.<sup>39</sup>

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In chenghua 13 [1477], people in Suzhou, Songzhou, Changzhou, Zhenzhou, Hangzhou and Linqing were still earning a living by private coining, and the merchants in these places were seeking profit by buying their output. As a consequence, the government issued yet another prohibition.<sup>40</sup>

In chenghua 16, 12th month, however, the Board of Revenue said that counterfeiting was flourishing, 0.1 ounce of silver was worth 130 cash, that coins were cheap and rice expensive. Moreover, sorting of coins was too troublesome, and so it requested an additional prohibition.<sup>41</sup>

In chenghua 17, 2nd month, it once more reported that private coins were circulating everywhere inside and outside of the capital, the circulation of old coins was being obstructed, coins were lightly demanded and goods expensive. And yet another prohibition order was handed down.<sup>42</sup>

Obviously, such laws had no great efficacy.

From the hongzhi period [1488-1506] on, the private coining problem only increased and never diminished, the names by which they were known proliferated, there were new coins, as well as lead

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6, 11th month, bingwu.

<sup>39</sup>*Investigation of Literary Remains Continued*.

<sup>40</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5."

<sup>41</sup>*Emperor Xianzong's Chenghua Veritable Record*, 210, chenghua 16, 12th month, jiazi.



and tin ones, thin and small ones, low quality coins, and better ones, and ones called leather sticks.<sup>43</sup>

In hongzhi 16 [1503], when the Hongzhi Circulating Treasure was first minted, the Reviewing Policy Adviser, Zhang Wenchen, discussed the expenses of minting. It cost 10 ounces of silver to mint 10,000 cash, and so he opposed minting coins. He also pointed out the court's wasteful practices,<sup>44</sup> and connected them with the problem of private coining. So long as private coining flourished, official minting could not hope to be profitable.

It is probable that very few Hongwu type standard coins circulated during the chenghua and hongzhi periods [1465-1506].<sup>45</sup> In hongzhi 2, in Sichuan, the Prefect of Chongqingfu requested the minting of coins. The Board of Revenue said that the Hongwu, Yongle and Xuande coins of the dynasty had been hoarded away and kept from use. The Board of Works also said that no one was using Hongwu-type coins.<sup>46</sup> Both ministries opposed minting. By the end of the hongzhi period, the capital districts relied almost solely on private coins, two of which were equivalent to one good coin. This was called exchange for good.<sup>47</sup>

<sup>43</sup>*Famous Mountain Hoards*, "Record of Coins."

<sup>44</sup>*Emperor Xiaozong's Hongzhi Veritable Record*, 197, hongzhi 16, 3rd month, wuzi: "The Board of Works Left Reviewing Policy Adviser, Zhang Wenchen, discussed the requirements for minting. He said, 'The expense for minting coins is 10 ounces of silver for 10,000 coins per year. . . . At other times official minting and illicit minting were carried on together, and I fear that there will again be suffering from an excess of coins. In recent years, only old coins have been used, and the people are still privately coining. If we now mint and circulate official coins abundantly, this will provide opportunities to engage in counterfeiting. . . . If Your Majesty is sincerely able to practice frugality personally so as to set an example for the Empire, there will not be three extra costs, there will be nine years' accumulation, and thus, even though coins are not minted, there will spontaneously be enough to meet requirements.'"

When Gu Yanwu discusses the Damingfu land tax in *Letters on the Profits and Ills of the Regions of the Empire*, "Northern Zhi," he too acknowledges that from hongzhi on, the state's strength had gradually declined, the burdens on the people had grown heavier, and the population had diminished by the day.

<sup>45</sup>Lu Rong, *Pulse Garden Miscellaneous Record*, 10: "The Hongwu coins did not circulate at all among the people. When I was young, I had seen them. Now, there was not even one to be seen. They had been melted down to make other things."

<sup>46</sup>*Emperor Xiaozong's Hongzhi Veritable Record*, 29, hongzhi 2, 8th month, jiyin.

<sup>47</sup>Dong Gu, *Green Jade Village Miscellaneous Holdings*: "In my township, from the beginning of the state down to the hongzhi period, we had always circulated good coins. Each 0.01

There was another ban on private minting during zhengde. In zhengde 6 [1511], someone asked for a ban on use of low quality coins, and urged that only standard coins of the current dynasty and large old coins be used. The following year, permission was granted to use all coins, except for damaged, iron and tin coins, with 70 equated with 0.1 ounce of silver. The practice of equating two with one good coin was banned.

Nevertheless, private coining became still worse. The exchange of two bad for one good coin became an exchange of three and then four for one good coin. The authorities acknowledged that the bad practice of private coining had gone on for years and was hard to eradicate. Some were too poorly made to be serviceable, and the so-called four-exchange circulated in abundance.<sup>48</sup> It was even possible for 8 coins to be equated with one good one.

ounce of silver was equal to 7 coins. No odd ones were used. But sorting them out was too troublesome. The green ones were taken as of the highest fineness. In zhengde year dingchou, I first travelled to the capital. When I first got there and observed traders all calling coins 'boards,' I wondered and inquired about this. I found that the coins in use were all low and bad ones, two of which were commuted for one good one. But if they were taken in quantity, and one did not see if they were good or not, people all found it convenient to suppose they were good.

"Since I moved south, my township has come to circulate nothing but boards. Good coins were all put aside and not circulated. I do not know how it could have been so miraculously rapid as this. Within a few years, the boards again had undergone winnowing, their origins at twice the quantity were forgotten, and they were still reckoned by number. This caused silver to become expensive and coins cheap. This expedient began in the capital districts."

Lu Shen, *Yanbian Record*: "When I was young, I observed that only Song coins were in use among the people, intermixed with Jin and Yuan coins. These were called good coins. Among the Tang coins there were

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Kaitong Original Treasures [i.e. Inaugural Circulating Treasure. EHK]. If these were come upon, they were not used. Newly minted ones [meaning private coins] were called low coins. Two of them were equated with one good coin, and people also used them in pairs. By the end of the hongzhi period, good coins no longer circulated in the capital districts, and only new coins were circulated. This was called exchange for good [*dao hao*]. During the zhengde period, there was exchange for three and exchange for four, and illicit coiners multiplied in number."

<sup>48</sup>*Emperor Wuzong's Zhengde Veritable Record*, 83, zhengde 7, 1st month, gengwu: "At this time, the bad practice of private minting had gone on for years, and was hard to change. It had reached the point where four coins were being commuted for one, and there were bad, damaged and inadequate ones



During the jiajing period [1522-67], the problem of private coins became still worse. In some remote localities, particularly ones near the sea, privately minted coins could be sold to foreign countries. Places like Fujian's Longji<sup>49</sup> and Guangdong's Xinning<sup>50</sup> were both in such a position.

In jiajing 3 [1524], the government published placards informing merchants inside and outside the capital that 70 good coins were equal to 0.1 ounce of silver, and that 140 low coins were required to exchange for the same amount of silver.<sup>51</sup> During jiajing 6, however, all the coins on the capital market were privately minted. No standard coins or old coins from previous dynasties were able to circulate, probably because they had been driven out of circulation. Emperor Shizong said that it was not a matter of the officials ordering a ban, but of their being unable to enforce it.<sup>52</sup> Later, the price in silver of private coins fell from 3-4,000 coins per ounce to 6-7,000.<sup>53</sup> In jiajing 12, private coins in Zhili had names like exchange-3, exchange-4,

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commute-6, and commute-7.<sup>54</sup> There was even an exchange-9 and an exchange-10.<sup>55</sup>

Such private coins were light, broken, thin and small, and could be crushed in the hand. Although they bore inscriptions, their strokes might be indistinguishable. They might not even be made of copper, but rather of lead and iron. They might not be cast, but rather cut out.<sup>56</sup>

In jiajing 33 [1554], the silver price of Jiajing coins and Hongwu-type standard coins, as well as intact coins from earlier dynasties was set at 7 coins per 0.01 ounce. Other coins were classified into three grades depending on the level of their quality. These exchanged at 10, or 14, or 21 coins to 0.01 ounce of silver. The flood of coins unsuitable for use were banned. In issuing salaries to civil and military officials, however, the government did not distinguish between new and old coins. All were used as though they were coins of the highest category, exchanging at 7 coins to the 0.01 ounce, and the officials in turn went to the market to force the merchants to accept them, much to the sorrow of the people.

As a consequence of permitting small coins to circulate, 6,000 coins were equated with an ounce of silver. The exchange rate of Jiajing coins was then fixed at 700, coins of the Hongwu type at 1,000, and 3,000 coins from earlier dynasties were pegged at 1 ounce of silver.

Thereupon manufacture of Jiajing coins got underway among the populace. Finally, the authorities had no choice but to abolish the price fixing rules, and to allow the various kinds of coins to find their own levels. Taxes and official salaries were all paid in silver.<sup>57</sup>

12th month, jiachen.

<sup>53</sup>*Ming History*, "Treatise on Food and Money, 5": "[During jiajing] Prior to this there was a flood of bad coins circulating among the people at a rate of 30-40 coins per 0.01 ounce of silver. Later, they were increasingly adulterated with lead and tin, made thin and narrow, and without regular shape, and so reached 60 or 70 coins per 0.01 ounce of silver."

<sup>54</sup>*Emperor Shizong's Jiajing Veritable Record*, 149, jiajing 12, 4th month, bingzi: "Sun Jin, 'Enumeration of Things to Aid the Imperial Domains,' . . . item: fixing the coinage. In Zhili, evil people scheme over thin, small, leaden and worn coins, and set up names like exchange-3, exchange-4, commute-5, commute-6, and commute-7, so that a point is reached where regular coins do not circulate."

<sup>55</sup>*Yanbian Record*: "Since jiajing times, there have been [exchange]-5, 6, and even 9 and 10."

<sup>56</sup>*Book of Ming*, 81, "Treatise on Food and Money," jiajing 23, the words of the Censor Yan Lin.

which returned for exchange at that rate and which circulated abundantly at that exchange rate."

<sup>49</sup>*Japan One Mint*, "Copper Cash," article, note: "*Song History*, copper cash inscription Qianwen Large Treasure. *Yuan History*, merchants were sent carrying gold to exchange for copper coins, pictures and books. Private minting offices had long since halted coining. Only ancient Chinese coins were used. Each 1-cash coin had a price of 0.004 ounce of silver. Up until then, Fujian's Longji had privately coined and marketed them. They were heavier than Chinese coins, and not reckoned as Longji's counterfeits."

<sup>50</sup>The Ming jiajing period woodblock edition *Xinning District Gazetteer*, "Food and Money: Coins": "At the beginning of the dynasty, when Hongwu Circulating Treasure were first circulated, a coin minting factory was set up in the commandery city. Most of the Xinhui people were smelter workers, and so stole the molding methods. As a consequence, the district swarmed with the people of Cao Gang, all minting counterfeit coins which were mixed in with genuine ones in circulation. A thousand of them exchanged for 300 good coins. Those in office piled up prohibitions, but were unable to halt it. Now the custom still exists, and they are sometimes in contact with the people of Xinhui. They carry them to Jiaozhi and Guangxi, or go down to the sea to sell them. Recently, city-controlled coins have become prevalent. Those used are mostly old coins. For each ounce of silver, 1,000 coins can be exchanged. They are fairly similar to those of Xinhui, and there are few differences with those of Guang city. Nevertheless, intermixed with them are Haoyong counterfeits. People can, however, usually distinguish these, and so the coins' towns of origin rarely encounter those of other places."

<sup>51</sup>*Ming Collected Statutes* (events of jiajing 3).

<sup>52</sup>*Emperor Shizong's Jiajing Veritable Record*, 83, jiajing 6,



At the beginning of longqing, a number of people proposed ways of adjusting the monetary system.

The first was the Board of War Expectant Executive Tan Lun. He said that to enrich the people it was necessary to emphasize cloth and food, and to make silver cheap. To do that, it was necessary to use coins. He advocated restoration of copper coins' power as legal tender. Tax payments of less than 3 ounces should be collected in coin. For trade among the people, transactions of 0.1 ounce or less should be permitted to employ coins.<sup>57</sup>

The second was Jin Xueyan. He too opposed the use of silver and the abolition of coins, and advocated ordering the people to pay fines in copper and charcoal, which the government would use to mint coins. Silver and coins would both be used for all government expenditures.<sup>58</sup>

The third was the Zhili Inspector, Yang Jiaxiang, who advocated minting Great Ming Circulating Treasure.<sup>60</sup> Probably because of the very great

confusion attending the circulation of year-period coins, he did not wish to employ a year-period coin so as to symbolize the reform.

The fourth was Gao Gong. He advocated adoption of a *laissez faire* policy, which would not suddenly change court policy, thereby damaging the faith of the people.<sup>61</sup> Emperor Muzong approved of Gao Gong's proposal, but also minted Longqing Circulating Treasure. It is said that from then on the coins circulated to some extent. The exchange rate then was 8 coins per 0.01 ounce of silver.

The private coining problem was not, however, removed. That some Jiajing and Wanli coins had labels like gold-reverse, fire-lacquer and lathed-edge, simply meant that by such means it was hoped to hinder private coining, and this alone is sufficient to indicate the continued virulence of that practice.

<sup>61</sup> *Ming History*. "Treatise on Food and Money."

<sup>57</sup> *Ming History*, "Treatise on Food and Money, 5."

<sup>58</sup> *Ming History*, "Treatise on Food and Money, 5."

<sup>59</sup> *Ming History*, 214, "Biography of Jin Xueyan": "At the beginning of longqing . . . he responded to an edict with a discussion of the principles of finance which ran to more than ten-thousand words. He said that selecting soldiers, minting coins, and amassing grain were the most important things. To outline his words . . . 'I have observed the Empire's people confusedly worrying because of their lacks. If it is not that cloth or the five grains are insufficient, then there is not enough silver. . . . How can we use silver and abolish coins! The more we abolish coins, the more we circulate silver alone. If we circulate it alone, then hoards will be increasingly deep, silver increasingly expensive, goods increasingly cheap, and making distinctions in assessing purity of metal ever more difficult. The rich will take advantage of a good's cheapness to engross it, and when it becomes expensive they will sell it off. When silver accumulates among the rich ever more abundantly, there will be ever less of it to circulate within the Empire. . .

"Those who calculate such things say there are two difficulties with the coinage: That profit does not attend the basic cost, and that the people are unwilling to circulate them. These are both mistaken. . . .

"If we sincerely order the people to use copper and charcoal to pay fines, and artisan labor service men take it in the garrisons, this one rule will spread coins throughout the Empire. Only evil rich men are unwilling to circulate coins. I request that henceforth such expenditures as payment of fines, taxes, official gifts, salaries and army provisions all be paid out jointly in silver and coins. If above this is how things are collected, and below this is how they are paid, how could we suffer from their not circulating!"

<sup>60</sup> *Ming History*, "Treatise on Food and Money."

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### 3. The Late Ming Copper Cash Depreciation

Cracks were opening in the economic foundations of the Ming Dynasty's political authority after the hongzhi and zhengde periods [1522], and by the end of the wanli years [1620] these foundations began to be shaken.

For the period prior to wanli [1573], the question of the price of coins requires discussion of private coining. The standard coins from the government mints merely evoked complaints about their scarcity, or were squeezed out by private coins, since their circulation was neither easy nor profitable. Their purchasing power was very high. At the beginning of wanli, the supply of standard coins was still small, and so their exchange price was very high. It was not until after foreign war broke out that the coinage genuinely became worse.

Foreign war struck a heavy blow to the fiscal base of the Ming political authority.<sup>1</sup> Hao Jing ad-

<sup>1</sup> *Ming History*, 322, "Chronicle of Japan": "The invasion of the Eastern State by the *Kambaku* lasted seven years from beginning to end. Several hundred thousand soldiers were killed, and several million expended on provisions." There are even some who believe that this was the beginning of the end for the Ming Dynasty. *Xingcun Compendium* quotes Xia Yunyi as saying: "From what did the difficulties caused by the bandits arise? The Empire was crying out with hunger because of the com-



vised minting large coins in 10-cash, 30-cash and 50-cash denominations. These would have been the largest face value coins in the history of the Ming Dynasty. Though this recommendation was not put into effect, the very fact that it was put forward at all is a reflection of the straitened circumstances of the times.

Prior to wanli 20 [1592], there were still only sixty furnaces for casting coins. The expenses of the foreign war caused the number of mints to increase continuously. To begin with, an additional forty were set up, and then fifty. In wanli 29 [1601], 100 more were established. In wanli 30, the Board of Revenue's prefectural army granaries added mints, increasing the number by 250. Yingtianfu set up another 100.<sup>2</sup> I suspect that no one can any longer be clear as to the total number of furnaces.

The minting of coins and the issue of paper money was originally undertaken at the beginning of hongwu by the Secretariat. The Secretariat was abolished in hongwu 13 [1380], issue of Treasure Certificates was undertaken by the Board of Revenue, and minting of standard coins by the Board of Works. A Treasure Origins Office was set up in the capital.

Now, not only did the Board of Revenue want to mint coins, but so too did the managing bureaus. Eventually, even the Ever-normal Granaries also minted coins. The various characters on the coins' reverses were undoubtedly all appellations of the coin minting units. At that time these coins only circulated in Beijing. As a consequence, their purchasing power fell. None of the army labor service artisans wanted to be given their wages 30 percent in copper coins.

