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ECONOMICS 301Y1

The Economic History of Later-Medieval and Early-Modern Europe

LECTURE TOPIC NO. 9:

VII. INTERNATIONAL COMMERCE: Changing Patterns of International Trade in Late Medieval Europe, ca. 1280 - ca. 1520

A. INTRODUCTION: The Importance of Foreign Trade in European Economic Development

B. Warfare, Transaction Costs, and the International "Depression"

C. The Italians in Late-Medieval International Commerce

VII. INTERNATIONAL COMMERCE: Changing Patterns of International Trade in Late Medieval Europe, ca. 1280 - ca. 1520

A. INTRODUCTION: The Importance of Foreign Trade in European Economic Development

1. Adam Smith and Classical Economics:

a) Adam Smith, the recognized founder of modern scientific economics in the 18th century, began his third chapter of *Wealth of Nations* (1776) by the caption: 'That the division of labour is determined by the extent of the market'. (p. 17)

b) **Or in modern parlance:** that economic specialization is a function of the scope of the market; that the volume of sales will determine the scale of enterprise -- level of technology and of capital investments;

c) **that specialization and increasing returns to scale (economies of larger scale):** is key to productivity gains and to economic growth.

2. What Contributions Did Trade Make to Economic Growth?

a) **The Growth of the Market Economy:**

i) **In general,** the foreign trade sector helped to promote the growth of an integrated market economy

ii) **The development of the internal or domestic market itself:** was directly influenced by external trade: by the expansion of both exports and imports, in various ways.

b) **Demand Side**:

i) **export expansion and the widening of foreign markets:** provided a strong stimulus to the growth of industrial manufacturing industries, and to their increased scale.

ii) **However, note that the stimulus may also be to the expansion of the agricultural and natural resource sectors:** exports of foods and raw materials were also important for most countries -- not just manufactured industrial goods

c) **Supply Side**:

i) **imports of various raw materials for industrialization:**

(1) for medieval Italy and the Low Countries: imported English and later Spanish wools;

(2) For England in the Industrial Revolution era: imported cotton

ii) **imports of foodstuffs equally important for industrialization:**

(1) above for all urban industrialization, to relieve pressures on local agriculture:

(2) and thus in the Low Countries both Flanders and Holland became dependent upon imported grains from France and the Baltic;

(3) similarly, nineteenth-century industrialising Britain became even more dependent on imported grains and other foodstuffs.

d) **supplying capital for industrial investments (or investments elsewhere in the economy)**:

i) **commercial profits:** provided one of the most rapidly expanding and elastic forms of net savings;

ii) **also a source of savings:** that was more likely to be directly reinvested in the economy.

e) **promoting the growth and development of the economy's infrastructure**: necessary for market

expansion, economic growth, and industrialization: transportation and commercial distribution networks, and especially:

f) **promoting the growth of the financial sector**: of banking and financial facilities, which, as we shall see, were so closely tied to foreign trade, from the medieval Italians to the South Germans and Antwerp in the fifteenth and sixteenth centuries to the Dutch and the English in the 17th and 18th centuries.

B. Warfare, Transaction Costs, and the International 'Depression'

1. Depopulation and the so-called 'Great Depression' of the Late Middle Ages:

a) **The debate about the late-medieval Great Depression:** has been noted on previous occasions, especially in the section on demography, money and prices (with the subsidiary debate on the so-called 'bullion famine') and on agriculture.

i) **Whether or not the late-medieval economy experienced a 'depression' is still a matter of fierce debate amongst economic historians,** especially for dealing with the non-agrarian sectors (trade, industry, finance).

ii) **The term 'depression' I must point out lacks any specific definition in the lexicon of economics,** and some would restrict the term to the relatively recent events of the 1930s.

iii) **But if economists do agree on the term recession:**

(1) defining it as a net decline in real GNP over two successive quarters -- i.e., over a 6 month period

(2) and if one might logically argue that a depression is a major contraction in GNP or aggregate European output of real goods and services, over a much longer span of time,

(3) then one could logically argue that the undisputed fall in the population of late medieval Europe -- on the magnitude of 40% or more -- must have meant a depression.

(4) The 'unemployment' argument is completely irrelevant for a pre-industrial economy, in which the vast majority of people did not live from money wages alone but lived at least partly from the land and related resources (in forestry, fisheries, mines, etc).

(5) Thus the level of real wages also cannot be a determining factor

(6) And even so, during subsequent depressions, including the Great Depressions of 1873-1896 and 1929-1939, real wages and real incomes of the employed indisputably rose

b) **Depopulation and the late-medieval economy:**

i) **No amount of technological change and capital investment could have remedied such a major reduction in the labour supply,** when labour and land were the two major inputs.

ii) **While land did become abundant in supply it did not counteract labour scarcity,** since so much land was simply abandoned and in effect withdrawn from the economy.

iii) **To the extent that relative labour scarcities did exist,** then one might conclude that they helped to drive up industrial prices, at least in labour-intensive industries (though not proven).

iv) **Depopulation much more obviously meant contracted markets:** but more serious than actual contraction (since demand and supply could presumably have achieved re-adjustment) was the disruptions of markets that accompanied the forces promoting depopulation.

v) **Was depopulation itself the primary and initial factor in the contraction of international markets?**

(1) If one were to argue that major fall in the population began only with the Black Death in 1348 (and not with the Great Famine of 1315), then depopulation was not the primary and initial cause of international market contractions.

(2) But there is now some considerable evidence of significant or severe fall in the population well before the Black Death, and indeed from the early fourteenth century:

- in Essex in England;
- in Provence, in southern France;
- and in Tuscany and Lombardy, in Italy.

(3) Those in the Mediterranean zone can be at least partly attributed to the economic and social consequences of warfare, to which we shall return.

c) **The Question of Real Wages and the late-medieval 'depression':** [1]

i) **Many economic historians continue to contend that the late-medieval, post-Plague era,**

(1) was an era of rising real wages and of rising prosperity in general,

(2) and thus could not have been one of 'economic depression'.

ii) **Indeed, the most common portrayal of the fifteenth century is:** the so-called 'Golden Age of the Labourer' (or artisan), a term coined by James Thorold Rogers.[2]

iii) **That argument, as just noted, is, however, really irrelevant:** because the concepts of economic recession, and thus by implication, economic depressions, concern changes in aggregate (national or regional) outputs and real incomes, not in per capita incomes.

iv) **Across late medieval Europe, per capita incomes,** for all regions and for all strata or levels of society are almost impossible to measure, except for.

(1) England and the southern Low Countries (principally Flanders and Brabant)

(2) building workers – i.e., masons, carpenters, thatchers, wall-plasterers, street-pavers.

v) **As also noted earlier, real-wage measurements,** which is not the same thing as real incomes, can be made only for those who earned daily wages in the form of silver coin, thus involving several problems:

(1) Most people's incomes did not come from cash wages – and certainly very few (under 20%, as a guess) received all of their incomes from cash wages

(2) Most wage earners earned piece-work wages (as just demonstrated in the textile industries): and we cannot measure the purchasing power of piece-work wages.[3]

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[1] See the discussion of real wages in the previous lectures, nos. 5, 6, and 7.

[2] James E. Thorold Rogers, *A History of Agriculture and Prices in England*, Vol. I: *1259 - 1400* (Oxford, 1867); and Vol. IV: *1401 - 1582* (Oxford, 1882); James E. Thorold Rogers, *Six Centuries of Work and Wages: The History of English Labour* (1st edn, London, 1884; final edition, London, 1912).

[3] The once exception to be noted is for fullers in the woollen cloth industry, who earned a combination time and piece-work wage. See John Munro, 'Gold, Guilds, and Government: The Impact of Monetary and Labour Policies on the Flemish Cloth Industry, 1390-1435', *Jaarboek voor middeleeuwsche*

(3) We certainly have no way of estimating levels or changes in the real incomes of peasants, most agricultural labourers, merchants, craftsmen, officials, landlords, etc.

vi **Standard economic theory, especially Ricardian theory,** would dictate that, *ceteris paribus,* depopulation should have quickly led to a rise in real wages, because:

(1) the change in the land:labour ratio, favouring labour, should have led to a rise in the marginal productivity of labour, and thus to a rise in real wages.

(2) the presumed abandonment of high cost, less fertile marginal lands, should have led to

- a redistribution of agrarian population to concentrate on lower-cost, more fertile lands (closer to the market, etc.)
- in turn that should have led to a fall in the real prices for agricultural goods, and thus
- to a fall in the cost of living.

(3) This illustration involves, however, an inherent contradiction: for

- as stressed earlier, the real wage is determined by the *marginal revenue product of labour*
- and thus a fall in (real) agricultural prices may have offset, in the determination of MRP, any rise in the physical marginal product of at least agricultural labour.

viii) **As I have demonstrated in several publications, now, even in highly favoured England, let alone the Low Countries, real wages did not rise immediately following the Black Death:**[4]

(1) in both England and Flanders real wages fell and did not begin to recover to the pre-Plague levels until the 1360s

(2) a sustained long-term rise in real wages did not really begin

- in England (i.e., to surpass those of the 1330s) until the later 1370s
- in Flanders and Brabant, not until the 1390s

(3) If real wages, thereafter, rose into the 15th century, they did not continue to rise

- in England they peaked about the 1450s
- in Flanders and Brabant they oscillated, rising, falling, rising, and again falling, several times in the 15th century.

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geschiedenis, 5 (2002), 153 - 205. See also the following note.

