

# ***Global and Local Aspects of Pre-Industrial Inflation: New Research on Inflationary Processes in XVIII<sup>th</sup>-Century Central Europe\****

**M.A. Denzel - H.-J. Gerhard**

University of Leipzig/Free University of Bolzano - University of Göttingen

## **1. Introduction**

Research on inflationary processes has a remarkable academic tradition in Germany – this is not least because of the bitter experiences that Germany had to undergo after the First and Second World Wars. As a general rule, research works dealing with the early modern period are limited to a discussion of the so-called “price revolution” of the XVI<sup>th</sup> and XVII<sup>th</sup> centuries and their effect on Central European economy and society.<sup>1</sup> However, the XVIII<sup>th</sup> century in Central Europe also has been subject to many and different – and certainly regionally different – inflationary processes. Due to the lack of relevant and available source material, until now these could not be studied in detail. The publication of long price lists that could be collected within the framework of a large research project<sup>2</sup> for Hamburg and several cities of the region of Lower Saxony has

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<sup>1</sup> Cf. H.-J. Gerhard, “Ursachen und Folgen der Wandlungen im Währungssystem des Deutschen Reiches 1500–1625. Eine Studie zu den Hintergründen der sogenannten Preisrevolution”, in E. Schremmer (ed.), *Geld und Währung vom 16. Jahrhundert bis zur Gegenwart*, (Stuttgart 1993), pp. 69–84.

<sup>2</sup> The project “Vergleichende Analyse von Preisentwicklungen in Nordwesteuropa von der Mitte des 17. bis zur Mitte des 19. Jahrhunderts” has been supported by the Volkswagen Foundation, which has also financed the edition of the price material.

done something to change the picture. Drawing from numerous contemporary sources, it was possible to collect price lists for a broad assortment of goods<sup>3</sup> and not only for grain, as has often been the case in the past.<sup>4</sup> Hence, we are now in a position to tackle this desideratum of socio-economic research work; the following contribution is hoped to both serve as a first step and encourage further studies in this direction.

For its variety of source material, Hamburg, Germany's most important port in the XVIII<sup>th</sup> century, stands in the centre of our considerations. Because of its far-reaching European and its direct and indirect intercontinental connections, Hamburg was affected by international influences in a stronger and more direct way than other German cities. At the same time, Hamburg, being the most important entrepôt in northern Germany, also commanded a large hinterland, that included, amongst other places, the electorate of Hanover and the dukedom of Brunswick-Wolfenbüttel – i.e. the Guelphian territories – with the cities of Brunswick, Celle, Göttingen, Hanover, Lüneburg and the mining region of the Harz. The economic structure of this Hamburg hinterland, i.e., the regions of Lower Saxony south to the city of Hamburg, was mainly characterised by regional and local influences. It thus forms an interesting contrast to the Hanse-city of Hamburg, whose merchants mainly regarded these regions as an area for

<sup>3</sup> H.-J. Gerhard and K.H. Kaufhold, *Preise im vor- und frühindustriellen Deutschland. Grundnahrungsmittel*, (Göttingen 1990); *idem*, *Preise im vor- und frühindustriellen Deutschland. Nahrungsmittel – Getränke – Gewürze, Rohstoffe und Gewerbeprodukte*, (Stuttgart 2001).

<sup>4</sup> E.g. W. Achilles, *Getreidepreise und Getreidehandelsbeziehungen europäischer Räume im 16. und 17. Jahrhundert*, (Göttingen 1959); F.-G. Dreyfus, 'Beitrag zu den Preisbewegungen im Obertheingebiet im 18. Jahrhundert', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 47 (1960), pp. 245-256; D. Ebeling and F. Irsigler, *Getreideumsatz, Getreide- und Brotpreise in Köln 1368-1797*, 2 vols., (Köln 1976/77); B. Sprenger, 'Preisindizes unter Berücksichtigung verschiedener Münzsorten als Bezugsgrößen für das 16. und 17. Jahrhundert – dargestellt anhand von Getreidepreisen in Frankfurt/M.', *Scripta Mercaturae* 11/1 (1977), pp. 57-69 and the discussion between Sprenger and Saalfeld: D. Saalfeld, 'Zur Problematik der Preisentwicklung und der Münzverhältnisse in der frühen Neuzeit – Eine Replik zu dem Artikel von Bernd Sprenger in „Scripta Mercaturae“, Hef. 1/1977, S. 57-72', *Scripta Mercaturae* 12/1 (1978), pp. 138-146; B. Sprenger, Zur vorstehenden Replik von Saalfeld, *ibid.*, pp. 147s.

<sup>5</sup> Cf. M.A. Denzel, 'Die Braunschweiger Messen als regionaler und überregionaler Markt im norddeutschen Raum in der zweiten Hälfte des 18. und im beginnenden 19. Jahrhundert', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte* 85 (1998), pp. 40-93.

their sales.<sup>5</sup> In the course of this work, we plan to show whether inflationary processes in both regions occurred in a similar or different – perhaps even independent – way, and then to analyze the reasons for these developments. We do not intend to answer single and specific questions of detail, as has been done in recent studies of price and trade history,<sup>6</sup> nor do we want to address questions pertaining to trade history,<sup>7</sup> since this would require a greater amount of source studies than is possible here. Rather, it is our aim to depict general and basic tendencies and developments and to analyse them. For this reason, it is necessary to begin with some theoretical and methodical considerations before turning to the study itself.

## **2. Considerations on the methods**

Inflations are processes leading to a general rise of prices. They are not, in the short term, limited to single goods, groups of goods or

<sup>6</sup> H.-J. Gerhard, "Gewürzpreise in europäischen Handelszentren im 18. Jahrhundert", in M.A. Denzel (ed.), *Gewürze: Produktion, Handel und Konsum in der Frühen Neuzeit. Beiträge zum 2. Ernährungshistorischen Kolloquium im Landkreis Kulmbach*, (St. Katharinen 1999), pp. 149-186; id. with contributions by A. Engel, 'Preise als Indikatoren von Marktverflechtungen des nordwestdeutschen Raumes 1800–1850', in K.H. Kaufhold and M.A. Denzel (eds.), *Der Handel im Kurfürstentum/Königreich Hannover (1780–1850)*, (Stuttgart 2000), pp. 101-138; M.A. Denzel, H.-J. Gerhard and A. Engel, "Marktverflechtungen von Kupfermärkten des nördlichen Kontinentaleuropas im 18. Jahrhundert", in Chr. Bartels and M.A. Denzel (eds.), *Konjunktoren im europäischen Bergbau in vorindustrieller Zeit. Festschrift für Ekkehard Westermann zum 60. Geburtstag*, (Stuttgart 2000), pp. 237-271; H.-J. Gerhard, "Entwicklungen auf europäischen Kaffeemärkten 1735–1810. Eine preishistorische Studie zur Geschichte eines Welthandelsgutes", in M.A. Denzel and R. Gömmel (eds.), *Weltwirtschaft und Wirtschaftsordnung. Festschrift für Jürgen Schneider zum 65. Geburtstag*, Stuttgart 2002, pp. 151-168.

<sup>7</sup> Cf. e.g. P. Jeannin, 'Die Hansestädte im europäischen Handel des 18. Jahrhunderts', *Hansische Geschichtsblätter* 89 (1971), pp. 41-73; K. Newman, 'Hamburg and the European Economy, 1660–1750', *Journal of European Economic History* 14/1 (1985), pp. 57-94. A new study about the trade history of Hamburg is presently being undertaken as a doctoral dissertation, cf. E. Schulenburg, 'Die Auswertung der hamburgischen Admiralitäts- und Convoygeld-Einnahmebücher. Ein Beitrag zur Geschichte der wirtschaftlichen Rückwirkungen der europäischen Expansion', *Jahrbuch für europäische Überseegeschichte* 1 (2001), pp. 175-180. Cf. also K. Weber, 'Les livres douaniers de l'amirauté de Hambourg au XVIII<sup>e</sup> siècle, une source de grande valeur encore inexploitée', *Bulletin du centre d'histoire des espaces atlantiques* nouv. sér. 9 (1999), pp. 93-126.

services, but for a certain time affect wide areas or a country's or region's economy and result in a rise of the national economic price level. Accordingly, the amount of currency that has to be paid for a certain basket of goods and services grows as a whole in the course of an inflationary process. This does not, however, exclude the possibility that the prices remain stable or even decline for certain elements of the basket. Changes in the price of one good or of a group of related goods alone – even if they are as important as grain prices in the pre-industrial era – do not permit a conclusion about the existence or non-existence of inflationary tendencies. Based on the criteria of the most important reasons for inflations, we distinguish in the following between four types:

- money supply-induced inflation;
- supply-induced inflation, which may appear in the form of a profit-push inflation or in the form of a cost-push inflation;
- demand-pull inflation;
- imported inflation.