At the same time, because of the fall in the price of coins, the prices of other goods shot up, and copper merchants raised the price of copper, forcing some coin furnaces to halt operations and dismiss their workers. This in turn evoked a flareup in private coining. This was because artisans previously formed a trade with few skilled members, but after the increase in minting a number of people had mastered its techniques, and after they had been dismissed and left with no other way to make a living, a number of them turned to private coining.

To make matters worse, the coins they turned out were almost identical to official coins. The costs of private coining were low, and so they could sell

their output at a low price, allowing private coins to flood the market.<sup>3</sup> Before the war, it only took 40-50 gold-reverse coins

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to commute 0.1 ounce of silver. Though the official price did not change after the war, the market price could have become 60 cash per 0.1 ounce.<sup>4</sup>

If this was the case in Beijing, things could not have been any different in Nanjing. Most Ming coins were minted in Nanjing, which by the hongzhi period was already producing twice the quantity of Beijing. During late Ming, the shares of other provinces could also have been taken over by Nanjing. Hence the prices of coins in the two capitals diverged. In wanli 46 [1618], it took 10 cash to get 0.01 ounce of silver in Nanjing, whereas in Beijing it took 6 cash.<sup>5</sup> During the taichang period [1620-21], 63 standard cash made 0.1 ounce of silver in Beijing, while in Nanjing it took 100 cash.<sup>6</sup> This was because the coins minted in Nanjing were thinner and smaller than Beijing's.

From wanli 46 [1618] on, after the Manchus moved onto the attack, the situation became more serious. When Nuerhaci (Emperor Taizu of Qing) made plans to attack Fushun, advisers at court requested issuing a million for army supplies, but Emperor Shenzong only issued 100,000. Citing the precedent of the counterattack against the Japanese

<sup>3</sup>Gu Qiyuan, *Repetitive Words from the Guest's Seat*, "Minting of Coins" (written during the wanli period).

<sup>4</sup>Emperor Shenzong's *Wanli Veritable Record*, 488, wanli 39, 10th month, wuzi: "The merchant Liu Shenzhi made an accusation. In previous years the merchants had not dealt in coins. In wanli 17, the Board of Revenue had advised equating 50 cash with 0.1 ounce of silver, and agreed to take one-third of tax payments in coin, so that for every 10,000 ounces there would be 3,000 ounces extra to help the state. . . . Now the market price per 0.1 ounce of silver is 60 cash. The officials continue to honor the previous rule and give 50 cash to the merchants so that for every 10,000 ounces dealt in coin, the merchants commute 3,000 ounces of silver inside and outside the capital. The merchants are simply annually done out of several tens of thousands of ounces."

<sup>5</sup>Emperor Shenzong's *Wanli Veritable Record*, 570, wanli 46, 5th month, bingchen, the statement of the Revenue officer, Ying Zhen.

<sup>6</sup>Emperor Shenzong's *Wanli Veritable Record*, 575, taichang 1, 12th month, wushen, text of a petition from the Manager of the Board of Works to restore the Nanjing Inspectorate of Minting Manager's punishment: "It is only that expenses differ in north and south. Hence in the south, the south's advice should be followed, and 100 cash be made equal to 0.1 ounce; in the north the north's advice should be followed, and 63 cash equated with 0.1 ounce. . . . The Ruler agreed with this."

pounding of taxes. But from what year did this compounding of taxes begin? It all arose from the Eastern Barbarians causing trouble."

<sup>2</sup>Petition by Wang Wanzuo. Cf. Hu Wokun, *Circulation of Coins*, 2.



invasion, the Board of War dispatched 100,000 soldiers, requiring 3 million in supplies, but the state treasury did not issue that amount.

Obviously the treasury was empty. The only alternative was to increase taxes. The result of the government's calculations was that Liaodong would annually require more than 8 million in supplies, and the field acreage tax was twice increased to 0.007 ounce per *mu*, but this only yielded 4 million, and the peasants were already fleeing because they could not endure the burden. As for commercial taxes, to have increased these could only have led to the disappearance of the merchants. Though prices were still very low in the rich and populous towns and villages of the south,<sup>7</sup> in regions where business was constricted by military activity, prices shot up several fold.<sup>8</sup>

Because of the increase in the quantity of coins, and the presence of 2-cash coins, the exchange rate of copper coins with silver fell. In *tianqi* 1 [1621], the enormous cost of supplying the armies induced Wang Xianqian to request establishment of coin minting offices in the two capitals and thirteen provinces at a set rate of 600 cash per ounce.<sup>9</sup> In *tianqi* 3, the Sichuan Travelling Censor, Wen Gao-mo, also requested minting coins at 1,000 cash to the ounce of silver.<sup>10</sup>

If we only looked at the silver price of coins, we might not realize how serious the situation was, for

we must understand that the purchasing power of silver had greatly fallen by then, and so the fall in the purchasing power of copper cash was greater than the fall in its exchange price in silver.

It was only then (in *tianqi* 1) that Wang Xianqian made his proposal to simultaneously mint 10-cash, 100-cash and 1,000-cash large coins. The 10-cash's weight was to have been twice that of the 1-cash; the 100-cash was to be five times that weight, and the 1,000-cash ten times the 1-cash coin's weight.

When payments were made, there was to be a fixed ratio between them. The 100-cash was to be used in place of four 10-cash, and the 1,000-cash for four 100-cash coins. A payment of 10,000 cash was to be made with four 1,000-cash coins.<sup>11</sup>

If a 1-cash coin weighed 0.1 ounce, and the purity of metal of all the denominations was the same, then a payment of 10,000 cash, which had to be made with four 1,000-cash coins, 24 100-cash coins, 144 10-cash coins or 2,160 1-cash coins, would only have weighed 260.8 ounces, rather than the original nominal weight of 1,000 ounces. That is to say, the promotion of these three denominations of large coins would have meant a weight reduction to [692]

26 percent of the original level. All other things remaining equal, prices would have risen by at least 3.8 fold.

The three large coins may not all have been minted, or if minted may not have been issued before they were recalled for reminting, but a 10-cash large coin was minted, and in large quantity, both officially and privately.

In *tianqi* 2 [1622], the Board of Revenue formally established a Treasure Spring Office to mint coins under the supervision of a Right Expectant Executive. It was called a Coinage Hall. The amount it minted far exceeded that turned out by the Board of Works' Treasure Origins Office.<sup>12</sup> Places outside of the capital also minted large coins, including such places as Xuanfuzhen and Miyunzhen.

<sup>7</sup>*Wuchuan District Gazetteer*, Chen Shunxi, "Record of Things Seen and Heard Escaping from Disorder": "I was born in wanli 46, year wuwu. At that time . . . my home was in a rich township, where a *dou* of rice was less than 20 cash, and a fish was 1 or 2 cash. Ten betel nuts cost 2 cash. Firewood brought 10 cash. A joint of muscle meat or a duck was 6 or 7 cash, and a *dou* of salt was 300 cash."

<sup>8</sup>*Three Reigns' Veritable Record of Events in Liao*, 5, *tianqi* 1, 8th month, Wang Zaijin's theme: "Since all of the metal coins have been used up in payments outside the Wall, and the Ruler has announced their dispersal among the guilds, it has been exactly like the blockage of a spring. It went like the flowing of water until the hoard was empty. Since the land and excise taxes have been increased in rate so as to increase revenues, events continued to unfold on the Han and Liao. . . . The roads are narrowed by crowds of people. Merchants are scarce and goods few. Rice is like pearls, and firewood like cassia. Goods are unstable. The price of a bundle of hay has increased several fold. A *dou* of rice is more expensive than several tenths of an ounce of silver. A month's food money can not be carried on the person. You cannot get enough food to make a living. From this one can understand the difficulty a soldier has in getting by."

<sup>9</sup>*Emperor Xizong's Tianqi Veritable Record*, 8, *tianqi* 1, 8th month, wuxu.

<sup>10</sup>*Ibid.*, 25, *tianqi* 3, 1st month, bingwu.

<sup>11</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," *tianqi* 1, 8th month.

<sup>12</sup>*Ibid.*, 11, "Investigation of Coins, 5," quoting *Remaining Dreams of Spring Brightness*: "At the beginning of Ming, minting of coins was solely under the Treasure Origins Office of the Board of Works. An Expectant Executive of the Contingency Office supervised its work. In *tianqi* 2, they began to add Board of Revenue Treasure Spring Offices, with Right Expectant Executives in charge of them. They were called Coinage Halls. The increased number of furnaces to mint coins were to aid in raising armies. Their administration was under the Board of Revenue. The quantity minted by the Board of Works was minuscule."



Although a large coin could be as thick and heavy as 0.9 ounce, there were light and small ones of less than 0.5 ounce, and because there were so many of them, purchasers of goods costing 3 to 5 cash would pay with a large coin, obliging the seller to try to compensate for the lower value of the large coin, and tripping off numerous disputes.

As a consequence, some recommended that for goods worth 10 or 20 cash the entire price be paid in large coins, but that odd amounts continue to be paid for with 1-cash coins. The results of such procedures were probably not very good, and so in the 5th month, 10th day, the two capitals halted minting of large coins, though they continued to be circulated as before.

It was not until tianqi 6 [1626] that an order was sent down withdrawing large coins, but the more of them that were withdrawn, the more of them there were, and so it was determined that all excise taxes be paid in large coins, which the government would then use to mint 1-cash coins. When large coins were cashed in, they were not fully redeemed for 1-cash coins. Instead, good ones were traded for 8 cash, and low quality ones for 6 cash. Even these book prices were, however, frequently discounted, and 7 cash were paid instead of 8.<sup>13</sup>

The Tianqi 1-cash coins underwent depreciation themselves. When first minted they weighed 0.13 ounce, and 55 of them commuted 0.1 ounce of silver. In the Autumn of tianqi 2, their weight was reduced to 0.07 ounce.<sup>14</sup> This was a severe reduction in weight.

When coins were minted previously, they had sought energetically after fineness and regularity, not sparing copper or grudging labor, seeking only to ward off private coining. Among Tianqi coins are the so-called White Sand coins, which were relatively well-made,<sup>15</sup> but before long this changed.

<sup>13</sup>Emperor Xizong's *Tianqi Veritable Record*, 66, tianqi 6, 5th month, jiyou, jiazi, and wuchen sections, and *Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5."

<sup>14</sup>*Jinling Trifling Matters*: "The coins first minted weighed 8 catties 8 ounces per thousand. Later, they were gradually lightened. By the Autumn of tianqi 2, they had become so small and thin, that if thrown on the ground they would break, and a thousand were only 4 catties 8 ounces, 4 catties less than when first minted. Did this profit of 4 catties come back to the court? To the officials? To the workmen?"

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<sup>15</sup>*Ibid.*: "When coins were minted at the beginning of the tianqi period, the Treasury had Japanese lead and Japanese tin which were alloyed with copper to mint coins having a pure white color. Their inscriptions and rims stood out clearly, and people called them White Sand coins. Coppersmiths would

The histories say that then "offices were opened all over the Empire, making the seignorage from coins substantial."<sup>16</sup>

And indeed the seignorage from minting coins was very large. In wanli 5 [1577], it was 33.7 percent, and around wanli 25, it was 20.3 percent, but in tianqi 2 or 3 [1622-3], Nanjing used a capital sum of 209,054 ounces, and obtained a return of 128,606.8 ounces, for a seignorage of 61.5 percent. In tianqi 4, a capital sum of 143,441 ounces yielded a return of 128,932 ounces, for a seignorage of 89.9 percent.

The copper coins of this period actually amounted to a secondary money. The minting office personnel were corrupt, and turned out especially light and small coins to meet their quotas, or they lowered the purity of the copper, which was supposed to comprise 70 percent, with lead as the remaining 30 percent. In tianqi 3, devaluation reached a point where coins were 50 percent copper and 50 percent lead.

The standard coins of some localities had only 20 or 30 percent copper, the remainder being composed of lead and slag. If thrown on the ground, they might break, and a hundred of them would not make a stack an inch high.<sup>17</sup> It is said that people from places like Suzhou agreed among themselves to boycott use of Tianqi coins for as long as ten months.<sup>18</sup>

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equate 2 White Sand coins with a small tea spoon, which could be sold for 10 cash. Hence White Sand coins were most scarce, and private coiners could not mint them."

<sup>16</sup>*Ming History*, "Treatise on Food and Money, 5."

<sup>17</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," tianqi 3, statement by the Censor, Zhao Hongfan: "When I was ordered to Chu, I witnessed the promulgation of the new Tianqi coins. Their copper content was only 20 or 30 percent, and their lead and slag content 70 or 80 percent. They were so brittle and thin, that if thrown on the ground they could break. They were so light and small that a hundred stacked would not be an inch high. If this was the way things were in one place, one can imagine what conditions were like elsewhere. The abuses occurred at the time of minting. The officials were not strict enough. They left things to the furnace foremen, who threw off all restraints on their cupidity, and on their own initiative admixed lead and slag into the alloy, so that half the value of the copper entered private purses."

<sup>18</sup>Wu Chenyan, *Neglected Garden Miscellaneous Record*: "During the tianqi period, Suzhou caught Zhou Zhongjie and Gong Shunchang. The people rebelled and beat to death the school head. Later, the people of Suzhou came to an agreement to provide no outlet for the use of Tianqi coins. Various prefectures and districts agreed with and adopted this course of action, and Tianqi coins accumulated in numbers past reckoning. Event-



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The reduction in weight and lowering of the purity of the metal content of the copper coins could also have been linked to the continuous rise in the price of copper. I have already mentioned that during the wanli years the price of copper rose from its early Ming price of 5 ounces of silver per 100 caties to 10.5 ounces, but during the tianqi years, brass rose to 12 ounces and red copper to 14.3 ounces.<sup>19</sup>

Given the simultaneous rise in the price of copper and the levying of a very large seignorage, one can imagine how reckless was the worsening of the quality of the coinage.

Owing to the authorities' cruel exactions, the wealth embodied in coins flowed into the coffers of a minority composed of men like Yan Song and his son and Wei Zhongxian.<sup>20</sup>

The people had no heart to carry on agriculture. Many fled to other places. There were floods and droughts which caused starvation, and "bandits and thieves" arose on all sides. By the end of tianqi,

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ually word of this reached the capital, and each province issued exhortations until the coins were restored to circulation. This private ban lasted in all ten months."

<sup>19</sup>Hou Xun, *Matters Concerning Minting*.

<sup>20</sup>*Book of Ming*, 149, "Biography of Yan Shifan," in describing the confiscation of the family property of Yan Song, gives the following: "Confiscated was 13,071.6 ounces of gold; pure gold inlaid jewelry, jars, cups and plates to a total of some 3,800 objects, weighing some 13,200 ounces; pure gold inlaid pearls, jade, cat's eye jewels, some 6,550 pieces of jewelry, and some 2,027,000 of white metal; silver screens of a total weight of some 13,600 ounces; a water ring marked the first year of the establishment of the state of Wang Ruhan; a treasure cup from the Jin Yonghe Palace, and jade human figurines, jade horses, jade donkeys, jade dippers, jade vases coming to 857 items; also white jade, green jade, black jade, inlaid gold, plated gold, decorated and plain jade belts amounting to 202 objects; gold foil, decorated and plain rhinoceros horn and incense belts, 124 items; gold plaited silk, pure gold decorated and plain gold foil, pearl and jade belts and diadems, 33 items; gold foil vases, jade longevity deer, rhinoceros and elephant, crystal, blue and white plates for a total of 2,680 objects; . . . mansions, houses, fields, hill ponds and various manor houses, oxen and horses worth a total of around 295,860 ounces. This was in their original place of registration in Jiangxi.

"Their mansions, manor fields and wealth in the capital and in Yangzhou came to no less than several hundred thousand more, and was all officially confiscated. . . ."

For Yan Song and his son's hoards of silver and associated objects, please consult subsection 7.4.2, notes 17 and 18 below. *Unofficial Record of Emperor Wuzong of Ming*, "Record of Tianshui and Bingshan," contains additional material on this.

there was a severe famine in the Yan'an area of Shaanxi. All the grass was pulled up, and people resorted to swallowing white pebbles to assuage their hunger. If children and isolated individuals ventured out of doors, they were killed and eaten. Men like Gao Yingxiang, Li Zicheng and Zhang Xianzhong came out of the ranks of these starving people. Zhang Xianzhong was from Yan'an.

It was just after the Manchu soldiery had laid siege to Jinzhou, and the peasants of Shaanxi had arisen to sweep through Yan'an, that the Ming court engaged in large scale minting of Chongzhen coins.<sup>21</sup> At first, each coin weighed 0.12 or 0.13 ounce,<sup>22</sup> and 65 of them commuted 0.1 ounce of silver. In chongzhen 1, the seignorage in Nanjing was around 50 percent, or over 39,000 ounces of silver. Seignorage in Beijing was 20.4 percent, yielding a profit of over 26,000 ounces in eight and a half months.<sup>23</sup>

Later, probably because private coins were light and small, the government furnaces could no longer compete, and some of them closed down. Except for those in the two capitals, only those in Huguang, Shaanxi, Sichuan, Yunnan and Xuanfuzhen and Mizhen remained in operation. Nor did all the seignorage revert to the court.

