Explorations in Economic History 49 (2012) 303–315

Contents lists available at SciVerse ScienceDirect

Explorations in Economic History

journal homepage: www.elsevier.com/locate/eeh

The international political economy of early modern copper mercantilism: Rent seeking and copper money in Sweden 1624–1776

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ARTICLE INFO

Article history:
Received 20 April 2011
Available online 14 May 2012

Keywords:
Money
Copper
Mercantilism
Monopoly
Bimetallism
Sweden

ABSTRACT

In 1624–1776 Sweden minted intrinsic value copper coins, alongside silver coins. One purpose behind introducing the copper standard was to use its monopoly position at the European markets to manipulate the international copper prices, implementing a kind of copper mercantilism. This paper presents a model of an early modern copper monopolist that could price discriminate between two different uses for copper: copper for export and copper for minting. The paper concludes that authorities did not completely conform to this rent-seeking model, since there were also other considerations behind minting policy, such as providing a stable monetary system. The model shows that under profit-maximisation minting should have been even higher and the price of copper money lower, but at periods minting and prices approached the optimal state. In the 17th century, the market for copper money was probably too small relative the huge copper production, but by the 1720s and 1730s, when copper production had declined, the copper standard functioned more smoothly.

1. Introduction

In 1624, Sweden introduced a copper standard, which was not abolished until 1777. The heaviest copper coins, minted as plates, weighed 20 kg. Although the use of intrinsic value copper coins is not unknown from elsewhere,[1] the monetary system of the Swedish Kingdom possessed some unique features since it was based on a European-wide copper monopoly. When copper prices were perceived as low (compared to the expected future price) it was thought that the prices could be increased by reducing export and minting large amounts of copper coins for domestic circulation (Heckscher, 1936: pp. 456–457). Initially, the ambition was that, in the same way as Spain had dominated the world through silver, Sweden would do that through copper (Heckscher, 1936: p. 453), a kind of copper mercantilism.

At periods in the 17th century, the copper standard was sometimes viewed as a failure, and minting of copper coins declined or seized for extended periods (Heckscher, 1936: p. 616). The traditional view, held by for example Davidson (1919, pp. 136–137), was that the Swedish monetary system was disturbed by the fluctuations in the copper–silver value ratio. In the 1930s Heckscher (1936: pp. 602–623) and Wolontis (1936: pp. 184–196) showed that the value ratio between copper and silver coins was largely unaffected by fluctuations in the copper–silver value ratio. Heckscher's explanation of the failures in the 17th century is that once there was a sufficient supply of copper coins, the economy was too small to absorb significant amounts of new copper coins. Copper coins, therefore, fell in value and were often exported or smuggled abroad (Heckscher, 1938: p. 221). Both Heckscher and Wolontis argued that the copper currency could not replace the silver coins, which had their

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[1] See, for example, the discussion on the Mughal trimetallism by Habib (1987) and the early 17th century Spanish copper standard in Sargent and Velde (2002: pp. 230–250).

0014-4983/$ – see front matter
doi:10.1016/j.eeh.2012.05.001

own sphere of circulation. Since the 1930s theoretical contributions to understand the Swedish copper standard have largely been missing.[2]

This paper focuses on explaining some of the paradoxes of the Swedish copper standard. Why had the fluctuations in the bullion price of copper made such little influence on the fluctuations in the exchange rate of copper money? Can Heckscher's explanation that the copper standard in the 17th century failed because too many copper coins were minted be verified empirically? If there was a failure, why was the copper standard retained for so long?

When the price of copper money was below the international copper price, deducted of transport and transaction costs, minting of copper coins continued. Furthermore, when Swedish monopoly power was weakened in the 18th century, the share of copper production used for minting actually increased. Could this be rationally explained?

To explain these peculiarities this paper presents a model of a copper monopolist able to price discriminate between two uses of copper, for export and for money, where the supply of copper money is endogenously given, but total production is exogenously given. The Swedish copper monopoly rested on restricting or abolishing free minting and free export of copper coins. Therefore, the Swedish multi-metallic system deviated from bimetallism (Friedman, 1990; Redish, 2000; Flandreau, 2004) based on free minting and free export of coins. Since the market price of copper money as expressed in silver coins was not fixed, seignorage from copper coins was not proportional to the amount minted.