Because the present study only aims at showing and explaining inflationary processes (as defined above) and their developments, a weighting of the respective prices in accordance with their share in consumption is for the most part unnecessary here.<sup>8</sup> It is not intended to analyse the effects of these processes on individuals or groups of economic entities. The baskets of goods, however, are put together in a way as to reflect the varying importance of individual goods for the respective national economy. It is somewhat otiose, yet must be stated that any compilation of a basket of goods containing food and luxury-goods, mineral or animal raw materials, semi-finished and finished goods, cannot be free from subjective influences. In the present case, the source evidence allows some goods to be included in the basket while

<sup>8</sup> Efforts to put together representative or even group-specific baskets of goods for the pre-industrial era, in which the goods are weighed according to their respective consumption, soon lead to hardly surmountable complexities, something which need not to be described here. Cf. H.-J. Gerhard, "Quantitative und qualitative Aspekte von Handwerkerereinkommen in nordwestdeutschen Städten von der Mitte des 18. bis zur Mitte des 19. Jahrhunderts", in U. Engelhardt (ed.), *Handwerker in der Industrialisierung*, (Stuttgart 1982), pp. 51-66, here pp. 69-72.

prohibiting others (although desirable and necessary), because some prices were either not recorded at all or only insufficiently.

The basic source for the city of Hamburg is its price current, a weekly record of wholesale prices for more than 350 goods (the overall average), which is available from 1736 onwards.<sup>9</sup> The goods recorded here came from Germany, especially from the Hamburg hinterland (Lower Saxony, Holstein and Mecklenburg), other European countries and from overseas. In the following study we will consider 19 European goods – including seven from the German region – and 15 non-European goods; this more or less reflects their overall shares in the price current. The relation between German, European and non-European goods of about 1 : 2 : 2 in the Hamburg price current already demonstrates – if compared with the price lists from the Lower Saxon cities – the relatively low significance of the local goods, which, judging from the number of regular quotations in Hamburg, amounted only to a fifth of all recorded goods.

The main sources for the Lower Saxon cities of the Hamburg hinterland are various kinds of city registers and registers of iron works, such as treasury registers (*Kämmereiregister*, *Zehntkassenregister*), journals containing prices of several kinds of mining goods (*Berghandlungsjournale*), market protocols, etc.<sup>10</sup> In the different price

<sup>9</sup> Commerzbibliothek Hamburg, 456/1: Preis Courant der Wahren in Partheijen, Hamburg, 1736-1805 (copy in the "Währungs- und Wirtschaftshistorischen Sammlungen" at the Department of History of the University of Leipzig). Cf. E. Baasch, "Geschichte des hamburgischen Waren-Preiskourant", in *idem*, *Forschungen zur hamburgischen Handelsgeschichte*, vol. III, Hamburg 1902, pp. 123-171; J.J. McCusker and C. Gravesteyn, *The Beginnings of Commercial and Financial Journalism. The Commodity Price Currents, Exchange Rate Currents, and Money Currents of Early Modern Europe*, (Amsterdam 1991), pp. 223-246. – The price data used here is published in: H.-J. Gerhard and K.H. Kaufhold, *op.cit.* (1990), *passim*; *idem*, *op.cit.* (2001), *passim*. About the "Währungs- und Wirtschaftshistorische Sammlungen" (the former "Preis- und Lohngeschichtliche Sammlungen" of the Institute for Economic and Social History of the Georg-August-University of Göttingen see: K.-H. Kaufhold, 'Die Bestände der preis- und lohngeschichtlichen Sammlungen des Instituts für Wirtschafts- und Sozialgeschichte an der Georg-August-Universität Göttingen', *Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte* 76 (1989), pp. 76-79.

<sup>10</sup> The price lists used here are published in: H.-J. Gerhard and K.H. Kaufhold, *op.cit.* (1990), *passim*; *idem*, *op.cit.* (2001), *passim*. Copies of these sources can be found in the "Währungs- und Wirtschaftshistorischen Sammlungen" at the Department of History of the University of Leipzig.

**TABLE 1. The basket of goods for the Hamburg market**

food products		non-food products (raw materials and manufactures)	
a. of European origin		a. of European origin	
barley	Germany	wax	Germany
oat	Germany	lead	England
rye	Germany	iron	Sweden
wheat	Germany	lead oxide	England
butter	Germany	copper	Norway
herring	Germany	linen	Germany
wine	France	silk	Milan
honey	Germany	Saxonian blue (a dye)	Saxony
		madder (ordinary)	Germany
		linseed oil	Germany
		suet	Russia
b. of non-European origin		b. of non-European origin	
nutmeg	(Dutch East India)	raw cotton	West Indies
cloves	(Dutch East India)	saltpetre	India
black pepper	(Dutch East India)	cochenille	West Indies
sugar	West Indies	gall	Aleppo
sugar	Brazil	Pernambuco wood	Brazil
coffee	West Indies	copper (in plates)	Spanish America (Chile)
mocha (coffee)	Arabia		
tobacco	(Virginia)		
boui tea	(China)		

lists of these sources, only local products were quoted; the special significance of food products for the Guelphian principalities is reflected in their higher share of the basket of goods (16 out of 30):

For Hamburg as well as for the Guelphian territories of the Hamburg hinterland, price indices for goods of different kinds were then calculated and aggregated to form an overall index.<sup>11</sup> These overall indices represent – independent of absolute numbers, money, amount, and the kind of price – the common price *development* of all goods in the individual basket, but do not depict the price level. The *developments* as such can

<sup>11</sup> For the calculation and rendering of the indices, the average development for every single good in the period under consideration was equated with 100, because the attempt to find a “normal year” for all goods at the same time would have been an anachronism.

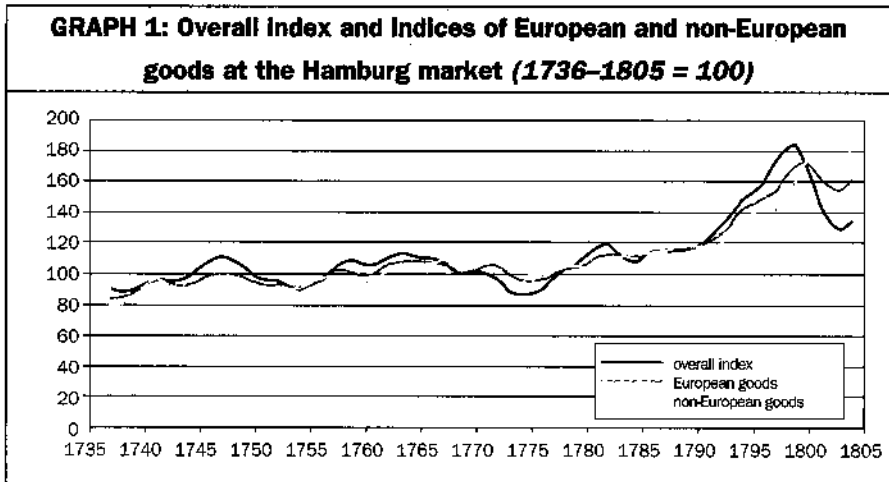
**TABLE 2. The basket of goods for the Lower Saxonian places  
in the Hamburg hinterland**

food products	non-food products (raw material and manufactures)
barley	sheep's wool
oat	lead
rye	lead oxide
wheat	copper
beans	vitriol
peas	potash
beef	saltpetre
mutton	sulphur
pork	iron wire
rice	brass caldrons
eggs	iron rods
chickens	tallow
liver-sausage	salt
carrots	sugar
white cabbage	
butter	

be compared. The price indices do *not*, in contrast, allow comparisons in the level of prices, as such comparisons are only possible with absolute and comparable numbers. In other words, it is only possible to add and to compare prices for goods and amounts, if these come from the same trade source and were calculated in (or converted into) the same currency. The two baskets of goods in our case, however, are not comparable in composition, kind of price, currency and, finally, the amounts they contain. Hence, the overall indices provide reliable indications – and no more than that – to the possible existence of inflationary processes. In order to delete short-term and minor fluctuations and to emphasise more far-reaching and economically more significant inflationary processes, we have mostly used three-year averages.

### **3. Inflationary processes in Hamburg**

As follows from *graph 1*, we can distinguish inflationary processes from four different periods of time in Hamburg between the years 1736 and 1805:



1. in the 1740s,
2. from the second half of the 1750s until the second half of the 1760s,
3. in the second half of the 1770s and the first half of the 1780s, and
4. in the 1790s.

Before we start with the analysis itself, it must be stated that the possibility of a money-supply-induced inflation in Hamburg has to be ruled out for the entire period under consideration. After the Hamburg-Danish currency conflict (1717–1736), the currency environment in Hamburg was reckoned to be one of the most stable in Europe. The silver price had since – with the exception of some years after the 1755 crisis and around 1750 – remained constant, because the Bank of Hamburg had pursued a rigorous policy of stability.<sup>12</sup> Further, it needs to be noted that some of the goods in the Hamburg price current were

<sup>12</sup> K. Schneider, *"Banco, Species und Courant". Untersuchungen zur Hamburgischen Währung im 17. und 18. Jahrhundert*, (Koblenz 1986); A. Soetbeer, 'Die Hamburger Bank, 1619–1866. Eine geschichtliche Skizze', *Vierteljahresschrift für Volkswirtschaft* 3 (1866), pp. 21–54; M.A. Denzel, O. Schwarzer and P. Schnelzer, "Geld- und Wechselkurse in Deutschland und im Ostseeraum (18. und 19. Jahrhundert)", in J. Schneider *et al.* (eds.), *Statistik der Geld- und Wechselkurse in Deutschland und im Ostseeraum (18. und 19. Jahrhundert)* (Historische Statistik von Deutschland, Bd. XII), (St. Katharinen 1993), pp. 2–43, here pp. 10–15; L.F. Peters, "Hamburger Bank", in M. North (ed.), *Von Aktie bis Zoll. Ein historisches Lexikon des Geldes*, (München 1995), pp. 154s.; M. Pohl, *Hamburger Bankengeschichte*, (Mainz 1986), p. 27.

quoted in bank money, whereas some were quoted in current money (a currency fluctuating against the bank money), without any sensible or continuous system of assignment to any of the two currencies being discernible.<sup>13</sup> It is striking, however, that the values quoted in bank money (the currency regarded as stable and of higher value) were, for more than half of the duration of the inflationary process, higher than those of the current money, which was valued less. The value of the current money even remained almost unchanged between 1780 and 1790. This runs contrary to the usual expectations, which maintain that a currency that is more stable and has a higher degree of purity is less affected by inflationary influences than a minor one. It follows that the reason for the unexpected course of the index curves is not to be found in the currency.