[4] John Munro, 'Wage Stickiness, Monetary Changes, and Real Incomes in Late-Medieval England and the Low Countries, 1300 - 1500: Did Money Matter?' *Research in Economic History*, 21 (2003), 185 - 297; John Munro, 'Builders' Wages in Southern England and the Southern Low Countries, 1346 -1500: A Comparative Study of Trends in and Levels of Real Incomes', in Simonetta Caviococchi, ed., *L'Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 36, Istituto Internazionale di Storia Economica "Francesco Datini" (Florence, 2005), pp.1013-76; John Munro, 'Before and After the Black Death: Money, Prices, and Wages in Fourteenth-Century England', in Troels Dahlerup and Per Ingesman, eds., *New Approaches to the History of Late Medieval and Early Modern Europe: Selected Proceedings of Two International Conferences at The Royal Danish Academy of Sciences and Letters in Copenhagen in 1997 and 1999*, Historisk-filosofiske Meddelelser, no. 104 (Copenhagen: The Royal Danish Academy of Sciences and Letters, 2009), pp. 335-364.
See these and other relevant papers that I have posted in the departmental Working Papers Archives, at: http://www.economics.utoronto.ca/munro5/HomePageWP.htm

d) **Warfare, Depopulation, and Real Incomes in Later medieval Europe**

i) **Changes in real incomes, obviously, play a strong role in market demand:** and the still strong belief amongst so many historians in rising real incomes in later-medieval Europe has been used a the chief weapon to combat the hypothesis of a late-medieval 'depression'

ii) **Two mathematical formulae for measuring changes in real wages:**

(1) RW = MRP_L

- The basic Ricardian supposition: that the Black Death and other factors, by producing a 40% decline in European population, so radically altered the land: labour ratio that the marginal productivity of labour must have risen (as argued several times earlier)
- But: as was just stressed — and needs repeating here – real wage changes are determined not by changes in the marginal productivity of labour alone, but by its marginal revenue product:
- Thus, any rise in the MP of labour might have been offset by the fall in the real prices (e.g., grain) produced by that labour, and hence even a fall in MRP
- also seen that in English arable agriculture, labour productivity evidently fell
- elsewhere in the economy: very difficult to measure

(2) RW = NWI/CPI:

- nominal wage index (money wages) divided by the Consumer Price Index
- Some period is chosen to represent the base, so that the index 100 = mean of nominal prices and nominal wages for that period
- For the wage and price indexes used in this course: 100 = mean of 1451 - 1475

iii) **In this respect, late-medieval real wages in NW Europe, from the later 14th century,** were essentially determined (as argued in earlier lectures) by the combination of:

- nominal wage-stickiness: in that, from the later 14th century, nominal cash wages were fixed for very long periods of time;
- and the rise and fall of the price levels: i.e., real wages rose during deflations and fell during inflations
- as I have also argued, monetary factors chiefly determined the rise and fall of the price levels

iv) **Warfare:** was certainly a very major reason why real incomes more often fell than rose in late-medieval Europe

(1) Warfare had a very negative impact on real incomes, especially from:

- the effects of coinage debasements (income redistributions),
- but also from soaring taxation, tolls and tariffs, restrictions on trade (movements of both goods and capital),
- and the destruction of labour, land, and capital assets;

(2) dislocations to trade routes, regional and international

(3) On this, combining indeed the adverse affects of both depopulation and warfare, the Nobel-prizing winning Douglass North has commented:

> The decline of population, coupled with war, confiscation, pillage and revolution, reduced

the volume of trade and stimulated a trend toward local self-sufficiency. The losses to society due to the decline in specialization and reduced division of labor certainly argues against a rise in the standard of living.[5]

v) **Coinage debasements** was one of the very most important factors, in so far as they caused inflations, and thus a decline in real wages (with fixed nominal money wages)

(1) Italy, France, the Low Countries, Spain, Germany all suffered from extensive coinage debasements, especially during the 14th and 15th centuries – again, the primary factor in declining real wages

(2) England, as noted before, was highly unusual, if not unique, in being spared from periodic coinage debasements, experiencing only minor ones in 1351, 1411, and 1426, though a major one in 1464-65 (under Edward IV).

(3) Late-medieval England was a European anomaly in largely escaping coinage debasements (before the reign of Henry VIII, in 16th century (1542 - 1552), for two reasons:

- relative immunity from destructive warfare on its own soil
- The wool trade also provided another reason: the revenues from wool exports were so lucrative that English coins had a far lesser need for seigniorage incomes from their mints.

vi) **Warfare, Public Debts, and Falling Population:**

(1) Warfare became increasingly costly, especially with the introduction of artillery and hand guns, during the 14th and 15th centuries

(2) Warfare was largely financed by public borrowing and increased taxation – and taxation, of course, was necessary the annual interest on public debts and annual annuity payments

(3) The major source and form of such taxation came in the form of excise taxes on consumption: of beer, wine, bread, meat, fish, textiles, etc.[6]

(4) That taxation was extremely regressive,

- burdening the lower income strata of society far more than the upper income strata:
- and indeed meant a transfer of income from the poor (in taxes) to the rich (earning interest and annuity payments).
- This topic was explored more thoroughly in the previous lecture on banking and financial institutions (including government finance: *rentes*)

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[5] Douglass North and Robert Thomas, *The Rise of the Western World: A New Economic History* (Cambridge, 1973), p. 78.

[6] See John Munro, 'The Medieval Origins of the Financial Revolution: Usury, *Rentes*, and Negotiablity', *The International History Review*, 25:3 (September 2003), 505-62; John Munro, The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders (1220 - 1550): Rentes (Annuities), Excise Taxes, and Income Transfers from the Poor to the Rich', in Simonetta Cavaciocchi, ed., *La fiscalità nell'economia Europea, secc. XIII - XVIII/ Fiscal Systems in the European Economy from the 13th to the 18th Centuries*, Atti della 'Trentanovesima Settimana di Studi', 22 - 26 aprile 2007, Fondazione Istituto Internazionale di Storia Economica "F. Datini", Prato, Serie II: Atti delle "Settimane de Studi" et altri Convegni 39 (Florence: Firenze University Press, 2008), pp. 973-1026. Both are available as PDF files on my website for recent publications.

(5) The crucial problem of falling population:

- was that the consequently smaller number of survivors formed the tax base that had to sustain this burden of public debt and taxation: because such debts had to be honoured if governments hoped to be able to borrow more funds
- consequently the per capita burden of taxation, to finance these public debts, rose strongly, and especially, as noted, on the lower income strata of society.
- such excise or consumption taxes were widespread in most towns and cities of medieval continental western Europe, but was absent from medieval England.[7]

vii) **Thus, we must turn,** for a further examination of possible causes of economic retrogression and at least periodic depressions to the costs of warfare, and Douglass North's concept of 'transaction costs' in European economic history.

2. Warfare and Transaction Costs: [8]

a) **International warfare: the major, initial factor in disrupting and contracting international markets in the late-medieval economy:**

i) **By this I do not mean the famous and historically so-glamorous Hundred Years War (1337-1453),** whose onset preceded the Black Death by less than a decade;

ii) **but rather a widening stain of warfare**

(1) **that had begun in the later thirteenth century, and especially from the 1290s,**

(2) and then led into the Hundred Years War

(3) to make the entire Late Middle Ages an era of chaotic warfare that Europe had not experienced since the Carolingian period.

iii) **Although warfare had of course never been absent in the medieval economy,** nevertheless Europe and the Mediterranean basin had enjoyed, during the twelfth and thirteenth centuries, an era of relative peace and international harmony that had promoted a very rapid expansion of international trade and the European economy.

iv) **For western Europe, that era of relative peace came to and end in the 1290s (some places earlier),** with the almost simultaneous spread of chaotic warfare in the eastern, central and western Mediterranean -- in the Levant, in Italy, in Spain and southern France -- in north-west and central Europe.

b) **The details you can read for yourselves:** especially conflicts with Muslim powers

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[7] In England, excise taxes on consumption were introduced only in 1643, to help Parliament finance its Civil War with the Crown (i.e., by the 'Long Parliament led by John Pym).

[8] In 1993, Douglass North was the co-winner (with Robert Fogel, another economic historian) of the Nobel Prize in Economics, principally for his work on the role of institutions and transaction costs in European economic development. Two years earlier, in 1991, Ronald H. Coase won the Nobel Prize in Economics 'for his discovery and clarification of the significance of transaction costs and property rights for the institutional structure and functioning of the economy.' For Douglass North's publications, see n. 10 below.

i) **From Mamluk Egypt, the Muslim counteroffensive to undo European Crusader conquests:**
(1) when Mamluk Egypt seized the last European Crusader outputs in Palestine, in 1291, breaking their link with Levantine-Asian trade,[9]
(2) and provoking more than a century of Muslim-Christian conflicts and hostility
ii) **Muslim (Ottoman) Turkish invasions of the Byzantine (Greek) Empire,** from 1303
(1) invasions which virtually destroyed that once great empire, and spread into south-eastern Europe, (2) while also provoking chronic conflicts with the Italians and other western Christian states.
iii) **From Morocco (North Africa), the Muslim Berber invasions of Spain, from 1275 --** not only the Christian kingdoms of Castile and Aragon but also the Muslim emirate of Granada (in SE Spain).
iv) **The Wars of the Sicilian Vespers (from 1282),** or the Aragonese-Angevin wars over the control of Sicily: wars involving Aragon (in NW Spain), France (the Angevin realms), the kingdom of Naples, and then all of Italy.
v) **Those wars merged into the fourteenth-century Italian civil wars, known as the Guelf-Ghibelline wars (from 1314),** between those supporting the papacy (Guelfs) and the German Emperor (Ghibelline), which in turn provoked various foreign invasions: by Germans, French, Catalans, Bohemians, Hungarians.
vi) **Wars between Venice and Genoa:** over control of contracting commerce in the Black Sea and the eastern Mediterranean: from 1291-99; 1350-55; 1378-81 (War of Chioggia)
vii) **In north-west Europe, wars between and among England, Scotland, France, and Flanders, 1294 - 1328:** the precursors of the later Hundred Years War.
viii) **In central Europe, civil wars and rebellions in the German or Habsburg empire,** and its chronic involvement in the Guelf-Ghibelline Italian wars.
c) **The impact of international warfare and anarchy on international trade:** from the 1290s through the era of the Hundred Years War (up to 1453): to summarize or repeat previous observations.
i) **the physical disruptions of international trade routes and destructions of various economic assets,** including trading goods and trading facilities and ships; but this was the least important.
ii) **the disruptions from the (naval) corsairs raid, chronic piracy and brigandage that accompanied warfare,** especially by unpaid mercenary armies (in Italy and France).
iii) **commercial embargoes (especially with the Muslim states):** which, when they were not respected, at least required the payment of heavy fines and taxes for their circumvention.
iv) **The fiscal policies to finance both warfare and defence:** coinage debasements, taxes, tolls, etc. on both imports and exports
v) **The extra costs of converting merchant ships into armed warships:** costs of arms and men.

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[9] The Mamluks (Mamelukes) were originally Turkic slave soldiers from the Black Sea and Caucasus regions who provided the core of the armed forces for the Muslim Ayyubid Sultanate that the famed Saladin (born in Tikrit, 1137-1193) established in Egypt in the 1170s. In 1250 the Mamluk army commanders, named *amirs*, overthrew the Ayyubid dynasty and established their own dynasty, which ruled Egypt and then Palestine and Syria, until they were conquered by the Ottoman Turks in 1516-17; but even so, the Ottoman Turks allowed the Mamluks to continue as puppet rulers of Egypt until their massacre by Mohammed Ali in 1811 (Napoleonic Wars).

d) **Transaction Costs and International Trade:**[10]

i) **These economic costs of warfare can be summarized as transaction costs:** the theory, or rather its application to economic history, for which Douglass North won the Nobel Prize in Economics (in 1993, jointly with Robert Fogel of Chicago)

ii) **Transaction costs involve all those costs required in exchange,** in supplying goods and services from point A to point B (and above and beyond normal production and transport costs).

iii) **The costs of protection,** the costs of both developing and protecting, maintaining markets.

iv) **More particularly: 'search and 'measurement' or 'information' costs:**

- in acquiring vital market information,
- in negotiating and enforcing contracts,
- especially acquiring and enforcing property rights.

v) **Transport:** We may add to or include with transaction costs actual transportation costs, whose costs certainly rose for the very same reasons.

vi) **These components all involved very large fixed costs,** so that the entire 'transaction sector' was subject to considerable scale economies (i.e., smaller markets meant higher unit costs).

vii) **The combination of not just warfare,** but also organized violence on the one hand and then plague-induced fall in the population on the other rapidly and often drastically contracted markets, thus so adversely affecting the necessary scale economies for the entire transaction sector.