The next section gives a historical overview of the Swedish copper standard. It discusses how the Crown could implement its monopoly power through price discrimination, which caused a differentiation of copper prices between its different uses. The following section presents the model of a copper monopolist. It could be seen as a rational reconstruction of how minting policy would be pursued under profit maximisation and if various conditions were met. The fourth section estimates some of the parameters of the model from the empirical data. It shows that although there were various deviations from the assumptions of the model, in some periods the Swedish copper standard approached the predictions of the model. The concluding section returns to the research questions outlined above.

2. The Swedish copper standard: monopoly and price formation

During the Swedish copper standard, silver (and to some extent gold) coins continued to circulate alongside the copper coins. There were also three different types of silver coins forming distinct currencies, two domestic types of silver coins (petty silver coins termed öre courant and larger silver coins denominated in mark termed carolins) and the international riksdaler. Although monetary authorities attempted to fix the relation between all these coins (in the prevailing nominal units of daler silvermynt and daler kopparmynt), in reality there was a fluctuating market exchange rate between them, i.e. the monetary system de facto transformed into a parallel standard. By the end of the 1680s, the copper standard was abandoned, but 20 years later it was reintroduced, and, in fact, functioned quite smoothly in the 1720s and 1730s.

In the early 1690s, Sweden stood for around half of Europe's supply of copper (including imports from Japan). In the 1650s its share was probably above 60%. Sweden de facto held a monopoly position in Europe. While Japan's copper production may have been as large as Sweden's, its export mainly went to other Asian countries (Heckscher, 1938). Compared to iron, it was easier for the Swedish government to control copper production and trade. Swedish copper production was concentrated to just one mine, the Great Copper Mountain, which at its height stood for around 90% of the copper production (Wolontis, 1936: p. 19). 90–100% of the copper export went through Stockholm (Heckscher, 1949: vol. II:1, p. 102). From the 1680s, Swedish copper production started to decline (see Fig. 1), and probably stood for less than one fourth of Europe's supply towards the end of the 18th century.

One question concerns why it was necessary to mint copper coins to reduce the supply of copper at the international markets. The response of modern monopolies is simply to reduce production or supply. This was also a policy that was eventually implemented for iron, which Sweden also was a major producer of. Heckscher explains the peculiarity for copper with the mercantilist ideology of the time, that it was necessary to maximise the production of precious metals (Heckscher, 1936: pp. 452–453). Another method was also to reduce the supply through storage, which was practiced in the 1630s, but since storage was expensive it was more effective to mint coins.

The Swedish monarch had the formal monopoly (*res regale*) over all the ores and minting (Lindroth, 1955: vol. I, pp. 157–164; Boëthius, 1951: pp. 38–46; Davidson, 1919: p. 126; Wolontis, 1936: pp. 187–188). The unfettered monarch was an ideal setting for rent-seeking, intervention in the mercantile economy and political lobbying (Baysinger et al., 2008: p. 478). Over time the rent-seeking activity of the Crown was assured mainly through various taxations and duties. The method employed during mercantilism was to extract profit from distribution and taxation rather than production.

In the 16th century, the Crown conducted its own mining operation at the Great Copper Mountain, but this was dismantled in 1620. The mining operation was instead fully delegated to peasants in the surrounding area that shared a blast furnace — so-called *bergsmän* (peasant miners). The peasant miners were obliged to mine and to pay taxes on the ore that was mined. These obligations and rights were divided as shares in the Great Copper Mountain. The mining operation was heavily regulated, and the administration involved both the peasant miners and the Crown. In the late 17th and the 18th centuries, the mine was transformed from a cooperative to a share company, where most of the owners no longer came to be directly involved in the production (Heckscher, 1949: vol. II:1, pp. 378–385).

[2] Sargent and Velde (2002: pp. 249–250) briefly mention the Swedish copper standard, but their only references to Swedish researchers are to Wolontis and Heckscher. Tingström (1984) makes an important contribution, but his study is mainly archeological.