#### **4. The inflationary process in the 1740s**

The inflationary process in Hamburg in the 1740s was almost exclusively limited to non-European goods, and among them to the food-products. Affected by this process were, in particular, sugar (since 1744/45), coffee (since 1744) and tea (1741–1747), and, to a lesser extent, tobacco, whereas spices were hardly affected. Hence, the three “new” non-European semi-luxury goods, for which demand continued to grow (almost) steadily throughout the XVIII<sup>th</sup> century – and especially since the 1740s – stand at the centre of our considerations.<sup>14</sup> After 1734 – and following the Danish blockade at the mouth of the Elbe river – Hamburg became the most important entrepôt for French colonial goods in northern Europe.<sup>15</sup> From 1736, after the abolition of the coffee monopoly of the French *Compagnie des Indes*, Hamburg’s intermediary

<sup>13</sup> Cf. E. Baasch, ‘Aus der Entwicklungsgeschichte des Hamburger Kurszettels’, *Bank-Archiv* 5 (1905/06), pp. 8-11.

<sup>14</sup> Cf. H.H. Mauruschat, *Preise und Verbrauch des Kolonialzuckers im vorindustriellen Europa*, (Berlin 1985), pp. 4, 6s.

<sup>15</sup> H. Sieveking, “Die Hamburger Bank”, in J.G. van Dillen (ed.), *History of the Principal Public Banks Accompanied by Extensive Bibliographies of the History of Banking and Credit in Eleven European Countries*, (The Hague 1934), pp. 125-160, here p. 156.

trade in coffee from Martinique and Saint-Dominique increased markedly.<sup>16</sup> The positive development of Hamburg trade in non-European semi-luxury goods could be further strengthened as a result of the economic boom in western and central Europe that started in 1740, the year of the Austrian War of Succession. This boom continued (with the exception of the year 1741) beyond the peace of Aix-la-Chapelle of 1748 and turned – after a depression in 1748 – into a short post-war boom that was soon to be superseded by an economically rather uneventful peace.<sup>17</sup> The inflationary process in Hamburg in the 1740s can thus be connected with the increased demand for non-European semi-luxury goods (demand-pull inflation); the attempt of the Hamburg middlemen to push through higher profits on the market may also have contributed to this process (profit-push inflation). On the other hand, we can argue that supply to the Hamburg market decreased as a result of the English-Spanish Colonial War (“War of Jenkins’ Ear”, 1739–1744) and the English-French Colonial War (1744–1748). Accordingly, we may speak of a cost-push inflation, because the French-Hamburg exchange of goods suffered heavily from English privateering, and because the Hanse cities were not able to receive privileges of neutrality quickly.

## **5. The inflationary process from the second half of the 1750s until the second half of the 1760s**

This inflationary process coincided more or less with the Seven Years’ War (1756–1763) and the contemporary colonial wars in North America (“Old French and Indian War”) and the Indian Ocean area (1754–1763) and their aftermath. Hamburg witnessed an economic boom of some degree from 1758 onwards – with a short-term recession 1759/60 – and

<sup>16</sup> Joh. Gg. Büsch, *Die politische Wichtigkeit der Freiheit Hamburgs und ihrer Schwesterstädte Lübeck und Bremen für das ganze handelnde Europa*, (Hamburg 1797), pp. 20s. Cf. P. Höfer, *Deutsch-Französische Handelsbeziehungen im 18. Jahrhundert. Die Firma Breton frères in Nantes (1763–1766)*, (Stuttgart 1982), p. 16.

<sup>17</sup> W. Vogel, ‘Handelskonjunkturen und Wirtschaftskrisen in ihrer Auswirkung auf den Seehandel der Hansestädte 1560–1806’ [1934], *Hansische Geschichtsblätter* 74 (1956), pp. 50–64, here pp. 60, 64.

<sup>18</sup> *Ibid.*, p. 64.

a recession starting in 1764.<sup>18</sup> The conflict between the great European powers that affected large parts of the world and especially of the world trade found expression in a clear and continuous growth of the index of non-European goods. The fact that this growth started already in 1754 was, however, not caused by the non-European war events, but by the bad harvests in Europe of the mid-1750s. The resulting rise in prices, especially those for European agricultural products that reached their climax in 1758 to fall again afterwards, greatly influenced the overall index. On the other hand, the prices for non-European food products even decreased in 1754/55; for all non-food goods, prices increased only marginally. From 1756, the war outside Europe made itself felt – the prices for most non-European goods increased sharply; the bad harvests in Europe continued until 1757 and influenced the price development negatively as well. While the prices for European food products in Hamburg had been stagnating and even slightly decreasing since the early 1760s, those for European non-food products only started to increase now in a significant manner. The background for this development is to be found on the one hand in the improvement of the food supply situation that resulted from the better, and compared to former years, even excellent harvests; another reason must have been the growing demand for raw materials and manufactured goods needed for warfare in and outside of Europe. The boom in Russian products reached its climax in 1760; foreign trade with Russia could continue undisturbed during the war and probably gained additional momentum because of increased English demand, caused by the war.<sup>19</sup> Accordingly, prices for goods from England (lead and lead oxide) and Russia (tallow) rose from 1762 onwards, as did those for goods from Norway (copper) from 1763; the prices for iron from Sweden and for copper plates from Spanish America (Chile)<sup>20</sup> did not fluctuate significantly. Swedish cargoes from

<sup>18</sup> E. Harder-Gersdorff, 'Handelskonjunkturen und Warenbilanzen im lübeckisch-russischen Seeverkehr des 18. Jahrhunderts', *Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte* 57 (1970), pp 15-45, here p. 24.

<sup>20</sup> More details in M.A. Denzel, H.-J. Gerhard and A. Engel, *op.cit.* (2000), p. 249. Cf. H. Pohl, *Die Beziehungen Hamburgs zu Spanien und dem Spanischen Amerika in der Zeit von 1740 bis 1806*, (Wiesbaden 1963), *passim*.

Gothenborg to Hamburg as well as to other cities on the North Sea coast even increased markedly in this period and in 1763, with almost 3,700 loads, reached their highest value in the entire XVIII<sup>th</sup> century.<sup>21</sup>

In the case of the non-European goods, the price increase was much more significant, because shipping connections to Europe were frequently interrupted and disturbed by English-French warfare. Among the non-food products, it was especially the prices for East-Indian saltpetre (and also gallnuts) that increased sharply from 1760 onwards. This was probably caused by the higher freight rates in the war zone of the Indian Ocean.<sup>22</sup> Freight rates for bulk goods, to which saltpetre belonged, from India to Great Britain rose at around 43–48% between 1755 and 1762, depending on the port of departure.<sup>23</sup> The fact that prices for non-European food products did not increase as they did for raw materials and manufactured goods, but only rose slightly from 1755 to 1758/59, only to decrease by roughly the same amount afterwards<sup>24</sup>, is explained by the changed structure of trade flows to Hamburg: France, Hamburg's main supplier of West-Indian semi-luxury goods, had in 1760 terminated the 1716 trade treaty with Hamburg<sup>25</sup> and now demanded 5 livres tournois *Faßgeld* per tonneau.<sup>26</sup> The traders of

<sup>21</sup> I. Lind, *Göteborgs handel och sjöfart 1637–1920. Historisk-statistisk översikt*, (Gothenborg 1923).

<sup>22</sup> In contrast to this, the purchase price that had to be paid by the East India Company for saltpetre in Bengal stood only relatively high between 1750 and 1758, and greatly decreased after 1759. "The high price which the East India Company paid for its saltpetre in the 1750s was the inevitable result of the fusion of political and commercial forces that characterised the dying years of Nawab Alivari Khan in Bengal"; K.N. Chaudhuri, *The Trading World of Asia and the English East India Company 1660–1760*, (Cambridge 1978), p. 41, cf. *ibid.*, pp. 104s., 532.

<sup>23</sup> R. Davis, *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries*, (London – New York 1962), p. 263, cf. also H.E. Braun, 'Zum interkontinentalen Transport von Gewürzen in der Frühen Neuzeit', in M.A. Denzel (ed.), *op.cit.* (1999), pp. 123–148, here p. 145.

<sup>24</sup> It should be noted that it did not come to a drastic fall in prices in Hamburg after 1759, as happened e.g. on the London sugar market (because of additional imports from the newly conquered Guadeloupe and Martinique).

<sup>25</sup> F.-K. Huhn, *Die Handelsbeziehungen zwischen Frankreich und Hamburg im 18. Jahrhundert unter besonderer Berücksichtigung der Handelsverträge von 1716 und 1769*, (doctoral dissertation, Hamburg 1952).