3. **Transaction Costs and the Changing Structure of International Trade**:

a) **the shift from overland continental routes to maritime routes**

i) **The first and immediate costs of warfare and organized violence in general:** was a shift away from the direct overland continental trade routes that had linked the Low Countries and northern France, via the famous Champagne Fairs, to Italy and the Mediterranean.

ii) **the rapid decline of France's world-renowned Champagne Fairs,**

(1) which had served as the principal commercial hub and distribution point for international sales of a wide range of northern textiles

(2) and in return for the sale and distribution of Mediterranean goods

(3) Added to costs of warfare to this trade: French royal taxation policies

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[10] See Douglass North and Robert Thomas, *The Rise of the Western World: A New Economic History* (Cambridge, 1973), pp. 71-96, 134-38 (quotation on p. 93); Douglass North, *Structure and Change in Economic History* (New York, 1981), chapters 1-5; Douglass North, 'Government and the Cost of Exchange in History', *Journal of Economic History*, 44 (1984), 255-64; Douglass North, 'Transaction Costs in History', *Journal of European Economic History*, 14 (1985), 557-76; Cliometric Society, ed., *Two Pioneers of Cliometrics: Robert W. Fogel and Douglass C. North, Nobel Laureates of 1993* (Oxford, Ohio: Miami University, 1994); and also: Clyde G. Reed, 'Transactions Costs and Differential Growth in Seventeenth Century Western Europe', *Journal of Economic History*, 33 (March 1973), 177 - 90, especially pp. 180-86; John Munro, ''The "New Institutional Economics" and the Changing Fortunes of Fairs in Medieval and Early Modern Europe: the Textile Trades, Warfare, and Transaction Costs', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 88:1 (2001), 1 - 47.

iii) **In response to such disruptions the Italian maritime states:** principally Venice, Genoa, and Florence -- established direct sea-routes to north-west Europe, to Flanders and England.

iv) **Most historians have seen these changes, including even the demise of the Champagne Fairs,** as a positive advance that promoted economic development, chiefly on the grounds that sea-transport must have involved greater scale-economies and have been cheaper than overland trade.

v) **But they have neglected to look carefully at a map:** and note that the direct overland route between the Low Countries and Genoa or Venice was very short: for Venice it was only about 20% of the distance by sea (about 1400 km vs 7200 km).

vi) **They have also neglected to consider the rising costs of sea-transport,**

- especially rising defence costs;
- and the Venetian use of heavily armed galleys, while providing great security, was very expensive
- indeed, as will be noted below, essentially restricting that maritime trade to very high priced luxury goods.

vii) **Chronic problems of naval wars,** corsair raids, and attendant piracy all along the Mediterranean and Atlantic shipping routes:

(1) naval warfare, but especially corsairs raids and piracy led to continually rising freight rates;

(2) sometimes, they actually disrupted and impeded ocean shipping:

- thus from 1332 (when Venetian state-subsidy records begin) Venetian galleys were sent north to Bruges in Flanders and Southampton in England in only 35% of the remaining years in the fourteenth century.
- similar periods when galleys were not used in Mediterranean trade.

viii) **Why the shift to maritime routes made the Champagne Fairs and other continental fairs unviable:**

(1) Those fairs depended upon accurate knowledge, by all merchants, when other international merchants would be visiting the fairs, since the individual fairs (four in a yearly cycle) and the various transactions were stipulated for specific days.

(2) Those travelling to fairs could have reasonable expectations, from experience, and guides, on when they would arrive (and how long they would have to stay).

(3) Such predictions could not be made with long-distance maritime voyages, especially with the frequent danger that a ship could be long delayed by storms at sea, or could go off course (and even be lost)

(4) Crucial problem: while sailors could then readily reckon latitude, by the angle of the sun at noon, they could not reckon longitude, not without accurate chronometers (clocks)

(5) That problem was not resolved until the late 18th century:

- not until an obscure English carpenter and clockmaker, John Harrison, developed the first effective chronometer for such long-distance maritime navigation, tested in 1764.
- Even so, two more decades would pass before his chronometers were finally accepted, even by the

British navy.[11]

(6) **Late-medieval maritime trade thus required:**

- a concentration or canalization of trade in just a few ports,
- and in those ports, resident factors, not bound by specific schedules, who could transact trade with brokers and intermediaries whenever the expected ship finally did arrive (if indeed, it ever arrived!).

b) **The Van der Wee Thesis on the consequences of the shift to sea routes:**[12]

i) **The growing contraction in overland continental trade,** in his view, meant a much reduced demand for transport and commercial services, labour, manufactures, foodstuffs and other goods.

ii) **Declining consumption in turn reduced investment and aggregate incomes:** by a reverse multiplier-accelerator effect.

iii) **Beginning with the arterial routes via the Champagne fairs,** that economic contraction spread via tributary routes into numerous regional trade networks servicing thousands of towns and villages throughout the continental hinterland.

iv) **Continental overland trade did not disappear:**

(1) and sometimes even recovered its vitality during lulls in warfare;

(2) but that trade was not diverted to the new sea routes;

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[11] See in particular Dava Sobel, *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time* (New York, 1995; republished New York, 1996); William J. H. Andrewes, ed., *The Quest for Longitude: The Proceedings of the Longitude Symposium Harvard University, Cambridge, Massachusetts, November 4-6, 1993* (Cambridge, Mass., Collection of Historical Scientific Instruments, Harvard, 1996), especially Anthony Randall, 'The Timekeeper That Won the Longitude Prize', pp. 235-254; Dava Sobel and William J.H. Andrewes, *The Illustrated Longitude* (London, 1998), pp. 137-77; Michael Kennedy, *The Global Positioning System and GIS* (Ann Arbor, 1996). These works inspired the recent Public Broadcasting System television production: 'Lost at Sea: the Search for Longitude' (October 1998): 'It is known that longitude can be found by comparing a ship's local time to the time at the port of origin. The challenge is finding a clock -- a chronometer -- that can keep time at sea, where temperature-changes, humidity, gravity and a ship's movement affect accuracy.' See also the conclusion to my recent article (based on this premise): John Munro, ''The "New Institutional Economics" and the Changing Fortunes of Fairs in Medieval and Early Modern Europe: the Textile Trades, Warfare, and Transaction Costs', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 88:1 (2001), 1 - 47.

[12] Herman Van der Wee and Theo Peeters, 'Un modèle dynamique de croissance interseculaire du commerce mondiale, XIIe-XVIIIe siècles,' *Annales: E.S.C.*, 15 (1970), 100-28; and John Munro, 'Industrial Transformations in the North-West European Textile Trades, c. 1290 - c. 1340: Economic Progress or Economic Crisis?' in Bruce M. S. Campbell, ed., *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century* (Manchester and New York: Manchester University Press, 1991), pp. 110 - 48; reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries* (London: Variorum, 1994); John Munro, 'The Low Countries' Export Trade in Textiles with the Mediterranean Basin, 1200-1600: A Cost-Benefit Analysis of Comparative Advantages in Overland and Maritime Trade Routes', *The International Journal of Maritime History*, 11:2 (Dec. 1999), 1 - 30; John Munro, 'The "New Institutional Economics" and the Changing Fortunes of Fairs in Medieval and Early Modern Europe: the Textile Trades, Warfare, and Transaction Costs', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 88:1 (2001), 1 - 47.

(3) Rather, it became more oriented towards periodic regional fairs.[13]

v) **Such trade diversions further concentrated wealth and income flows into fewer and fewer hands:**

(1) principally those Italian, German, and Netherlander towns based on maritime trade;

(2) but their impressive gains did not offset the much greater aggregate economic decline of Europe's continental hinterlands from the early fourteenth to mid-fifteenth centuries.

b) **A Relative Shift to Higher-Price Luxury Goods in International Trade**

i) **A major consequence of the rise in transport and transaction costs:** was to raise the effective cost-floor below which merchants could no longer make a profit in marketing cheaper goods, especially manufactured goods, over long distances.

ii) **As I had noted in my lecture on medieval textiles [or in the online published version],**

(1) that problem had seriously afflicted the textile industries of NW Europe, whose predominant exports, both by volume and value, were cheap and light textiles, especially the worsted-type cloths, marketed in the Mediterranean basins;

(2) and these industries suffered a very severe contraction from the early fourteenth century, and did not recover until the late fifteenth and sixteenth centuries, with general economic and demographic expansion.

iii) **Thus, with the decline in the manufacturing of cheaper line textiles, as export industries, there was a corresponding relative shift to the export-oriented manufacture higher-priced, more luxury-oriented woollens, true heavy-weight durable woollens:**[14]

(1) their far higher value could far better sustain the rising transport and transaction costs.

(2) their production structures were far more oriented towards quality differentiation and thus to monopolistic competition: i.e., their manufacturers became *price makers* rather than *price-takers* (as most producers of cheap, light, and undifferentiated says and other worsted-style fabrics had been).

(3) as *price-makers* of very high value luxury textiles, these woollen draperies could still make substantial

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[13] Stephan R. Epstein, 'Regional Fairs, Institutional Innovation, and Economic Growth in Late-Medieval Europe', *Economic History Review*, 2nd ser., 47:3 (August 1994), 459-82; and previous note.

[14] For an elaboration of this thesis and for the statistical evidence, see the following: John Munro, 'Industrial Transformations in the North-West European Textile Trades, c. 1290 - c. 1340: Economic Progress or Economic Crisis?' in *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century*, ed. Bruce M. S. Campbell (Manchester and New York, 1991), pp. 110 - 48, reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries*, (Aldershot, Hampshire, 1994); John Munro, 'The Origins of the English 'New Draperies': The Resurrection of an Old Flemish Industry, 1270 - 1570,' in *The New Draperies in the Low Countries and England, 1300 - 1800*, ed. Negley B. Harte, Pasold Studies in Textile History no. 10 (Oxford University Press, 1997), pp. 35-127; John Munro, 'The Symbiosis of Towns and Textiles: Urban Institutions and the Changing Fortunes of Cloth Manufacturing in the Low Countries and England, 1280 - 1570,' *The Journal of Early Modern History: Contacts, Comparisons, Contrasts*, 3/1 (February 1999): 1-73; John Munro, 'The 'Industrial Crisis' of the English Textile Towns, 1290 - 1330,' *Thirteenth-Century England:* VII, ed. Michael Prestwich, Richard Britnell, and Robin Frame (Woodbridge, UK: Boydell Academic Press, 1999), pp. 103-41; John Munro, 'The "New Institutional Economics" and the Changing Fortunes of Fairs in Medieval and Early Modern Europe: the Textile Trades, Warfare, and Transaction Costs', *Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte*, 88:1 (2001), 1 - 47.

profits on relatively small sales and export volumes.

