Philipp Robinson Rössner

Deflation – Devaluation – Rebellion

Geld im Zeitalter der Reformation

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VIERTELJAHRSCHRIFT FÜR SOZIAL- UND WIRTSCHAFTSGESCHICHTE – BEIHEFTE

Herausgegeben von Günther Schulz, Jörg Baten, Markus A. Denzel und Gerhard Fouquet

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VORWORT

Die hier vorgelegte Studie ist die im weitesten Sinne unveränderte Version meiner 2011 an der Fakultät für Geschichte, Kunst- und Orientwissenschaften der Universität Leipzig eingereichten und im Sommer des gleichen Jahres angenommenen Habilitationsschrift. Solch ein Projekt ist zwangsläufig ein Gemeinschaftsprojekt. Dank gebührt daher vor allem meinen beiden akademischen Lehrern, Prof. em. Dr. Ian Blanchard, ehemals University of Edinburgh und Central European University Budapest, und Prof. Dr. Markus A. Denzel, Universität Leipzig / Freie Universität Bozen. Ian Blanchard infizierte mich mit dem Virus des Monetarismus und einer dementsprechend kalibrierten Sichtweise auf das Mittelalter, zu einer Zeit, in der ich mich wissenschaftlich mit dem Außenhandel Schottlands im 18. Jahrhundert befasste, während Markus Denzel mich zuvor auf die Handelsgeschichte Schottlands und zunächst unter die Fittiche von Professor Blanchard in Edinburgh gebracht hatte. Beiden Herren, vor allem aber Markus Denzel, verdanke ich mehr, als ich in Worte fassen kann: an geistigem Input, an rigoroser Kritik, an bedingungsloser Unterstützung, an Vertrauen. Die Aufgabe, welche Markus Denzel mir dann im Frühjahr 2007 stellte – gleichsam in der Tradition der Preisfragen der Hochaufklärung – konnte unterschiedlicher kaum sein, im Vergleich zu meiner bisherigen Arbeit über die Handelsgeschichte Großbritanniens in der Frühen Neuzeit. Übertragen lautete sie ungefähr folgendermaßen: Peter Blickle, einer der letzten großen Historiker unserer Zeit, welcher überdies unsere Kenntnis und Sichtweise und Modelle des großen Deutschen Bauernkriegs entscheidend beeinflusst hat, verriet in einer Korrespondenz Ekkehard Westermann, es muss um 1979 gewesen sein, dass in buchstäblich jedem siebten Blatt der im Verlauf des Bauernkriegs von 1524ff. und seiner Vorläufer schriftlich gefassten Beschwerden die „Münzfrage“ vorgekommen sei. Noch niemand hatte sich bislang mit dem Thema befasst; auch Blickle nicht, der die Münzfragen in seinem *magnum opus* zur Revolution von 1525 komplett ausgelassen hatte. Gut für mich, denn so gab sich eine komplett neu aufzuschließende Forschungsagenda. Der „Arbeitsauftrag“ im Rahmen meines Angestelltenverhältnisses am Historischen Seminar der Universität Leipzig lautete von nun an schlicht: Erklärungen zu finden, wie und in welchem Umfang Münzfragen, insbesondere Münzverschlechterung und schlechtes Geld die Unruhen in der ständischen Gesellschaft des Spätmittelalters beeinflussten, ob es überhaupt einen Kausalzusammenhang gab, und wenn ja, wie genau dieser denn nun ausgesehen haben mochte. *Eine* Antwort habe ich mir hiermit erlaubt vorzulegen; ob und inwiefern sie überzeugt: Das muss der Leser entscheiden.

Und um bereits im Vorfeld eventuellen Monita vorzubeugen: Zwei Fundamentalstudien, welche erst im Jahre 2012 erschienen sind, und die die Forschungslandschaft zum Thema „Geld“ und „Reformation“ sicher nachhaltig beeinflussen und stimulieren werden, konnte ich nicht mehr in die Argumentation mit einbeziehen. Hierbei handelt es sich um Brad Gregorys *The Unintended Re-*

formation und David Graebers bereits jetzt viel diskutiertes Buch *Schulden*.[1] Gregorys fundamentaler Neuansatz der Re-kontextualisierung der Lutherischen Reformation in der *ganz langen Dauer* (im Prinzip 1517 bis 2012) ist als ein leidenschaftlicher Impuls zu werten, das von den Ökonomen als „Pfadabhängigkeit" (*path dependency*) bezeichnete Phänomen auch auf unsere moderne Gesellschaft, ihre Philosophie und Metaphysik(en) anzuwenden. Unsere moderne Konsumwelt, so Gregory, aber auch der Foucoult'sche Poststrukturalismus, der ergebnisoffene Wettbewerb privater Metaphysik(en) und Behaglichkeitsangebote (eine Welt in der Steve Jobs für viele die Position Jesu einnimmt), die in westlichen Gesellschaften teilweise un-konditionelle Toleranz und Beliebigkeit hinsichtlich grundlegender moralisch-ethischer Deutungsmöglichkeiten und Handlungsangebote (welche die Menschen vor Luther direkt aus der Bibel ableiteten): Alle diese Phänomene seien Ergebnis einer Wettbewerbskultur, so Gregory, welche sich erst im Gefolge von Luthers Reformation ausbilden konnte, und dann mit den Religionskriegen des 16. Jahrhunderts und der Newtonischen Revolution im Denken im 17. Jhs. weiter entwickelt wurde, um dann schließlich in der europäischen Aufklärung des 18. Jh. zu kulminieren, welche uns mit Adam Smith den Mythos von *rational choice* und perfekt symmetrischer Marktpartizipation und im Naturwissenschaftsbereich die Exklusion Gottes gebracht haben etc.[2] Und David Graebers streckenweise groteske, historisch nicht fundierte und wilde analytische Dekonstruktion des Mythos vom raumzeitlich ungebundenen und aus seinen jeweiligen gesellschaftlichen Verflechtungen und Einbettungen losgelösten Phänomens „Geld" nimmt viele Gedanken auf, welche auch in der vorliegenden Studie in ähnlicher Form geführt worden sind, freilich noch ganz in Unkenntnis von Graebers neuem Werk.

Ich bin sicher, dass die vorliegende Arbeit Irrtümer aufweist. Alles andere zu behaupten wäre unredlich. Wenn mir die Nennung der folgenden Personen, Freunde und Kollegen eine ganz besondere Freude bietet, dann lediglich aus der Überzeugung, dass sie dazu beigetragen haben, die Zahl dieser Irrtümer zu minimieren und im Sinne der Produktoptimierung hier einen entscheidenden Beitrag geleistet zu haben. An erster Stelle ist hier Herr Professor Dr. Ekkehard Westermann (Rantrum) zu nennen. Seine Kenntnis des zentraleuropäischen Montanwesens ist unübertroffen, und sein photographisches Gedächtnis bzgl. vieler Details abseits der klassischen Montangeschichte, insbesondere zum Münzwesen Mitteldeutschlands und den Handels- und Kapitalverflechtungen im Zeitalter der Reformation ist außergewöhnlich. Ihm und seiner Frau, Prof. Dr. Angelika Westermann (Kiel) gebührt Dank für zahlreiche Gespräche, Sonderdrucke, die Gelegenheit in Neunhof zu referieren (2009) und vor allem die Tatsache, dass ich bei beiden immer – wenngleich gesundheitsbedingt zumeist telefonisch – ein offenes Ohr für alle meine Fragen gefunden habe. Ich kenne keine Forscher und Kollegen,

1 David Graeber, Schulden: Die ersten 5000 Jahre, Stuttgart 2012 [Originalausg. *Debt. The First 5000 Years, New York 2011*].