<sup>26</sup> J.G. Gallois, *Geschichte der Stadt Hamburg*, vol. 2, (Hamburg 1853), p. 579. Cf. P. Höfer, *op.cit.* (1982), p. 22.

Hamburg quickly succeeded in gaining Great Britain as a supplier, so that the non-European goods arriving from British ports surpassed the French several times in value by 1760 at the latest.<sup>27</sup> Consequently, the prices for non-European food products could fall after 1760 and reached – except in the case of mocha and tea – their pre-war level at the end of the war in 1763 at the latest, particularly as the sales of sugar refined in Hamburg in areas hit by the war – e.g., Austria<sup>28</sup> – could be increased. Additionally, Swedish intermediate trade in non-European goods that were brought to Sweden, imported at Gothenborg by the Swedish East Indian Company, contributed to Hamburg's supply. This re-export trade reached its peak in the XVIII<sup>th</sup> century during the Seven Years' War.<sup>29</sup>

In all, the inflationary process from the second half of the 1750s until the second half of the 1760s was caused by an interaction of a demand-pull inflation and a cost-push inflation. A war-induced higher demand, combined with a war-induced supply caused an increase in prices that immediately followed a period of bad harvests in Europe. Hamburg's favourable position in matters of trade strategy, which allowed the city to replace immediately a supplier of non-European goods, France, with its competitor Great Britain, was responsible for the fact that the increase in Hamburg's prices did not occur as sharply as in later times of war, and that this increase could be reversed already from 1760 onwards.

## **6. The two inflationary processes in the 1770s and in the first half of the 1780s**

Starting in 1770, bad harvests caused rising prices among European food products, which reached their highest point in 1772. Prices for rye,

<sup>27</sup> J. Schneider, O.-E. Krawehl, M.A. Denzel (eds.), *Statistik des seewärtigen Hamburger Einfuhrhandels im 18. Jahrhundert nach den Admiralitäts- und Convoygeld-Einnahmebüchern* (= Quellen und Forschungen zur Historischen Statistik von Deutschland XX), (St. Katharinen 2001), passim.

<sup>28</sup> Cf. W. Kaltenstadler, 'Der österreichische Seehandel über Triest im 18. Jahrhundert', *Vierteljahrsschrift für Sozial- und Wirtschaftsgeschichte* 55 (1968), pp. 481-500; 56 (1969), pp. 1-103, here: 55 (1968), p. 497.

<sup>29</sup> J.F. Nyström, *De Svenska Ostindiska kompaniera*, (Gothenborg 1883), table "antal inkommande läster".

for example, increased by more than 86% in Hamburg.<sup>30</sup> This strong rise in prices for food resulted in an extensive shift in purchasing power, which, in turn, led to a sales crisis for other goods that lasted until the mid-1770s and affected primarily non-European goods. This sales crisis also resulted in an over-supply of the affected goods and a temporary fall in prices (see *graphs 1 and 2 a/b*).<sup>31</sup>

From 1775/76 onwards, prices, particularly those for the non-European food products, increased significantly. This increase came as a result of the disturbances and interruptions of the Atlantic trade, caused by the American War of Independence (1776–1783) and the Fourth English-Dutch Maritime War (1780–1784). These led – also by way of rising insurance rates – to sharp increases in carriage. Thus the insurance premium for, e.g., a trip from Curaçao to Amsterdam, was 15%, whereas between 1766 and 1773 it had amounted to 6% at the maximum.<sup>32</sup> How the inner-European freight rates rose in these years, can also be demonstrated from the quotations of the price current of the company Pelloutier & C<sup>ie</sup> in Nantes, according to which freight rates for sugar between Nantes and Hamburg rose by 135% from May 1777 to April 1782; the rates for coffee increased by a remarkable 58% between May 1777 and December 1779.<sup>33</sup> In the years 1781/82, this development was at its highest, because by now almost all non-European goods were affected, while prior to this Asiatic, Arabian and Levantine goods had shown no or only a small price rise. Products from the American region were now hit by repeated and marked rises in price: Thus, West Indian cotton was quoted from 1771 to 1774 at a continuous 21 grot Flemish, in 1775 at 33, from 1776 to 1780 at a constant 36, but in 1781 at 49 and in 1782 even at 59 grot Flemish.<sup>34</sup> In contrast to this, goods from the later United States – such as tobacco from Virginia<sup>35</sup> – witnessed

<sup>30</sup> H.-J. Gerhard and K.H. Kaufhold, *op.cit.* (1990), p. 168.

<sup>31</sup> Cf. H.-J. Gerhard, *op.cit.* (2002); W. Vogel, *op.cit.* (1956), p. 60.

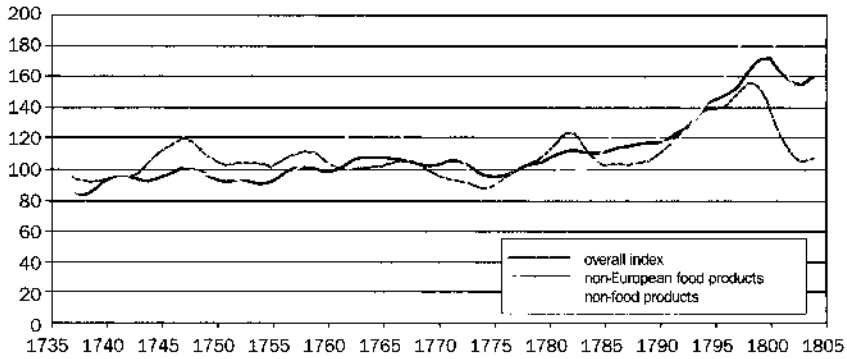
<sup>32</sup> F.C. Spooner, *Risks at Sea. Amsterdam Insurance and Maritime Europe, 1766–1780*, (Cambridge 1983), pp. 176, 258–286.

<sup>33</sup> M.A. Denzel, *Der Preiskurant des Handelshauses Pelloutier & C<sup>ie</sup> aus Nantes (1763–1793)*, (Stuttgart 1997), p. 148.

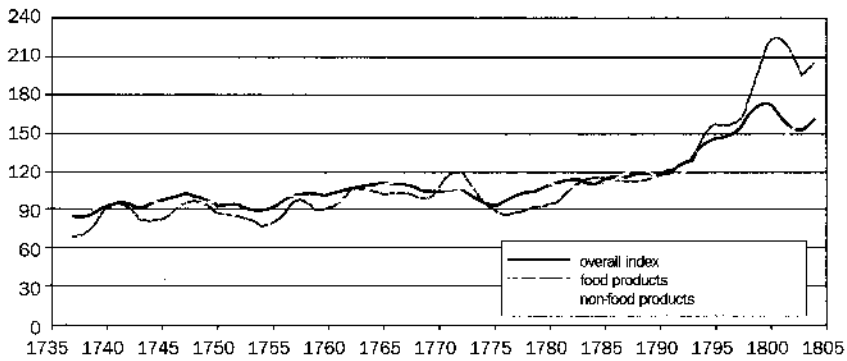
<sup>34</sup> H.-J. Gerhard and K.H. Kaufhold (eds.), *op.cit.* (2001), p. 272.

<sup>35</sup> *Ibid.*, p. 124.

**GRAPH 2a: Overall Index and Indices of non-European food products and non-food products at the Hamburg market (1736–1805 = 100)**



**GRAPH 2b: Overall Index and indices of European food products and non-food products at the Hamburg market (1736–1805 = 100)**



a rather continuous and less volatile price increase between the years 1776 and 1782.

In the period considered here, rises in prices on the Hamburg market were once more induced by a combination of a demand-pull inflation and a cost-push inflation. In the present case, however, it was particularly the costs for the import of non-European goods that were growing, so that it would be more correct to speak primarily of a cost-push inflation.

## 7. The inflationary process of the 1790s

In northern Germany's Hanse cities, the 1790s were characterised by a drastic increase in *ad valorem* trade volume. This increase can be put down to the growing trade with the United States since 1794/95<sup>36</sup>; secondly, to the political "state of emergency", that came about in the course of the First Coalition War against revolutionary France (1792–1797), when Catherine II. and then the other allies prohibited any trading with France, and when the Dutch cities – especially Amsterdam – practically ceased competing with Hamburg after their ports were shut down in 1795. This war boom in Hamburg was only interrupted by the trade and banking crisis of 1799, then by the blockade of the Elbe river by the British fleet in the years 1803 until 1805, finally – from 1806 onwards – by the Continental System.<sup>37</sup>

The inflationary process of the 1790s was undoubtedly the most marked and significant in Hamburg in the entire XVIII<sup>th</sup> century. It differs from the former trends in regard to the speed and extent of its growth and the variety of the goods that supported the process. The increase was the highest for the European food products index that rose by 110 percentage points between 1790 and 1800, while the index for non-European food products grew "only" by 55 points in the same period. In fact, prices for non-European food products changed even faster; between 1791 and 1799 they soared by 80 points. The most stable, i.e. those with the lowest increase, were the prices for European non-food products. Between 1791 and 1804, they rose by almost 50 points. Moreover, it was characteristic for this period of inflation, the longest one

<sup>36</sup> In November 1795, Boston became the first American financial centre to establish a regular exchange rate quotation on Hamburg (via London).