C. The Italians in Late-Medieval International Commerce [15]

1. Introduction: on the crucial importance of the Mediterranean and of the Italian urban republics in European Economic history

(1) **The central fact of European economic history, from Carolingian times to the eve of the Renaissance (ca. 1500) is:** the overwhelming dominance of the Mediterranean basin: in terms of demography, aggregate economic output, and international trade

(2) **Italian economic dominance:**– Italian commercial and financial supremacy – is, for Europe itself, the closely related other central fact of European economic history.

(3) **A major theme of this entire course is the shift of Europe's demographic and economic centre of gravity from the Mediterranean basin and from the Italians, to north west Europe:**

- **first to the Dutch (Holland-Zealand):** who came to exercise economic hegemony from the later 16th to later 18th centuries
- **and to Great Britain:** with and from the Industrial Revolution of the later 18th century

(4) **In part, that medieval Italian commercial and financial dominance may be ascribed to the fact that Italy was obviously the very heart of the Roman Empire:** though neither Rome itself, as a city, nor other central cities of that Empire played an significant role in the subsequent active role in the subsequent medieval economic supremacy: except for the crucial role of the Papacy, located in Rome (but not part of Rome)

(5) Though the principal urban agents of the later Italian dominance – Venice, Milan, Genoa, Florence, Siena, Naples, etc. – were either post-Roman or unimportant in Roman imperial times – the continuation of an urban Roman civilization in Italy was indeed very important

(6) **The role of the Byzantine and Islamic Empires:**

a) **the subsequent medieval importance of the Italian maritime republics, from Carolingian times, but especially from the 10th century, and during the Commercial Revolution era:** can be understood only in the light of their commercial and other economic relations with:

i) **the Byzantine Empire:** (i.e., the successor to the Roman Empire, in the East, with Constantinople as the capital

ii) **and The Islamic World (from the 7th century):**

- the Umayyad Caliphate (651-750 CE), at Damascus (Syria) and its offshoots in Umayyad Spain (780-1031),
- then the Abbasid Caliphate (from 749), which overthrew the Damascus-based Umayyads : but

[15] Please remember or note that the very first lecture, in September, briefly discussed the rise of the Italian seafaring town to economic supremacy before 1300, and analysed the role of the Italian economy in European economic development, if only very briefly. So this current lecture assumes that the reader already knows how the Italians acquired that commercial and financial supremacy.

effectively with their foundation of Baghdad, in 762 CE, [16] to 1258, when Baghdad was sacked by the Mongols (by which time Baghdad was under the rule of the Seljuk Turks).

- for our later medieval period, the most important Muslim dynasties for Italian commerce, and thus for the European economy were the Mamluks (1250-1517) of Egypt and Syria
- and the Turkish Ottoman Empire (1307-1918), especially from their conquest of the Mamluk domains in 1517: to be seen in the second term of this course

b) **A full understanding of how and why the Italians gained such overwhelming economic supremacy in medieval Europe**:

i) **would require another and earlier course in economic history:** from Carolingian times to the Commercial Revolution

ii) **the role of Venice:** but here I need mention only the crucial fact that Venice (founded in 6th century CE, organised as a city under a *doge* in 697 CE), though legally part of the Byzantine Empire, began its rise to commercial and economic power in Carolingian period by developing an independent trade in Slavic slaves to the Islamic world, especially to Egypt.[17]

2. **<u>The Italian Commercial and Financial Supremacy in the Later Middle Ages: key factors</u>**

a) **The continued support from and economic support for the Papacy:**

i) **The role that Italian merchants and financiers had played,** from certainly the 12th century, in handling the transmission of papal taxes and dues from many parts of Europe to Rome

ii) **that enabled Italian merchants to invest the taxes so collected into their trade between those countries in which the taxes were collected and Italy itself:**

- i.e., reselling the merchandise sent to Italy, with a profit,
- after remitting the taxes from the sales proceeds, to Rome, using bills of exchange (as explained in the last lecture)
- actual taxes were invested in goods exported to Italy and resold at a profit

iii) **that became all the more necessary after c. 1300,** when various countries imposed prohibitions on the export of precious metals, thus in effect requiring Italian merchant bankers to export merchandise rather than precious metal: again, as explained in the previous lecture, on bills of exchange.

iv) **The most prominent example is the export of English wools,** both to the Low Countries and to Italy, wools that were purchased in many instances with papal tax funds

v) **But the Italian importance in the English wool-export trade waned from the 1330s,** when English financiers displaced the Italians, for reasons already noted.

b) **The advanced economic development and urbanization of the Italian peninsula itself:** which thus

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[16] In fact, in 836 the official Abbasid capital was shifted to Samarra, remaining there until 892 CE

[17] See Michael McCormick. *Origins of the European Economy. Communications and Commerce, A.D. 300-900*. Cambridge and New York: Cambridge University Press, 2001).

required an extensive foreign trade

i) to import foodstuffs, especially to feed the many, large towns

ii) to import various industrial raw materials:

iii the export of Italian manufactures, and

c) **link between Asia and Europe:**

i) **profitable economic relations with the Mamluk Levant:** i.e., the Mamluk empire of Egypt and Syria, as the prime source of Oriental luxury goods.

ii) for the re-export of merchandise imported from Asia, via Levantine ports

d) **structural economic changes in international trade:** those favouring both maritime and luxury trades, as already analysed in the previous section;

e) **The Italian development of banking and financial institutions:**

i) **as more fully explained in the previous lecture:** on Banking and Credit.

ii) **Note in particular:** the ability of Italian merchant-bankers to make large loans to foreign kings and/or governments often enabled them to gain commercial advantages in those countries

2. **<u>The Italians, Papacy, and Economic Relations with the Mamluks from 1291:</u>**

a) **Papal and secular bans on Mamluk trade:** after the Mamluk conquests

i) **The Mamluk conquest of the Crusader States (Fall of Acre) in 1291,**

(1) had led to a Papal ban on all trade with the Mamluk Empire (Egypt and Syria), and by extension with all Muslim states in the Mediterranean basin

(2) together those circumstances had forced the Italians, during the first half of the fourteenth century, to seek alternative sources of those goods,

(3) chiefly in Black Sea and Lesser Armenian (Cilician) ports: Lajazzo

ii) **those Levantine and Black Sea ports provided the Italians with direct contact with the peaceful and pro-western Mongol Empire,** which stretched from China (and Sea of Japan) to Persia and Black Sea.[18]

b) **The Mongol Khanates, however, experienced various and destructive civil wars from the early to mid fourteenth century, while Mamluks expanded their conquests :**

i) **by the 1340s,** these civil wars and other internal strife had seriously disrupted the Central Asian overland routes leading to those ports, thus diverting more and more trade via Indian Ocean and Red Sea routes.

c) **Mamluk conquest of Lesser Armenia:** and its key port of Lajazzo: in 1347

d) **That Asian maritime trade terminated at Alexandria,** in Mamluk Egypt; and in 1344-45, the Italians overcame strong papal objections to resume full commercial relations.

e) **Italian-Levantine trade was not, however, all that prosperous in the following decades:**

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[18] Italian trade had become very important in these Mongol-ruled areas; and this warfare marked the initial crumbling of the famed 'Pax Mongolica'. In Persia, the end of the Ilkhanid dynasty in 1335 was followed by a 'long period of anarchy'. Western merchants also utilized Crete, Cyprus, and Lajazzo (Cilicia or 'Lesser Armenia') as intermediaries to conduct trade with the Muslim Levant, but paid a higher price in doing so. Lajazzo was conquered by the Mamluks in 1347.

i) **First, the Mamluk rulers of Egypt exercised their monopoly powers:** by organizing trade through a merchant-cartel known as *karimis* cartel, which exploited the Italians.
ii) **Secondly,** the Italians also had to pay exorbitant papal-license fees to trade with Mamluk Egypt.
iii) **Thirdly,** the entire Levantine, Egyptian and eastern Mediterranean world was also struck by the Black Death, with a ferocity and demographic devastation at least equal to that inflicted on Europe -- and this these markets contracted just as drastically.
iv) **Fourthly, the Catalans of north-eastern Spain (Aragon):** soon emerged as a new and formidable rival to the Italians engaged in Levantine trade; and the Catalan merchants could depend on the growing sea-power of Aragon (developed in the Angevin-Aragonese wars in Italy).
v) **Naval wars, corsair raids, and piracy were engaged in by all the major Mediterranean powers:** Christian and Muslim; and especially naval wars between Venice and Genoa.
e) **The Venetian-Genoese Wars:**
i) **As noted earlier, immediately following the Mamluk conquest of Crusader Palestine in 1291,** cutting off the major trade routes to the East,
(1) Venice and Genoa went to war over control of the alternative routes via the Byzantine Empire and the Black Sea, from 1291-99, chiefly in the form of naval warfare;
(2) and that resulted in a very major shift to militarized naval vessels, at high costs; and it also bred serious piracy.
ii) **In the 1350s (1350-55), major naval wars again broke out between Genoa and Venice;** but they were indecisive.
iii) **The War of Chioggia of 1378-81:** almost destroyed Venice; chiefly fought near Venice.
iv) **Though threatened with complete destruction,** Venice rebounded in 1381 to win a surprising, crushing victory over Genoa, ending Genoese commercial power in the eastern Mediterranean zone.
v) **Genoese naval power was seriously impaired,** though not enough to prevent its continued corsair attacks on Mamluk shipping during the 1380s.