2 Brad S. Gregory, The Unintended Reformation: How a Religious Revolution Secularized Society, Harvard University Press 2012.

welche mit einer vergleichbaren Akkuratesse und wissenschaftlicher Glaubwürdigkeit und Drang nach fruchtbarem wissenschaftlichem Austausch arbeiten wie Ekkehard Westermann und seine Frau.

Ebenso sei meinen Leipziger Kollegen und damaligen „Prüfern“ (als Mitglieder der Habilitationskommission) gedankt: in erster Linie Herrn Prof. Dr. Manfred Rudersdorf, Herrn Prof. Dr. Enno Bünz und Herrn Prof. Dr. Ulrich v. Hehl (alle Universität Leipzig), Prof. Dr. Hans-Georg Ebert sowie Spectabilis Prof. Dr. Frank Zöllner, unter dessen Regie das Verfahren zu einem sehr positiven Ende gebracht worden ist. Sie alle haben das Verfahren in einer vorbildlich-kollegialen Art und Weise gestaltet, die ihresgleichen sucht. Die Herren Privatdozenten Drs. Spannenberger und Weiss (Leipzig) haben zur gleichen Zeit wie ich ein gleiches Schicksal über sich ergehen lassen müssen – das Habilitationsverfahren – und damit gleichsam eine Leipziger Waffenbrüderschaft im Wintersemester 2011/12 konstituiert.

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Alle diese Namen verblassen indes, wenn es um diejenigen geht, denen diese Arbeit gewidmet sei: Britta, Ailidh Johanna, unserem Neuzugang Marit Elisa, Karl, Marianne, Rüdiger und Rosel – und natürlich Volker.

Leipzig, im Juni 2012 Philipp Robinson Rössner

INHALTSVERZEICHNIS

ENGLISH SUMMARY

Coin debasement, devaluation and shortages of reliable small change were quite common phenomena in central Europe in the early modern period; they had been common in fact since the high middle ages.[3] The same applies to peasant uprisings and urban conflicts: both in a sense represented a structural element within medieval and early modern society. Between c. 1450 and 1525 both phenomena, however, simultaneously increased in terms of intensity and frequency. Currency devaluation or coin debasement rates significantly increased in the second half of the fifteenth century and well into the first third of the sixteenth century, as did the number of documented (peasant) uprisings that culminated in the Great German Peasants' War or "Revolution of 1525" (Peter Blickle). Whilst it is not suggested that there was a strong and uniformly positive correlation between the two, the coincidence or co-movement of these parameters in the decades around 1500 is striking. These times also coincided with repeated bouts of deflation, and, if the argument is centred on silver as a commodity and its price on the market, a new view on the Reformation period and the underlying monetary economics unfolds which occasionally also turns into a re-calibration of our understanding of the turning period between the late middle ages and the early modern period.

CHAPTER I

The argument pursued in this chapter is that silver was a commodity like any other in economic exchange, and that this reflected back not only on the monetary standard and economic philosophy of the day, but also on societal matters at large. It created multiple scenarios of unequal or asymmetrical exchange and significantly increased transaction costs. Its demand and supply were contingent upon numerous factors, such as demand for money to hold, demographic development, the development of disposable incomes, urbanization and commercialization, global market constellations for silver, a drain of silver to the eastern parts of the world etc. – factors that had long gotten out of control by those who stroke the coins (the monetary authorities of the day). Ultimately this created multiple tension fields and conflicts of interest, tensions between money supply and money demand which inter alia led to repeated bouts of devaluation. More and more bad small

3 See also the précis of the topic with special regard to Saxony in: Philipp Robinson Rössner, Bad Money, Evil Coins? Coin Debasement and Devaluation as Instruments of Monetary Policy on the Eve of the 'Price Revolution', in: Philipp Robinson Rössner (ed.), Cities – Coins – Commerce. Essays in Honour of Ian Blanchard on the Occasion of his Seventieth Birthday, *Studien zur Gewerbe- und Handelsgeschichte der vorindustriellen Zeit*, Vol. 31, Stuttgart 2012, pp. 89–120.

change was issued over time, which made the good coins appreciate (in terms of the bad coins). But wherever good coins circulated alongside bad coins there were people who were able to safeguard themselves against risk of asset depreciation and imposed exchange rates on their counterparts which the latter considered "unjust", as they frequently turned out to be above the legally fixed coin exchange rates. This was a problem that did not necessarily cause but very frequently co-determined uprisings and other forms of public protest – up to the great peasants' wars of the day.

CHAPTER II

Chapter II argues that after 1500 a silver shortage re-occurred in central Europe and the south-western parts of the Holy Roman Empire, somewhat reminiscent of the last "bullion famine" (J. Day) of the fifteenth century. The silver supply per capita of the population declined over the period, c. 1450–1550. This is borne out by a persistent increase in the price of silver at all locations from which sources can be derived, as well as a continuous decrease of the gold-silver-ratio.

The deflation in the central and upper German price level (consumer prices approximated using rye prices) also corroborates the notion of a persistent silver crisis that was only temporarily relieved during the central European silver mining boom of the 1470s and 1480s. Apart from the two subsequent booms of the 1470s and 1490s the price level was deflationary across all locations for which price quotes for grain (rye) have survived. Particularly between c. 1500 and 1520 the price level trends are at odds with a postulated explanation which has been labelled neo-Malthusian, i.e. an inverse correlation between (declining) per capita resources of nutritional and energy input and an increase in the overall price level, as well as increasing relative prices of foodstuffs set against other industrial prices including wages. But as Munro has noted, the so called "price revolution" and the related adjustment processes in the economy between relative prices and available resources did not commence before the 1520s in the north-western parts of Europe[4], and what may be true for the Low Countries may have been as true for central Germany. Here apparently the silver output determined the *overall movement* in the price level (approximated using rye prices in the same way as today a large part of the movement in the CPI can be explained by the price movements for mineral fuels). But new findings by Pfister suggest that even a price level index constructed using a more refined set of data on wages, prices and consumption baskets still yields a decline *both in the CPI and real wages* between 1500 and 1530, which may be a symptom of a "monetarist" mechanism (shortage of base money M0) as a somewhat more appropriate explanation for the deflationary cycle. Clearly the neo-Malthusian approach for the relatively brief time frame under

4 Most recently: John Munro, The Monetary Origins of the 'Price Revolution', in: Dennis O. Flynn / Arturo Giráldez / Richard von Glahn (eds.), Global Connections and Monetary History, 1470–1800, Aldershot / Burlington 2003, pp. 1–34.

consideration, i.e. 1470/1530 yields no particularly meaningful insights. Rather it seems as though an appreciation of silver due to a shortage over demand accordingly led to deflation in the price level; one unit of silver could buy an increasing amount of goods over time).