See: J. Schneider *et al.* (eds.), *Währungen der Welt I: Europäische und nordamerikanische Devisenkurse 1777–1914*, (Stuttgart 1991), vol. I, p. 412.

<sup>37</sup> W. Vogel, *op.cit.* (1956), p. 60; E. Harder-Gersdorff, *op.cit.* (1970), p. 28; H. Sieveking, *op.cit.* (1934), pp. 154–159; H. Kellenbenz, "Der deutsche Außenhandel gegen Ende des 18. Jahrhunderts", in F. Lütge (ed.), *Die wirtschaftliche Situation in Deutschland und in Österreich um die Wende vom 18. zum 19. Jahrhundert. Bericht über die Erste Arbeitstagung der Gesellschaft für Sozial- und Wirtschaftsgeschichte in Mainz 4.–6. März 1963*, (Stuttgart 1964), pp. 4–60, here p. 24.

that Hamburg witnessed in the XVIII<sup>th</sup> century, that the increase in prices occurred at clearly different times for some of the goods. We may conclude that there were different reasons and backgrounds to the price increases for the various goods.

One of the main causes of the inflationary period of the 1790s was undoubtedly the military conflict with revolutionary France – the first Coalition War lasted from 1792 to 1797, the second from 1799 to 1802. The resulting disturbances in international maritime trade did not only entail a drastic rise in freight rates – especially through growing insurance rates – but also worsened the supply situation of various goods. At the same time, goods that were traded overland – like wax, silk and madder<sup>36</sup> – remained unaffected by continuous increases in prices. The price situation was further worsened, when the supply of goods that came to Hamburg by sea could at times only be delivered in limited amounts. When the plantation economy on Saint-Domingue collapsed in 1791/92, extensive amounts of sugar, coffee and cotton ceased to be delivered to Europe,<sup>37</sup> thus drastically reducing the supply of West Indian sugar that had been available there in the previous years. The price for West Indian sugar consequently doubled between 1788, the last of the “normal” years, and 1792. As a further result of the closing of the Dutch ports, Brazilian sugar that was imported to Hamburg via Portugal and England, now increasingly entered the market of the city. Already in 1792, the amounts of sugar that reached Hamburg via the Portuguese ports surpassed the sugar coming from France by 50%.<sup>38</sup> Since the competing product from West India could not sufficiently match the demand in Hamburg, the price for Brazilian sugar was pushed up – after all around 67% –, probably also because of a profit-oriented pricing policy of the Portuguese and Hamburg middlemen, which, however, cannot be proved here in detail.

<sup>36</sup> This statement is only valid for the “common” madder. The price of “fine” madder, which was more refined and more in demand, rose sharply in 1786/87, only to decline in the two years after 1798 and to afterwards reach the price level of the 1760s and 1770s.

<sup>37</sup> When the revolt of the coloured majority of the population broke out, Saint-Domingue produced 73.500 tons of sugar and 43.000 tons of coffee per year.

<sup>38</sup> A. Petersson, *Zuckersiedergewerbe und Zuckerhandel in Hamburg im Zeitraum von 1814 bis 1834. Entwicklung und Struktur zweier wichtiger Hamburger Wirtschaftszweige des vorindustriellen Zeitalters*, (Stuttgart 1998), pp. 77, 83s.

In the case of the coffee from the West Indies, the price also doubled in the 1790s, but this happened more slowly and, more importantly, only at the end of the decade. It is likely that coffee from other West Indian islands was sold in Hamburg under the label "Martinique & Saint-Domingue". The reason that prices for coffee from the Caribbean rose much more in France – e.g. in Nantes – than in Hamburg, was that Great Britain tried to obstruct French ports with a naval blockade. It was thus hardly possible to replace the missing imports from Saint-Domingue. 1792 was the last year in which Hamburg received a larger amount of coffee and sugar from France than from the re-export centres. After that, these goods reached Hamburg mainly via British (London, Liverpool) or US-American ports – especially in 1798/99<sup>41</sup> –, or even directly from West Indian trade centres (esp. Havana, St. Thomas).<sup>42</sup> This was particularly opportune in the case of Havana, because French colonists, fearing the consequences of the French Revolution, had left Saint-Domingue as early as 1790, settled in Cuba, had started to plant coffee and had extended the cultivation of sugar cane. The visible increase in coffee prices in the last years of the XVIII<sup>th</sup> century was probably also caused by the increasing risk affecting trade that originated from French attacks on neutral ships that had started in 1797/98, the ensuing higher rates of insurance, and also the costs for convoys that England employed to secure its overseas commerce (and that of the United States which was neutral) against French attacks.<sup>43</sup>

The duration of the war with its consequences for overseas and intercontinental trade – especially the impairment of the British India trade by French privateers in the Gulf of Bengal between 1795 and 1805 should be mentioned here – had a significant impact on the prices of goods imported from the Indian Ocean, e.g. for black pepper from 1791/92 and again from 1798 onwards, for nutmegs from 1793, for saltpetre from 1794, for cloves from 1795, for mocha from 1797, and for tea from 1798 onwards. Goods from the neutral USA – here tobacco from

<sup>41</sup> Cf. H. Kellenbenz, *op.cit.* (1964), p. 25.

<sup>42</sup> J. Schneider, O.-E. Krawehl and M.A. Denzel (eds.), *op.cit.* (2002), pp. 391-396, 581-587; A. Petersson, *op.cit.* (1998), pp. 90-97.

<sup>43</sup> *Ibid.*, p. 87.

Virginia – were subject to a steep rise in price in the years 1797 to 1799 that had previously only occurred to this extent during the last years of the American War of Independence.

In the case of cotton, another factor for a price increase must be added. The price increase for cotton from the West Indies and Smyrna (see above) that had begun during the American War of Independence was only revised slightly after 1783. This was due to the greatly increased demand for cotton that came about in the course of industrialisation and the ongoing diffusion of cotton-processing manufactures and factories in England and on the European continent. At the same time, goods that served to starch and to refine the cotton fabric were in higher demand, such as gallnuts and Pernambuco wood, which were needed for the dyeing process; prices for both had risen in the early 1770s, but continued to keep their higher level after 1781/82.

The price increase of European products came, at least in part, as a result of war-induced higher demand, as will be shown in the following section for the Hamburg hinterland (see below). However, the fact that the index for food products rose much faster and steeper than that for non-food products, has to be attributed to another, no less important phenomenon, namely population increase. In the final two decades of the XVIII<sup>th</sup> century, population grew by ca. 9.5%<sup>44</sup>, thus causing a higher demand for food. In Hamburg alone, population grew from c.90,000 to c.130,000 in the second half of the XVIII<sup>th</sup> century or around 44%.<sup>45</sup> This explains why Holstein butter and herrings started to rise in price already in the middle of the 1780s, whereas the price increase for other European food products generally started between 1790 and 1793. The increase in the price of the latter has to be seen as a reaction first to revolutionary and then to war events. On the other hand, the price increase of butter and herrings needs, at least in the beginning, to be ascribed to the

<sup>44</sup> See, amongst others, F.-W. Henning, *Deutsche Wirtschafts- und Sozialgeschichte im 19. Jahrhundert*, (Paderborn et al. 1996), p. 772.

<sup>45</sup> P. Bairoch, J. Batou and P. Chèvre, *La Population des villes européennes. Banque de données et analyse sommaire des résultats 800–1500 / The Population of European Cities. Data Bank and Short Summary of Results*, (Geneva 1988), p. 6.

population increase and was later, especially at the end of the 1790s, intensified by the chaos of war. Prices for European raw materials and manufactured goods were the slowest and most gradual to rise in the 1790s, the only exception being canvas that grew more expensive from 1788 onwards – possibly a reaction to the higher demand caused by the growing population, or perhaps the Russian-Swedish war for the Baltic Sea provinces and eastern Finland.<sup>46</sup> Copper, Saxon Blue, copper plates, iron, linseed oil and tallow showed ongoing price increases only from the mid-1790s (1794 to 1797), lead and lead oxide only from 1801 onwards. For the latter two products, this can be attributed to aggravated import conditions from Great Britain, which in 1801 came about as result of conflicts between Great Britain and the Nordic Coalition, i.e. Russia, Sweden, Denmark and Prussia, on issues of free trade.

Generally speaking, the inflationary process in Hamburg of the 1790s ended, in the case of non-European goods, in 1797/98, and for European goods in 1800; only the prices of European non-food products continued to rise in the following years. At the time when the second Coalition War approached its end (Peace of Lunéville of February 1802 and Peace of Amiens of March 1802) and in the following “period of peace”, prices declined markedly.<sup>47</sup> This trend was only reversed with the protective tariff measures, Napoleon’s preparations for a British invasion (1804), and the third Coalition War (1805). However, this inflationary process stands outside the period considered and is therefore not examined in more detail here.

The inflationary process in Hamburg during the 1790s can thus be regarded as yet another combination of a demand-pull inflation, a cost-push inflation, and – connected with the latter – an imported inflation. Population growth – also in the city of Hamburg itself – caused an increasing demand for foodstuffs, textiles and their related raw materials (cotton, starching and dyeing materials) that made itself felt in the 1780s and was further intensified in the 1790s. In the whole of Europe, merchants

<sup>46</sup> Cf. E. Harder-Gersdorff, *op.cit.* (1970), p. 26.

