

A Reply

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In the opening paragraph of a rejoinder to my paper, published recently in this journal, Professor Miskimin correctly maintained that the new evidence I presented on French mint outputs should neither be overstated nor understated.¹ Subsequently, Miskimin proceeds to understate the significance of the new data. While technical data are indeed the issue, they are more than vital to proper assessment of far reaching historical phenomena. It is precisely this new data which should provoke further questioning of the accepted monetary explanation to the great depression of the late middle ages. The proponents of the bullion famine hypothesis argue, based on minting data, that scarcity of currency in Western Europe caused by chronic trade deficits with the East led to a recession in the economy during the last decade of the fourteenth century and first decade of the fifteenth century. To sustain this debate I wish to offer this reply, first addressing the 'technical' comments, then the 'broadly based' ones.

1. Technical comments

The puzzled reader might doubt the significance of discussing so-called technical details. However, some of Miskimin's comments raise doubts as to the accuracy of my findings and their significance. His two principal concerns are the problem of double counting, and the coin sample ratios. Before addressing these two reservations I acknowledge the typographical error that has occurred in the reproduction of Miskimin's figures and take full responsibility for any additional errors of this sort.

1. The problem of double counting.

Miskimin correctly claims that archival records are sometimes duplicated. However, we should not divert our attention from difficulties related to the absence of large numbers of documents to those of duplicate records. Trained historians, while put to the challenge, should have little trouble removing duplicate records. Moreover, in our case, most of these can be readily identified due to their identical dates. The challenge lies in accepting that, indeed,

¹ Sussman (1990).

the greater number of the records pertaining to the French mints is missing. Unless new evidence is brought to bear, our theories should not claim the unequivocal support of fragmented data.

II. Sample rates

In my paper, I stated that given the sample rates for selecting the sample of coins put in the assay box, we can deduce the total number of coins minted.² I stand by the sample ratios used in the paper. Having examined the original document (Z^{1b} 860-65) evoked by Miskimin, I found that contrary to De Saulcy, who's work I shall criticize later in more detail, the sample rate is 1:1000 and not 1:720. Furthermore, only coins struck from billon — base silver — were sampled at a ratio of 1:2400, and I have used this ratio in calculating their contribution to the total production figures. Since these coins were minted in very low numbers and contained little silver, their contribution to total minting figures is miniscule.

2. General comments

1. De Saulcy's reliability

Miskimin relied on De Saulcy's figures in his books and in criticizing my own findings. I have briefly discussed the accuracy of De Saulcy's work elsewhere.³ After submitting my paper for publication I studied the original records in register Z^{1b} 860-65, deposited at the Archives Nationales in Paris and readily accessible to any student of the period. Contrary to what De Saulcy reported, this box contains a notebook of consecutive mint accounts from Cremiéu for the period 1386 to 1416, without a single break. The data extracted from this register duplicate those extracted from B2817 and B2818 which I examined at Grenoble. I can only express puzzlement at the numerous errors prevailing in De Saulcy's work and use his figures with extreme caution.

II. The significance of the data

Miskimin argues that the mint outputs of the thirty two years I presented are trivial compared to earlier mint outputs - those of 1339 and the late thirteenth century. Unfortunately, Miskimin has chosen to compare apples with oranges:

A. My figures are for the Dauphiné mints while his are for the whole of France; the Dauphiné mint outputs represent only a fraction (perhaps 10-

² *Ibid.*, p. 149.

³ *Loc. cit.*

20%) of total French mint output. As I stated, the share of Dauphiné mint outputs in known hoards was between 10 to 19% for the period 1389-1411 and less than 10% for the period 1411-1417.⁴ These estimates are substantiated by subsequent research I conducted which suggests that during the second decade of the fifteenth century the Dauphiné's share in total French mint output was significantly lower than 10%. In a forthcoming paper I show that in 1419 the farmers of the Dauphin's mints estimated the share of the three Dauphiné mints at 10% of the total output of mints loyal to the Dauphin.⁵ Furthermore, mints loyal to the Dauphin accounted for only a fraction of all mints loyal to the French king prior to the Dauphin's escape to Bourges in 1418.⁶

B. Miskimin compares mint outputs recorded during years of debasement with my own figures, which largely reflect stable prices of the precious metals. Debasements were a fiscal measure designed to provide both an incentive to increase the supply of bullion to the mint and to recoin previous issues of coins. Therefore we should expect higher minting volumes during debasements. The nominal price of silver was increased by as much as two thirds from 1296 to 1303,⁷ and by 50% from 1306 to 1311.⁸ During 1339 alone the increase was 25%. During the period 1384-1415 silver currency was debased in 1389 at a rate of 8% and in 1411 at a rate of 15%.