Nearly all silver available to Europeans for monetary purposes before the mid-sixteenth century came from European sources, as the American mines did not yield significant inflows of silver into Europe until after 1550. Eighty per cent of it came from within the German Empire (Saxony; Counts of Schlik/Joachimsthal; Mansfeld Saiger huts; Tyrolean mines; Harz and Vosges mountains). Most of the silver could not be exported right away, as in the case of Ducal and Electoral Saxony where the mining rights and other regalia had it that all silver had to go through one of the official or "state" mints before it could be used in the economy. Anybody could search the mountains for silver; however, any silver found on Saxon grounds had to be brought into a Saxon mint first. At that point the Saxon duke and elector charged their regalia income, akin to *Seigniorage*, which on average amounted to about one-fifth of the silver ore yielded by the private mining entrepreneurs each year. There was a general ban on Hungarian silver exports. It was mainly the silver mines in the Tyrol that had an a priori high export/output ratio, as here, a characteristic scenario applied. Generally the ruler (Archduke of Tyrol who was Habsburg Emperor) had the regalia rights, which at that time represented the entitlement of purchasing silver at a much-reduced rate (at about five Rh fl per mark of pure silver, which was far below the market rate, which in the later fifteenth century amounted to above eight Rh fl usually). In formal terms this equalled a rent worth about three florins per mark, which the Archdukes could have exploited to their own advantage – had they not accumulated a high level of debt with some of the larger upper German high financiers and merchant bankers of Augsburg and Nuremberg, such as the Fugger or Höchstetter families, to name the two most important ones. The Habsburg Emperors sold this pre-emptive right, which in financial terms needs to be interpreted as an option, almost continuously to the Upper German high financiers as collateral for the debts incurred. In the relatively brief time span between 1485 and 1497 more than 200,000 marks of pure silver are said to have flown out of the Tyrolean mines and directly in to the hands of the Upper German high financiers. According to the most reliable estimates up to 86 per cent of yearly production levels of silver were exported from the Tyrol in the 1480s and 1490s leaving only meagre quantities for domestic currency supply or monetary stocks (M0).

An even more extreme scenario with an export quota of about 100 per cent would have obtained for the silver ores from the Mansfeld area, which in and around 1500 may have supplied about one-fifth of European silver supplies. Silver came not directly out of the Mansfeld mountains but had to be yielded by the cupellation process that was carried out in gigantic proto-factories, the so-called *Saigerhütten* (liquation plants) that had been erected in an investment spree all across Thuringia in the 1470s and 1480s, when rising silver prices had made those expensive and capital-intensive processes of production for the first time profitable. These plants were run by foreign capital owners, mostly men from Nuremberg,

Augsburg and Leipzig who separated the silver from the argentiferous copper ore using prodigious amounts of fixed capital (factory buildings, machines, hearths and smelting works) as well as whole armies of hired labour thus creating something like the first pre-modern industrial area in central-southern Germany. As the argentiferous ores were exported from the realms they had originally been found there was no opportunity to tap these prodigious additional supplies of silver for *Seigniorage* or other forms of regalia income, such as tithes and other dues. Moreover, the Counts of Mansfeld who could only charge the tithe on the raw copper that came out of the Mansfeld mines, usually sold most of their tithe coppers to precisely those corporations and consortia that ran the Saiger huts, thus augmenting the potential silver supply that was to be got from separating copper and silver using large amounts of lead imported from England and the Polish realms (Ian Blanchard) – and which was ultimately destined for export.

All in all the figures on mining output in central Europe, combined with circumstantial evidence as to possible export-output rates seem to suggest that at least 70 per cent of yearly silver production in Tyrol, Mansfeld, Saxony and the Bohemian Erzgebirge was exported to places beyond these realms. And as the population in southern and central Germany was increasing since 1470 it is highly unlikely that per capita silver supplies, i.e. per capita monetary stocks would have increased in any more than a marginal way. The evidence on prices and mining output in the Erzgebirge mines may point to a strong role of Saxon silver for the money supply in upper-central Germany; it seems as though the Saxon silver cycles would have more or less directly influenced the south German price level trends. A further drain on the silver balance in central Europe came from large exports of silver in exchange or as payment for imports from Northern Europe (Baltic), eastern Europe (mainly cattle), as well as southern Europe and the Levant. This drain appears to have been a structural one; it was similarly pronounced in 1600 and 1700, and it had been a problem identified by contemporaries as early as the 1400s when first complaints about a structurally negative balance of payments with the Levant and Asia were heard. To this was added an additional leak when the Portuguese kings started to build up their network ("empire") of trading posts around the African coast and along the shores of the Indian Ocean. In terms of numbers of voyages and new foundations of trading posts, as well as spice imports to Lisbon the first two decades of the sixteenth century mark the high-point of sixteenth-century Portuguese imperialism. At that time enormous sums of silver left Europe via the Portuguese mint at Lisbon (the *Casa da Moeda*, where all silver and money to be used in the Asian trades had to be re-coined into Portuguese money), as well as Antwerp, which turned into the main financial market and entrepôt used by the Portuguese Crown and the administration of monopoly rights on the marketing of spices and other Asian imports in Europe. A combined examination of account books of the *Casa da Moeda* with evidence on property and shareholding patterns in the central European mining complex seems to suggest an unusually strong connection between precisely those High German financiers mentioned above and the Portuguese bonanza at Lisbon. Large sums of central European silver were channelled through Lisbon within a relatively brief time

frame between about 1499 at the very latest, when Vasco da Gama's first fleet had safely returned from the East Indies and about 1520, when most of the activity in finance and trade of the East India goods had already been relocated from Lisbon to Antwerp. This crucial time in the development of empire coincided with the deflationary depression and the silver shortage in central Europe (Germany). All in all, at least 70 to 80 per cent of newly-mined silver supplies probably left the German realms as soon as they had entered circulation; they left an area and society that was expanding in terms of numbers (but certainly not per capita income) progressively short of base money (silver).