<sup>47</sup> The reason for the decline of the index of non-European goods around the turn of the century were the (partly temporary) low prices for nutmegs (1800–1804), cloves (1799–1802), raw sugar (1800–1803), tobacco (1801/02), as well as pepper and saltpetre (1802–1805).

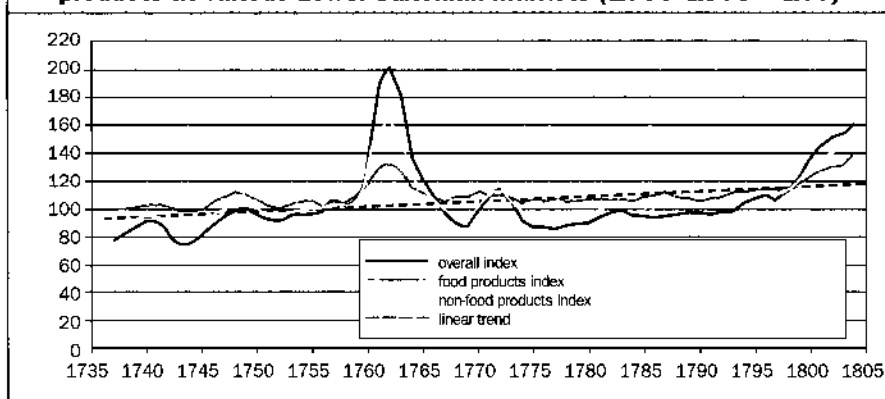
were forced to burden consumers with higher costs – especially higher freight costs that came as a result of disturbances of international and intercontinental sea trade. Secondly, with demand staying at least constant, but probably increasing, the supply of West Indian goods in particular had been decreasing for at least some years, as there had been some decline in production there, so that it was possible – and, in fact, inevitable – for middlemen to push through higher prices on the European markets. It was, in particular, the import of higher-priced goods from abroad – especially from non-European countries – that played a leading role for the developments in Hamburg, so that in this case cost-push inflation and imported inflation cannot, as a matter of fact, be separated. Whether we can speak of a profit-push inflation has to remain unanswered here, although we can safely assume that Hamburg's merchants hoped for gains from speculation and war until 1798. However, it will only be possible to make definite statements about the business strategies of individual trading houses after detailed studies have been undertaken.

## **8. Inflationary processes in selected Lower Saxon cities of the Hamburg hinterland**

*Graph 3* shows that the prices of food products had a much stronger influence on the overall price development than those of non-food products, since the food product index dominates in almost all cases where the two indexes move in opposite directions. This is a reflection of the higher economic status that agriculture possessed in Lower Saxony in comparison with manufacture. Also, it should be emphasised that for pre-industrial land transport, changes in grain prices were in most cases tantamount to changes in the cost of carriage, as these were more or less calculated on the basis of the cost of animal fodder and the payments required for the coachmen.\* Crop failures such as occurred, e.g. in 1756/57

\* Cf. H.-J. Gerhard, "Die Entwicklung der Input-Output-Relationen in Harzer Eisenhütten 1747–1806 und ihre Rolle in der Preisbildung verschiedener Hüttenprodukte", in E. Westermann (ed.), *Quantifizierungsprobleme bei der Erforschung der europäischen Montanwirtschaft des 15. bis 18. Jahrhunderts*, (St. Katharinen 1988), pp. 170–213, here p. 194.

**GRAPH 3: Overall index and indices of food products and non-food products at various Lower-Saxonian markets (1736-1805 = 100)**



and especially in 1771/72<sup>49</sup> could lead to short-term inflationary pushes via multiplier effects, which, however, were mostly neutralised by the following good harvests. In this instance, causes characteristic of a demand-pull inflation met with those of a cost-pull inflation on the regional level. High agricultural yields could still have a depressing effect on development, as happened e.g. between 1773 and 1793. During these years, price indices for agricultural goods remained throughout distinctly below those of the other goods, which, because of a lowering of freight costs, had an effect on the pricing of certain manufactured products, even raw materials<sup>50</sup>, whose production and/or sales costs depended strongly on transport.

The two great inflationary processes that also coincided with those in Hamburg (see above) – 1758 to 1762 and 1790 to 1805 – cannot be explained by crop failures and a resulting demand surplus, because harvest yields were, with the exception of the year 1795, high or very high.<sup>51</sup> The fact that the inflation period coincided with the Seven Years'

<sup>49</sup> Cf. W. Abel, *Massenarmut und Hungerkrisen im vorindustriellen Europa. Versuch einer Synopsis*, (Hamburg – Berlin 1974), pp. 200-215.

<sup>50</sup> Cf. M. Steinkamp, *Die Eisenbütle Gittelde 1700-1787. Eine betriebswirtschaftliche Untersuchung*, (Stuttgart 1997), p. 155.

<sup>51</sup> Cf. also Stadtarchiv Göttingen, Amtsbücher, Kornregister samt Belegen and Altes Aktenarchiv, Landwirtschaftssachen of the respective years and the constant and sometimes drastic decrease of grain prices since 1757. Despite of warfare, grain prices in Hamburg

War (1756–1763) leaves us to assume that warfare as such, through destruction, pillage, plunder, and similar things, was responsible for the price increase. This, however, seems to have been the exception. On the one hand, many and various sources do not contain complaints about such events that would systematically apply to larger regions.<sup>52</sup> On the other hand, the inflationary process took on a similar form in such different and differently affected regions, as, e.g., southern Lower Saxony around the city of Göttingen that was for many months occupied by French troops, and in the regions around Celle, Lüneburg and Brunswick to the north.<sup>53</sup> Hence, the influence of the war on supply and demand cannot be regarded as a general factor that applied to all regions in a similar way.

Similarly, it would be wrong to argue in favour of an imported inflation (perhaps coming from Hamburg), because all foreign trade activities in the Guelphian territories had more or less ceased as a result of the war.<sup>54</sup> The import of capital on a larger scale cannot have taken place, for the foreign troops requisitioned payments and food from the occupied territories – as was customary. The soldiers, accordingly, did not spend money they had brought with them; rather, it must have been the case that money and material assets went out of the country to the homelands of the invaders.

The only possibility remaining is that the inflationary process was induced by the money supply. In pre-industrial times, both an

and its “hinterland” only reached prices of 1758 in 1763, calculated in good money. See H.-J. Gerhard and K.H. Kaufhold, *op.cit.* (1990), *passim*. Another view is given by U. Obal, “Zollregister als Quelle einer Handelsstatistik des Kurfürstentums/ Königreichs Hannover”, in: K.H. Kaufhold and M.A. Denzel (eds.), *op.cit.* (2000), pp. 51-100, here p. 89.

<sup>52</sup> Cf. Chr. Römer, “Niedersachsen im 18. Jahrhundert”, in: Chr. van den Heuvel and M. von Boetticher (eds.), *Geschichte Niedersachsens, vol. 3/1: Politik, Wirtschaft und Gesellschaft von der Reformation bis zum Beginn des 19. Jahrhunderts*, (Hannover 1998), pp. 221-350, here pp. 287-296.

<sup>53</sup> The “rate of interlinkage” between the sensitive grain markets of the above-mentioned cities was more than 90%.

About the term “rate of interlinkage”, see H.-J. Gerhard with contributions by A. Engel, *op.cit.* (2000), p. 117.

<sup>54</sup> Chr. Römer, *op.cit.* (1998), pp. 287-296.

increase in the amount of precious metals as well as a relative or absolute decrease in the amount could lead to a reduced value of the money as compared to the supply with goods. The second occurs, when a shortage of precious metals – as, e.g., in the Holy Roman Empire in the late XVI<sup>th</sup> and early XVII<sup>th</sup> century – leads to the issuing of large quantities of low value coins<sup>55</sup>. In the case of our increase, we are dealing with – to put it simply – a relative loss in the value of money with a constant precious metal content. In contrast, a reduction in the amount of silver available to meet the respective needs entails a deterioration in the currency, i.e., a reduction in precious metal content combined with an increase in the issue of minted coins, or, in other words, an absolute loss of value of the single coin. In both cases, the merchants' efforts to avoid losses led to an increase in nominal prices, i.e., to an inflationary process. In this case, the amount of silver, the metal primarily employed for coinage, did not increase, because the local precious metal production in the mining regions of the Harz mining district had long passed its climax and still continued to decline.<sup>56</sup> The *Zehntkassenregister* of the Harz mining district<sup>57</sup> do not mention that silver was imported for the purpose of minting coins; they show explicitly that neither the Guelphian mints of Zellerfeld and Clausthal, nor the one in Goslar produced considerable quantities of undervalued money.<sup>58</sup> The reason behind the relative shortage of precious metals around 1760 was the risen need for money among the principalities and states engaged in the war. Prussia, in spite of substantial English subsidy payments, in particular, faced great problems to finance its enormous armament

<sup>55</sup> Cf. H.-J. Gerhard, *op.cit.* (1993), pp. 69-84.

<sup>56</sup> Cf. Chr. Bartels, *Vom frühneuzeitlichen Montangewerbe zur Bergbauindustrie. Erzbergbau im Oberharz 1635-1866*, (Bochum 1992), pp. 726-731.

<sup>57</sup> The *Zehntkassen* constituted the central accounting units of the Harz mining districts; they were also used to account for the entire Guelphian precious metal and coin production.