Some recommended sending officials to the provinces to obtain copper for minting coins, and this gave a great stimulus to opening local mints. The manager Zhu Dashou said that in Jingzhou alone minting could be carried out four times a year, and that the return from four mintings was twice that obtained in Nanjing and three times that in Beijing. The court put him in sole charge of minting.

He changed the form of the coins so that one coin weighed 0.1 ounce, and a thousand commuted 1 ounce of silver, but those minted in Nanjing might be as light as 0.04 ounce, and so their weight was fixed at 0.08 ounce.<sup>24</sup> They also took over for re-minting old coins and old copper objects.<sup>25</sup>

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<sup>21</sup>*Ming History*, "Treatise on Food and Money, 5." *Investigation of Literary Remains Continued* states that from chongzhen 1 [1628], 1st month to 9th month, 15th day, the Board of Revenue minted a total of 129,489,984 cash.

<sup>22</sup>*Investigation of Literary Remains Continued*, "Investigation of Coins," tianqi 7, 12th month.

<sup>23</sup>Hou Xun, *Matters Concerning Minting*.

<sup>24</sup>*Ming History*, "Treatise on Food and Money, 5."

<sup>25</sup>Chen Lin, *Ming History Collected Aura*: "In chongzhen 11, wuyin, the Ruler had all the bronze utensils from past reigns which were in the Inner Treasury issued to the Treasure Origins Office for minting into coins. Included were items from three dynasties and the xuande years. Their designs were fine and artful, and this was a violation of principle. The merchants could



The historians state that all the ancient coins were melted down, but this may not be so, because after the issue of the Tianqi and Chongzhen small coins, thick and heavy ancient coins had all gone into hiding, and the efficiency of the officials carrying on public business was very low.<sup>26</sup> They would not have been able to carry to completion the task of buying up all the old coins. The fact that after the fall of Ming there were still a number of ancient coins in circulation attests to this.

In the outer provinces, the price of coins was lower than in Beijing. For example, during chongzhen 11 [1638], an ounce of silver was still 800 cash in Beijing, but in Henan and Shandong there were places where it reached 1,500 to 1,600 cash, probably including some private coins.<sup>27</sup>

There are an enormous number of names for private coins dating to the end of Ming. During the tianqi period there were the Broad-edged, Large-board and Gold-lamp. At the beginning of chongzhen

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there were the Fat-head, Wry-neck and Pointed-foot.<sup>28</sup>

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not endure the destruction of these antiquities, and for every 1,000 catties of them they offered to pay in 2,000 catties of copper. Those in charge would not agree to this. They said,

"Though it is a pity to destroy ancient objects, how dare we take supply and demand into account? The merchants said they lightly treasured copper, and would send it down to the furnaces, feeling obliged to preserve its substance. As for the things from the three dynasties, it was extremely clear that their substance is lightly demanded. What was being sent down to the furnaces were only rusted fragments. Who then would take responsibility for this calamity? Those in charge replied, 'The Ruler alone can fathom such matters terribly deeply. . . . The blame is not on us.' Thereupon the antiques were virtually all destroyed."

<sup>26</sup>Details of the corruption of the late Ming government may be seen from the memorial which Zhang Wenheng addressed to the Qing Emperor Taizong. In tianzong 9 (chong-

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zhen 8 [1635]), he stated: ". . . I do not know if the Central Realm may be taken only now. Their civil and military major and minor officials have all been bought with coin. The civil officials are without plans. The military ones are without bravery. Those in charge of the armies' horses control the armies' cash. Those who manufacture implements and weapons reduce the weight of official coins. . . . Above and below, in the capital and outside of it, they all tell lies. Every one of their enterprises has gone bad." (*Ming and Qing Historical Materials*, C, 1)

<sup>27</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5."

<sup>28</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5."

Eventually, 100 capital cash were worth 0.05 ounce of silver, and in the outer provinces 100 cash were worth 0.04 ounce of silver.<sup>29</sup> In chongzhen 13 [1640], 1,000 uncirculated Suzhou coins were worth over 0.5 ounce of silver. A thousand circulated coins were only worth 0.45 or 0.46 ounce.<sup>30</sup>

There were also the so-called Tightener, the Big-eyed Bandit and Short-mandate Official. One ounce of silver could exchange for 5-6,000 of such cash.<sup>31</sup>

By shunzhi 4 or 5 [1647-8] of the Qing Dynasty, 100 Chongzhen coins were only worth 0.01 ounce of silver, and a catty's weight of copper cash was worth 0.025 ounce of silver.<sup>32</sup>

Late Ming prices were very chaotic. Naturally, in besieged cities it can be imagined that rice was like pearls and firewood like cassia.<sup>33</sup> The situation

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<sup>29</sup>Wang Bu, *Worm Hut Trifling Talk*: "There was a difference between the capital and the provinces among Ming Dynasty standard coins. The capital coins were called yellow coins. Each weighed 0.16 ounce, and 70 were worth 0.1 ounce of silver. The outer province coins were called hide coins. Each weighed 0.1 ounce, and 100 of them were worth 0.1 ounce of silver. After chongzhen 6 or 7, they gradually became cheaper, until at the time of the dynasty's fall 100 capital coins were worth 0.05 ounce of silver, and 100 hide coins were worth 0.04 ounce of silver. Even the Chongzhen Circulating Treasure did not circulate at all among the people." *Investigation of Literary Remains Continued*, 11 "Investigation of Coins, 5," quoting an undated discussion of the old days: "By chongzhen 16, year guiwei, they were finally selling for 2,000, and between Summer and Autumn for 2,000 plus several hundred."

<sup>30</sup>Xu Kang, *Reflection of a Dream of the Past*. Cf. Ye Dehui, *Pure Words from the Book Grove* (Zhonghua shuju edition) pp. 166-167.

<sup>31</sup>*Book of Ming*, 81, "Treatise on Food and Money": "During chongzhen, the Inner Treasury was much blocked, and the towns with soldiers and horses were all ordered to open furnaces for minting to provide the wherewithal for army supplies. These coins were not uniform, and illicit minting proliferated. By the end of the year, an ounce of silver exchanged for 5-6,000 cash. These coins had such names as the Tightener, Big-eyed Bandit and Short-mandate Official because they were portents of the Li Zicheng disorder."

<sup>32</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5."

<sup>33</sup>*Record of the Siege of Bian* in recording the situation at the time of the chongzhen 15 siege of the city states: "Among the people, one seed was like a pearl. The official soldiers still had some provisions remaining. All, including the great families and rural gentry sought to buy it, but to obtain grain, the price was incalculable. A *sheng* of grain sold for up to 10,000 cash." Xu Shichuan, *Record of Changes on the River*, 3, reports the circumstances surrounding the rise in price of rice as follows: "Inside the city, a *dou* of rice rose toward 1 of metal/gold." "Inside



was not identical everywhere. During chongzhen 11 [1638], some said that the price of rice was 1,000 cash per picul, but as the *dou* then was small, only a fourth the size of the original *dou*, a nominal price of 1,000 cash per picul would actually have been 4,000 cash.<sup>34</sup> However, others said that during chongzhen 17 a picul of rice was still only 700-800 cash.<sup>35</sup>

In any event, there may well have been places where old coins were in circulation, and it is possible that the purchasing power of good and bad coins was not the same. There may even have been places which did not use bad coins. Under such circumstances, prices would have been relatively low, and everyone would have treated copper cash as an item in heavy demand.<sup>36</sup>

the city, a *dou* of rice reached 6 of metal/gold." "Inside the city, a *sheng* of rice was 2 of metal/gold." "Inside the city, rice reached 600 metal/gold per picul."

<sup>34</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," quoting from a petition by Shen Yan.

<sup>35</sup>*Ming and Qing Historical Materials*, Compilation B, volume 6, chongzhen 17, 2nd month, 16th Board of War issue: "Draft of memorial by Imperial Capital Garrison Governor General Li Guozhen. . . . To feed only one soldier, 1 picul of rice per month is required. In recent years, at times when grain was expensive, handling of it has been particularly liberal compared to the present. People still hankered after these *sheng* and *dou*. Now a picul of rice is only worth 700-800 cash. It is intermixed with seed rice, rotten and red grain, and it is as cheap as dirt."

<sup>36</sup>Kang Fansheng, *Model Compass Record*, shaowu 1, 10th month, 8th day: "Since I had made the figures to send to the people of the household, I was sent to Yongxin to accompany the first degree graduate Hu. Mr. Hu, whose alternate name was Yi, and the Anfu youth Zhu Kuibao were both in the high ministry, and liked and respected me very much. I presented several coins as presents to each, and I made no distinction between them." The purchasing power of money at the end of Ming may be discerned from the prices contained in the book *Rousing the Age Marriage Affinity*. I have selected from it the more important prices to copy out here, and have divided them into prices calculated in silver and prices calculated in coin:

1. Those calculated in ounces of silver:

- cotton bolls, per catty, 0.16
- moist blue cloth, per item, 0.32
- flat loom white plain cloth, per bolt, 0.48
- child's tuition (middle grades), per month, 0.05
- meat, per catty, 0.15
- riding donkey, per head, 15
- land, per *mu*, 2
- blue plain cloth lined shirt, each, 0.45
- yuan* shuttle plain cloth, per bolt, 0.45
- child's tuition (official family), per month, 0.1
- spiked millet, per picul, 0.5 or 0.6

I have previously discussed the earnings of Ming officials. Prior to chenghua, these were paid in Treasure Certificates, and so fell in parallel with the fall in price of Treasure Certificates. Later, a portion was paid in silver, and finally they were entirely paid in silver. As a result official pay improved.

The earnings of laborers, however, remained at a very low level. Workers on annual salaries sometimes had them calculated in rice or silver. All short-term work wages were expressed in copper cash.

At the beginning of the zhengtong period [1436-1450] it probably took 5 or 6 ounces of silver per year in Changshu district to pay for substitute labor service for one year.<sup>37</sup> Converted into metric terms, this is equal to 1.7 hectoliters of rice per month.

good horse, per head, 83.333 middle-grade house, per month, 3

large pine beam, each, 5-6

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decorated red fringed paper, per knife, 6

food, per picul, 0.5 to 1.3-1.4

family of three, monthly living expenses, 1

to teach only 1 student, per year, 4

Buddha hand, each, 0.4

dried mushrooms, per plate, 0.8

white wheat, per picul, 0.9

interest (compounded), per month, 0.02 per ounce

olives, per catty, 0.12

grain, per picul, 0.5 to 0.8

teaching at a private school (several pupils), per month, 1

fine color paddy rice, per picul, 2

house, 1 main beam, 45

rental of a three-room small house, furnished, per month, 1

straw donkey, per head, 1.2

heavy silk, gauze, per sheet, 0.05

pine wood for coffin, per set, 3.2

2. Those calculated in cash:

Ointment, per capsule, 1 cat, each, 30-40

silver, per ounce, 1,000

basket of water-chestnuts, each, 120

gauze bedding, each, 25

[],<sup>a</sup> each, 80

plate scales, per set, 36

tuition (ordinary family), per month, 30

silver, per ounce, 1 string

rental for a two-room house, per month, 200

winnows, each, 35

donkey sets, each, 18

iron hooked carrying pole, each, 40

charcoal, per catty, 2.5

<sup>37</sup>*Emperor Yingzong's Zhengtong Veritable Record*, 154, zhengtong 12, 5th month, guichou: "Guo Nan, the person who had arrived to serve as magistrate of Changshu district . . . came



During the wanli period [1573-1620], a dike-building laborer's wage was 1.5 ounces per month.<sup>38</sup> This could buy more than 2 hectoliters of rice. A hired laborer could earn 30 cash per day.<sup>39</sup>

This was equal to 2 hectoliters of rice per month. Sometimes, however, he was only able to earn 24 or 25 cash.<sup>40</sup> This was only 1.14 hectoliters per month. By the chongzhen period [1628-1644], a worker could earn 60 cash per day, but by then the purchasing power of coins had declined, and so real income was less than 2 hectoliters of rice.<sup>41</sup>

During chongzhen 16 [1643], Zhang Xianzhong's army was rolling through Hubei and Hunan as though crashing through bamboo. Li Zicheng had taken Tongguan and Xi'an, and was advancing steadily toward the capital. The authorities wanted to issue paper money, but could no longer

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follow their own desires, and so there was no alternative to minting large coins.<sup>42</sup> Before long the Ming Dynasty fell.

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to an agreement with them [the people of the town] which said: 'If you put forward 4 piculs of rice, this will equal labor service for one year. Do you wish this?' All replied, 'Recently, a year's labor service required 5 or 6 ounces of silver. If things are now done as you propose, it will only be equal to 1 ounce of silver, and there will be no one who does not desire it.' We cannot tell from this if the zhengtong 12 wage level was more than 3 *dou* of rice per month, since examination of the implications of what was said suggests that this figure was lower than the wage of that time.

<sup>38</sup>*Letters on the Profits and Ills of the Regions of the Empire*, 4, Northern Zhi, 3.

<sup>39</sup>*Investigation of Literary Remains Continued*, 11, "Investigation of Coins, 5," chongzhen 11, 9th month, section quotes Shen Yan's petition: "Thirty years ago [which must have been around wanli 36] . . . a hired laborer daily earned around 30 cash, and from this could feed a wife and child. Now twice this would not enable him to do so."

<sup>40</sup>*Chou Liao shouhua*, 29, wanli 47. The Junior Prefectural Overseer and Henan Circuit Censor, Xu Guangqi mentioned: "When poor people in the capital hire out their labor, they get 24 or 25 cash per day, which is only sufficient to provide them food. For the three months of Winter, their clothing does not suffice to cover their bodies." The cost of rice here is calculated at the average price between wanli 46 and tianqi 7 of 1.1 ounces of silver per picul of rice. Taking 1 ounce of silver at 630 cash, and a daily wage of 24.5 cash, this would be just enough to earn 1 picul of rice per month, which would be equal to 1.14 hectoliters.

<sup>41</sup>Cf. note 39.

<sup>42</sup>The Chongzhen 5-cash coin seems not to have been put into circulation. There are even fewer 10-cash coins. Gu Jingxing, *White Couch Grass Hall Collection*, "Li Sunqing Yanjing

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Drunken Stillbeer Pavilion Snow Song Rhyme" (written in shunzhi 2/longwu 2 [1645]) contains: "The Treasure Origins new coin one-equals-ten, At sunset I raise the coin to the stillbeer pavilion." He could have been referring to a Shunzhi coin of which one was equal to ten small Chongzhen coins. *Rousing the Age Marriage Affinity*, chapter 50 uses more than a thousand characters to write of the 10-cash coin's commutation into secondary coins or commutation into coins. What it probably referred to was the Tianqi 10-cash.

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#### 4. Silver's Purchasing Power

Though use of silver in China has had a very long history, during and before Western Han it served only for making works of art and handicraft. The White Metal money of the time of Emperor Wu of Western Han may have contained more tin than silver, and in any event was abolished after just a little over a year. After Eastern Han, silver sometimes served as an instrument for making payments. Beginning with the Five Dynasties period, its uses gradually became more numerous. The Jin minted the Cheng'an Treasure Money. Nevertheless, right down to the end of Yuan, silver could still not be reckoned a full-fledged money.

Therefore, studies of silver's purchasing power up until then have no very great significance. By the reign of Emperor Yingzong of Ming [1457-1465], when the ban on silver was relaxed, a number of goods prices were being expressed in terms of silver. Only then did China genuinely become a silver-using nation, and only then did silver become genuinely monetized.

The question of whether silver was minted into the form of coins is not important for the study of its purchasing power. Even though in ancient times foreign countries had minted gold and silver into coins, they still often used their weights as the basis for circulating them.

The Chinese practice of circulating pieces of silver actually provides a number of elements of convenience for the study of prices. This is because if silver is minted into coins, and prices are calculated in terms of the number of silver coins, reduction in the coins' weight or other forms of depreciation would make it impossible to compare price figures.

In Europe, because of the circulation of gold and



silver coins whose size and purity varied by time and place, the study of the history of prices has run into a number of troublesome dead ends. There are a number of prices and expressions of prices for which there is no significance because there is no way to determine the nature of the coins in which they are expressed.

For example, within the boundaries of the German Empire during the fourteenth and fifteenth centuries, the silver pfennig and *hejin'er* [Chinese version of German] coins ranged in fineness from 90 percent and up down to 20 or 30 percent in different localities. If the documents state that the price of wheat or wages in a given year was a certain number of pfennig or *hejin'er*, it is very difficult to figure out exactly how much silver this corresponded to, and so it is difficult to make comparisons with past prices or prices in other regions.

Although Chinese silver ingots were also not uniform in their purity, variations were relatively minor, and when used to represent prices, they were commuted into silver of the finest standard [*wenyin*]. Prices calculated in silver all employed this fine silver as their standard, and not some unknown lesser degree of fineness. This is highly convenient for the study of prices.

Price records before Ming are too scarce to be able to serve as the basis for systematic investigation. Even where there are records, they employ copper cash or paper money as their units of measurement. The weights and fineness of copper coins varied by dynasty, and strictly speaking [700]

they cannot be compared. Paper money was expanded in quantity still more frequently. At most, one can only study the vicissitudes in purchasing power of a certain type of paper money, but we cannot make long-term comparisons.