CHAPTER III

This chapter argues that in consequence to the developments sketched in chapter two more or less regular bouts of coin debasement occurred over time. Let us define *monetary stability* as the ability of a prince or any other monetary authority to implement and retain a currency standard that is marked by relatively constant precious metal content of the circulating coins in the medium to long run and only varies – if at all – with the changing price or unit cost of silver (as the main monetary material). Let us further make the assumption that the ability to implement monetary stability is further contingent upon the security and quality of the regalian rights of the monetary authority. (i) The power to control the amount and fineness of money in circulation then depends mainly on whether or not there are native silver supplies in the respective country or realm. If that was the case, then the ability to implement a strong control over the currency is further dependent upon (ii) how strong the "access authorization" of the prince or respective authority was. How much silver could be controlled directly (and for instance brought to the mint upon official decree, there to be minted to a 'good' legal standard); how much of it left the mines and got out of control? (iii) If regalian rights were not as strong as desired – were there alternative options of controlling native monetary supply? Let us then define the face value of circulating coins as the market value of precious metal contained within the respective coin plus mint charges (brassage) plus Seigniorage (profit to the monetary authority or the leaseholder of the mint). Then the market value of precious metal contained within the respective coin will be equal to the silver price per gram times the amount of grams of silver contained in the respective coin. From these assumptions it will be obvious that in times of a silver price increase or a silver crisis with excess demand over supply of silver the precious metal content of the circulating coins *must* be debased (unless at least one of the actors act irrationally). Otherwise the coins will become demonetized, as their face value is now below the market value of the total silver contained in the coins. The monetary authorities will have to economize on the existing silver resources. Now, minting charges (*brassage*) progressively increase inversely with the face value of the coins. Expressed in terms of purchasing power the production of 100 silver *florins* will be less expensive than the minting of 100 *pennies*, *farthings*, or *mites*. The labour costs and expenses and time spent on

minting remain approximately the same, but the market value of the coins is, of course much larger in the case of the large denomination coins; *brassage* accordingly declines with increasing denomination.

The monetary, economic and social costs of such a system will be immense. Especially in times of general economic or financial crisis, they are likely to go out of hands (chapter four). There were at least 500 active (i.e. open) mints in Germany around 1500.[5] There were hundreds of individual independent monetary authorities that all minted their own coins on top of the foreign moneys that circulated within each realm. Apart from the Dukes and Electors of Saxony and the Archdukes of Tyrol virtually none of the independent 'states' (which may be either a small abbey or the larger area of the Margraviate of Brandenburg or the Austrian hereditary lands) had direct access to native silver supplies. The economics of coin production were mostly contingent upon the variables that obtained on the free and inter-regional silver markets. Moreover within the separate realms or 'territories' the monetary authorities – which usually, but not always, happened to coincide with the political authorities – faced a set of dilemmas. On the one hand those receiving feudal rents and all other sorts of fixed transfer incomes or yields on capital had a strong vested interest in strong, i.e. long-term stable currencies. Everywhere a contract had fixed the type of coin for repayment (of debt, collateral, interest) a variable precious metal content of the circulating coin translated into unintended variability in income streams – and was almost invariably bound to give rise to some dispute subsequently. On the other hand the manipulation of the currency was considered a regalian right belonging to the princely prerogative and remaining entirely at the prince's – or the relative monetary authority's – discretion. *Seigniorage* was seen as a legal means of taxation. A slight deviation of the silver content in terms of purchasing power from the official denomination of the respective coins was seen as legal as long as it remained within 'acceptable' bounds (but what was 'acceptable' was hotly debated). After all, this was the expense of the prince who in turn safeguarded institutional stability, guaranteed property rights and provided reliable contract enforcement in return. But there are numerous reported cases of monetary authorities that were tempted to over-use this prerogative and turn what had initially been a mere mint charge or fee into a general-purpose tax (a tax that was not normally tied to some form of parliamentary consent). With the exception of a brief phase of revaluation in the 1470s all available data on precious metal contents of the monies circulating in Central Germany point towards a more or less continued trend towards devaluation (precious metal content reduction). The petty coinage (pennies and mites) used in the cities of Augsburg, Munich, Leipzig (Saxony) and Vienna were debased by 38 per cent on average between c. 1450 and 1550; Würzburg pennies were debased in terms of precious metal content (fine silver) by ten per cent between 1472 and 1509; the Würzburg Heller (mites) were even reduced by 28 per cent within the

5 Harald Witthöft, Die Münzordnungen und das Grundgewicht im Deutschen Reich vom 16. Jahrhundert bis 1872/72, in: Eckart Schremmer (ed.), Geld und Währung vom 16. Jahrhundert bis zur Gegenwart, Stuttgart 1993, pp. 45–68.

same period. In Goslar the Matthiaspfennige were reduced by 61 per cent between 1461 and 1555; the larger Matthias groats lost 72 per cent of their precious metal content between 1470 and 1548. And so on. These are mere samples of some of the regional petty currencies that had a more than regional impact at the time. Further, more systematic studies are still pending; partly the source material is too fragmented – as were the monetary authorities and regalian rights at the time under consideration – to allow more than general estimates and observations. The picture, however, is clear. Virtually all currencies in central and southern Germany were progressively debased over the course of the fifteenth and sixteenth centuries. A last violent bout of devaluation occurred in the 1620s during the *Kipper- and Wipper*-inflation. But the overall trend appears to have smoothed out as early as the sixteenth century. It was the high middle ages that had seen the most violent sprees of debasement. But financial markets were in the fourteenth and fifteenth centuries not as well-integrated as in later periods. If the precious metal content of circulating coins is interpreted akin to long-term interest rates, providing a proxy index of the "goodness" or quality of the institutional framework and security of property rights, the Middle Ages appear as a period when transaction costs must have been significantly increased compared to later periods, and the overall efficiency of the whole socio-economic system must have been rather low.

Was this process inevitable? In other words: was it akin to something like a "law" of history? The last part of chapter III traces these mechanisms on a more detailed and empirical basis, using the framework of the monetary policy of the Dukes and Electors of Saxony as a case study. In 1500 a new currency ordinance was issued in the Saxon Lands. With this ordinance, the *Leipziger Münzordnung* as it is usually called in the numismatic literature, it was attempted to implement a set of monetary reforms intended to establish monetary stability and institutional security. The key point of this currency reform was, of course, the introduction of a new large silver coin as a functional equivalent of the moribund Rhenish florin (hereafter: fl Rh). With a precious metal content of 27.4 grams of pure silver this large "silver gulden" or "gulden groat" (*groschen so einen gulden gilt*) or *Joachimsthaler* (dollar) as it became later known, marks the first instance of the formal adoption of a silver standard in central Germany. For the first time in central Europe the highest denomination coin would be made of silver, rather than gold. This money was to be fully convertible, meaning that no one could refuse silver gulden where the contract had specified "Rh fl" as a means of repayment (so that the creditor had no claim to gold as a means of payment, even if the original contract had stipulated "florin" in the sense of a gold coin or *Rhine gulden*). Silently the Saxon economy had thus switched from gold to a silver standard, whilst retaining the Rh fl as a basic unit of account or anchor money which the new sets of coins were tied to. The new silver florin was to be subdivided into seven *Engelsgroschen* (at 3 Zins groats, hereafter: gr) and 21 *Zinsgroschen*. The latter type of groats or *groschen* represented the common current money that had been circulating in the Saxon realms since the High Middle Ages. The slight devaluation from the old exchange rate of 20 groats to the Rh fl, which had prevailed until about 1490, to the new standard of 21 groats (*Zinsgroschen* standard) was only a

logical step. It was the official acknowledgement of a changing monetary situation that had obtained towards the end of the fifteenth century and which had seen a spree of devaluation (in terms of precious metal content reduction of the circulating penny and groats). The basic Zins *gr* was further subdivided into twelve pennies (d) in terms of money of account. The factual exchange rates of the pennies to the *Zins gr* fluctuated according to the type and fineness of the respective pennies that circulated in Saxony in these days. Some pennies that had remained legal tender in the Saxon realms since 1490, such as Halberstadt or Magdeburg pennies, were valued at only 1/16 of a Saxon full-bodied Zins gr. Pennies from Görlitz (at that time within the Bohemian realms) were so debased that they were admitted into circulation at the rather extremely low exchange rate of 1/20 gr. The official rate of 12 d to the *Zinsgroschen* was a mere money of account and purely hypothetical, as the Saxon mints had all but ceased to strike new full-bodied pennies after 1490. The Saxon peasant economy had to make do with a variety of old and foreign pennies of uncertain purchasing power.