Cf. H. Staudte, "Die Zehntkassen als Verwaltungsorgane und zentrale Rechnungsbereiche des Harzer Montanwesens. Struktur und Organisation der Clausthaler Zehntkasse", in H.-J. Gerhard, K.H. Kaufhold and E. Westermann (eds.), *Europäische Montanregion Harz*, (Bochum 2001), pp. 137-145.

<sup>58</sup> Landesbergamt Clausthal, unrecorded archives, Zehntregister.

costs. In an attempt to cover these, Friedrich II leased the Saxon mints he had conquered for high sums to Jewish financiers, and allowed them to produce large quantities of undervalued war coins.<sup>59</sup> For coin production, the companies Ephraim and Itzig & Co. used not only Saxon silver from the Erzgebirge, but tried to purchase silver and good coins for their low-quality money elsewhere, and also in Lower Saxony. Because the French who occupied this territory insisted that all occupation costs and the provisions for their troops should be paid for in good coins<sup>60</sup>, and because the population started to hoard the local, high-quality money, all transactions in Lower Saxony were soon made in foreign Saxon current money, the so-called "Ephraimites", whose precious metal content continued to decline further in the course of the war.<sup>61</sup>

The extent of this loss in value can be roughly estimated by the relative surpluses that city authorities paid their employees on top of their salaries when they were forced to pay them in low-quality money. In the city of Göttingen, this premium amounted to 55.89% in the fiscal year 1759/60, to 71.43% in 1760/61, and to even 132.14% in 1761/62. Converted into calendar years, the numbers were 32.6% for 1759, 64.96% for 1760, 106.84% for 1761 and still 55.06% for 1762, when the war in Lower Saxony was almost over.<sup>62</sup> In *graph 4*, we have corrected the overall index of the Lower Saxon basket of goods (*graph 5*) by respecting the above

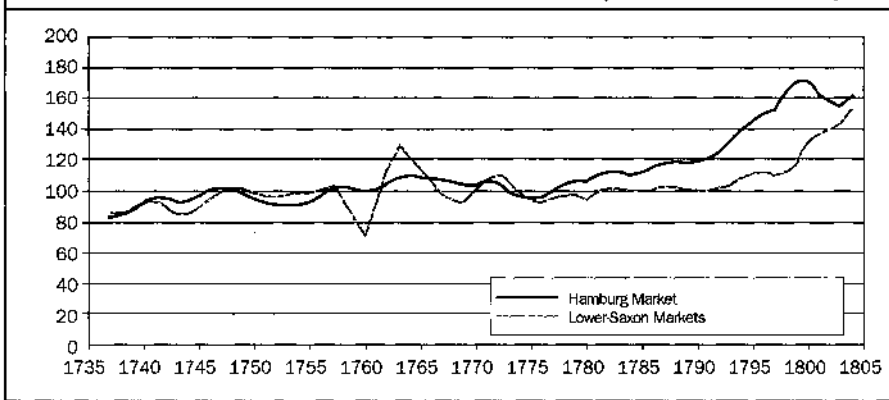
<sup>59</sup> Cf. H. Rittmann, *Deutsche Geldgeschichte 1484–1914*, (München 1975), pp. 386–389; B. Sprenger, *Das Geld der Deutschen. Geldgeschichte Deutschlands von den Anfängen bis zur Gegenwart*, (Paderborn et al. 2002), pp. 131–136.

<sup>60</sup> The city of Göttingen alone had to pay more than 300,000 talers of Hanover *kassenmünze*, i.e. good and stable coinage. Cf. H.-J. Gerhard, *Dienstehkommen der Göttinger Offizianten 1750–1850*, (Göttingen 1978), p. 28.

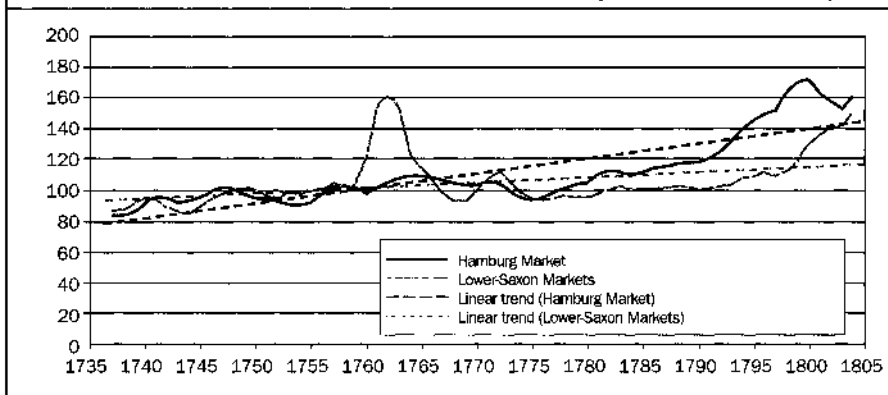
<sup>61</sup> H. Rittmann, *op.cit.* (1975), p. 387. Cf. U. Obal, *op.cit.* (2000), p. 89.

<sup>62</sup> Cf. H.-J. Gerhard, *op.cit.* (1978), p. 69. The fiscal years lasted from 1 June to 31 May of the following year. Accordingly, the percentage amounts of the calendar years were weighted in the ratio 5 to 7 (months). The details from the city registers of Göttingen, a city that was strongly damaged by the war, are certainly not representative for the price development in the whole region considered here, and they may have been somewhat too high and orientated in favour of the public employees. These numbers are, however, the only existing evidence for the money depreciation we could find.

**GRAPH 4: Overall index at the Hamburg market and corrected (see text) overall Index of various Lower-Saxon markets (1736-1805 = 100)**



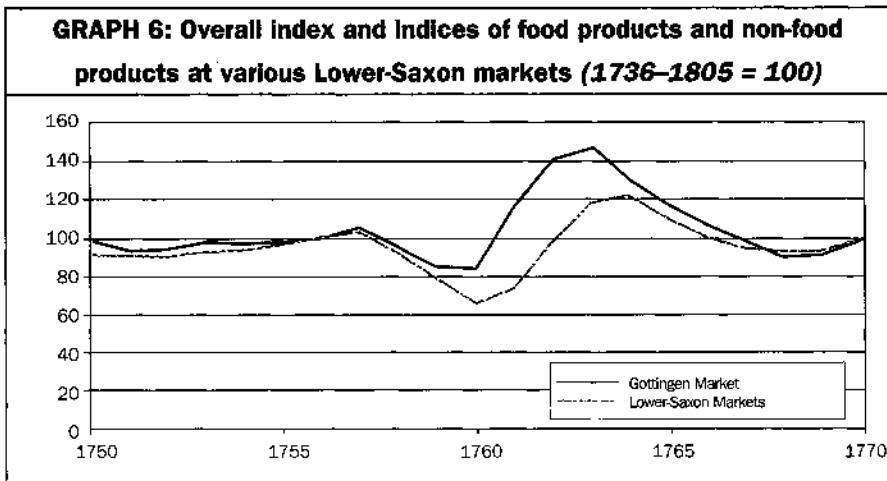
**GRAPH 5: Overall Indices and their linear trends at the Hamburg market and at various Lower-Saxon markets (1736-1805 = 100)**



mentioned premium payments in the respective calendar years. As indicated, differences in the development of the Hamburg index still exist; but they are much less significant with the money depreciation excluded. At the same time, the index sometimes takes a different direction. On the one hand, this can be taken as a clear sign that the money depreciation was a fundamental factor in the inflationary process; on the other hand, it becomes clear that other influences must have existed in addition. When the Prussian war currency disappeared, and when Prussia returned to a stable system of currency in 1764, the effects

of depreciation soon disappeared. This is yet another indication of the importance of the monetary effect.<sup>63</sup>

The differences between the Lower Saxon and Hamburg index trends that still exist can be explained with the help of *graph 6*. We can use the graph to elucidate the local effects of the war in and around Göttingen on the inflationary process. From 1759 onwards, the partial index for the prices of goods (prices corrected for monetary changes) traded in the Göttingen region changed relative to the respective index for the remaining Guelphian territories. Here, the price increases occurred earlier and were much steeper, and only concerned food and sheep's wool. The reason for the different development of the partial indices lay in the already mentioned occupation of the southern Lower Saxon region by French troops.<sup>64</sup> These repeatedly penetrated from Hesse and Westphalian territories into the borderlands of the electorate of Hanover. Whereas the French had only crossed the border with some smaller



<sup>63</sup> Cf. H. Rittmann, *op.cit.* (1975), p. 395; H.-J. Gerhard, "Vom Leipziger Fuß zur Reichsgoldwährung. Der lange Weg zur 'deutschen Währungsunion' von 1871/76", in R. Cunz (ed.), *Währungsunionen. Beiträge zur Geschichte überregionaler Münz- und Geldpolitik*, (Hamburg 2002), pp. 249-290.

<sup>64</sup> Cf. for the following A. Saathoff, *Geschichte der Stadt Göttingen seit der Gründung der Universität*, (Göttingen 1940), pp. 44-63.

contingents and only for some days or weeks in 1757/58, in June and July 1759 the French occupational troops already numbered some thousand men and numerous horses; the troops that occupied Göttingen and its surrounding regions from mid-September 1760 until mid-August 1762, were of a similar size. Despite good harvests and an earlier decrease in prices, the consequent higher need for food and animal fodder led to growing scarcity and thus to rising prices. This additional need, first limited to the region, soon showed a kind of knock-on effect on other Guelphian territories, and also on regions not involved in the war. By government order, food was brought from the unaffected territories to cater for the starving population of southern Lower Saxony. This, again, resulted in a supply fall in and thus to rising prices.