3. **<u>The Venetian Commercial Supremacy in the Levant</u>**:
a) **Venetian commercial rivalry with Genoa and Catalonia**
i) **Venice may have become first amongst equals in the Levantine trade,** even if the combined trade of Genoa and Catalonia was certainly much greater than the Venetian.
ii) **Yet Venice was able to capitalize on the folly of her rivals: Genoa and Barcelona**
(1) for both the Genoese and the Catalans could not resist in engaging in corsair or piracy raids on Muslim shipping and Muslim ports, especially Mamluk (Egyptian) shipping
(2) and that obviously provoked strong military and economic retaliation from the Mamluks.
iii) **Venice skilfully managed to gain from this incessant series of Western-Mamluk conflicts:**
(1) first and foremost, Venice itself refused to take part in these attacks,
(2) and then it used skilful diplomacy to remain neutral, to avoid anti-western reprisals
(3) meanwhile Venice was building up its own naval power in the form of heavily-armed large, state-financed

galley warships, which were virtually impervious to pirates and other naval attacks

(4) Venice then used the combination of its neutrality, skilful diplomacy, naval power, and commercial power to extract more and more special privileges from the Mamluks

v) **In 1370, Venice actually secured a general peace with the Mamluks,** which permitted them to develop an expanding trade with Syrian ports in a new commodity, cotton.

vi) **By the 1390s, Venice was enjoying substantial prosperity:** for the first time perhaps in a century, from and by her Levantine trade.

b) **Catalonia (Spain): the end of the Catalan threat to Venice:**

i) **Even in the late fourteenth century,** the Catalans continued to be a formidable rival to Venetian trade in the Levant, especially in Alexandria.

ii) **They also the much more aggressive and foolish rivals:** especially under their empire-building King Alfonso V (1416-58), who promoted organized naval warfare and corsair raids

iii) **Subsequently, from 1462 to 1478,** Catalonia itself was debilitated by civil wars that seriously disrupted her Levantine shipping and hastened the decline of her industrial mainstay in woollen textiles.

c) **The Decline of Genoese Commercial Power:**

i) **Genoa had certainly fared no better,** especially internally, with almost constant civil strife between 1413 and 1453.

ii) **Her ambitions to dominate western Mediterranean commerce:** were forcibly thwarted not only by Catalans but also by Provençals of southern France, based on Marseilles.

iii) **In the eastern Mediterranean,** the Genoese had chosen to rely on a very geographically dispersed and uncertain trade.

(1) Their trade with the remnants of a now impoverished Byzantine Empire steadily declined, while their trade with Caffa and Tana in the Black Sea was subjected to constant Tartar (Mongol) attacks.

(2) Though trade with the rising Ottoman Empire was more promising, it meant dealing with a potential enemy who granted few trading concessions and permitted pirate attacks on Genoese shipping in the Aegean Sea region of the eastern Mediterranean (bordering on the Ottoman Empire).

iv) **Trade with north-west Europe:**

(1) in the all-important trade with north-west Europe, Genoa suffered much greater injury from the Hundred Years' war, especially during the post-Agincourt phase (1415-53), than did Venice.

(2) Venice's advantages lay in her heavily armed galleys, which provided better protection in corsair-infested shipping lanes;

(3) Venetian galley service to Flanders and England increased in frequency during the fifteenth century.

v) **Even so, Venice had chosen to direct more and more of her European trade by the much safer east-Alpine routes into South Germany,** a relatively peaceful region whose economy began to expand from the early fifteenth century [which we saw earlier in discussing money].

d) **Venetian Supremacy and Commercial Prosperity in the fifteenth century:**

i) **The greatest source of Venetian prosperity was,** however, its rising share of Levantine trade, which grew from 40% in c.1400 to almost 65% in the 1450s.

ii) **Venice benefited especially from continued peace with the Mamluks,** fortified by her famed galleys.
iii) **Only briefly did the Mamluks themselves threaten to disturb that peace,** and provide a major threat to Venetian commercial power: when their Sultan Barsby attempted to monopolize the all-important spice trade (1426-38), which would soon account for 60% of total Venetian expenditures in the Levant.
iii) **Through a combination of embargoes,** diplomacy, and control over western spice distribution, Venice finally thwarted that Mamluk policy, which, however, ultimately benefited Venice by irreparably destroying the *karimis* cartel.
iv) **With both obstacles eliminated,** and Venetian dominance ensured, spice prices fell almost 50% by the 1450s, and then remained low until the very year of the first Portuguese expedition to India (1498).
v) **Summary**: Venetian commercial supremacy, to displace its rivals, depended upon the skilful application of military power (heavily armed galleys) and astute diplomacy.

4. **The Economics of Italian Trade with the Levant:**

a) **The Spice Trade: the chief imports**[19]

i) **The leading spices:**

(1) above all pepper, followed by ginger and cinnamon;

(2) but the term 'spices' also included a very wide range of products used both in cuisine and in medicine.

ii) **Spices:** Necessity or Luxury? [20]

(1) spices were not, as often stated, a necessary requirement for preserving foods,

- not when salt was far more effective, more readily available, and much cheaper.
- but cinnamon reputedly did have some preservative qualities

(2) See the table for the deemed or reputed medicinal qualities of some spices: ginger, cinnamon, cloves, cardamom, cumin, anise, nutmeg, mace, and saffron

(3) Spices were still a far too costly luxury for most people, even for skilled artisans, despite falling relative prices and rising real-wage incomes.

(4) See the tables on the costs of spices, in relation to a carpenter's daily wage, in 1439 and in 2006.[21]

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[19] See my Web Document: *Spices and their Costs in Late-Medieval Europe (with Recipes)*. http://www.economics.utoronto.ca/munro5/SPICES1.pdf

[20] See the latest and very valuable study: Paul Freedman, *Out of the East: Spices and the Medieval Imagination* (New Haven and London: Yale University Press, 2008). See also my review in: the *American Historical Review*, 114: no. 2 (April 2009), 407-11. Also: Jean Favier, *Gold and Spices: the Rise of Commerce in the Middle Ages*, trans. Caroline Higgitt (London and New York: Holmes & Meier, 1998); and my review in *The International History Review*, 21:4 (December 1999), 976-78.

[21] See also: John Munro, 'Money, Wages, and Real Incomes in the Age of Erasmus: The Purchasing Power of Coins and of Building Craftsmen's Wages in England and the Southern Low Countries, 1500 - 1540', in Alexander Dalzell and Charles G. Nauert, Jr., eds., *The Correspondence of Erasmus*, Vol. 12: *Letters 1658 - 1801, A.D. 1526-27* (Toronto: University of Toronto Press, 2003), pp. 551-699. See on line: http://www.economics.utoronto.ca/ecipa/archive/UT-ECIPA-MUNRO-01-01.html, for an earlier working-paper version of this essay, which contains considerable data on spice prices and values in this period.

iii) **For the wealthy aristocracy, however, savouring a radical change in late-medieval cuisine:**

(1) such spices provided a highly desirable diversion from a generally bland diet, and perhaps also a necessary though quite affordable symbol of aristocratic status.

(2) Their demand may thus well have been relatively inelastic, yet quite sufficient to continue making the spice trade by far the most lucrative sector of international trade, one that was already furnishing the *leitmotif* for overseas expansion by the mid-fifteenth century.

iv) **An Alterative Reason: Protection against disease?**

(1) You may remember, from the earlier lectures on Population and diseases, that the bacterial transmission of diseases remained unknown until the late-19th century discoveries of Robert Koch (1876) and Louis Pasteur (1878) – the discovery of viral transmissions came much later.

(2) From the medieval era until these discoveries the most popular and widespread notion for the transmission of diseases was known as *miasma*: i.e., noxious airborne vapours, circulating in the atmosphere.[22]

(3) One (very bright) student suggested, on the basis of medieval drawings that show doctors with peaked caps (resembling a bird's beak), supposedly containing spices, that spices came to be used to ward off or dispel those noxious vapours.

(4) A very interesting thesis that requires and indeed deserves further examination.

(5) Obviously, of course, spices had no impact of protecting anyone from any diseases.

b) **Syrian Cotton Imports:**

i) **the second most valuable commodity imported from the Levant was Syrian cotton,** doubtless more mundane but with considerable industrial importance.

(1) From the twelfth century, Italian textile manufacturers, chiefly in Lombardy, had been producing mixed linen-cotton *fustians*, a very popular, cheap, light fabric;

(2) and the Lombard *fustian* industries then enjoyed a spectacular growth, until the early fourteenth century, when they also suffered a slow but irredeemable decline, facing the same difficulties afflicting other cheap textile industries.

ii) **In the 1370s, when warfare disrupted the supply of Lombard fustians to South Germany:**

(1) various towns in this region -- Ravensburg, Regensburg, Constance, Basel, Augsburg, and Ulm especially -- converted their domestic linen crafts into a rival and far more successful *fustians* industry, providing one of the major springs of South German economic growth.

(2) For their cotton, they became totally dependent upon Venice, across the Brenner Pass, supplying silver and copper in return.

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[22] See Answers.com: The miasmatic theory of disease held that diseases such as cholera or the Black Plague were caused by a miasma (Greek language: "pollution"), a noxious form of "bad air". Miasma is considered to be a poisonous vapor or mist that is filled with particles from decomposed matter (miasmata) that could cause illnesses and is identifiable by its nasty, foul smell (which, of course, came from the decomposed material). A prominent supporter of the miasmatic theory was Abaris the Hyperborean, who famously cleaned Sparta under Mount Taygetus from miasmata coming downhill. The miasmatic theory of disease began in the Middle Ages and continued on to the mid 1800s, when it was used to explain the spread of cholera in London and in Paris.

iii) **By the early fifteenth century, rapidly growing cotton consumption,** expanding Venetian trade, and thus rising prices led to large increases in Syrian cotton cultivation. [23]

c) **Western Industrial Exports to the Levant: Textiles and other Manufactures:**

i) **Textiles constituted the most important industrial commodity that the Venetians exported to the Levant in acquiring spices and cotton:**

(1) For reasons already noted, the composition of western textile exports during the fourteenth century had shifted more towards medium-priced and costly woollens;

(2) and the predominant majority of those exports came from Mediterranean draperies -- Tuscan, Lombard, Catalan, and Provençal; followed by Flemish and then English woollens.

ii) **Venetian trade with the Levant in the later fourteenth and fifteenth centuries, according to Eliyahu Ashtor:** the most renowned authority on Levantine trade in this era:

(1) Venice and other western nations had expanded their industrial exports to the Levant during the fifteenth century by taking advantage of industrial decline in Mamluk Egypt and Syria.

(2) If, however, the Levantine industrial slump, economic depression, and demographic decline had all become as severe as is so often portrayed, then the Levant could not have provided such important, growing markets for the West.

(3) Indeed, all the evidence indicates that no more than 35% or 40% of the total European expenditures on Levantine goods were financed by sales of western export goods:

iii) **Other but much lesser industrial and agricultural exports:** glassware, soap, paper, copper, salt, grains, olive oil, and dried fruits.

c) **Bullion Exports and the Balance of Payments:**[24]

i) **The remaining balance,** generally about 60% - 65% in the late fifteenth-century, had to be financed by exporting bullion and specie, chiefly silver, which Ashtor valued at about 660,000 Venetian ducats: or within a range from 580,000 - 730,000 ducats a year.[25] [For metric conversions into weights of fine silver and gold,

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[23] See John Munro, 'South German Silver, European Textiles, and Venetian Trade with the Levant and Ottoman Empire, c. 1370 to c. 1720: A Non-Mercantilist Approach to the Balance of Payments Problem**',** in Simonetta Cavaciocchi, ed., *Relazione economiche tra Europa e mondo islamico, seccoli XIII - XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 38, Istituto Internazionale di Storia Economica "Francesco Datini" (Florence: Le Monnier, 2007), pp. 907-62. Also available online as a Working Paper, at:
http://repec.economics.utoronto.ca/repec_show_paper.php?handle=tecipa-224 [WP no. 26]

[24] See John Munro, 'South German Silver, European Textiles, and Venetian Trade with the Levant and Ottoman Empire, c. 1370 to c. 1720: A Non-Mercantilist Approach to the Balance of Payments Problem**',** in Simonetta Cavaciocchi, ed., *Relazione economiche tra Europa e mondo islamico, seccoli XIII - XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 38, Istituto Internazionale di Storia Economica "Francesco Datini" (Florence: Le Monnier, 2007), pp. 907-62.