As early as 1503 we find the first written complaints about an excess supply of debased petty coins in Saxony and central Germany driving down the exchange rate between the gr and the silver florin away from the target at 21 gr to the florin. Whilst all official sources, such as account books and official balances would reckon with the money of account at 21 gr to the florin, actual payments were often effected at rates well below the target rate. In 1526 for instance, Nuremberg high financier Jakob Welser the Elder complained to the Count of Mansfeld that, in order to settle a payment of 499 Rh fl he had to use silver florins which he purchased using debased gr at an exchange rate at 22 7/8 gr to the florin. As early as 1503 we find sources that document payments where up to 23 groats had been given for a florin, and complaints that the florin exchanged at *sieben Annenberger groschen und eynen tzinsgroschen vor eynen gulden gerechent* – i.e. 22 gr – such as made in 1516 were rather common at that time. Hans Luder, Martin Luther's father, settled a contract in 1507 for the purchase of a house that stipulated the payment in "gold and silver" and where no gold was to be obtained, 22 groats were to be reckoned to the florin. Again this was one gr more than the target exchange rate established in 1500. As early as 1523 the Joachimsthaler (a full-bodied silver florin struck at Bohemian Joachimsthal), which in terms of money of account should have exchanged at 21 gr, was valued at Leipzig at 22 gr. Pamphlets dating from 1530/1 even mention an unofficial market rate of 22 to 23 gr to the florin in Saxony. But it was only in 1534 that an official ordinance devalued the Saxon groat to 1/22 florin, which was an over-due adjustment by the monetary authorities to market rates that had been fluctuating around 22 to 23 groats to the Rh fl for a long time. One year later, however, sources document an exchange rate that was already one gr below the new target. In 1535 a house sale was sealed at 23 gr to the florin in the County of Mansfeld, whilst in the very same year the nunnery of St George at Leipzig has entries of some Joachimsthalers in their books that exchanged at 24 gr, or 2/24 above the legal official (1535) target rate. A coin exchange rate of 1/24 Rh fl/gr seems to have been common in the later

1530s up until 1542, when it was for the first time officially fixed at that level in a new monetary ordinance.

The new monetary ordinance of 1500 had a long history (path dependency). Since the High Middle Ages Saxon minting and 'monetary policy' had taken place within a wider global or proto-global matrix. John Day has identified several phases of acute silver shortages across north-western Europe which led to repeated bouts of devaluation and debasement in the monetary sector (in the commodity sector of the economy the silver shortages led to deflation in the overall price level of the economy). Between 1405 and 1454 the *Schildgroschen* of Saxony, the main nominal minted for everyday transactions, was debased from 1.89 grams of pure silver to only 1.14 grams of silver. After a temporary revaluation of the groats back to 1.6 grams (1474) a further devaluation/debasement took place. In 1477 the *Spitzgroschen* (as numismatists label this particular type of groats of the 1470s) only had a precious metal content of 1.43 g silver. As in France, Flanders and most other parts of contemporary Europe, the Saxon mints literally dried up.

One of the (given the circumstances rather misgiven) consequences of the acute silver shortage of the 1440s and 1450s was the experiment to create a divisional currency or token money. Between 1441/1451 and 1457/60 two sets of groschen (groats) were admitted into the monetary circulation in the Saxon realms. The Horn groats and Spitz groats (two consecutive sets of Saxon groats intended to have the same purchasing power), which were full-bodied and exchanged at 1/20 against the Rhenish florin, circulated alongside debased groats that exchanged at 1/26 against the Rhenish florin. As the latter were equal to the full-bodied groats in terms of face value and even physical appearance they were sometimes hard to discern from the 'good' money (and one does not have to be Marxist in either ideology or approach to see that this was exactly what they had originally been intended to be). Yet the debased token groats were not legally convertible, and accordingly whenever possible the public refused to accept the debased groats as current money and opted for full-bodied coins instead. The prevalent monetary standard and political economy of the day, which was still heavily influenced by Scholasticism and the medieval scholars' value theory of money (which derived the purchasing power of coins from their intrinsic, not their face value) saw no room for a general acceptance of a divisional currency, and the token money experiment appears to have been abolished in Saxony after 1460. However, as not all of the token coins were smelted and reminted subsequently (when the token money experiment was abolished), some of them still appear to have circulated as late as the 1490s, when a tax assessment within the city of Altenburg in Thuringia (Ernestine Saxony) for instance still referred to *Inname Geschoß von der Markg 3 gr. hohe Müntze*, allowing the speculation that "low coins" or *Beiwähr* (literally: by-currency), as the token money of the 1450s had been called colloquially, still circulated here and there.

And then came a set of monetary reforms which bear out a clearly-formulated intent to create a hard currency area in the Saxon realms with a sound and stable currency based on a silver standard that would have guaranteed the level of stabil-

ity and security of expectations needed by an economy that was growing, not only on the grounds of the general population increase of the day (which had set in in the 1470s) but also in terms of the structural change and transformation processes in the wake of the new silver discoveries in the mines of the Erzgebirge mountains. First of all, the new main or leading coin was established as the Zinsgroschen (literally "census groats" meaning that this was the officially and universally accepted means of payment for taxes, customs, excise and feudal dues). These groats contained 1.29 grams of pure silver and were intended to exchange at 1/21 Rhenish florin. The next nominal would be the Engelsgroschen, a higher type of groat at 3.92 grams of silver which officially exchanged at 3 Zins groats (1498, see above/introductory section). The last and final step was the cornerstone of a profoundly altered understanding of money and currency, when with the Leipzig monetary ordinance of 1500 the first large silver groat (or "silver florin") was created in central Germany which exchanged at exactly one Rhenish florin. With that date, the minting of gold florins ceased (some were minted in around 1498 for payments on the Leipzig fairs).