In conclusion, the inflationary process in the Guelphian territories between 1758 and 1763 appears to have been mainly the result of an increased money supply, but also shows factors of a demand-pull inflation in some regions more than in others. Certain trends that had at first been confined to the local level, later spread to the regional level, without, however, being able to affect Hamburg, the big international and globally integrated trading centre.<sup>65</sup>

The analysis of the reasons for the longer inflationary process that started in Lower Saxony in 1789/90 yields results different from those of the Seven Years' War period. For the turn of the century, the sources do not contain any reference to a general deterioration in the quality of money, the minting of money in war time, or an increased import of precious metals. On the markets, in trade and in the public sector, money of good quality and of constant value was demanded and used for transactions.<sup>66</sup> All contemporary sources that mention inflation plainly

<sup>65</sup> This is further exemplified in *graph* 7, that shows a slowly decreasing price for food for the years 1757–1768. It seems that there were no signs of scarcity in the Hamburg wholesale trade in food.

<sup>66</sup> Stadtarchiv Göttingen, Amtsbücher, Landesverordnungen, coin edicts of the years 1785 to 1800; Landesbergamt Clausthal, unrecorded archives, Zehntregister.

Cf. H.-J. Gerhard, "Vom Reichstaler zum Euro", in K.H. Kaufhold (ed.), *1801 bis 2001 – 200 Jahre Sparkasse Göttingen. Älteste deutsche kommunale Sparkasse*, (Göttingen 2001), pp. 407–431, here p. 415.

declare that the underlying reason was the war with revolutionary France.<sup>67</sup> With the so-called coalition wars – starting in 1792 – disturbances or stoppages in production occurred in parts of Europe, which had to be met at least partly by imports from other European regions. This applied in particular to the food supply, the more so, as, due to the general population growth, food production had become a bottleneck.<sup>68</sup> In the territories supplying foodstuffs demand also increased which led to a sharp increase in the prices of agricultural products.<sup>69</sup> As war went on, prices rose at an even higher rate; in the last decade of the period under consideration, the increase was more than 50% in the Guelphian territories.<sup>70</sup> The production of manufactured goods was also seriously impaired in certain regions, a phenomenon that entailed scarcity and thus price increases. On top of this, demand for war-related products of all kinds, especially metal goods, went up. So, for example, prices for iron bars of the Harz iron works rose around 45 to 49% between 1793 and 1803, depending on the location of the iron foundry.<sup>71</sup> All in all, we may still speak of a demand-pull inflation, which was further aggravated by a cost-pull inflation whenever freight costs were high.

## **9. Conclusion: The inflationary processes in Hamburg and its hinterland in comparison**

If we now turn to a comparison of the inflationary processes in Hamburg and its Lower Saxon hinterland (*graph 5*), it becomes clear that the development proceeded along more or less similar lines until around 1759. Thereafter, the cities of the hinterland were confronted with the

<sup>67</sup> Evidence of this kind is especially to be found in territorial and city records dealing with salary increases and related issues. They have survived in all Staats- and Stadtarchive of the Guelphian territories.

<sup>68</sup> Cf. W. Abel, *Agrarkrisen und Agrarkonjunktur. Eine Geschichte der Land- und Ernährungswirtschaft Mitteleuropas seit dem hohen Mittelalter*, (Hamburg – Berlin 1978), pp. 200-202.

<sup>69</sup> Cf. *idem*, *Geschichte der deutschen Landwirtschaft vom frühen Mittelalter bis zum 19. Jahrhundert*, (Stuttgart 1967), pp. 328-335.

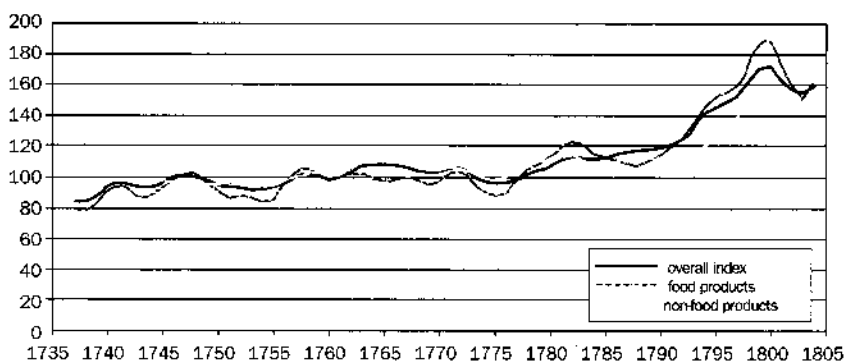
<sup>70</sup> Cf. H.-J. Gerhard and K.H. Kaufhold, *op.cit.* (1990), *passim*.

<sup>71</sup> Cf. *ibid.*, pp. 509-514.

sharp price increase of the years 1759 to 1765, while it appears that the war events affected prices in the Hanse city much less. After 1766 prices in the Lower Saxon cities decreased much more rapidly than in Hamburg (reaching a low point in 1767/68), but started to increase again from 1769/70 onwards. Here, too, the price development in Hamburg was less volatile. The next inflationary push that started in the early 1770s was weaker than the one of the early 1760s and reached its peak in the Lower Saxon hinterland in 1772. Again, inflation in Hamburg was lower than in its hinterland. After prices had fallen, developments in the quoted cities more or less came into line again between 1774 and 1776. In the wake of the American War of Independence a longer inflationary process started in Hamburg in 1776/77. Prices were stagnating after a short decrease from 1783–1785, but continued to rise sharply from 1791 onwards. This “war inflation” lasted in Hamburg until the crisis at the end of the 1790s, when inflation was reversed and prices fell. In contrast to this, prices in the Lower Saxon hinterland alternated only slightly, after they had grown somewhat feebly from between 1780 and 1783 to 1792/93. Only then did prices increase at a slow, and from 1798 onwards, at a high rate, compared to Hamburg. After prices in Hamburg had fallen in the beginning of the XIX<sup>th</sup> century, the price trends came into line again, because prices continued to increase in the Lower Saxon cities. From 1803 onwards, the trends were more or less identical. It becomes clear that prices in Hamburg over the period from 1735 to 1805 rose more than in the hinterland. This increase, at an average of 1% per year, is much lower than inflation rates of today.

Let us now turn to the causes of this contrasting development. Firstly, it has to be assumed that the strongest influences on the price development in Hamburg came from outside of Europe. This is also shown in *graph 1*. Whenever price indices for European and non-European goods ran in opposite directions, the non-European trend prevailed, even though only 15 of all 34 goods in the Hamburg basket of goods came from non-European countries. In the Lower Saxon cities, on the other hand, “special inflations” as between 1759 and 1765 could make themselves felt. The analysis of the individual price trends showed that it was not only non-European goods, some of whose prices even

**GRAPH 7: Overall Index and Indices for food products and non-food products at the Hamburg market (1736–1805 = 100)**



declined in the second half of the 1780s, but also five European goods that were responsible for this development. These latter European goods are not part of the basket of goods of the Hamburg hinterland, because no data for them is extant: the goods were either not traded because local substitutes existed, or because they were excluded from trade by import bans, as happened in the case of Swedish iron.<sup>72</sup> Further, the fact that the sources for the Lower Saxon cities do not include any non-European goods and that, as a result, these goods are missing in the basket of goods distorts the picture for the Hamburg hinterland. We know for sure that some of the non-European goods were traded in Lower Saxony;<sup>73</sup> it has to be assumed that the price increases in Hamburg directly or via multiplier effects triggered off inflationary processes in the hinterland. The extent, direction and speed of this process depended heavily on the degree of interlinkage between the markets.<sup>74</sup> We leave it to future studies to resolve this problem.

Comparing the types of the inflationary processes in Hamburg and its hinterland, it can be stated that in both cases demand-pull inflations

<sup>72</sup> Cf. J. Mex, *Der kurhannoversche Eisenhüttenverband und sein Markt (1765–1806)*, (Bochum 2002), pp. 288–303.

<sup>73</sup> E.g. on the Brunswick faires see M.A. Denzel, *op.cit.* (1998), *passim*.

<sup>74</sup> Cf. H.-J. Gerhard with contributions by A. Engel, *op.cit.* (2000), p. 117.

in combination with cost-push inflations were dominant. It is, however, not possible to determine their respective share in the inflationary process. Only in a single case, namely the inflation in the Lower Saxon cities between 1759 and 1762, we can definitely speak of a money supply-induced inflation: the enormous scale that this inflation reached within few years, remained unique in the region for large parts of the XVIII<sup>th</sup> century and was only exceeded in Hamburg in 1798. It is remarkable, that the money supply-induced inflation was much faster to emerge and, after monetary conditions had improved, to subside than the two other types. Demand-pull and cost-push inflations, on the other hand, took longer to take effect, but generally lasted longer and raised the prices at least in the medium-term. Demand-pull and cost-push inflations were thus largely responsible for the general secular rise in prices in Hamburg as well as in the Lower Saxon cities of the Hamburg hinterland. Other types of inflation can either be detected only once (money supply-induced inflation), or can only be suspected (profit-shift inflation in Hamburg in the 1790s), or cannot be found at all (demand-shift inflation).

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