After the relaxation of the ban on silver during early Ming, most prices during the next five centuries were expressed in terms of silver, and price records become more numerous, so that not only may chronological comparisons but even comparisons with foreign countries may be made.

Among Chinese prices, the most detailed records are for rice, just as was the case for European wheat prices. Some Europeans believed that over the long term wheat prices were the best surrogate for the trend of prices in general.<sup>1</sup> The same is true of

Chinese rice prices. Therefore, in ancient times, for which there are no other price index numbers, use of the price of rice as their surrogate is fairly reliable.

Sometimes, when we study the price of an important article of consumption, it is more concrete than studying price index numbers, especially when making comparative studies of foreign countries. This is because different countries use different methods for constructing price indexes. The types of goods selected and their quantities differ, and so comparisons are sometimes unsatisfactory. If, however, the comparison rests on the prices of a particular commodity, the situations in the two countries may be discerned.

For example, we have no way to compare prices in China and England prior to the Ming Dynasty, but once China had formally adopted silver, such comparisons become possible.

The price of wheat in China during the latter half of the fourteenth century<sup>2</sup> was 13 or 14 grams of silver per hectoliter.<sup>3</sup> The price of wheat during the same period in England was 34 grams of silver per hectoliter.<sup>4</sup> We can draw one conclusion from this: That during the latter half of the fourteenth century the purchasing power of silver in China was more than twice what it was in England. In both England and China wheat was an important necessity for everyday life, and both countries produced it on a large scale.

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from 1798 to 1932, changes in the price of wheat almost exactly correspond to changes in the general price level. (Cf. G. F. Warren and F. A. Pearson, *Gold and Prices*, p. 28, Figure 12.)

<sup>2</sup>Only the hongwu 1 list of the values of stolen property mentions the price of wheat during the latter half of the fourteenth century, and gives it as 0.25 ounce per picul (*Ming Collected Statutes*), or 80 percent of the price of rice. In hongwu 9, 1 ounce of silver was to commute 1 picul of rice for tax payments, and wheat was 20 percent less (*Ming History*, "Treatise on Food and Money"). This was also 80 percent of the price of rice. The price of wheat is here calculated by taking 80 percent of the price of rice. Because wheat price records are too few, we can use the rice prices of hongwu 1 from the list of values of stolen property of 0.32 ounce per picul, the hongwu 9 price of 1 ounce per picul, the hongwu 18 price of 0.5 ounce per picul (*Ming Collected Statutes*, 29), and hongwu 30 of 0.25 and 0.5 ounce per picul (*Ming History*, "Treatise on Food and Money") to strike an average price of 0.375 ounce per picul. For the latter half of the fourteenth century, the average is 0.538 ounce per picul. This would make the price of wheat 0.43 ounce per picul.

<sup>3</sup>During the Ming Dynasty, a picul was 1.0737 hectoliters. An ounce was 37.3 grams (Wu Chengluo, *History of Chinese Weight Measures*).

<sup>4</sup>The English wheat price is derived from the figures given in James E. Thorold Rogers, *A History of Agriculture and Prices*

<sup>1</sup>England's John Locke believed that wheat prices over the long term were the best surrogate for prices in general. Adam Smith also believed that the price of wheat was superior to any other price for showing true value, or the relationship of prices in general to true value. In America, during the century or so



If we draw a comparison of rice prices, the conclusion we reach would not be very accurate. During the last half of the fourteenth century in China, rice cost 17.19 grams of silver per hectoliter.<sup>5</sup> In England, however, it was 384 grams.<sup>6</sup> This was twenty times higher than the Chinese price simply because England did not produce rice. Nor was it consumed as a daily staple. England's rice was shipped from the Orient, and ranked, along with perfumes, as a luxury item.

Wheat ranked in importance to the Chinese second only to rice. Unfortunately Chinese wheat price materials are much poorer than those for rice. Fortunately, Ming Dynasty wheat prices were generally some 80 percent of rice prices. The climate needed to grow wheat differs from that required for rice, and so changes in their prices need not have been parallel, but in actual fact, in all the sources wheat prices are only very rarely higher than those for rice.

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WHEAT-RICE PRICE RATIOS  
OVER THE COURSE OF CHINESE HISTORY

Date	Rice-wheat price ratio	Sources & Notes
Qin-Han	1:1.33	Nine Chapter Calculating Techniques, 2, exchange rate for paddy (grain?) and wheat is 20:15
E.Han, xingping 1	1:2.5	500,000 piculs grain, 200,000 wheat (Jin Hist)
Tang linde 2		Rice 5 cash per dou, wheat not set out in market (Old Tang History, 4, "Gaozong," first pt)
N.Song jingde 4	1:2	Between Huai and Cai, wheat price 100 cash, glutinous rice 200 (Song History, 7)
dazhong/ xiangfu 1	1:2.5	Wheat 120 cash, rice 300
S.Song		

in England. I equate 1 quarter with 2.909 hectoliters.

<sup>5</sup>Cf. my "Ming Dynasty Table of Rice Prices (3)."

<sup>6</sup>According to the figures derived from James E. Thorold Rogers, *A History of Agriculture and Prices in England*, Vols. I and II.

shaoxing 6	1:1.2	When 1 picul 2 dou commuted for rice 1 picul
qiandao 6	1:2	Wheat picul 1,500, rice picul 3 strings
qingyuan 5	1:1.4	Wheat 5,000, rice 7,000 (Song Coll.Stat.)
Ming		
hongwu 1	1:1.25	Picul rice 25 strings, picul wheat 20 strings (Ming Collected Statutes, 179)
9	1:1.25	1 oz silver commutes 1 picul rice; wheat 20 percent less (Ming Veritable Records, 105)
yongle 5	1:1.2	Wheat 25 str, rice 30 str (Ming Coll Stat)
zhengtong 1	1:1	Rice & wheat both commuted for 0.25 oz (MingHis, 78)
12	1:1.2	Wheat 1.2 piculs commutes rice 1 picul (MingVerRec)
chenghua 6	1:1.25	Wheat 0.4 oz, rice 0.5 oz
10	1:1.5	1 dou rice or 1.5 dou wheat for 10 str Certif.
hongzhi 14	1:1	Rice, wheat commute 0.3 oz silver
18	1:1	Rice, wheat commute 0.6 oz silver (MingVerRecords)
zhengde 4	1:1.33	Wheat 0.3 oz, rice 0.4 oz (Ming Veritable Rec.)
10	1:1.33	Wheat 0.3 oz, rice 0.4 oz (Ming Veritable Rec.)
jiajing 21	1:1	Rice & wheat equally at 0.45 oz
wanli 28	1:1.5	Wheat 0.4 oz, rice 0.6 oz
29	1:2	Wheat 1 oz, rice 2 oz
31	1:1.25	Wheat 0.4 oz, rice 0.5 oz
38	1:1.167	Wheat 0.3 oz, rice 0.35 oz
chongzhen 9	1:1	Rice & wheat same price
16	1:1.09	Picul rice 2.3 oz, wheat 2.1 oz (Shanxi stone inscription)

When investigating the purchasing power of silver in China or the cost of rice, there are several difficulties which are hard to avoid. The first is the lack of uniformity in weights and measures. Not only did successive historical periods use different standards, even during the same period the standards in different places were not entirely identical. The second difficulty is that prices differed in different places. These discrepancies arose from two causes.

One was the cost of transportation. In ancient times there was a saying that it cost a *dou* of coins to transport a *dou* of rice. Because China's



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rice-producing region was in the south, consumption of rice in the north sometimes required its transport from the south. In ancient times, communications were not convenient, and the cost of transportation was frequently higher than the good's original price.

When Qin attacked the Xiongnu, and transported grain to the Bei He from the commanderies of the north, it cost 30 *zhong* to be able to deliver just 1 picul, making the cost of transportation one hundred times higher than the original price of the grain.

During the Song Dynasty's shaoxing 4 [1134], the Sichuan-Shaanxi Proclamator, Wu Jie, had two rivermen transport 150,000 *hu* of rice to Lizhou. On the average it cost over 40 strings to transport 1 *hu*.<sup>7</sup> Therefore, a portion or most of some rice prices is composed of the cost of transportation.

Another factor was natural disaster. In some small countries, if there is a flood or drought, the entire country feels its influence. Prices rise uniformly everywhere, with any discrepancies being relatively small. That is not the case in China. Because of the great size of its territory, while there are floods or drought along the lower Yangtze, in Sichuan an abundant harvest may be occurring, and so there may be wide discrepancies in prices between different places.

These two factors frequently operated together. For example, at the beginning of the zhenyuan period [785] during Tang, there were successive good harvests in the near northwest, while the region between the Huai and Yangtze was suffering floods. Because of the corruption of the ruling class, they at first continued to buy up rice from the latter region for transport to the north. At that time, year-old unhusked rice was selling for 150 cash per *dou* in the prefectures of Huainan. Transportation costs to the capital were 200, making the total acquisition cost for the government 350 cash per *dou*. The cost of rice in the capital was, however, only 70 cash per *dou*. Because of its condition, the year-old rice from Huainan could only sell for 37 cash per *dou*.

This shows that weather could cause the price of rice to vary by several fold between north and south. When the cost of transportation is factored in, the difference would be still larger.

The third difficulty is that figures for Chinese prices are only recorded indirectly in such sources as the veritable records and memorials of advice. We lack primary sources. In England, the thirteenth-century exchange accounts are still preserved in abundance,<sup>8</sup> and they contain even more precise and

reliable figures.

In China, matters are not so convenient. The rice prices recorded in the *Veritable Records* of the various reigns are sometimes factual reports by local officials. Some are commutation prices of grain into cash for paying taxes originally levied in kind. Over the long run, these commutation prices may be representative of the trend of goods prices, but any particular commutation price may not necessarily be the same as the contemporary market price for that good.

During the Ming Dynasty there was also army and official salary grain. Since Ming official salaries were calculated in rice, but sometimes actually paid in silver, and their commutation rate was often far lower than the market price, most of these commutation prices cannot be used if averages are not to lose their significance.

The above difficulties can, within certain limits, be overcome. The methods or prerequisites for overcoming them are, in addition to using price data with a certain degree of selectivity, to collect a large number of items. If that is done, then abnormal local prices can be smoothed out of the averages. This is precisely why the average price of rice in China over the course of several centuries seems less unstable than the price of wheat in the nations of Europe. Europe's decade interval

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wheat prices given here are less a reflection of the purchasing power of money than of changes induced by weather. China's decade interval rice prices are more able to reflect the waxing and waning of money's purchasing power.

Prior to Emperor Yingzong [1436], Ming Dynasty prices were still calculated in Treasure Certificates. We can only calculate their equivalents in silver from the silver commutation prices of Certificates, and since the number of instances recorded is too few, it is possible that these calculated prices do not match the genuine market prices of the times.

Beginning with zhengtong 1 (1436), most prices were expressed in silver, and the number of prices recorded increases. From then until yongli 4 (1650), I have collected over 400 usable rice prices. There are never more than 13 per year, as was the case for jiajing 37 (1558). The next largest number is 11, as

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to more than 100 wheat prices per year recorded for England. For example, there are 103 wheat prices for the year 1289. There are 93 for 1290, and 92 for 1293.

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For the more than 140 years from 1259 to 1400, there are more than 7,000 wheat prices in total. Cf. James E. Thorold Rogers, *A History of Agriculture and Prices in England*.

<sup>7</sup>Song History, "Transportation."

<sup>8</sup>For the thirteenth century there are sometimes 80 or 90 up



for wanli 31 (1603) and wanli 43 (1615). The average number per year is only 2. This is quite a few less than for England, but the long-term tendency which they reveal is fairly reliably established.

If we compare the prices of rice during the reigns of different Emperors, we find that during the hongwu [1368-99] period, the average price per hectoliter was 0.46 ounce of silver. During the yongle period [1403-25] it was 0.289 ounce. The yongle period was basically one of inflation, but that was a Treasure Certificate inflation. Silver's purchasing power was high and stable.

During the xuande period [1426-36], a hectoliter averaged 0.29 ounce. During the thirty years from zhengtong to tianshun [1436-65], a hectoliter remained at 0.29 ounce, which represents a fair degree of stability. The highest price was the jingtai 7 [1456] price in the capital of 1 ounce per picul of rice.<sup>9</sup> The lowest was the tianshun 1 [1457] price of 0.1 ounce per picul.

Purchasing power fell somewhat during the chenghua period [1465-88] to 0.44 ounce per hectoliter. During this time, in chenghua 7, drought and hail in Shanxi and Shaanxi brought a picul to 1 ounce and more. In chenghua 20, a Shanxi drought-induced famine brought a picul up to more than 2 ounces. The lowest price is one in chenghua 22 of 0.2 ounce, a commuted price.

The average price during hongzhi [1488-1506] is 0.518 ounce per hectoliter. During hongzhi 1, there were casualties from natural disasters in the northern provinces, and a picul of grain was commuted into 1 ounce, and 2 ounces in Sichuan. In hongzhi 15, activities on the frontier brought a picul to around 2 ounces of silver. The lowest price was 0.1 or 0.2 ounce per picul.<sup>10</sup>

During the zhengde period [1506-22], a hectoliter averaged 0.475 ounce. During these sixteen years natural disasters were few. The highest number of disaster casualties occurred in zhengde 4 in Henan. Frontier granaries in places like Zu, Jing and Xincheng fixed the price of a picul at 1 ounce or more.

<sup>9</sup>The prices cited in this paragraph, aside from the other works cited, are all drawn from the *Veritable Records* of the several Ming reigns. A given year's prices are on the basis of the Ming picul. The average prices for a whole year-period are in terms of the hectoliter. The silver ounce is the treasury standard ounce.

<sup>10</sup>Statement by Ma Wensheng in hongzhi 8. He merely stated, "In a year of good harvest, 8 or 9 piculs of grain can be exchanged for 1 ounce of silver." Cf. *Hongzhi Veritable Record and Ming Officials' Memorials of Advice*, 11. He does not refer to a specific year.

During jiajing [1522-67], the average price per hectoliter was over 0.58 ounce, which was within the range of stability. Although a picul sold for as much as 8 or 9 ounces in jiajing 37 because of a great famine in Liaodong, the price remained level in other provinces.

Natural disasters were more numerous during the wanli period [1573-1620], as during wanli 11, when a picul cost 2 or 3 ounces in Shaanxi. Even soldiers' monthly provisions were calculated at 2 ounces per picul.

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In wanli 29, because of drought in the capital province, Shandong, Shanxi, Liaodong and Henan provinces, a picul also reached 2 ounces. During wanli 30, a picul reached 4 ounces in Guiyang and Zunyi. A picul rose again to 2.2 ounces in Henan during wanli 34. During wanli 40, a famine in the Wei River valley drove a picul up to 3 ounces. The average price of rice over the whole course of the wanli period was, however, only 0.63 or 0.64 ounce per hectoliter.

During the tianqi period [1621-28], military operations were already under way in the northeast and southwest, as in tianqi 1, when after the fall of Fanyang a picul reached 12 ounces, or in a besieged city in Yunnan in tianqi 3, when a picul got as high as 190 ounces. These, however, were special prices, and cannot be used in computing the average. The average price during the tianqi period is 0.927 ounce per hectoliter.

Rice prices were in an even more chaotic state during the chongzhen period [1628-44]. Most of those recorded in the histories are abnormal prices, as for example the chongzhen 13 Shandong price of 20 ounces per picul, and one reaching 150 ounces in Henan, or the chongzhen 14 price in Linqing of 24 ounces per picul.<sup>11</sup> Most of the other records of prices are for 1 ounce or more, which is also the average price.

We can only consider changes caused by weather as obstacles in our study of silver's purchasing power. We must exert all our powers to remove or diminish this obstacle before we can discover the real changes in silver's purchasing power. These changes were not the consequence of manipulations by monarchs and their governments.

<sup>11</sup>*Ming History*, 275, "Biography of Zuo Maodi," petition of chongzhen 14: "I came from Jinghai to Linqing. . . . A picul of rice was 24 ounces of silver. . . . Last Winter, I went to Su and Qian to confirm the words of the transport official Shi Kefa. In Shandong a picul of rice was 20 ounces, and in Henan it reached 150 ounces."



MING DYNASTY RICE PRICE TABLE (1)

Year-period	Price/hctltr (in oz silver)	Price/hctltr (in gms silver)
hongwu (1368-1398)	0.461	17.19
jianwen (1399-1402)	-----	-----
yongle (1403-1424)	0.285	10.63
hongxi (1425)	-----	-----
xuande (1426-1435)	0.291	10.84
zhengtong (1436-1449)	0.254	9.47
jingtai (1450-1456)	0.413	15.41
tianshun (1457-1464)	0.256	9.56
chenghua (1465-1487)	0.441	16.44
hongzhi (1488-1505)	0.518	19.31
zhengde (1506-1521)	0.475	17.72
jiajing (1522-1566)	0.584	21.78
longqing (1567-1572)	0.591	22.05
wanli (1573-1620)	0.638	23.81
tianqi (1621-1627)	0.927	34.59
chongzhen (1628-1644)	1.159	43.22

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Their attention was concentrated on maintaining the purchasing power of paper money, or at most on maintaining the value of coins. Silver's purchasing power was something that they were unable to manipulate.