It is clear that this switch from gold to silver was the result of the (first) boom in Saxon silver mining that had run its course from the 1470s onwards (this boom focused on Annaberg-Schneeberg; the second one unfolded in the 1540s and centred on the Marienberg district). Even though not all of this silver went through the Saxon mints, this must have represented a gigantic increment to central German monetary stocks (M0). In terms of minting costs and minting efficiency the monetary authorities had realized the growing inefficiency of the process of limiting monetary policy to groats (at 21 or 20 against the florin that is) as the highest full-bodied silver nominal in circulation. They clearly also realized the potential chances for monetary stability in those realms that were so well-endowed with base money (silver). As the costs of minting a coin normally decrease proportionally to an increase in face value and weight (see above) the growing amounts of base money that became available to the authorities in the wake of the mining bonanzas of the 1470s and 1480s would have made the introduction of a silver florin equivalent to the gold florin in terms of purchasing power almost by definition necessary.

Furthermore the option of disposing of large quantities of native silver at their own discretion, being the result of a comparatively strong political-institutional position of the Albertine and Ernestine rulers of Saxony (regalia and Seigniorage) would have allowed the Saxon duke and elector to pursue a policy that traded in monetary stability in exchange for repeated waiver of Seigniorage. It can be attested from contemporary documents that this is exactly what Saxon rulers had in mind on the eve of monetary reforms in the 1490s when they at times deliberately refrained from gaining any profit out of the mints. Even after 1500 the Saxon rulers frequently released additional quantities of regal silver on to the market and into the mint without charging the range of extra profits (Seigniorage) that would in theory have been due to them (and which most of the other contemporary rulers of their time usually did charge). In combination with the fact that in Saxony much more silver directly went through the Saxon mints than in Tyrol, Mansfeld

(and from 1518 onwards Bohemian Joachimsthal) it is clear that per capita supply of base money (M0) was undoubtedly higher in Saxony between the 1470s and 1530s than anywhere else in the German empire at that time.

Two further aspects increasing monetary stability came to work. First, the Ernestine (Elector) and the Albertine (Duke) territories of Saxony carried out their silver mining and monetary policy jointly since 1485. With the exception of only a few years in the 1510s and 1530s Saxon coins within both territories corresponded to exactly the same monetary standard in terms of intrinsic value/precious metal content, as well as types of coins/nominal minted. De facto this created a large and fairly comprehensive 'currency union' in central Germany. Secondly, both the dukes and the elector actively followed a policy of hegemony, establishing claims of suzerainty on a wide number of adjacent territories and noblemen that lay formally outside the Saxon boundaries, such as the Counts of Schwarzburg, Stolberg and Mansfeld, or the Mainzian city of Erfurt. Their claim of suzerainty in certain key sectors, such as monetary policy even extended to Mühlhausen and Nordhausen – nominally these were Imperial, i.e. free cities that answered only to the Emperor. The Saxon rulers were by these standards enabled to 'export' their monetary philosophy – hardness and stability of currency – across their own territorial borders and thus dominate monetary policy in a wider central German area.

This was, however, to no avail. And that is the surprising – and in a sense characteristic – insight that may be gained from the monetary history of central Germany at the dawn of the modern age. As noted above the increasing permeation of Saxon monetary circulation gradually led to a depreciation of groats – both Saxon Zinsgroschen (full bodied groats), as well as other groats from the counties of Mansfeld, Stolberg and Schwarzburg, the bishopric of Magdeburg (whose residence on the Moritzburg at Halle was only about ten kilometres away from Albertine fair city of Leipzig), the Margraves of Brandenburg – against the Rhenish florin in the 1500 to 1534 period and beyond. This erosion of monetary standards came with territorial fragmentation. Wherever territories lay dispersed, intermingled and jurisdictions overlapped (which was true in most cases in pre-modern Germany), and wherever people were engaged in inter-regional exchange – which by our modern definition would have been equal to proper foreign trade as these were all formally or semi-formally independent 'countries' – spontaneous debasement was a somewhat continuously expectable phenomenon. And wherever it became predictable it became a structural phenomenon over time. Debates and arguments about foreign coin and debased moneys were frequent and almost belonged to the political 'canon' of the day. A lot of day-to-day administration and legislation dealt with currency issues of re- or devaluation and repeated adjustments to a continuously changing composition of cash balances – of which a dynamically decreasing share was represented by full-bodied coin.

As early as 1503 Leipzig City Council commenced with the charge of an *agio* (premium) on payments in coin or current money any other than silver or gold florins. In 1505 groats minted in the imperial city of Goslar were subject to renewed debate, as they *mer und mer wer in die lande gebracht* – the authorities

said (i.e. these coins, as the document claims, had been brought into the country in increasing amounts). The coins from Goslar barely had half the purchasing power of full-bodied Saxon coins, yet they were still widely accepted in payments, which according to the same document would have gradually displaced the full-bodied groats by means of spontaneous debasement. In 1507 it was debated whether or not Märkische groats (groats from the Margraviate of Brandenburg) which had initially been admitted into Saxon monetary circulation were to be prohibited or devalued. Initially they had been admitted at 8 d, but were now debased; the final verdict was in favour of devaluation (to 7 d), as an outright prohibition was not considered very effective. In this regard the monetary authorities were apparently right, as the history of the following decades shows. Complaints about an abundance of debased coins peaked in 1511, when a new currency edict was issued. Apart from the debased *Märkische* groats (which were formally valued at 7/8, i.e. with a 1/8 discount), *Mansfelder* groats were discovered to be underweight by 25 per cent, leading to a corresponding devaluation in the same order. It was discovered that the old Saxon pennies of the pre-1490 era were still in circulation but now so debased and worn down that they would have corresponded to 12/22 Saxon d at their very best. This would have made them worth only about 55 per cent of full-bodied pennies; they were prohibited accordingly. But one year later the Saxon rulers complained *that vňßer Lauen pfenning in grosser anzall in vnser vettern vnd vnsern furstenthŭmb vnd landen noch vorhand sein, die in solcher Zeit, der Wenige halben, nicht haben umbgeschlage möge werden*. The old debased *Lauen* or literally Lion's Pennies were still circulating and widely accepted by the public. Here the whole tragedy and powerlessness of medieval and early modern monetary policy in the context of inter-regional exchange and open economies with competing stocks of money are laid bare. It had not been possible to confiscate and remint all of the old penny coins, as the public had to resort to some money in the penny and farthing segment, after all, when it came to small transactions. They had to make do with what was available, even if these pennies and mites were in the 1520s a human generation old. There is every indication that the public used the old debased coins as a kind of token money, which was nowhere regulated in any of the official documentation. People simply used these coins, at a heavy discount clearly – and this is what made the good sorts of coins appreciate (Sargent and Velde's *big problem of small change*).[6] As the focus of Saxon minting in the post-1500 era (in terms of value share in total output) was on the base and medium groats segment (Zins groats at 1/21 Rh fl and Engels groats at 3 Zins groats or 1/7 Rh fl) monetary authorities showed a marked disinterest in the minting of small change, such as pennies (that should have, i.e. had they actually been minted) exchanged at 1/252 Rhenish florin and the *heller* (~mites) which should (again one must add: had they actually been minted as intended) have exchanged at 1/504th part of one florin.