[25] See John Munro, 'South German Silver, European Textiles, and Venetian Trade with the Levant and Ottoman Empire, c. 1370 to c. 1720: A Non-Mercantilist Approach to the Balance of Payments Problem**',** in Simonetta Cavaciocchi, ed., *Relazione economiche tra Europa e mondo islamico, seccoli XIII - XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 38, Istituto Internazionale di Storia Economica

see Tables 1 and 2, in the Appendix below, as well as in n. 20]

ii) **What that 'balance of payments' deficit means is that:**

(1) the Italians and Catalans were unable sell the Mamluks (and other Asians) goods and services whose value equalled the value of the Asian-African good bought at Alexandria, Beirut, and Constantinople.

(2) That in turn means that western Europe was not fully competitive, either in terms of relative costs and prices and in terms of quality, with Asian goods

(3) Had the Italians not been able to export and sell western textiles, that trade imbalance would have been even greater: as it came to be in Europe's trade with South Asia in the 17th & 18th centuries.[26]

(2) For the Italians, however, the sale of silver was just another commodity

iii) **The role of the South-German Central European mining boom in Venetian Commerce:**[27]

(1) Note, however, that we have reliable figures on these Venetian balance of payments with the Levant only from the 1490s, at the very time that Venice was able to argue vastly larger quantities of silver by its growing trade with South Germany

(2) and for reasons already explained, that Venetian trade was augmented and expanded greatly by the vastly

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"Francesco Datini" (Florence: Le Monnier, 2007), pp. 907-62, in particular p. 923, where I state more precisely:

But these estimates on the value of trade conducted by the costly Alexandria and Beirut state galleys do not, therefore, include the value of Syrian cotton and some other commodities that, because of low value:weight ratios, were necessarily shipped by the much more cheaply operated (and privately owned) cogs. Even though Ashtor believes that the aggregate value of the cotton traded had declined in the later fifteenth century, because of a steep fall in the price of Syrian cotton, he estimates that the value of these cog-borne cargoes in the later 1490s was about 130,000 to 180,000 ducats a year, and thus still a very significant proportion, perhaps as much as 25 percent, of the total Venetian trade with the Levant, whose aggregate value thus 'amounted to 580,000 - 730,000 ducats a year at the end of the fifteenth century'.

That would mean an aggregate value of value of the Levantine trade (whether measured in imports or exports) amounted, in the weight of fine gold, from 2.056.10 kg to 2,587 kg; or, in terms of fine silver, if we use a bimetallic ratio of 11:1, from 22,621.10 kg to 28,46.35 kg. (Note: The Venetian gold ducat contained 3.545 g. of gold, at about 99.48 percent pure). If we further assume, as a mean estimate, that European specie accounted for 62.5 percent (five-eighths) of the value of Asian goods purchased in the Levant, that would produce estimates of Venetian exports of either of the following: for gold, ranging from 1,285.06 kg to a maximum of 1,617.41 kg; or for silver, ranging from 14,135.69 kg to a maximum of 17,191.47 kg. (or some mix of the two metals). The estimated amount of gold exported ranges from 1.705 to 2.146 times as much gold as minted in England and the Habsburg Low Countries combined (i.e., 753.559 kg); and similarly the estimated amount of silver exported – if all the bullion and specie were in silver – ranges from 1.804 to 2.270 times as much pure silver as was minted in England and the Habsburg Low Countries combined (i.e., 7,836.85 kg). These statistical data are best appreciated in the summaries presented in Tables 1 and 2. Note: you may find this publication replicated in a pdf file, via my web page for Working Papers: http://www.chass.utoronto.ca/~munro5/WorkingPapers.htm. Go to Working Paper no. 26.

[26] See Munro, 'South German Silver, European Textiles, and Venetian Trade with the Levant', pp. 907-62.

[27] See the previous note, and also: John Munro, 'The Monetary Origins of the "Price Revolution:" South German Silver Mining, Merchant-Banking, and Venetian Commerce, 1470-1540', in Dennis Flynn, Arturo Giráldez, and Richard von Glahn, eds., *Global Connections and Monetary History, 1470 - 1800* (Aldershot and Brookfield, Vt: Ashgate Publishing, 2003), pp. 1-34. See also Table 3 in the Appendix, below.

increased quantities of silver that resulted from the South-German Central-European silver mining boom
(3) and concomitantly from South Germany's rapid growth in the production of fustian textiles (made with Syrian cotton and local flax),
(4) so that South Germany succeeded in displacing Lombardy as Europe's chief producer and exporter of these cheap, light textiles.

iv) **Thus Venice was in effect exporting silver in order to purchase cotton and spices:** and whether we should really consider these silver exports as a means of financing a trade deficit is a moot point.[28]

v) **That flow of silver, and also copper, to the Levant was particularly important for the expansion of South German commerce,** whose important economic role can best be understood by first examining contemporary changes in the Baltic and the Low Countries, which will be our next topic.

[28] See my essay on Venice and balance of payments in n. 18 above.

MEDIEVAL SPICES

and their reputed or deemed medicinal properties:

SPICE	PROPERTIES
PEPPER	The most widely used spice, then and now, but not for any significant medical values
GINGER	Next most widely used spice: a digestive, carminative (to counteract flatulence), stimulant; to counteract anaemia and liver complaints; to ward off colds**.**
CINNAMON	Third most important spice: also as a stimulant, carminative, astringent; some reputed qualities as a food preservative.
CLOVES	Digestive, stimulant, local anaesthetic (e.g., toothaches)
CARDAMOM	Digestive; to counteract halitosis (bad breath), headaches, fevers, colds
CUMIN	Digestive
ANISE	Digestive
NUTMEG & MACE	Digestive, carminative, stimulant; cure for colic
SAFFRON	The world's most expensive herb or spice, then and now. A stimulant; cure for headaches, heart palpitations, fainting fits, dropsy, gastric ulcers

SPICES IN MEDIEVAL EUROPEAN AND MODERN INDIAN CUISINE

LATE MEDIEVAL RECIPES: LATE 14TH - EARLY 15TH CENTURY FRENCH AND ENGLISH

POMMEAULX:

2 lb. ground meat: beef, lamb, pork, veal or a combination thereof
2 eggs, well beaten
parsley
rice flour
½ tsp. ginger, ground
½ tsp. ground mace
½ tsp. ground cardamom
6 cloves; or ½ tsp. ground cloves
chopped currants to taste
almonds, ground

1. In place of eggs, substitute a mixture of ground almonds, water or beef bouillon, rice flour; with ½ cup boiling water per tablespoon of ground almonds and 1 tablespoon of rice flour. Or, this mixture may also be used with the beaten eggs, but preferably one egg only.

2. In a mixing bowl, mix the ground meat with the eggs, rice flour, spices, chopped currants, and ground almonds; quickly stir-fry in a large skillet or wok; turn down the heat and simmer; add sprinkled parsley when serving.

CAPOUN Y-ROSTYDE WITH BLACKE SAWSE: Roast Capon with Black Sauce (English)

1 capon (or broiling chicken), about 6 lb.
1 capon liver, cooked and well ground
1/4 cup of bread crumbs
wine vinegar or lemon juice
1/4 tsp. ground anise
½ tsp. ground ginger
½/ tsp. ground cardamom
½ tsp. ground cinnamon

Roast the capon and make a sauce with the ingredients listed above, mixed with the capon drippings and sufficient water to make a gravy.

PIKE IN GALENTYNE: Galantine of Pike (Late medieval French)

Pike or pickerel: 1 whole, about 2 - 3 lb.
1 large onion, chopped
2 slices of whole wheat bread
1.5 cups of white wine
1 tablespoon of white-wine vinegar
2 sprigs of parsley
½ tsp. ground cinnamon
½ tsp. ground ginger
1/4 tsp. ground black pepper
1/4 tsp. galingale
1/4 tsp. ground cloves

BOURBELIER DE SANGLIER: Loin of Wild Boar in Boar's Tail Sauce (late-medieval French)

Pork Loin Roast, 4 - 6 lb. (or wild boar)
2 tablespoons of bread crumbs
salt to taste
½ cup hot water
½ cup red wine
1/4 cup wine vinegar
16 cloves: or enough to stud the roast
½ tsp. ground ginger
½ tsp. ground cardamom
½ tsp. ground black pepper (peppercorns)
½ tsp. ground cinnamon
1/4 tsp. ground cloves
1/4 tsp. ground nutmeg

Roast the park, with cloves studded in the pork loin; then make a sauce with the roast drippings, the above ingredients, and ½ cup of boiling water.

MOUTON Y-ROSTED WITH SAWSE CAMELYNE: Roast Lamb with Cameline Sauce (15th century English)

Leg of lamb, about 2 - 3 lb.
2 tablespoons of breadcrumbs
1/4 cup of red currants
½ cup of red wine vinegar
½ tsp. ground ginger
½ tsp. of ground cinnamon
1/4 tsp. of ground cloves
1/4 cup of nuts: walnuts and/or almonds

Roast the lamb; then make a sauce with the roast drippings, the above ingredients, and ½ cup of boiling water, if needed for the gravy.

CONTEMPORARY SOUTH ASIAN RECIPES:

MOORGEE KURMA: Chicken Curry, with Poppy Seeds (Modern Indian)

1 broiler chicken, cut up: 2.5 to 3.5 lb
1 cup plain yoghurt
4 medium onions, finely sliced
5 tablespoons vegetable shortening, or oil
2 cups hot water
salt to taste
8 cloves, crushed
1 tsp ground cinnamon
1 tsp ground ginger
1 tsp crushed garlic
1 tsp red pepper flakes
½ tsp ground ginger
1 tablespoon coriander, ground
½ coconut, ground
1 tablespoon poppy seeds
1 lime: juiced
24 cashew nuts

1. Brown onions in large skillet or wok and add separately: cloves, cinnamon, ginger (1 tsp), garlic, yoghurt; mix thoroughly, and then add the chicken; and stir fry for 5 minutes at medium heat.

2. In a small skillet, heat vegetable oil/shortening; and add red pepper flakes, ½ tsp. ginger, and coriander; stir-fry to 3 minutes, and then add to the chicken mixture; add water, and cover tightly, and simmer slowly, for one hour.

3. Grind the coconut and poppy seeds together (with a cuisinart or blender) and add the coconut paste to the chicken about 20 minutes before the end; with the heat off, add the cashew nuts and lime juice.