What we wish to emphasize are the changes induced by the monetary factors. Of particular interest are changes over fixed intervals, such as changes between decades or half-centuries. Though changes in rice prices from one decade to the next were very irregular, the tendency for the price to rise is very clear.

MING DYNASTY RICE PRICE TABLE (2)

Period	Price/hctltr (in gms silver)	Period	Price/hctltr (in gms silver)
1361-1370	11.12	1511-1520	17.83
1371-1380	34.73	1521-1530	20.14
1381-1390	17.35	1531-1540	21.30
1391-1400	13.02	1541-1550	20.48
1401-1410	10.59	1551-1560	22.75
1411-1420	-----	1561-1570	22.60
1421-1430	12.87	1571-1580	19.66
1431-1440	9.63	1581-1590	25.18
1441-1450	10.41	1591-1600	25.22
1451-1460	12.38	1601-1610	26.60
1461-1470	15.07	1611-1620	22.57

1471-1480	15.33	1621-1630	36.37
1481-1490	18.39	1631-1640	33.57
1491-1500	22.31	1641-1650	47.11
1501-1510	21.30		

If we set somewhat longer intervals, then the oscillations become fewer. With intervals of fifty years, the trend in changes of silver's purchasing power stand out more clearly.

MING DYNASTY RICE PRICE TABLE (3)

Period	Average price per per hectoliter in (in grams of silver)	Hctltrs rice purchasable per kilogram of silver
Last 1/2 14thc	17.19	58.17
First 1/2 15thc	10.84	92.22
Last 1/2 15thc	16.35	61.16
First 1/2 16thc	20.19	49.52
Last 1/2 16thc	23.00	43.48
First 1/2 17thc	32.19	31.07
Average	18.90	52.91

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In studying prices calculated in silver during the Ming Dynasty, there is one fact which commands our attention, and this is the high purchasing power of silver. This was especially the case during the first half of the fifteenth century, and was something which had never occurred during the several centuries from Song through Yuan.

I suspect that the reason for this rise was mainly on the side of silver, and was not because of any great increase in the power to produce rice. Any cause on the side of silver would have had to be linked to the ability to produce silver and the supply and demand relationship for the metal.

China had not previously been a great producer of silver. Northern Song was the time when the rate of production was highest. After the crossing to the south, most of the mines were abandoned, probably because the stock of ore was supposed to have been exhausted.

From Southern Song on, China probably mainly depended for its silver on imports. During the Yuan Dynasty, communications between Asia and Europe were convenient, and there was much coming and going, so there were no obstacles to the movement of silver. After the Mongols took control over China, they used paper money to collect in exchange



for China's silver, which they transported to Central and Western Asia. At that time those regions used only silver for money, whereas in China circulation of gold and silver was prohibited.

At the beginning of Yuan, local merchants carried silver to the southwest, and bought gold from the people living there at an exchange price of 1:5.<sup>12</sup> Evidently the people living there used silver, and so Chinese silver flowed in that direction.

Of greater significance is the fact that in Central and Western Asia minting of silver coins had stopped since the beginning of the eleventh century because of an outflow of silver, but in the middle of the thirteenth century minting was renewed.

The silver they used then was from China, because most of the silver of Western Asia contained lead, and so turned black, whereas Chinese silver contained antimony, and turned white. The new silver coins minted then by Trebizond and Cyprus in Western Asia contain the word "white" in their names.<sup>13</sup>

Because of the outflow of Chinese silver, as soon as the Ming Dynasty formally adopted use of silver, it became evident that the supply was inadequate. In Europe, however, from the end of the thirteenth century to the middle of the fifteenth century, because the shallow mines were becoming exhausted and there was no way to pump out water which accumulated in the deeper shafts, the ability to produce silver weakened, and a number of cities and localities banned the export of gold and silver.<sup>14</sup>

In China, the demand for silver was increasing. Silver had only been a secondary means of payment during the Song Dynasty, and it was not in general use during the Yuan Dynasty. It was during the Ming Dynasty that silver became a full-fledged money, especially beginning with the '30s of the fifteenth century, when the government formally abolished the prohibition on use of silver, and the majority of payments were being made in silver.

This is precisely the time when silver's purchasing power was highest. The Great Ming Treasure Certificates were still being issued and circulated then, but the people took up the use of silver, precisely because the paper money was being depreciated.

They were searching for some way to preserve the value of their personal wealth. This demand for

silver exceeded normal demand for it as a money employed for circulating commodities. Under such circumstances, the rise in silver's purchasing power would have been very natural.

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The movements of gold and silver within East Asia also aided the rise in silver's price. Western silver had probably been flowing into China ever since Southern Song, and there had also been a tendency for Chinese silver to flow into Japan. This was because the price of silver in Japan was higher than in China, whereas Japan's gold price was lower than China's.

Viewed over the whole course of the Ming Dynasty, however, the purchasing power of silver underwent a slight fall. The largest part of this fall occurred during the latter half of the fifteenth century and the first half of the seventeenth century. We can explain this fall in two ways:

First, copper coins rose in price. Silver was only circulated among the middle and upper classes, or used in large figure transactions. Pint- and peck-using petty commoners still used copper cash for their daily transactions, and most people fit into this category. That is why prices, especially retail prices, were often expressed in terms of copper cash. The price in silver of rice was sometimes calculated from its price in copper coins, and so when the price of coins rose, that could force down silver's purchasing power.

Second, production of silver increased. It was forbidden to open silver mines during the hongwu period, and in hongwu 24 [1391], only 24,740 ounces of silver were produced.<sup>15</sup> Silver mines were opened in Shanzhou and Fujian during the yongle and xuande periods. Hence in xuande 5 [1430], the production of silver increased to 320,297 ounces.<sup>16</sup>

4, pp. 405-406.

<sup>15</sup>*Ming Veritable Records*.

<sup>16</sup>*Record of Daily Knowledge*, "Silver": "At the beginning of the dynasty, none of the Empire's land taxes were paid in silver. Only the mining excise was in silver. The *Veritable Records* records the quantity taken in at the end of each year. In hongwu 24, there was but 24,740 ounces. By xuanhe 5, it had reached 320,297 ounces. This was the rate for the year." *Ming History*, "Mines and Smelters": "During yongle, eight silver mines were opened on Fenghuang Mountain in Shangxian, Shanzhou. Officials were sent to Huguang and Guizhou to collect the gold and silver excise. Eunuchs and censors were also sent to check on them. Three mines were also opened in Ma'an in Puchengxian, Fujian. . . At the beginning of Emperor Xuanzong's reign, the Fujian excise was somewhat reduced. Afterward it increased to over 40,000, and the Zhejiang excise also increased to over 90,000." *Ming Veritable Records*.

<sup>12</sup>Marco Polo (Everyman's Library edition), ch. XLIII.

<sup>13</sup>Robert P. Blake, "The Circulation of Silver in the Moslem East Down to the Mongol Epoch," *Harvard Journal of Asiatic Studies*, Vol. II (1937), 291, 328.

<sup>14</sup>W. Sombart, *Der Moderne Kapitalismus* (Sun Yatsen Cultural and Educational Institute translation), 1, part 2, fascicle



Though there were several prohibitions during this period, they were of very short duration, and by the tianshun and chenghua periods [1457-88], large scale mining again got under way. In Yunnan alone production was 100,000 ounces per year.<sup>17</sup>

The Ming Dynasty had many trade links with the South Seas, from which China could have imported silver. Some Korean silver could also have flowed into China. Korea's gold-silver exchange ratio in xuande 7 (1432, the Korean Emperor Sejong's [Chinese: Shizong] year 14) was between 1:11 and 1:11.7. Four years later it had changed to between 1:6.7 and 1:7.5. In xuande 6, the ratio in China was 1:6, and hence the Koreans could export silver to China at a profit.

The oscillations during the first half of the seventeenth century can also be explained in two ways: First, natural and man-made disasters caused production to decrease and prices to rise. Second, there was an increased supply of silver. There were two reasons for the increased supply of silver. One was the expenditure of the treasury's silver. The other was the inflow of low priced American silver.

During the last years of Ming wasteful expenditures increased enormously. The reasons for this increase were two: employment of soldiers and government expenditures. Soldiers were used for labor service in Ningxia and Bozhou. Over the course of seven years these operations cost the equivalent of more than 26 million treasury ounces of silver. During the hongzhi and zhengde periods [1488-1522], the Ming court had only spent 430,000 treasury ounces per annum on border defense. During the jiajing period [1522-67], they increased spending to more than 2.7 million, and during wanli times [1573-1620] to more than 3.8 million.

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<sup>17</sup>*Ming History*, "Mines and Smelters": "In tianshun 4, the eunuch Luo Yong was ordered to Zhejiang, Luo Gui to Yunnan, Feng Rang to Fujian, and He Neng to Sichuan. The amount of the excise was about as of old in Zhe and Min. In Yunnan, it was something over 100,000, and in Sichuan something over 13,000, for a total of more than 183,000." However, most of China's silver production was in Yunnan.

Song Yingxing (a man of the Ming), *Natural and Man-made Products*, latter part, "Silver": "Of all the silver China produces, Zhejiang and Fujian have had mines from of old. At the beginning of the dynasty, they were sometimes open, sometimes closed. In Jiangxi, the three commanderies of Rao, Xin and Rui have ores which have never been exploited. In Huguang, there is Chenzhou. In Guizhou, there is Tongren. In Henan there is Yiyang, Zhaobao Mountain, Ningqiushu, Bohushi, Gaozuier . . . Sichuan . . . Gansu . . . but what is produced by eight provinces does not come up to half the production of Yunnan. . . ."

In addition to its military activities, the court also engaged in other wasteful expenditures. The marriages of the Emperor's children took 24 million treasury ounces out of the treasury, and caused the Board of Revenue to proclaim bankruptcy.<sup>18</sup> The number of supernumerary personnel reached a level rarely encountered in history.

Liu Tiqian drew a comparison on this point. He said that historically the number of men in the official ranks had been 7,500 during Han, and 18,000 during Tang. The number of supernumeraries was very large during Song, reaching 34,000, but for his own dynasty, beginning with chenghua 5 [1469], military officials alone exceeded 80,000 in number. The total number of those in civil and military positions was more than 100,000.<sup>19</sup> In the last years there was a folk rhyme which went: "Bureaucrats are as cheap as dogs, Big shots walk the streets in mobs."<sup>20</sup>

In addition to emptying the treasury of silver to meet these expenses, the government also opened mines, increased taxes and minted coins. All three of these activities were similar in that they were all aimed at money-making, since from the middle years of the dynasty on, large quantity payments were mostly made in silver, and so there was no choice but to obtain silver by opening mines.

Mining began in wanli 24 [1596], when the Korean question had still not been resolved. At first it was limited to the Imperial Domain, but later expanded to Henan, Shandong, Shanxi, Zhejiang and Shaanxi. This measure did not induce violent price rises since Chinese silver mines were not rich, but it had other very bad effects, because the eunuchs took charge of its administration.

<sup>18</sup>*Ming History*, 20, "Annals of Emperor Shenzong, 1," wanli 27, intercalated 4th month: "For the marriages of the Emperor's sons, it was proclaimed that 24 million ounces of Imperial Granary silver be withdrawn. The Board of Revenue informed the treasury and ordered a strict check into the Empire's accumulated revenue."

<sup>19</sup>*Ming History*, 214, "Biography of Liu Tiqian." *Ming History*, 275, "Biography of Jie Xuelong," tianqi 2: "The Ruler said that on the left bank of the Liao the number of soldiers of old was some 94,000, and their annual supply came to 400,000. Now the number of troops at the pass is only a little over 100,000, but their monthly supply is 220,000. The Liao soldiers have all fled to the gate of the pass. . . . At the beginning of the dynasty there were some 5,400 civil functionaries, and 28,000 military officials. In the time of Emperor Shenzu, the civil ranks increased to 16,000, and the military to 82,000. By now, no one knows how many fold they have increased in number."

<sup>20</sup>*Date Grove Miscellaneous Table*, "Humane Collection." [724]



First, local officials reported the locations of ore deposits. Then, the eunuchs would join these local officials in mining the ore. If they did not succeed in obtaining silver, local residents would have to put out cash to make up the loss. If there was the least disobedience, they would arrest the offender. They confiscated fields and homes if there was some sign that ore was present beneath them. Court officials presented over a hundred petitions of remonstrance, but, isolated in the Inner Palace, Emperor Shenzong never listened to them.

Nevertheless, all over the world during the sixteenth century, the opening of mines was a universal phenomenon among progressive societies. This had the effect of promoting the development of capitalism.

The failure of the movement to open mines in China and the severe criticism it evoked were, of course, the consequences of official extortion, but another factor was the backward attitude of the people.

The people's superstitious belief in geomancy under a feudal society rendered them unwilling to dig up other people's ancestral graves, and they were even more unwilling to let others dig up their own ancestral graves. In the old days, the Chinese generally preferred hilly ground for graveyards, and these were frequently just the spots containing rich veins of ore.

There was an objective basis for the origins of the concepts of geomancy: People hoped to obtain equitable treatment in earning a living, but in actual fact they encountered a number of inequities in trying to make a living: An individual's gains or losses, a family's rise or fall, all depended on whether it enjoyed good or bad luck. Disaster or good fortune, as well as glory or disgrace, nobility or base origins, none of these things had any necessary connection with an individual's virtues, talents, accomplishments or contributions. Optimistic men would take up weapons to compete with each other, hoping to use

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military force to change society. Pessimists would believe in fate or in geomancy. This is one important reason why China's ancient mining trade did not become well developed.

During the wanli period [1573-1620] of Ming, the opening of mines and the increasing of taxes were carried out simultaneously. Because of military requirements they increased the land tax and land rents.

Names of other newly added or increased taxes proliferated, such as the Tianjin shop excise, the Guangzhou pearl collecting tax, the Lianghuai salt tax, the Zhejiang, Min and Guang merchant ship

tax, the Chengdu tea and salt tax, the Chongqing named tree tax, the Yangtze River boat tax, the Jingzhou shop tax, and the Baozhi fish and reed tax. These too were managed by the eunuchs, whose extortion reached everywhere, bringing grief to the entire country.

All of the above factors were capable of increasing the quantity of silver in circulation, and of speeding up its velocity of circulation. Furthermore, the inflow of low-priced foreign silver must also have influenced the metal's purchasing power.

Silver flowed in along several routes. The first source which is worth mentioning was the importation of Japanese silver. At the beginning of Ming, Chinese silver often flowed into Japan in the form of gifts brought by ambassadors to Japan, but the quantities involved were not large.

However, of the gold and silver which flowed into China from Korea, some of the silver was indirectly from Japan, because Japanese silver production increased during the *jiaping* period [1522-67], and its gold-silver exchange ratio was 1:10.<sup>21</sup> The ratio in China then was between 1:6 and 1:7, and so both Chinese and Japanese merchants would have found it profitable to bring Japanese silver to China. In fact, Chinese merchants often went to Japan to exchange Chinese goods for Japanese silver.<sup>22</sup> Japanese merchants would ship Japanese silver to China so as to buy Chinese goods.<sup>23</sup> Monetary demand in Japan then for silver was not large, whereas China was right in the midst of a period of increasing circulation of silver.

These inflows of silver into China were not only by way of Chinese and Japanese merchants, but also occurred indirectly by way of the Portuguese and Dutch. The Portuguese transported Chinese silk to Japan by way of Macao, and Japanese silver was brought back to Macao to buy Chinese silk thread and heavy silk cloth.<sup>24</sup>

By the wanli period Japanese silver production had increased, and silver's purchasing power was lower in Japan than in China. For example, in wanli

<sup>21</sup>Kobata Jun, *History of the Circulation of Money in Japan*.

<sup>22</sup>Korea's *Yi Dynasty Emperor Mingzong's* [Korean: Meijong] *Veritable Record*, 8th year, 7th month, xinwei: "The state of Japan produces much silver. Therefore the people of the Superior State go back and forth to trade and sell, and sometimes, blown by the winds and currents, they work as pirates along our country's shores."

<sup>23</sup>*Compiled Illustrations for Sea Planning*: "Japanese barbarian merchants use only gold and silver to pay for goods, unlike those of the western borders, who bring goods to exchange."

<sup>24</sup>Lindchoten, *Record of East Indian Navigation*.



43 [1615], an ounce of silver could only buy 1.13 hectoliters of rice in Japan, whereas in China it could purchase 1.74 hectoliters. During tianqi (1620-1630), the Japanese gold-silver exchange ratio was 1:13,<sup>25</sup> but China's was between 1:8 and 1:10, and so Japanese silver was transported to China by Chinese and Dutch merchants. By then the Dutch had usurped the position of the Portuguese.

There are no formal statistics on just how much silver came into China in this fashion. We do not even have comprehensive

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estimates. It is said that during the 46 years from wanli 29 [1601] to yongli 1 [1646], around 2.8 million kilograms came in from Japan,<sup>26</sup> which is equal to 7,520,000 treasury ounces.

The main source from which silver flowed into China was, however, America. Columbus reached America in hongzhi 5 (1492), and thereafter America's enormous stores of gold and silver fell into the hands of Europeans. Most of it was shipped back to Europe. A portion of it was carried to China by Portuguese, Spanish, Dutch and English merchants to buy Chinese goods. Another portion was transported directly from America to the Orient.