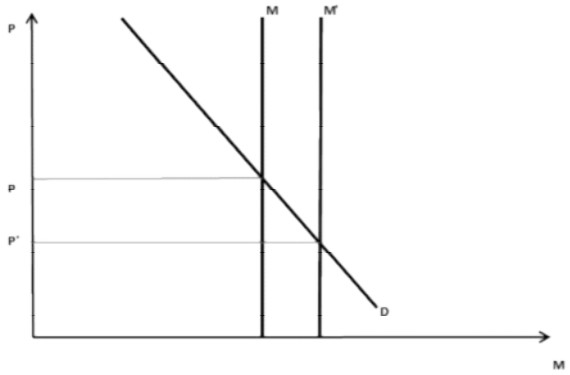
6 Thomas J. Sargent / François R. Velde, The Big Problem of Small Change, Princeton 2003 – something that goes back to Carlo M. Cipolla.

These negotiations and re-negotiations took place continuously in the period under consideration. Very often, after 1511 almost once every year, the monetary authorities gathered the regional mint masters and other experts who were required to take representative samples out of the coins which at that time were in circulation in Saxony. Whether or not these coins were prohibited before did not really matter, as people usually did not care too much about prohibitions. With an astonishing degree of regularity – one may say that the debates and 'discourses' about coins were endless – new edicts were issued, new coins were introduced, old coins valued or re-valued (in case there had been an appreciation). And whilst the Albertine policy was, in the years between 1511 and 1515 usually in favour of strict prohibition of debased (foreign) coin, the Ernestine directive mostly opted in favour of admittance-cum-devaluation. This clearly was a more realistic attitude. And occasionally, as borne out in the Saxon 'pamphlet war' of 1530/31 when precisely the same issue was debated, the 'Ernestine' expert opted in favour of flexible monetary policy, accepting principally variable precious metal contents of native coins as a tool of economic policy. Debasement-cum-devaluation of one's own or native money, the 'Ernestine' speculated, may be useful in terms of stimulating economic development via increased exports in times of crisis. This was a rather modern insight, common in modern economic textbooks and more or less successfully applied in countries like modern-day China, but in the 1530s still fundamentally at variance with scholastic economic thought. Regarding the intrinsic value of coins, the medieval scholars in the wake of Oresme had always maintained that the manipulation of currency, particularly debasement/devaluation – apart from times of acute political danger and distress of the 'common good' – was effectively to be considered a form of usury.

As early as 1515 a Saxon currency edict stated that the prohibition of foreign coins, such as the debased groats from the Counts of Mansfeld or the Margrave of Brandenburg could not possibly have worked given the macro-political and economic geography of these times. It said that the 1511 edict would not be adhered to by the public. Instead one should acknowledge this basic fact and simply admit the Mansfeld and Brandenburg debased monies into Saxon circulation at a discount (devaluation): *Graŭen und stete mŭntz, so in vnserm lande gelegen, die sich an korn un schrote mit vnser mŭntze vergleichen vnd von vns vormals auch zŭgelassen, desgleichen die merckischen vnd Mansfeldischen Groschen*, the document said. This was a full-blown capitulation, given the ambitious nature of the "new" currency or monetary paradigm which the Saxon duke and elector had been trying to implement by the monetary reform of Leipzig in 1500 (see above). At that time an exchange rate of 22 groats to the florin had already become widely-acknowledged economic reality, although nowhere officially fixed until much later (1534). Later attempts at renewed prohibition especially of Mansfeld and Märkische groats, for instance in 1518, failed badly. In 1521 Magedeburg groats, alongside groats from Stolberg, Mansfeld and Schwarzburg were re-admitted in Saxony at face value, even though at least the bishops of Magdeburg and Halberstadt openly struck coins that fell short of Saxon standards – with which to comply they had bound themselves in a run of obligations and treaties – by 22 per

cent. And when, in 1519 Saxon authorities would admit Mansfeld and Halberstadt pennies into Saxon circulation at face value, even though their debased nature was widely acknowledged, this was a further proof of the fecklessness of any attempts at creating monetary stability and adherence to basic rules of a sound monetary policy in these times and spatial circumstances. Acknowledging such pennies at face value was a strike in the face of anyone who had a last remnant of trust in a safe and stable currency. Admitting these pennies at face value simply meant one did not really have to bother about monetary stability or issuing any edicts that would be even marginally more worthy than the paper (or parchment) on which they were written.

On and on the complaints went. Repeated processes of negotiation and monetary discourse set in. The same sets of problems were known later on, leading to a temporary disintegration of the currency union in the later 1520s and the 'pamphlet war' of 1530/1. In slightly more formal, crypto-theoretical terms, what happened on central German money markets in the early 1500s may be circumscribed metaphorically using the following figure:



Let P represent the 'target' exchange rate of the Saxon groat against the Rhenish florin – i.e. the rate fixed in the ordinances and edicts. Now assume that a larger-than-desired quantity of 'foreign' underweight groats is coming into circulation within the Saxon currency area, due for instance to an import of debased groats from Brandenburg to be used for payment on the Leipzig fairs or other market (which is a realistic scenario inasmuch as this was frequently complained about). This will increase the total supply of groats – Saxon as well as others – over demand, thus driving down the exchange rate from P to P', leading to a depreciation of groats in terms of Rhenish florins. Spontaneous debasement will decrease the purchasing power of all types of groats, as payments will usually be made up of a mix of native and foreign, old and new coins, the precise intrinsic value of which cannot be determined for each single coin any more. The taker of the sample of coins handed over will either have to accept them at face value, or – which is the economically more sensible option – accept them at a discount due to the inherent risk these coins bear in terms of reduced utility as a store of wealth. That is merely the other side of the same coin.

Thus, we can use the Saxon monetary history around 1500 as the basis for a historical or controlled experiment. After all, the Saxon lands remained by and large spared of all the medieval peasant uprisings for which the German lands became (in)famous between c. 1450 and 1526 (with the exception of the peripheral fringes of the Wettin lands in modern-day Thuringia which were involved in the Peasant's War of 1524–26). Institutional security was high, property rights were (comparatively) safe and secure, and transaction costs low compared to many other contemporary German proto-states. If there was any sovereign or monetary authority in the German Empire around 1500 that would have been able to implement a 'hard' currency standard and maintain monetary stability, the Saxon Dukes and Electors would have been it. The second-largest silver mines of Europe, the mines in Tyrol, lay in the Lands of the Austrian Arch-Dukes who had given away most of the silver yields to the larger merchant bankers of Augsburg and Nuremberg as collateral for massive advances of credit and loans. Charles V was crowned Habsburg Emperor in 1519 having to borrow the insane sum of more than half a million florins from the Fugger Company and other merchant-bankers of Augsburg in order to pay out the financial bribes to the Electors, virtually giving away the yearly silver yields from the Tyrolean mines in eternity as a collateral. That silver left the Austrian lands as quickly as it came out of the mountains with virtually no chance to enhance the money supply in the Habsburg-Austrian dominions. If a strong and sound monetary policy, manifested in fixed exchange rates of the several denominations within one particular currency (for instance: groats to the florin or pennies to groats) was impossible in Saxony, it was impossible in any other state of contemporary Germany.