SHAHI KOFTA: Indian Meatballs (Modern)

1 medium onion, quartered
1 lb. lamb or beef, ground (minced)
1 egg, well beaten
1 large onion, finely sliced
4 tablespoons vegetable oil or shortening
½ cup of boiling water
1 green or red bell pepper, finely chopped
1 one-inch piece of ginger root (2 tsp ground)
6 black peppercorns
½ tsp. cinnamon, ground
½ tsp. coriander seeds
1 tablespoon ground coriander
1 tsp turmeric, ground
1 tablespoon cumin seeds
1 tsp. cayenne red pepper or chili powder
½ tsp. ground mace
½ tsp. ground cardamom

1. Place quartered onion, ginger, peppercorns, cinnamon, coriander seeds in a cuisinart or food blender; and grind to a fine paste.

2. In a mixing bowl, place ground meat (beef or lamb), egg, ground onions, and the spice paste mixture and mix well; form into small marble-sized meatballs.

3. In a large skillet or wok, quickly fry (sauté) the meatballs and light brown; remove from heat.

4. In the same skillet, add sliced onion and brown; then add coriander, turmeric, cumin seeds, red pepper or chili powder, mace, and cardamom. Stir-fry for a few minutes; add the ½ cup water and meatballs, cooking slowly until the gravy is thick.

5. Serve with steamed or fried rice (which can be mixed with frozen peas and mushrooms).

Table 1. Estimates of Venice's 'Balance of Payments Deficit' with the Levant in the 1490s (according to Eliyahu Ashtor)

Aspects of the Levant Trade	Total Value of Imports from the Levant as valued in Venetian ducats	Total Value of Merchandise Exports to the Levant as Valued in Venetian ducats	Total Value of Precious Metal Exports to the Levant (Coin & Bullion) in Venetian ducats	Percentage of the trade conducted in precious metals
Galley Trade with Alexandria and Beirut: minimum	450,000	150,000	300,000	66.67%
Galley Trade with Alexandria and Beirut: maximum	550,000	190,000	360,000	65.45%
Cog Trade in Syrian Cotton: minimum	130,000	67,500	62,500	48.08%
Cog Trade in Syrian Cotton: maximum	180,000	83,750	96,250	53.47%
Total Trade with Levant: minimum	580,000	217,500	362,500	62.50%
Total Trade with Levant: maximum	730,000	273,750	456,250	62.50%
Estimated Mean Values of Levant Trade	655,000	245,625	409,375	62.50%

Table 2.

Venetian Precious Metal Exports in the Levant Trade in the 1490s Compared with:

Outputs of Gold and Silver Coinage in kg from England and the Low Countries in 1490s
Silver Outputs in kg from the South German Silver Mines in the 1490s

	Venetian Precious Metal Exports: Estimated	Gold coinage in kg. A	Silver coinage in kg. B	Silver Mined Output in kg C
Mint Outputs of England and the Low Countries in kg fine metal		753.559	7,836.850	
South-German Mining Outputs				25,759.200
		Venetian Bullion Exports as % of A	**Venetian Bullion Exports as % of A**	**Venetian Bullion Exports as % of A**
Venetian bullion exports as gold				
- minimum	1,285.06	170.53%		
- maximum	1,617.41	214.64%		
- means	1,451.23	192.58%		
Venetian bullion exports as silver				
- minimum	14,135.69		180.37%	54.88%
- maximum	17,791.47		227.02%	69.07%
- means	15,963.58		203.70%	61.97%

Sources: see the sources cited in the text.

Table 3 Silver Outputs from the Major South German-Central European Mines in kilograms of fine metal, in quinquennial means: 1471-75 to 1546-50

Years	SAXONY	THURINGIA	BOHEMIA	BOHEMIA	SLOVAKIA	HUNGARY	TYROL:	TOTAL
	Est. Total	Est. Total	Joachimsthal	Kutna Hora Kasperska Hora	Fugger-Thurzo kg	Nagybanya Körmocbanya	Schwaz	Estimated
	in kg.	in kg.	in kg.	in kg.	in kg.	in kg.	in kg.	in kg.
1471-75	4,360.94			4,500.0			4,112.50	12,973.44
1476-80	10,317.46			4,250.0			7,354.00	21,921.46
1481-85	3,743.30			4,000.0		1,800.0	9,745.80	19,289.10
1486-90	2,770.04			3,750.0		3,523.0	12,751.00	22,794.04
1491-95	3,757.33			3,500.0	1,957.12	3,523.0	12,422.75	25,160.21
1496-00	4,641.69			3,250.0	1,957.12	3,795.9	12,094.50	25,739.17
1501-05	8,979.23			3,000.0	2,870.47	4,068.7	11,766.25	30,684.65
1506-10	7,416.41	4,626.19		2,750.0	3,990.76	4,341.6	11,438.00	34,562.92
1511-15	6,925.10	5,713.42		2,500.0	3,632.11	4,614.4	11,109.75	34,494.81
1516-20	5,189.14	6,079.43	3,970.00	2,250.0	1,983.07	4,887.3	10,781.50	35,140.43
1521-25	3,701.18	6,301.73	9,703.24	2,000.0	2,486.46	5,160.1	10,453.25	39,806.00
1526-30	3,425.12	7,889.16	13,795.32	2,000.0	2,269.15	5,433.0	10,125.00	44,936.74
1531-35	6,663.07	6,300.90	16,554.81	2,000.0	2,269.15	5,433.0	10,125.00	49,345.92
1536-40	14,973.18	5,734.07	13,248.01	3,947.0	2,243.58	5,433.0	10,125.00	55,703.84
1541-45	7,739.26	6,144.00	10,936.85	3,997.0	2,141.55	5,433.0	9,963.49	46,355.16
1546-50	4,131.66	6,576.20	10,936.85	700.0	2,141.55	5,433.0	9,963.49	39,882.76

Sources:

S. Ćirković, 'The Production of Gold, Silver, and Copper in the Central Parts of the Balkans from the 13th to the 16th Century,' in *Precious Metals in the Age of Expansion*, ed. Hermann Kellenbenz (Stuttgart, 1981), 41-69; J. Janáček, 'L'argent tchèque et la Méditerranée, XIVe-XVe siècles',

in *Mélanges en l'honneur de Fernand Braudel: Histoire économique du monde méditerranéen, 1450 -1650*, ed. E. Labrousse (Toulouse, 1973), 245-61; Hermann Kellenbenz, 'Europäisches Kupfer, Ende 15. bis Mitte 17. Jahrhundert: Ergebenisse eines Kolloquiums,' in *Schwerpunkte der Kupferproduktion und des Kuppferhandels in Europa*, ed. Hermann Kellenbenz (Cologne, 1977), 290-351; Hermann Kellenbenz, 'Production and Trade of Gold, Silver, Copper, and Lead from 1450 to 1750,' in *Precious Metals in the Age of Expansion*, ed. Hermann Kellenbenz (Stuttgart, 1981), 307-61; Adolf Laube, *Studien über den erzbirgischen Silberbergbau von 1470 - 1546* (Leipzig, 1974); John Nef, 'Silver Production in Central Europe, 1450-1618', *Journal of Political Economy*, 49 (1941): 575-9; Paulinyi, Oszkar, 'The Crown Monopoly of the Refining Metallurgy of Precious Metals and the Technology of the Cameral Refineries in Hungary and Translyvania in the Period of Advanced and Late Feudalism (1325-1700),' in *Precious Metals in the Age of Expansion*, ed. Hermann Kellenbenz (Stuttgart, 1981), 27-39; Georg Schenk, 'Über die Anfänge des Silberbergbaues von St. Joachimsthal,' *Der Anschnitt*, 19 (1967) and 20 (1968); Josef Vlachovic, 'Slovak Copper Boom in World Markets of the Sixteenth and in the First Quarter of the Seventeenth Centuries,' *Studia historica slovaca*, 1 (1963), 63-95; Westermann, Ekkehard , *Das Eislebener Garkupfer und seine Bedeutung für den europäischen Kupfermarkt, 1460-1560* (Vienna, 1971); Ekkehard Westermann, 'Die Bedeutung des Thüringer Saigerhandels für den mitteleuropäischen Handel an der Wende vom 15. zum 16. Jahrhundert,' *Jahrbuch für die Geschichte Mittel- und Ostdeutschlands*, 21 (1972): 68-92. [Ed. by Wilhelm Berges, Hans Herzfeld, and Henryk Skrzypczak]; Ekkehard Westermann, 'Tendencies in the European Copper Market in the 15th and 16th Centuries,' in *Precious Metals in the Age of Expansion*, ed. Hermann Kellenbenz (Stuttgart, 1981), 79-86; Ekkehard Westermann, 'Communication (with graphs)' to the 8th International Economic History Congress, Section C, Budapest (1982); Ekkehard Westermann, 'Die Unternehmungsform der Saigerhandelsgesellschaft und ihre Bedeutung für den oberdeutschen Frühkapitalismus: Forschungs-stand und - aufgeben,' in *L'impresa industria, commercio, banca seccoli XIII - XVIII*, ed. Simonetta Cavaciocchi, Istituto internazionale di storia economic 'F. Datini' Prato, series II, Atti delle 'Settimane di Studi' e altri Convegni vol. 22 (Prato, 1991), 577-86; Ekkehard Westermann, 'Über Wirkungen des europäischen Ausgriffs nach Übersee auf den europäischen Silber- under Kupfermarkt des 16. Jahrhunderts,' in *Columbus: Tradition und Neuerung*, ed. Armin Reese, Beiträge aus dem Fachbereich IV (Sozialwissenschaften) der Pädagogischen Hochschule Heidelberg, 5 (Idstein, 1992), 52-69.

Table 4: Central European Copper Production and Exports: in Kilograms of Fine Copper with exports to Venice and Antwerp, in quinquennial means: 1491-95 to 1536-40

	Total Ouputs Estimated in kg	Exports: Total kg	To Venice kg	To Venice Percent	To Antwerp kg	To Antwerp Percent
1491-95	1,980,746					
1496-00	2,704,948	1,390,392.3	446,742.2	32.13%	72,545.1	5.22%
1501-05	3,041,820	1,403,347.5	409,357.8	29.17%	453,686.4	32.33%
1506-10	4,770,333	1,627,847.0	184,642.0	11.34%	819,753.4	50.36%
1511-15	5,654,047	1,659,584.9	60,358.6	3.64%	968,521.4	58.36%
1516-20	5,203,097	1,388,953.7	29,544.6	2.13%	606,520.0	43.67%
1521-25	5,341,702	1,434,963.1	66,809.2	4.66%	488,633.1	34.05%
1526-30	5,275,248	1,062,740.6	54,876.6	5.16%	625,457.9	58.85%
1531-35	4,628,886	1,008,644.5	111,652.6	11.07%	543,443.9	53.88%
1536-40	4,336,708	1,207,783.7	150,544.0	12.46%	593,242.8	49.12%

Sources:

Herman Van der Wee, *Growth of the Antwerp Market and the European Economy, 14th to 16th Centuries*, 3 Vols. (The Hague, 1963), 1: *Statistics*, Appendix 44, pp. 522-23.