The Portuguese and Dutch brought a certain amount of this silver, but there is no way to estimate how much, because a portion of it was Japanese silver. The silver brought by the Spanish mainly came via the Philippines. They brought silver or silver dollars from their American colonies to the Philippines to buy Chinese goods from the overseas Chinese there, and the silver was then brought to China by these overseas Chinese. During the jiajing [1522-67] and wanli [1573-1620] periods, a tax of 150 ounces of silver was collected from every ship coming from the Philippines as a surtax over and above the sea and land supply imposts.<sup>27</sup> This was a tariff on imported silver.

There are no reliable statistics on the total quantity of silver imported into China. In wanli 14 (1586), Pedro de Rojas of Manila wrote in a letter to King Phillip II of Spain that 300,000 pesos of silver were entering China annually, and that in the current year this amount had increased to more than 500,000 pesos.<sup>28</sup> A letter from the Manila principal teacher to Phillip II in wanli 26 said that the million

pesos of silver coins annually transported from New Spain (Mexico and Peru) was all being exported to China.<sup>29</sup>

Therefore, during the seven or eight decades from longqing 5 (1571), when the port of Manila opened, to the end of Ming, the amount of American silver which could have flowed into China via the Philippines could have been more than 60 million pesos, the equivalent of over 40 million treasury ounces.

A portion of the American silver being transported to Spain was plundered enroute by the English, and Englishmen coming to the Orient to engage in trade employed this American silver. It mainly went through the hands of the British East India Company. This company was established in wanli 28 [1600], but it was not until chongzhen 10 [1637] that it sent the ship *Catherine* to China. Before long, revolution broke out in England, and few ships came thereafter, so that not much silver was brought to China by them during the Ming Dynasty.

There were limits to the amount of foreign trade carried on during late Ming. The number of ships coming and going was not large. The silver they brought in

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was still not enough to cause any violent perturbations in Chinese prices. The rise in the price of rice then was in part really due to a reduction in production, which we can attribute to military moves and famine. Because extortionate miscellaneous taxes at the end of Ming caused people to flee from responsibilities they could no longer bear, and natural disasters multiplied, production decreased, and naturally silver's purchasing power must also have fallen still lower.

There may be people who will say that the rise in rice prices during the Ming Dynasty was not because of the fall in the price of silver, but because of an increase in population causing an approach to a point of diminishing returns from land. There is a logic behind this thesis which makes it very hard to criticize.

It would, however, be a sufficient refutation of this position to show that the fall in the price of silver did not exceed the rise in the price of copper and of coins. The price of copper in hongwu 1 was 5 ounces of silver per 100 catties. By wanli 5, it had risen to 7 ounces, and after wanli 25 to 10.5 ounces. At the beginning of Ming, the price of 1,000 copper coins was 1 ounce of silver. After chenghua 1, an ounce could only be exchanged for 800 cash; after hongzhi 1 this price fell to 700 cash, and during the

<sup>25</sup>*History of the Circulation of Money in Japan.*

<sup>26</sup>For the estimate of Arai Hakuseki, cf. Otake Bunfu, *Studies in Modern Chinese Economic History*, p. 57.

<sup>27</sup>Zhang [?], *Eastern and Western Oceans Investigation*, 7, "Investigation of Supply Taxes."

<sup>28</sup>E. H. Blair and J. A. Robertson, *The Philippine Islands*, Vol. VI, p. 269.

<sup>29</sup>*Ibid.*, Vol. X, p. 145.



wanli period gold-reverse coins rose to 400 cash to the ounce. After tianqi 1, an ounce of silver could only be exchanged for 550 cash.

A glance at other goods prices demonstrates that the rise was not limited to rice prices alone. We can try heavy silk as an example: There are not many heavy silk price records, but during the two centuries from the latter half of the fourteenth century to the end of the sixteenth century, I have been able to collect for this work some twenty heavy silk prices, and these show a tendency to increase.

MING DYNASTY HEAVY SILK PRICE TABLE

Period	Price per bolt (in ounces silver)
Last 1/2 14thc	0.5
First 1/2 15thc	0.44
Last 1/2 15thc	0.63
First 1/2 16thc	0.7
Last 1/2 16thc	0.7

Plain cloth also had a tendency to rise in price. In hongwu 1 [1368], a bolt cost from 0.125 to 0.25 ounce. In yongle 5 [1407], calculating on the basis of the commutation price, a bolt ran from 0.3125 to 0.375 ounce. The commutation price was between 0.075 to 0.1 ounce in xuande 1 [1426]. These last two years' prices were not, however, genuine market prices. In chenghua 5 [1469], a bolt was 0.25 ounce; in hongzhi 6 [1493], it was 0.15; in hongzhi 20 [1507], 0.3; at the end of Ming from 0.3 [712] to 0.4 ounce. The tendency to rise is very evident.

The speed of the rise in heavy silk's price does not, however, seem to have been comparable to the rise in plain cloth, and was also slower than rice's increase, though the rate of increase for plain cloth seems to have been greater than that of rice, and so these increases were not a reflection of some difference in the productivity of manufacturing as compared with agriculture.

Perhaps there were differences in the plain cloth itself at different times, and this difference would have been reflected in a disproportional rise in prices. Based on the few plain cloth-rice exchange price ratios which we possess, there was a tendency for the cloth price of rice to fall, but this was confined to the period before the mid-sixteenth century jiajing and wanli periods. After that time, the rate of speed of the increase in rice prices increased, but unfortunately we lack plain cloth prices to use for comparison.

MING DYNASTY PLAIN CLOTH-RICE  
EXCHANGE PRICE RATIO TABLE

Period	Bolts of plain cloth per picul of rice	Source
hongwu 1	0.4-0.8	MingCollStatutes
yongle 5	0.83-1.0	MingCollStatutes
xuande 4	1.0	MingVeritRecords
tianshun 1	0.75	Letters on the Profits and Ills of the Regions of the Empire
chenghua 5	1.0	MingVeritRecords
hongzhi 12	1.2	MingVeritRecords
zhengde 6	1.0	Letters on the Profits . . .
wanli period	0.2	With Literature Calculation Guide
chongzhen 16	0.087	Stone inscription <sup>30</sup>

No clear tendency can be discerned for cotton prices because the sources are insufficiently numerous. We can only say that cotton prices during Ming were lower than during earlier dynasties.

At the end of Yuan, a catty of cotton was worth around 1.15 ounces of silver.<sup>31</sup> At the beginning of hongwu, a catty was only equal to 37 cash, or 0.037 ounce of silver. In both hongwu 28 and 30 [1395, 1397], a catty was 0.1 ounce. By yongle 5 [1407], it had reached more than 0.3 ounce. In hongxi 1 [1425] and xuande 4 [1429], it was 0.06 ounce per catty, in hongzhi 6 [1493] it was back to 0.1 ounce,

<sup>30</sup>Someone had a number of prices carved on a stone in the wall of a small temple in Huazhou, Shaanxi in chongzhen 16. These included: paddy rice and rice in husk, per *dou*, 2.3 ounces; wheat, 2.1 ounces per *dou*; salt, 0.09 ounce silver per *sheng*; clear oil, 0.16 ounce per catty; pork, 0.18 ounce per catty; cotton bolls, 0.32 ounce per catty; shuttle plain cloth, 0.05 ounce per *chi*. These prices are extraordinarily high owing to the chongzhen 8 and 9 plague of locusts and drought, and the chongzhen 13 and 14 great famine. Li Zichun, "A Piece of Historical Material Concerning Late Ming Prices," *Archeology*, 10 (1960), 50.

<sup>31</sup>Ding Ju *Calculating Methods*: "An ounce of silver is worth 5 ounces of Certificates. A catty of cotton is worth 5.74 ounces of Certificates."



in hongzhi 16 [1503] it was 0.08 ounce, in zhengde 3 [1508] and jiajing 10 [1531] it was 0.5 ounce, and at the end of Ming it was 0.16 ounce, except in famine-stricken Shaanxi, where it was 0.32 ounce.

Cotton, like grain, was influenced by climatic changes. Therefore, not only was it unstable in price itself, the cotton-grain exchange price ratio was also unstable. If we use the catty as our unit for both cotton and rice, then the historical cotton-grain exchange price ratio was between 1:2 and 1:100, and it is all but impossible to discern what the normal ratio might have been. The greatest discrepancies in price mostly occurred when cotton bolls were expensive, but

[713] in chongzhen 16 [1643], it was because the price of grain was higher. At times of abundant harvest for both, perhaps it ranged between 1:20 to 1:30. As the cotton and grain prices I have used are not from the same places or for the same times, it is very hard to say how accurate are the exchange prices I have calculated.

HISTORICAL COTTON-GRAIN  
EXCHANGE PRICE RATIO TABLE<sup>32</sup>

(Prices in parens not from the same place or time)

Period	Number of catties of rice 1 catty of cotton bolls could exchange for
Song jiayou (1056-1063)	(77-186)
xining 7 (1074)	15
yuanfeng (1078-1085)	(187)
shaoxing 1 (1131)	(20)
2 (1132)	(124)
longxing 2 (1164)	(127)
Yuan zhizheng 15 (1355)	108
Ming hongwu 1 (1368)	19
28 (1395)	32
yongle 5 (1407)	134
xuande 4 (1429)	32
hongzhi 6 (1493)	(22)
18 (1505)	(16)
jiajing 10 (1531)	(129)
End of Ming (mid-17thc)	20
chongzhen 16 (1643) <sup>33</sup>	2

<sup>32</sup>A hectoliter of rice is reckoned at 156 market catties, or 78 kilograms.

<sup>33</sup>Shaanxi stone inscription. Cf. note 30 above.

By contrast, the rice-salt exchange price ratio was relatively stable: During the tianbao period [742-56] of Tang, a *dou* of rice and a catty of salt stood at an exchange ratio of 1:0.75. In xuanhe 4 [1122] of Song, it was 1:0.4; during Yuan's zhizheng 12 [1352], it was 1:0.7; in zhizheng 15, it was 1:0.19; in Ming's hongwu 1 [1368] it was also 1:0.7; and in yongle 5 [1406] it was 1:0.74.

We can also discern the tendency for silver to fall in price from changes in the gold-silver exchange price ratio. Changes in that ratio were irregular, but not very disorderly. After Qin and Han times, it was fairly stable, and it was not until the Song Dynasty that very large changes in it occurred, caused by a sharp rise in the price of gold. Thereafter the price of gold fell back, and by Yuan the ratio was between 1:7.5 and 1:10, and in some places ratios of 1:6 and 1:5 prevailed.

During the more than two centuries of the Ming Dynasty,

[714] there was a tendency for silver to gradually fall vis à vis gold. The early Ming ratio of 1:4 or 1:5 had become 1:10 and 1:13 by the end of the dynasty.

MING DYNASTY GOLD-SILVER  
EXCHANGE PRICE RATIO TABLE

Period	Number of ounces of silver for which 1 ounce of gold exchanged	Source
hongwu 1 (1368)	5	Ming Coll Stat, "Coins"
8 (1375)	4	Ming His, "Food & Money, 5"
18 (1385)	5	MingCollStat, "Taxes" & Ming His, "Land & Corvee Tax"
19 (1386)	6	MingVeritRec & InvLitRemCon
28 (1395)	5	MingHistDrft, "TrFood&Money"
30 (1397)	5	Ming Coll Stat, "Taxes"
yongle 5 (1407)	5	InvLitRemCont, "InvCoins, 4"
11 (1413)	4.8	Book of Ming
xuande 1 (1426)	7.5	Ming Coll Stat, "Taxes"
	4	Ming Verit Rec
6 (1431)	6	Ming Verit Rec
chenghua 17 (1481)	7	Ming Verit Rec
hongzhi 15 (1502)	9	Ming Coll Stat



jiajing 9 (1530)	6	Ming Coll Stat
13 (1534)	6.363	Letters on the Profits and Ills of the Regions of the Empire
longqing 2 (1568)	6	Famous Mountain Hoards
6 (1572)	8	Ming Verit Rec
mid-wanli (1596)	7.5	Record of Daily Knowledge
48 (1620)	8	Bataweiya Diary
mid-chongzhen (1635)	10	Record of Daily Knowledge, Records of the British East India Company
	13	Record of Daily Knowledge, Record of price ratio on left side of Yangtze

The rise in the price of copper also reveals the tendency for the price of silver to fall. I have previously stated that in hongwu 1, 100 catties of copper were worth 5 ounces of silver; in jingtai 4 [1453] they were worth 6 ounces; in wanli 5 [1577], 7 ounces; in wanli 25 [1597], 10.5 ounces; and during the tianqi period [1621-1628], 14 ounces. Therefore, the silver-copper exchange price ratio went from 1:320 in hongwu 1 to 1:112 during the tianqi period. The fall of silver against copper occurred to a degree almost equal to that of its fall against gold. [715]

MING DYNASTY SILVER-COPPER  
EXCHANGE PRICE RATIO TABLE

Year	Number of ounces copper one ounce of silver can be exchanged for	Source
hongwu 1	320	Ming Coll Statutes
jingtai 4	266	Ming Verit Records
wanli 5	229	Ming Verit Records
25	152	Winter Official's Record of Affairs
44	152	Winter Official's Record of Affairs
tianqi period	112	Matters Concerning Minting

The fall in Ming silver prices can also be seen in terms of several important domestic animal prices, but compared to previous dynasties, even after their rise, Ming prices cannot be considered particularly high. Prices during wanli times were approximately double those of the hongwu period. These were higher than Yuan prices because the Mongols' economic foundation was the raising of livestock, and so the prices of domestic animals were especially low then. Compared with the Qin and Han levels, wanli prices cannot be considered high.

The price of horses, to take one example, had displayed a tendency to fall ever since Tang times. In zhenguan 10 [636], a horse was only 25,000 cash.<sup>34</sup> After the An-Shi disorders in the middle of the next century, it rose to 160,000, but that was a time when prices in general were high, and so there is nothing odd about such a price. During Northern Song, the price of a horse ranged from over 10,000 to more than 30,000, and this was reckoned in Reduced-hundreds. The average price was around 20,000.<sup>35</sup> This was probably because Northern Song did not treat military preparations as important.

The price given in the Ming hongwu 1 estimate of the values of stolen goods was set rather high. The nominal price in a horse market like that in Wulangxi in yongle 4 [1406] was 15 piculs of rice or 3 bolts of heavy silk for an upper grade horse, and 8 piculs of rice or 1 bolt of heavy silk for a lower grade horse.<sup>36</sup>

If we use a rice price of 0.3 ounce per picul, and a heavy silk price of 0.45 ounce per bolt, then an upper grade horse was equal to 4.35 ounces of silver or 4,350 cash, which was the same as the price of a horse in the western frontier region during Western Han times. In jingtai 1 [1450], the price of a horse in the capital ranged from 6 to 8 ounces, and was from 3 to between 4 and 6 ounces in Shanxi. These prices are congruent with variations in other local prices.

In hongwu 1, cattle cost 3.125 ounces per head. One horse was worth three head of cattle, so it is evident that cattle prices were lower. Although a

<sup>34</sup>*New Tang History*, 50, "Monograph on Soldiers."

<sup>35</sup>*Yuan History*, 43, "Annals of Emperor Shun, 6."

<sup>36</sup>*Emperor Taizong's Yongle Veritable Record. Ming History*, "Treatise on Food and Money: Horse Markets," contains four grades of horse prices during yongle. An upper grade horse was 8 bolts of heavy silk, 12 bolts of plain cloth; a second ranked horse was 4 bolts of heavy silk, 6 bolts of plain cloth; a horse of the third grade was 3 bolts of heavy silk, 5 bolts of plain cloth; a lowest grade horse was 2 bolts of heavy silk, 4 bolts of plain cloth. Converted to silver, a horse was 3.234 ounces, or 3,234 cash, which is almost the same.



horse could also be exchanged for three head of cattle during Western Han, during Tang's yongzheng 4 [653], the price of a horse was only twice that of an ox. In huichang 2 [842], a stockaded ox was only 500 cash, which was equal to just 0.34 or 0.35 ounce of silver. In Liao's baoda 5 (Song's xuanhe 7 [1123]), the prices of horses, oxen and sheep were fixed. A horse was worth 5 carts of grain, an ox was 3 carts, and a sheep was 1 cart, so a horse was still not quite twice the price of an ox. In Ming's hongwu 1 [1368], sheep cost 0.5 ounce per head,

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whereas a pig cost 1 ounce. During Western Han, a pig and a sheep were the same price.

Actually, there were very few wanli prices which were not higher than prices during hongwu. Pepper, for example, was only 0.1 ounce per catty at the beginning of hongwu. During wanli, it was 0.7 ounce per catty. At the beginning of hongwu, cinabar was only 0.8 ounce per catty. During wanli a catty was 3.6 ounces. A catty of copper rose from 0.05 to 0.15 ounce. A catty of tin rose from 0.05 to 0.09 ounce. A catty of iron rose from 0.012 to 0.04 ounce.

Among all prices, the price of books is of particular significance because books are important instruments for the transmission of culture. The importance of books lies mainly, of course, in their contents. That substance is influenced by the height of a particular culture. The height of book prices is influenced by a culture's breadth, and the two taken together are a reflection of a society's cultural level, and can also influence this level.