Now, what consequences did this continuous – and sometimes progressive – erosion of the monetary standard, which was particularly marked in the small change segment, have on society and economy at large?

CHAPTER IV

Chapter four argues that the relatively high rates of debasement of the fifteenth and sixteenth centuries were mirrored in a significantly increased number of complaints about bad or 'evil' coins. Such complaints or gravamina had been known since the High Middle Ages; they would not cease until the monetary reforms that came with political re-unification of Germany in 1871. In a way coin debasement represented a long-run structural continuity. Accordingly complaints about debased coins were heard at literally all ages between c. 1300 and 1900. However, the combination of debasement (devaluation) with incidences of major revolts – where complaints about bad coins played a major role – only really became prominent as a discursive phenomenon and general socio-economic problem in the *Wendezeit* era between c. 1460 and 1526.

Suffice it to cite but a few examples. A combination of poor harvests (1456–9), rising taxes (1458/62), but above all the drastic coin debasement of 1458/60, when the exchange rate of the Salzburg penny against the Hungarian florin col-

lapsed from 1/270 (1457) down to 1/3686 (1460) within just three years, led these areas into one of the larger late medieval uprisings. In an unlikely alliance peasants, knights and burgers issued their complaints to the Archbishop, where they *inter alia* lamented upon the premium (*Aufwexl*) charged on tax payments made in coins other than gold florins (at a nominal parity of these coins). In the very same area peasant uprisings remained a latent phenomenon until the Peasants' War; currency re-occurred on the public agenda, in complaints and petitions more or less regularly. In 1504 the peasants of Upper and Lower Thurgau for instance moaned about a shortage of good coin, such as the comparatively stable (in terms of their silver content) Prague / Bohemian groats. Especially the *Rollebatzen* of Constance (debased groat-type coins) were complained about, as they allegedly were not only heavily underweight, but also so un-standardized in terms of their precious metal content. In some areas they were given at 11 pennies, in others taken at 12, so that any regular transaction in this area using this type of coin bore an inherent risk of loss on the exchange against other local or regional moneys due to the uncertain precious metal content of these Batzen. Their inconvertibility and dubious currency standard resulted in the fact that even minting officials (*Münzwardeine*), called upon in 1522/3, felt unable to set an official money rate of these Batzen against other coins circulating within the southern/upper German/Alpenland economic region. Uttering of economic distress with particular reference to monetary issues continued within the Alpenland area. During the Solothurn uprising of 1513/14 the peasants of Büren set the currency issue on pole position on their agenda. In these areas, at around the same time, coinage and currency issues now also entered the agenda of the territorial Diet, after they in 1495 had been first (yet without effect) raised on the imperial level (Imperial Diet). And finally, in the Peasants' War in 1525, the Articles of the city of Meran asked that "good coin" be minted in the area again. The peasants of Meran asked to abolish the premium on payments that were not made in gold. Both are indications that the area had recently experienced at least a relative shortage of current ("good") money, especially since the Hall mint had been closed down; it was asked that "the poor, illiterate common man no longer be burdened with bad, foreign coins."

As soon as interregional trade and the degree of market integration intensified, regions connected by trade and payments quickly became subject to "Gresham's Law" or spontaneous debasement, in a way that token coins and billon tended to drive out the larger ones that had a higher precious metal content at nominally equal face value, even within "hard currency zones", or where "good" coins (with a high and over time relatively stable precious metal content) had initially been minted. Large shares of the economically active population experienced increasing difficulty obtaining good coin for transactions such as market sales, payment of tithes and taxes etc., having to rely on a highly inhomogeneous mix of regionally different pennies and groats instead. As these were liable to considerable inter-regional and inter-temporal variance in terms of their precious metal content and thus money/exchange rate against other local and regional moneys, this led to a considerable degree of monetary uncertainty. This in turn increased transaction costs and lowered total factor productivity. This problem can be traced long

before the actual Peasants' War. In 1511 for instance the peasants of Kammer and Kogl (Austria) complained that whereas they had to pay taxes in good coin, convertible current money (usually gold or lesser coins charged with a premium) by statute, they yielded the lion's share of their monetary income in "low", i.e. token coins, such as pennies and farthings with a high content of base metal, which, if they were used in the payment of taxes in lieu of gold, had to pay a premium over their nominal value. Only a few years later, during the "Poor Conrad" in Württemberg, the first veritable peasant revolt in the sixteenth century, the peasants of Elchesheim and Steinmauern (Baden) uttered in 1514, that they were denied the right to pay taxes in "commonly used coin of the area" by the tax collectors, and that in order obtain good money to pay taxes in time and in gold, they had to take considerable logistic efforts. The differential monetary standards (payment scenarios) prevailing even within one relatively homogenous economic area, e. g. between princely and peasant income: one in gold, the other in token silver and billon currency, thus increased transaction costs of the whole (agricultural) production process, as they pointed out. A similar scenario obtained in adjacent Steinmauern and Gaggenau. Whilst the peasants were paid for transport services in a variety of local pennies and groats, the Margrave of Baden insisted that taxes be paid in gold florins – so the peasants complained in 1514. The fact that the Margrave had minted both gold florins, as well as token coins, but would not accept the latter when it came to tax payments is not an irony but an inbuilt mechanism of German history in the later middle ages and early modern age. It was result of a deliberate decision: differential payment scenarios (or "spheres of economic activity") had obviously been created (see below) in order to solve a theoretically unsolvable problem or fiscal paradox.

During the Great Peasants' War (1524–26) these complaints or general awareness of bad coinage appears to have been spread more broadly. The peasants of Eltmain and Münnerstedt (Bishopric of Würzburg) for instance lamented upon the same problem the Baden peasants had raised during the "Poor Conrad" already: they were urged to use gold or "high" coin (florins or good groats) for the payment of seigniorial dues, whilst the bishop had not minted any recently. They asked that the dues (*Bethe*) be collected "as in the olden times", and that "money, such as is current and commonly used, and with which wine and bread have always been paid, and with which the common man is usually reimbursed, be used for the payment of taxes as well." A similar complaint about differential currency standards and payment scenarios comes from the peasants of Fürstenberg. In Central Germany the denizens of the city of Schleusingen (County of Henneberg-Schleusingen) in their complaints (1525) asked for the local currency, which had been liable to considerable debasement recently, to be re-set according to Saxon standard (the Saxon Dukes and Electors were their feudal overlords and formally, yet not factually, entitled to set the monetary standard for this area). The peasants of Appenweier complained about the proverbial double standard set for proceeds from market transactions (mainly in bad coin) and payment of tithes and taxes (1525). The miners of Joachimsthal complained about the massive export of silver and good *groschen*, by which they were disadvantaged, obviously due to their