Table 5. THE COMMODITY PURCHASING POWER OF WAGES IN 15TH CENTURY LONDON

PURCHASING POWER OF A LONDON CRAFTSMAN'S DAILY WAGE in 1438 - 1439: for Textiles, Foodstuffs, and Spices						
In terms of a master mason's or master carpenter's daily wage of 8d.						
COMMODITY	**Price per**	**Unit**	**Quantity Purchased**	**Quantity Purchased**	**No. of Days'**	**No. of Days' Wages**
	Unit		**by Daily**	**by Weekly**	**Wages to**	**at 6d per day**
	in d.		**Wage of 8d**	**Wage of 48d**	**Buy 7 yds**	**for Oxford Cambridge mason**
TEXTILES						
Canvas	2.000	yard	4.000	24.000	1.75	2.33
Brabant Linen	6.400	yard	1.250	7.500	5.60	7.47
Flemish Linen	12.100	yard	0.661	3.967	10.59	14.12
English Worsted	3.500	yard	2.286	13.714	3.06	4.08
English Kersey, Dyed	17.900	yard	0.447	2.682	15.66	20.88
English Broadcloth, Dyed: average	25.400	yard	0.315	1.890	22.23	29.63
English Broadcloth, Dyed: highest	40.000	yard	0.200	1.200	35.00	46.67
Scarlet Broadcloth: average	144.200	yard	0.055	0.333	126.18	168.23
Scarlet Broadcloth: highest range	228.000	yard	0.035	0.211	199.50	266.00
Flemish Broadcloth (Ghent Dickedinnen)	65.158	yard	0.123	0.737	57.01	76.02
Silk: Velvet: average	181.080	yard	0.044	0.265	158.45	211.26
Silk: Velvet: highest range	279.960	yard	0.029	0.171	244.97	326.62
Silk: Damask	144.000	yard	0.056	0.333	126.00	168.00
Silk: Plain Satin	105.000	yard	0.076	0.457	91.88	122.50

PURCHASING POWER OF A LONDON CRAFTSMAN'S DAILY WAGE in 1438 - 1439: for Textiles, Foodstuffs, and Spices

In terms of a master mason's or master carpenter's daily wage of 8d.						
COMMODITY	**Price per**	**Unit**	**Quantity Purchased**	**Quantity Purchased**	**No. of Days'**	**No. of Days' Wages**
	Unit		**by Daily**	**by Weekly**	**Wages to**	**at 6d per day**
	in d.		**Wage of 8d**	**Wage of 48d**	**Buy 7 yds**	**for Oxford Cambridge mason**
					to Buy Unit	**6d per day to buy**
OTHER COMMODITIES: Food and Fuel						**the Unit**
Almonds	3.000	pound	2.667	16.000	0.38	0.50
Honey	2.500	pints	3.200	19.200	0.31	0.42
Milk	1.000	gallons	8.000	48.000	0.13	0.17
Butter	1.000	pints	8.000	48.000	0.13	0.17
Salt	0.500	pints	16.000	96.000	0.06	0.08
Eggs	0.157	number	51.000	306.000	0.02	0.03
Apples	0.080	number	100.000	600.000	0.01	0.01
Rye Flour	4.000	pound	2.000	12.000	0.50	0.67
Chickens	5.000	number	1.600	9.600	0.63	0.83
Capons	1.509	number	5.300	31.800	0.19	0.25

PURCHASING POWER OF A LONDON CRAFTSMAN'S DAILY WAGE in 1438 - 1439: for Textiles, Foodstuffs, and Spices

In terms of a master mason's or master carpenter's daily wage of 8d.						
COMMODITY	**Price per**	**Unit**	**Quantity Purchased**	**Quantity Purchased**	**No. of Days'**	**No. of Days' Wages**
	Unit		**by Daily**	**by Weekly**	**Wages to**	**at 6d per day**
	in d.		**Wage of 8d**	**Wage of 48d**	**Buy 7 yds**	**for Oxford Cambridge mason**
Rabbits	4.000	number	2.000	12.000	0.50	0.67
Sole (Fish)	2.182	number	3.667	22.000	0.27	0.36
Red Wine	5.000	gallons	1.600	9.600	0.63	0.83
Penny Ale (Beer)	0.748	gallons	10.700	64.200	0.09	0.12
Good-Quality Ale	1.778	gallons	4.500	27.000	0.22	0.30
Tallow Candles	1.333	number	6.000	36.000	0.17	0.22
Coal	0.748	bushels	10.700	64.200	0.09	0.12
SPICES						
Pepper	18.028	pound	0.444	2.663	2.25	3.00
Ginger	12.000	pound	0.667	4.000	1.50	2.00
Cinnamon	24.151	pound	0.331	1.988	3.02	4.03
Cloves	35.556	pound	0.225	1.350	4.44	5.93
Saffron	182.857	pound	0.044	0.263	22.86	30.48
Sugar	16.000	pound	0.500	3.000	2.00	2.67

Prices of Spices in Antwerp, London, and Oxford in 1438-39
in pence groot Brabant and English pence sterling, compared to prices in Toronto
in Nov. 2011 (in Canadian dollars) per lb. avoirdupois and kilograms
and the quantities that could be purchased with a master carpenter's daily wage

Name of the Spice	Antwerp d. gr. Brab. per lb.	Antwerp d. gr. Brab. per kg.	Oxford d. ster. per lb.	Oxford d. ster. per kg	London d. ster. per lb.	London d. ster. per kg.	Toronto 2011 $ CAD per lb.	Toronto 2011 $ CAD per kg.
Cloves	74.63	153.14	48.00	105.82	35.56	78.39	9.48	20.900
Cinnamon	22.54	46.26	20.00	44.09	24.15	53.24	3.49	7.700
Ginger	15.55	31.90	28.00	61.73	12.00	26.46	9.12	20.100
Mace			36.00	79.37			36.29	80.000
Pepper	20.21	41.48	12.75	28.11	18.03	39.74	8.57	18.900
Saffron	373.15	765.70	176.00	388.01	182.86	403.13	4,077.80	8,990.000
White Sugar	12.44	25.52	24.00	52.91	16.00	35.27	4.81	10.600
	Antwerp Daily Wage in d groot 12 hrs	**Antwerp Daily Wage in d groot 12 hrs**	**Oxford Daily Wage in d ster. 12 hrs**	**Oxford Daily Wage in d ster. 12hrs**	**London Daily Wage in d ster. 12 hrs**	**London Daily Wage in d ster. 12 hrs**	**Toronto Daily Wage in $ CAD $35.39 per hr for 8 hours**	**Toronto Daily Wage in $ CAD* $35.39 per hr for 8 hours**
	10.00d	10.00d	6.00d	6.00d	8.00d	8.00d	$283.12	$283.12
Name of the Spice	**lb. bought with daily wage**	**grams bought with daily wage**	**lb. bought with daily wage**	**grams bought with daily wage**	**lb. bought with daily wage**	**grams bought with daily wage**	**lb. bought with daily wage**	**grams bought with daily wage**
Cloves	0.13	65.30	0.13	56.70	0.22	102.06	29.86	13,546.411
Cinnamon	0.44	216.17	0.30	136.08	0.33	150.25	81.06	36,768.831
Ginger	0.64	313.44	0.21	97.20	0.67	302.39	31.05	14,085.572
Mace			0.17	75.60			7.80	3,539.000
Pepper	0.49	241.11	0.47	213.46	0.44	201.28	33.03	14,979.894
Saffron	0.03	13.06	0.03	15.46	0.04	19.84	0.07	31.493
White Sugar	0.80	391.80	0.25	113.40	0.50	226.80	58.88	26,709.434

	Antwerp Daily Wage in d groot 12 hrs	Antwerp Daily Wage in d groot 12 hrs	Oxford Daily Wage in d ster. 12 hrs	Oxford Daily Wage in d ster. 12hrs	London Daily Wage in d ster. 12 hrs	London Daily Wage in d ster. 12 hrs	Toronto Daily Wage in $ CAD $35.39 per hr for 8 hours	Toronto Daily Wage in $ CAD* $35.39 per hr for 8 hours
	10.00d	10.00d	6.00d	6.00d	8.00d	8.00d	$283.12	$283.12
Spice	**Days Wages To Buy 1 lb.**	**Days Wages To Buy 100 g.**	**Days Wages To Buy 1 lb.**	**Days Wages To Buy 100 g.**	**Days Wages To Buy 1 lb.**	**Days Wages To Buy 100 g.**	**No. of Minutes to Buy 1 lb.**	**No. of Minutes to Buy 100 g**
Cloves	7.46	1.53	8.00	1.76	4.44	0.98	16.07	3.543
Cinnamon	2.25	0.46	3.33	0.73	3.02	0.67	5.92	1.305
Ginger	1.55	0.32	4.67	1.03	1.50	0.33	15.46	3.408
Mace			6.00	1.32			61.52	13.563
Pepper	2.02	0.41	2.13	0.47	2.25	0.50	14.53	3.204
Saffron	37.31	7.66	29.33	6.47	22.86	5.04	6,913.47	1,524.159
White Sugar	1.24	0.26	4.00	0.88	2.00	0.44	8.15	1.797

* Saffron has always been the world's most expensive spice or herb. It currently sells, at a bulk foods store, for $8.99 a gram. When saffron is called for in late-medieval English and French recipes, or in modern Asian recipes, I use instead the much cheaper but similarly-coloured turmeric. Turmeric currently sells, in Toronto, for $4.08 CAD per pound or $9.00 per kilogram.

In Antwerp, 1d groot Brabant = 0.667d groot Flemish; 1d groot Flemish = 1.5d groot Brabant

The Antwerp lb. = 470.156 grams; and it was converted into English pounds (lb. avoirdupois = 453.592 grams) and kilograms

Sources:

Herman Van der Wee, *The Growth of the Antwerp Market and the European Economy (fourteenth-sixteenth centuries)*, vol. I: *Statistics* (The

Hague, 1963).

James E. Thorold Rogers, *A History of Agriculture and Prices in England*, vol. IV: *1401 - 1582* (Oxford: 1882).

London Guildhall Manuscripts Library: MS 5174, vol. 1; Brewers' Guild, Warden's Accounts (1424-1562); Corporation of London Record Office: Bridge Master's Account Rolls, 1381-1398; Bridge Master's Accounts: Weekly Payment Series, 1404 - 1510 (Vols. I - III).

Toronto Carpenters' Wages: Carpenters Union, the District Council of Ontario (whose assistance is gratefully acknowledged).