Because of difficulties associated with bridging the gap over missing data by extrapolation, I have refrained from comparing minting volumes for the first half of the fourteenth century with those of 1384-1415. However, challenged by Miskimin, I am now tempted to engage in this highly speculative comparison. I do so only to prove that based on incomplete evidence we cannot distinguish between these two periods.

Table one provides a comparison of the average annual minting volume for the two periods. Based on estimates of the share of the Dauphiné mints in total French mint production, we cannot distinguish between the two periods, let alone label one period a 'famine'. In constructing the table I presented the original data Miskimin used for the period 1308-1343.⁹ I have supplemented my own figures with those for the years 1416-1419, which include the debasements of 1417-1419, in order to compensate for the debasements

⁴ *Ibid.*, p. 151.

⁵ Sussman (forthcoming).

⁶ France was divided, after May 1418, into four political segments: 1. The area south of the Loire ruled by the Dauphin. 2. The north, ruled by England. 3. Paris, nominally ruled by Charles VI and actually controlled by the Duke of Burgundy. 4. The east ruled by Burgundy. Consequently the French mints were now under four separate monetary authorities, each controlling its own mints.

⁷ Fournial (1970), pp. 88-89.

⁸ *Ibid.*, p. 91.

⁹ Miskimin (1963), pp. 158-159.

Table 1
COMPARISON OF AVERAGE ANNUAL MINT PRODUCTION

Metal	Series	Mean	Maximum
1308-1343			
SILVER	actual	2776	31320
	no zeros	9086	31320
GOLD	actual	592	6326
	no zeros	1016	6326
1384-1419			
SILVER	Dauphiné	1684	5984
	France low	8420	29922
	France high	16841	59844
GOLD	Dauphiné	156	722
	France low	778	3611
	France high	1557	7223

Sources: for 1308-1343 - Miskimin (1963), pp. 158-9.
for 1384-1415 - Sussman (1990), pp. 152-3.
for 1416-1419 - Miskimin (1984), table IV.

Notes: No zeros- the mean was taken only from entries greater than zero.
French total for 1384-1419 estimated based on the Dauphiné's share.
France low - estimate based on Dauphiné share of 20% in French total.
France high - estimate based on Dauphiné share of 10% in French total.
All figures are kg. of pure metal.

which fall in the previous period.¹⁰ In order to arrive at an estimate of total French output, consistent with that used by Miskimin for 1308-1343, I have used two estimates of the share of the Dauphiné's mints in total French output, the low estimate being 10% and the high 20%. Further, I have attempted to augment the average annual production level of the first period by eliminating all the years in which no minting was recorded by De Saulcy.

I do not wish to use fragmentary figures and estimates in high powered statistical analysis. However, elementary statistical tests show that even if we adopt the most favorable series from Miskimin's point of view — the one based on the high share of the Dauphiné for 1384-1419 and the one which does not take into account years with no recorded minting for 1308-1343 —

¹⁰ The figures for 1416-1419 were taken from Miskimin (1984), Table IV.

we cannot reject the hypothesis that the series' means are equal.¹¹ Even if we take the actual figures reported by Miskimin for 1308-1343 and only the Dauphiné figures for 1384-1419, we still cannot reject the hypothesis that the means of the series are equal.¹²

Conclusions

My recent paper was not meant to be an assault on the 'bullion famine' hypothesis. I merely intended to question the validity and reliability of the evidence on which this hypothesis was based in its application to France. Now, comparing minting data from the alleged bullion famine period with the data pertaining to the first half of the fourteenth century, I have clearly demonstrated, using a statistical test, that a French bullion famine hypothesis is not validated by the evidence. I am pleased to have had a second opportunity to stress the inadequacies of the previously used sources and to challenge the proponents of the French bullion famine hypothesis to introduce new evidence to support their claims. I expect this exchange to encourage the injection of new data and fresh interpretations to this important historical debate.

¹¹ I used average annual production in kg. For 1308-1343 I took account only of non zero observations. For the years 1384-1419 I used the low estimate for the French total. The t-statistic yielded from testing the hypothesis:

$$H_0: X_{1308-43} - X_{1384-1419} = 0, \text{ is: } t = .19 \text{ for silver and } t = .89 \text{ for gold.}$$

Therefore, the hypothesis that the means are equal cannot easily be rejected.

¹² I used average annual production in kg. For 1308-1343 I used all observations and used only Dauphiné data for 1384-1419. This should read t-statistic yielded from testing the hypothesis:

$$H_0: X_{1308-43} - X_{1384-1419} = 0, \text{ is: } t = .71 \text{ for silver and } t = 2.19 \text{ for gold.}$$

In this case the hypothesis that the means are equal cannot easily be rejected for silver only. For gold coinage we can reject the hypothesis at the 95% confidence level.

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