The history of Chinese book prices has not been well studied because of scarcity of materials. Though there have been book stores ever since Han times, there are very few surviving records of book prices. In principle, book prices should change in parallel with the prices of other goods, and jointly with them reflect money's purchasing power.

There are, however, some special factors influencing book prices. For example, the invention of printing had an enormous influence over book prices, and this influence had no particular relevance to changes in the value of money.

There are other rules governing the changes in the very few woodblock edition book prices which we possess. Because China very early discovered and widely employed the technology of printing, Chinese book prices should have fallen substantially since Song and Yuan times. The printing blocks of the Song Dynasty's National Academy could have been borrowed for printing, and it would only have been necessary to pay for paper and ink.

HISTORICAL PRICES OF SIX DOMESTIC ANIMALS (in treasury ounces of silver)				
Qin-Han <sup>37</sup>	Yuan Dyn <sup>38</sup>	Ming hngwu <sup>39</sup>	wanli <sup>40</sup>	
horse	22.46	14.37	10.00	20.00
cattle	8.00	1.50	3.125	5.55
sheep	1.46	0.59	0.5	0.54
pig	1.23		1.0	1.5
dog	0.45		0.125	0.12
chicken	0.11	0.04	0.04	0.45

Books from officially carved blocks were sold at fixed prices. It is said that Wang Qi had carved and printed the *Collected Works of Du of the Board of Works* [i.e. Du Fu's collected works. EHK] in an edition of 10,000 for sale at only 1 string in coin.<sup>41</sup>

<sup>37</sup>According to the average of prices in the *Nine Chapter Calculating Techniques*, converted into treasury ounces. I use a gold price of 625 cash per ounce (if a catty was 6,520 cash, then the price was even higher). I use a silver price of 125 cash. An ounce is equated with 19.2 grams. If we were to follow the prices in *Historical Records*, "Biographies of the Moneymakers," the figures would be from ten to a hundred times higher.

<sup>38</sup>According to the average of figures from Zhu Shijie, *Calculation Techniques Primer*. I have not used several doubtful figures. I convert 5 strings into 1 ounce of silver.

<sup>39</sup>According to the *Ming Collected Statutes*, "Hongwu Calculation of Thefts' Values."

<sup>40</sup>Horse and cattle prices are averages of the prices in *With Literature Calculation Guide*, but this work includes two figures copied from *Nine Chapter Calculating Techniques*, and I have not used them here. Also, according to "Memorials of Advice of Governors General of Four Zhen" (*Mystical Observation Hall Collectanea*, continued collection), 6, "Petition Requesting Discussion of the Price of Horses," in wanli 8, 4th month, the price of a horse ranged from 12 to 18 ounces. In wanli 14, a Board of War communication set a regulation for collecting 30 ounces of silver per horse. If we average these three prices, we get a figure of 20 ounces per horse. The prices for sheep, dogs and chickens are drawn from *Wanshu Miscellaneous Record*.

<sup>41</sup>Wang Shizhen, *Residing at Ease Record*. Cf. Ye Dehui, *Pure Words from the Book Grove* (Zhonghua shuju edition), p. 180.



This probably refers to the jiayou 4 (1059) Suzhou woodblock edition in twenty *juan* and an appendix. At that time 1 string was equal to 1 ounce of silver, and if the book was divided into

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ten fascicles, each fascicle only cost 0.1 ounce of silver, so no wonder the gentry competed to buy it.

In Southern Song's shaoxing 17 [1147], there was a woodblock edition of Wang Yucheng's *Small Nourishment Collection* in 30 *juan*, divided into 8 fascicles, with a total of 163,848 characters. It sold for 5 strings diminished, equal to 1.7 ounces of silver, which was 0.2 ounce per fascicle. In shaoxing 28, Kong Pingzhong's *Sayings of the Generation Continued* appeared in a 6 fascicle set. The cost of printing it was only 815 cash full, or 141 or 142 cash per fascicle. In chunxi 3 [1176], Ceng [Tong?]'s *Pure Words on the Great Changes* came in a 20 fascicle set, with a list price of 8 strings full, equal to 2.67 ounces of silver, making each fascicle only 0.13 ounce. If the blocks were rented for printing, the rental fee was only 1 string 200 cash full. In chunxi 10, the Xiangshanxian study edition of *Han Talents* in 10 *juan* divided into 2 fascicles, had a list price of 600 cash full, equal to 0.2 ounce of silver, or 0.1 ounce per fascicle. If the blocks were rented for printing, the rental fee was only 100 cash full, and labor, ink and transport cost came to 160 cash full.<sup>42</sup>

I have not yet discovered any material on Yuan Dynasty book prices. I have only the price of labor for carving the printing blocks. In zhizheng 3 [1343], the carving of Zhang Xuan's *Jinling New Gazetteer* in 15 *juan*, divided into 13 fascicles, altogether cost 143 ingots 29.899 ounces worth of Zhongtong Certificates. Silver then was probably priced at 30 strings of Zhongtong Certificates per ounce. Therefore, over 143 ingots worth of Zhongtong Certificates were worth 239 ounces of silver, or 18.4 ounces per fascicle.<sup>43</sup> If we reckon 20,000

<sup>42</sup>The book prices used here all based on the figures quoted in *Pure Words from the Book Grove*, 6. They are then converted into silver on the basis of the contemporary price of silver.

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<sup>43</sup>Ye Dehui did not understand the nature of Yuan Dynasty money. He supposed that 1 ingot of Zhongtong Certificates meant 50 ounces of silver, and so he calculated that the carving of 1 *juan* required over 440 ounces of silver. He stated "in ancient or modern times, there has never been so great a cost as this for carving a book's printing blocks." He suspected that someone then was taking money under false pretenses (*Pure Words from the Book Grove*, 7, "Cost of Labor for Book Carving During Yuan Times"). Actually, right from the beginning, 1

characters to the fascicle, then it only cost 0.092 ounce of silver to carve 100 characters, which is not much. Moreover, free sale and purchase of gold and silver were generally prohibited during Yuan, which lowered their prices, and raised the prices of commodities when expressed in gold or silver.

Book carvers' wages were lower during Ming. To carve the blocks for *Ancient Annotations to the Thirteen Classics* only required something over 100 ounces. During the jiajing period, the labor for carving a page containing about 500 characters was only a bit over 0.15 ounce of silver. At the end of the chongzhen period, it was nearly the same, with 0.03 ounces of silver needed to carve 100 characters.<sup>44</sup>

As a consequence, Ming Dynasty book prices were lower. During the jiajing period, when the Japanese bought books in Suzhou and Ningbo, the *Crane Grove Jade Dew* in a 4 fascicle set cost 0.2 ounce of silver, or only 0.05 ounce per fascicle. *Investigation of Literary Remains* cost 0.9 ounce. The *Pharmacopoeia*, in 10 fascicles, was 4.9 ounces. *Unusual Teachings and Good Recipes* was 0.7 ounce.<sup>45</sup>

Some of these books have high, some low prices, probably because of the nature of their editions. The *Pharmacopoeia*, for example, probably had line drawings, but that the *Investigation of Literary Remains*, a massive work of 348 *juan*, should have sold for only 0.9 ounce of silver is hard to credit. It may be there is a transcription error or some other reason for the discrepancy.

In summary, ever since the invention of printing, there had been a tendency for the prices of Chinese books to fall, and they reached their lowest point during the Ming Dynasty. This tendency was in keeping with the overall trend in the purchasing power of silver, since the prices of other goods calculated in silver were also lower during Ming than during Song and Yuan.

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ingot of Zhongtong Certificates were never equal to 1 ingot of silver. By the zhizheng period, they had fallen to the point that it took 30 ingots of Certificates to equal to 1 ingot of silver.

<sup>44</sup>*Pure Words from the Book Grove*, 7, quoting Xu Kang, *Reflection of a Dream of the Past*.

<sup>45</sup>Kobata Jun, *Studies in the History of Medieval Sino-Japanese Trade*, pp. 447-448, quotes Zhou Liang, *Two Crossings Collection*. The book employs the Japanese unit, the *momme*, which is somewhat heavier than the *qian*, or 0.1 Chinese ounce, but they must have made their purchases with the Chinese standard measures, and so I assume that they have here reverted to the Chinese units.



We can now make comparisons between Chinese and foreign book prices, especially with those of Western Europe. Western Europe only began to employ the technique of printing in the middle of the fifteenth century, and so its book prices were very high.

We may take Pavia in Italy as our test case. Pavia was the capital of Lombardy. During the Middle Ages, it was famous for its university, which was said to have been founded in the eighth century by the Emperor Charlemagne. Therefore Pavia was a city with a high cultural level.

During the fourteenth and fifteenth centuries, its medical books were the cheapest, averaging 4.5 florins per volume. This was equal to 4 ounces of silver. Generally, books ran from 15 to 30 florins per volume, or 13 to 26 ounces of silver. The most expensive were law books, which ran from 25 to 30 florins per volume. Some particular books might be as expensive as 100 florins per volume.<sup>46</sup> Therefore, it cost as much to buy a copy of a book in Pavia as it cost in China to cut the blocks for a book.

This was not just a question of book prices, but also involved the problem of wages. The gap between Oriental and Occidental book prices was, of course, mainly a matter of differences in science and technology. During the Middle Ages, Europe could not even manufacture paper. Books had to be written on sheep skins which had been processed into parchment at high cost.

In Spain during the eighth century, the price of a book called *Songs in Response* could be used to purchase two oxen with something left over. Eventually, the Arabs brought Chinese papermaking techniques into Europe, but paper only came into general use in the thirteenth and fourteenth centuries. Right on down to the fifteenth century they were still completely dependent on hand-made copies of books.

In China, not only was the labor of carving printing blocks cheap, so too was the labor of printing. *The Golden Lotus* alludes to printing a silk-cased set of the classics in an edition of a thousand copies, with each copy only costing 0.03 ounce of silver. In Pavia, a copy of the two-volume *Songs in Response* cost 36 florins, and the illustrations and cases cost another 19 florins, each volume altogether costing 24 ounces of silver.

The discrepancy between the prices of their books reflected the two worlds' cultural levels, and in turn could have influenced these cultural levels.

<sup>46</sup>Carlo M. Cipolla, *Money, Prices, and Civilization in the Mediterranean World* (Princeton University Press, 1956), pp. 58-60.

In 1447, a University of Pavia professor's annual salary ranged from 7.5 to 300 florins. Actual salary payments averaged 74.5 florins, or 64.8 ounces of silver, coming to 5.4 ounces per month. Of the 76 professors, 46 had annual salaries of from 10 to 50 florins, or 8.7 to 43 ounces of silver, coming to 0.72 to 3.6 ounces per month. They could not buy many books.

Hence one fourteenth-century man who was both medical doctor and professor had only 30 volumes in his family library. Another man, a rich and powerful lawyer, only owned 46 volumes. Aside from monastic and royal libraries, private book collections then averaged only 10 to 50 volumes in size. The Florentine

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financier, Cosimo de Medici, who was richer than royalty, employed the proprietor of a book copying business to create a private library for himself. This man hired 45 copyists, who worked for almost two years to copy out just 200 volumes, each man only being able to copy a little over two volumes per year. This occurred during the fifteenth century. Actually, even monastic and royal book collections were not very large.<sup>47</sup>

The situation in China was different. In Ming China the equivalent of a university professor was a Doctor of the Five Classics in the National Academy, who was drawn from the eighth rank officials, with a monthly salary of 6 piculs of rice. A Professor of Confucian Studies was from the ninth rank, and his monthly salary was 5 piculs.

During the middle years of the fifteenth century, owing to the depreciation of the Great Ming Treasure Certificates, the monthly incomes of both the Doctor and the Professor were less than 1 ounce of silver, but when payment was changed to silver during the zhengde period, the Doctor of the Five Classics might get up to 4.2 ounces of silver and the Professor 3.5 ounces per month.

Viewed solely in terms of the number of ounces of silver, these were within the same range as the income of a University of Pavia professor, but in terms of their purchasing power in books, there was a great difference between the two.

Even if we use for our calculations the highest salary for a University of Pavia professor of 300

<sup>47</sup>Italy's Monte Cassino library was considered one of the best of the monastic libraries of the Middle Ages. It possessed 800 chapters worth of copies during the eleventh and twelfth centuries (*Harmsworth Encyclopaedia*, 1906 edition, "Libraries" article). In 1490, the palace library of the English King Henry VII only contained 300-400 volumes. Only the King of Hungary, Keweinusi, had a collection of 50,000 volumes (*Chambers Ency-*



florins, which was the equivalent of 21.75 ounces of silver per month, that could only buy one or two volumes of ordinary books. The Chinese Professor of the Five Classics could buy a book like the *Crane Grove Jade Dew* with its 84 fascicles. At the end of Ming, a private school teacher who only had three to five pupils might get as much as 1 ounce of silver per month,<sup>48</sup> and so could buy several dozen books.

As a consequence, the book collections of Chinese scholars were in general rather large. This is not to speak of official book collections down through the ages,<sup>49</sup> but merely of private ones.

As early as the Warring States Era, Hui Shi had five cartloads of books. Shen Yue of the Northern and Southern Dynasties period had over 20,000 *juan*. Chen Zhensun of Song times had over 50,000 *juan*.<sup>50</sup>

During Yuan and Ming times, scholars of modest status could have book collections of from several thousand to several tens of thousands of *juan*.<sup>51</sup> Mao Jin collected 84,000 fascicles of books.<sup>52</sup> These men were all famous book collectors of their times. The quantity of books they owned cannot be considered representative of the average number held by scholars in general.

Nor can the Chinese *juan* ["chapter," originally

meaning "scroll"] be equated with the fascicle or volume of foreign books. A Chinese *juan* sometimes only contained one or two thousand characters. Those with more than 10,000 characters were few. Also, a varying number of *juan* joined together to make a fascicle. Therefore, when a person composed a book, it would often have several dozen to a hundred *juan*. In foreign books, a *juan* was the equivalent of a fascicle or volume.

Still, even after taking such factors into account, it is not hard to discern that the Ming Dynasty Chinese bought more books than did contemporary Europeans. At the beginning of Ming, there was even a pharmacist whose home held no small number of books.<sup>53</sup> Naturally there were also scholars who had no books at all.<sup>54</sup> These can only be considered exceptions to the rule.

The purchasing power of the intellectuals of China and Europe in terms of books cannot be said to represent their

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purchasing power in terms of commodities in general, or their standards of living.

If a professor of Pavia got 5.4 ounces of silver per month, he could buy more than 11 hectoliters of wheat.<sup>55</sup> During the zhengde period [1506-22], a National Academy Doctor, who got 4.2 ounces per month, could only buy a little over 10 hectoliters of wheat, and only 9 hectoliters of rice. The Chinese figures are, however, several decades later than those for Italy.

The minority of high-salaried professors at the University of Pavia received incomes far exceeding those of Chinese professors or doctorate holders. They were even more generous than the income of a Libationer of the National Academy.

*clopedia*, 1895 edition, "Library" entry).

<sup>48</sup>*Rousing the Age Marriage Affinity*. Cf. note 36 in section 7.3 of this work.

<sup>49</sup>*Rustic Words from East of Qi*, 12: "Emperor Yuan of Liang collected 240,000 *juan* of ancient and modern books and illustrations in Jiangling. Sui's Jiaye Palace library contained 370,000 *juan*. Tang had the most during the zhenguan and kaiyuan periods. The two capitals each collected books from the four categories to the amount of 70,000 *juan*. During Song, the books collected in the Xuanhe Palace, the Taiqing Pavillion, Longtu Pavilion and Imperial Hall were even more abundant than the collections of former dynasties. Those now verifiable form the 46 Chongwen categories, and total 30,669 *juan*. The History Office possessed 15,000 *juan*, and the rest cannot be enumerated. After the crossing to the south, another record of the collection was added. The office pavilion book catalog has 52 categories, and 44,486 *juan*. Its continuation has more than 14,900 *juan*. These were all kept in the official precincts."

<sup>50</sup>Zhou Mi, *Miscellaneous Knowledge of the Year Guixin*.

<sup>51</sup>During Yuan, Tong Shu collected several tens of thousands of *juan* (*Yuan History*, 189, "Confucian Scholars, 1, Biography of Tong Shu"). During Ming, Yang Weizhen's father collected a similar number of books (*Ming History*, 285, "Garden of Letters, 1, Biography of Yang Weizhen"). Yin Yunxiao collected several thousand *juan* (*Ming History*). Lang Jun collected 40,000 *juan* (*Ming History*, 287, "Biography of Lang Jun"). Hu Yinglin collected over 40,000 *juan* (*Ming History*).

<sup>52</sup>*Pure Words from the Book Grove*, 7, p. 192.

<sup>53</sup>*Ming History*, 285, "Garden of Letters, 1, Wang Xing": "There was a man of Wuxian, who when young accompanied his father in selling drugs in the home of old man Xu. Old lady Xu liked to listen to the stories of minor officials, and so Xing daily took down several volumes and recited them to the old lady. The old lady spoke to the old man, who gave him a copy of the *Analects*. The next day he could recite it all. The old man was amazed at this, and let him read all the books he had collected in the house. Subsequently he became well-versed in the classics, histories and sayings of the Hundred Schools."

<sup>54</sup>*Ming History*, 286, "Garden of Letters, 2, Xu Zhenqing": "There was a man of Wuxian whose wealth was abundant, and though he did not have a single book in his house, there was nothing he did not understand."

<sup>55</sup>There is no material on the price of wheat in fourteenth or fifteenth century Italy. I have here made a conversion based on the figures of Landrin and Roswag (cf. chapter 8.2.4, below). These figures are probably for Europe as a whole. Prices in Italy



It was by no means the case that all Ming Dynasty prices were lower than those of previous dynasties. Some prices were higher.

For example, the price of agricultural land was around 2.3 or 2.4 (treasury) ounces of silver per *mu* during Qin and early Han times.<sup>56</sup> At the time of Emperor Wu of Western Han, 1 *mu* was 6 ounces.<sup>57</sup> During the zhongping period [184-9] of Eastern Han, a *mu* went for 3,000,<sup>58</sup> or 12 ounces of silver. Under the Latter Tang of the Five Dynasties period, a piece of land with shops on it in the capital ranged from 3,000 to 7,000 per *mu*, and averaged 5,000.<sup>59</sup> With a silver price of 800 cash per ounce, this was the equivalent of more than 6 ounces. During Northern Song a *mu* ran from 1-2,000 cash<sup>60</sup> to 7-8,000 cash,<sup>61</sup> or between 1 and 5 or 6 ounces of silver.

may have been a bit lower.

<sup>56</sup>*Nine Chapter Calculating Techniques*, 7: "Now we have 1 *mu* of good fields at a price of 300, and 7 *mu* of bad fields at a price of 500." The price of a catty of gold was 6,250 [726]

cash. The gold-silver exchange price ratio was 1:5. The ounce of those times was equal to 19.2 grams. Of course the hypothetical component of this price is very great. If we calculate on the basis of a gold price of 10,000 cash per catty, then a *mu* only comes to 0.77 ounce of silver.

<sup>57</sup>*Han History*, "Biography of Li Guang" contains the statement that 3 *qing* of land sold for over 400,000. I calculate on the basis that gold had a price of 10,000 cash per catty. In the *Juyan Han Bamboo Slips*, a *mu* is 100 cash. The *Han History*, "Biography of Dongfang Shuo" refers to a price of "mu one jin," but that is not a price under normal circumstances.

<sup>58</sup>Fan Lijia's land purchase lead tally (dated guanghe 7) and Fang Taoji's land purchase lead tally (dated zhongping 5) both give the price of 1 *mou* as 3,000 (*Kahei*, no. 159).

<sup>59</sup>*Five Dynasties Collected Statutes*, 26, edict of tongguang 2.

<sup>60</sup>*Collected Works of Mister Linchuan*, 76, first part, "Letter of Remonstrance by the Transport Commissioner Sun's Office": "Yin is a large city in the prefecture. I was in charge of the district there for two years. I saw that the so-called great households mostly had only a hundred *mu*. The lesser ones had less than a hundred *mu*. The value of a hundred *mu* was 100,000 cash. Even if it was especially good land, it was no more than 200,000 cash." Wang Anshi was magistrate of Yin district from qingli 7 to huangyou 1 [1047-1049]. The prices mentioned here were probably in copper cash. If we reckon 1,400 cash to the ounce of silver, 1 *mu* would have been from 0.7 to 1.4 ounce. *Comprehensive Mirror for Illumination of the Prince, Long Draft, Continued*, 267, xining 8, 8th month, wuwu: "The Suzhou officials all have fields. A mortgage of 1 string would obtain 1 *mu*."

<sup>61</sup>*Song Collected Statutes Compiled Draft*, "Food and Money: Profit From Water, first part," 7.30, xining 9: "I heard that 1 *mu* of fields in Dong Village used to be worth 2-3,000,

During Southern Song, 1 *mu* ran from 3 to 9 ounces.<sup>62</sup> During the Yuan Dynasty, a *mu* ran from 0.6 or 0.7 to 1.8 or 1.9 ounces of silver.<sup>63</sup>

and their yield was 5 or 7 *dou* of grain. After irrigation, its value tripled, and the harvest reached 2 or 3 piculs." If we use a price of 7,500 cash per *mu*, and a silver price of 1,400 cash per ounce, then 1 *mu* was equal to 5.36 ounces of silver.

<sup>62</sup>*Song Collected Statutes Compiled Draft*, "Food and Money: Official Fields Miscellaneous Records," 61.29, longxing 1, 11th month, the Board of Revenue said: "Yesterday, those being enfeoffed requested sale of the Changzhou, Wuxixian ministerial fields to the amount of 400,000 *mu*. Each *mu* was worth 15 Thousands in cash. An edict was received deputing the Liangzhe Transport Officials to personally see to the transfer. Now, according to what has been announced, there are only 166,000 *mu*, and each *mu* has a price of 2 strings. If people are permitted to rent it, a 40,000 picul net annual contribution will be received. If the land is sold, we deeply fear the amount contributed will be lost, and so request . . . stopping the sale. Assented to." There are two prices here, with a very large difference between them, and so there must have been a false report. If we reckon the price of silver at 3,000 cash per ounce, then according to the first price, each *mu* was 5 ounces. On the basis of the second price, a *mu* was only 0.6 ounce.

Wang Mao, *Wilderness Guest Collected Conversations*, 10, "Han Fields Price Per Mu": "Han fields were 10 Thousands per *mu*, which corresponds to the current general rate." Wang Mao lived between the shaoxing and jiading periods. The price of silver then was around 3,300 to 3,400 per ounce, which would make 1 *mu* of fields worth around 3 ounces of silver.

Wei Xian, *Beneficial Observation of Four Famous Landscapes*, first part, "Taosha": "Prior to this, in jiading 7, the acting Prefectural Intendant, Cheng Gongtan, paid 1,200 strings of cash for fields amounting to 40 *mu* 3 *jiao* 29 *bu*." At that time, the price of silver was 3,300 cash per ounce. One *mu* was worth 9.1 ounces of silver. *Ibid.*, "The Ducheng Zhao Signs a Contract for Taosha Rice Fields with Wei Duda": "Hill field land is at a low price in Certificates, including irrigated fields to the amount of 29 *mu* 3 *jiao* 25 *bu*. The original contract reckoned the cash at 631 strings 700 cash, 98 diminished." At that time (jiaxi 3 [1239], 10th month) the price of silver was around 3,500 cash per ounce, and so 1 *mu* came to 7.7 ounces.

Yuan Fu, *Meng Studio Collection*, "Selected Inheritances: Education of the Yan Family's Sons and Grandsons": "There was obtained in strings of cash 6,300 cash to buy fields at a rate of 450 per *mu*. The annual income from this calculated in *hu* of rice was 380." The price of silver then was 3,300 per ounce, and so 1 *mu* was 4.24 ounces of silver.

<sup>63</sup>*Yuan Decrees and Regulations*, 19, "Board of Revenue," 5. Cf. subsection 6.2.3, note 25, above. In zhiyuan 24, an ounce of silver was equal to 10 ounces in Zhongtong Certificates. Therefore, a *mu* was worth 0.667 ounce of silver. In zhiyuan 30, with an ounce of silver at 15 ounces in Zhongtong Certificates, 1 *mu* was worth 1.47 ounces of silver. In dade 1, an ounce of sil-



Ming Dynasty land prices were, however, generally high. During the zhengde period [1506-22], the price of agricultural land in Weizhou fell from 20-30 to 5-6 ounces per *mu*.<sup>64</sup> The purchasing power of silver was very high then, and a price of 20-30 ounces per *mu* must be reckoned very high. By the wanli period, apparently even middle-grade land went for upwards of 35 ounces per *mu*.<sup>65</sup> Of course the size of the *mu* varied over time, and the quality of the land also varied. Documentary evidence on land prices is scanty, and the prices we have may not be an accurate reflection of silver's purchasing power.

Movements in land prices were not entirely the result of movements in the price of silver. There were other factors involved, such as changes in the size of the population, changes in levels of rents and land taxes, and the presence of social stability or disorder.

During the Yuan Dynasty, the Mongols emphasized animal husbandry rather than agriculture, and that may explain the relatively low price of agricultural land then. By the wanli period of Ming, the price of grain had risen, and of course that would have been followed by a rise in the price of agricultural land. It is said that a *mu* rose to as much as 100 ounces.

Because, however, rents and taxes were also high at the end of Ming, society was not peaceful. Many landowners sold out at reduced prices. Some-

times they even had no choice but to abandon their land and flee, and so a *mu* might cost only 1 or 2 ounces.<sup>66</sup>

Generally speaking, Ming Dynasty prices, whether calculated in silver or in copper coins,<sup>67</sup> were a bit lower than those of Song and Yuan. This is not to say that the people's standard of living had been raised, because the amount of money that people received during Ming

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<sup>66</sup>*Rousing the Age Marriage Affinity*, chapter 9, gives a land price of 2 ounces per *mu*. The Qing Dynasty daoguang 5 paen to coins, *Sandal Garden Collected Words*, 1, "Field Prices": "During the middle years of the former Ming Dynasty, field prices were terribly high. One *mu* was worth from over 50 to 100 ounces. It also, however, depended on the fertility of the field. At the end of the chongzhen period, bandits and thieves rose on all sides, and harvests frequently failed, so that no fields could be depended upon. One *mu* was only worth 1-2 ounces."

<sup>67</sup>For prices during the jiajing period, we can obtain a great deal of valuable material from the novel *Golden Lotus*. Most prices in it are expressed in silver. *Journey to the West* was also written during jiajing, but it contains fewer references to prices. I will first set out prices from *Golden Lotus*:

Residence A (Xia Yanling's house, on the gate side, 7 rooms, 5 levels, ceremonial gate entrance, large hall with rooms on both sides hung with deer antlers, at rear a residence with flower pavillion, surrounded by many houses on both sides, wide and empty street), 1,300 ounces

Residence B 700 ounces Residence C (small house), 540 ounces

Residence D 250 Residence E (gate side, 2 rooms, 4 stories), 120

Residence F (small house), 70

Residence G (4 rooms), 30-40

Residence H (ordinary house, 2 rooms), 30

Residence I (military officer's wife's house, 2 stories, 4 rooms), 10+

Interest rate per month, .03 to .05 ounce per ounce.

Gold, per ounce, 5 ounces

1 pig, 1 sheep, 5 or 6 jars of Gold Flower stillbeer, incense, candles, paper tablet, chicken, duck, wine-feast goods, total: 4 ounces

Fortune telling by analyzing characters, 0.01 Printing 500 copies of silk cased Dharani book of magical spells, per copy 0.05

Printing 1,000 copies of silk cased Classics, per copy, 0.03

Ground mirror, 50 cash

*Journey to the West* contains the following prices:

paper, per sheet, 1 cash

coffin wood, per set, several ounces of silver

cakes, apiece, 1 cash

pig, per head, 2 ounces

sheep, per head, 1.29 ounces

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ver was still worth 15 ounces in Zhongtong Certificates, and 1 *mu* was worth 1.85 ounces of silver. Zhu Shijie, *Calculation Techniques Primer*, first part, contains two land prices. Under "Remainder Head Method," there is a statement about 1 ounce of gold buying 6.25 *mu* of land. Under "Nine Returns Remainder Method," there is "land to the amount of 6.25 *mu* worth 1 catty of silver." The two land prices are the same. It is just that one [727]

is expressed in gold, and one in silver, and both are given in round numbers. I suspect they were arbitrarily chosen. If we average the two, and take the gold-silver exchange price ratio as 1:7, then a *mu* was worth 1.84 ounces of silver.

<sup>64</sup>Yu Bian, *Mountain Tower Leisure Words*: "Of the agricultural land of the south, only that of Weizhou was extremely expensive. The price of 1 *mu* was 20-30 ounces. Now it is only 4-5 ounces, but there are still no buyers."

<sup>65</sup>Matteo Ricci, *Common Language Finger Reckoning Complete Compilation*, 3, gives prices for upper grade, middle grade and lower grade fields. Upper fields were 43.2 ounces per *mu*, middle fields were 38.5 ounces, lower fields were 25. However, *Gudong Trifling Record*, "Record of Things Heard During Tianqi and Chongzhen," says that at the beginning of of wanli, 1 *mu* went for 0.8 ounce, and by chongzhen 15 it had risen to 4-5 ounces.



had also diminished.

We can see this from official incomes. There is no way to tell whether or not official incomes constituted a set proportion of incomes in general over the course of history. From a certain perspective, though the incomes of officials were taken from the people, they were also expended with the people.

However, owing to the austere customs prevalent among the Chinese, very few officials used all of their money income for consumption. A substantial proportion of it was hoarded, and so an increase in official incomes might lead to a certain degree of constriction of the money in circulation.

From another point of view, over the course of Chinese history, exploitation of the people by the ruling class had a limit set to it by the requirement that the people remain able to maintain their existence. Otherwise government itself might be rendered unstable.

At the beginning of Ming, the government wanted to set fairly high salaries for officials so as to cause their real incomes to approximate the levels achieved during Southern Song, but such levels could not be maintained.

For the most part, the standard of living of Chinese officials had gradually risen from Qin and Han times on, reaching its peak during Tang and Song. From Southern Song on, a gradual decline set in. During the Yuan Dynasty, the highest official incomes did not exceed 100 hectoliters of rice per month. During Ming, it gradually fell to a level of 20 piculs.

This cannot be entirely attributed to monetary changes, but must also be explained by such factors as the failure of the Chinese people [or at least those people most easily taxed --farmers, rather than merchants. EHK] to raise their productivity, the increase in population, as well as the incompetence of the administrative agencies and their personnel.

From zhengde times [1506-22] on, official salaries were paid 90 percent in silver, and 10 percent in copper coins, with each picul of grain commuted into 0.7 ounce of silver. The commutation into coin was probably in accord with the exchange rate of 1 ounce of silver for 700 copper cash, or 1 picul of rice for 490 cash.

On this basis, a first rank official got 54.81 ounces of silver per month, and in addition 4,263 copper cash. Commuted entirely to silver, this would come to some 60.9 ounces. At the contemporary market price, this could buy more than 120 hectoliters of rice. A regular ninth rank official could get 3.265 ounces of silver per month, and an additional 269.5 cash.

From the last years of jiajing on, official salaries were paid entirely in silver. A total of 3.85 ounces

of silver could buy 7 or 8 hectoliters of rice. By then, however, prices were already rising. During the chongzhen [1628-44] period, rice cost nearly three times what it had during the zhengde period, while the amount of the salary might have been reduced to half its former level. As a consequence, real income must have fallen to around one-sixth of the zhengde period level.

Of course the incomes of laboring people were still lower: During the '30s of the jiajing period [1550s], an ordinary river worker's wage was 0.03 ounce of silver per day. A technical artisan probably could bring home some 0.06 or 0.07 ounce per day.<sup>68</sup> At that time a hectoliter of rice cost 0.6 ounce of silver, so his wages could buy 1.5 to over 3 hectoliters of rice. I have previously mentioned that during the wanli period the daily wage of a hired laborer was from 24-25 to 30 cash, and that he could buy 1 or 2 hectoliters of rice per month. During the chongzhen period, the daily wage could [722]

be as much as 60 cash. An ounce of silver then was worth from 800 to 1,600 cash, so such a laborer could buy 1.3 or 1.4 hectoliters of rice per month.

Sometimes, the army would hire paupers for substitute labor service guarding walls, and would only give them 30 cash per day.<sup>69</sup> For this they could only buy 6 or 7 *dou* of rice per month.

At this time (around the middle of the seventeenth century), there was a large increase in the money income figures of the English laboring people, but because prices also rose sharply, their real incomes were not as high as at the end of the fourteenth century. An agricultural laborer's wages were 4 shillings per week. If we assume 4.5 weeks per month, he could only buy 0.8 or 0.9 hectoliters of wheat. An artisan worker could sometimes get 6 shillings per week, and per month this equalled 1.2 hectoliters of wheat.<sup>70</sup>

<sup>68</sup>Cui Dan, *Sea Transport Compilation*, latter part, "Second Letter Sent Up to Lord He Making Estimates for the New Canal." The text contains a price for glutinous rice of 0.2 ounce of silver per *dou*, and so non-glutinous rice must not have been much different. If we calculate on the basis of this standard, then an ordinary labor service worker could only afford to buy 4.5 *dou* of rice per month, and a technical artisan only 9 *dou* of rice per month. However, Ming Dynasty rice prices were never so high as during the jiajing period.

<sup>69</sup>Feng Menglong, *Annals of the Year Jiashen (Mystical Observation Hall Collectanea)*: "The wall-protecting army was entirely drawn from near-noble families. They falsified names and hazarded grain, so that when the time approached they solicited poor men to serve as substitutes, and only gave them a daily wage of 30 cash."



Evidently their wages were about the same as those of Chinese laboring people.

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<sup>70</sup>Thomas Babington Macaulay, *History of England* (Edinburgh edition),

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p. 342. The agricultural worker's wage is quoted from William Petty's *Political Arithmetic*. The artisan worker's wage figure is based on a statement by John Basset. The price of wheat is drawn from Michael G. Mulhall, *Dictionary of Statistics* (London, 1892), p. 468, using 1641 to 1660 prices.