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Political Economy and the Medici

Using materials from the important collection of Medici manuscripts donated to Harvard Business School by Harry Gordon Selfridge, this paper explores the geopolitics of the transformation of raw wool into finished cloth, and the role played in that process by Medici entrepreneurs, their guild, and their government. It aims to show that the history of political economy cannot truly be understood without business history. Successful business practices used by Medici entrepreneurs were first theorized by Giovanni Botero and others as what would become an "Italian model" in political economy, a model that had a profoundly wide-ranging impact, and that puts the lie to the commonplace in the history of ideas that the Italian Renaissance, so precocious in other fields, was silent on the topic of political economy.

Keywords: Medici, wool, Florence, political economy, Selfridge collection, Giovanni Botero, Antonio Serra, Gustav von Schmoller, Raymond and Florence Edler de Roover

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The silence of Italian Renaissance thinkers on matters of commerce has long been a *locus communis* in the history of ideas. A society grounded in international trade, which produced such material magnificence, and spoke so precociously about politics, it is widely believed, had curiously little or nothing to say about political economy. This notion is already fully and elegantly formed in David Hume's essay "Of Civil Liberty" (originally "Of Liberty and Despotism"). "Trade was never esteemed an affair of state till the last century; and there scarcely is any ancient writer on politics, who has made mention of it," he writes, adding that "even the *Italians* have kept a profound silence with regard to it." In this way, the late Istvan Hont argued, Hume "bracketed the Renaissance with classical antiquity" as "pre-economic and hence premodern."[1] Perhaps no Renaissance figure is more emblematic here than Niccolò Machiavelli, whose admission that "because Fortune has determined that, not knowing how to talk either about the silk business or the wool business or about profits and losses, I must talk about politics" has been read as an uncompromising (if ironically formulated) mission statement.[2] Transplanted from Italian to ultramontane soil, Machiavelli's professed inability to speak of economic matters metaphorically bloomed into nothing less than a dichotomy, so famously explored by J. G. A. Pocock, between wealth and civic virtue, the latter understood as an intellectual inheritance from Italian and especially Florentine (and Machiavellian) political thought. Yet recent work has argued that Machiavelli was indeed an economic (or at least fiscal) thinker and, more broadly, that "commercial interests, attitudes, and priorities were thoroughly accommodated by Renaissance republicanism" in Italy.[3]

[1] David Hume, *Political Essays*, ed. Knud Haakonssen (Cambridge, U.K., 1994), 52, perhaps following Nicholas Barbon, *A Discourse of Trade* (London, 1690), A3 recto and verso; Istvan Hont, *Jealousy of Trade: International Competition and the Nation-State in Historical Perspective* (Cambridge, MA, 2005), 8–9. It should be noted that Hume's announcement unverifiably suggests an exhaustive investigation and, at the same time, radically privileges discourse over practice.

[2] Quoting Machiavelli's April 9, 1513, letter to Francesco Vettori, which John Najemy has rightly argued "helped to forge the modern image (or some of the more influential modern images) of Machiavelli." See Najemy, *Between Friends: Discourses of Power and Desire in the Machiavelli-Vettori Letters of 1513–1515* (Princeton, 1993), 4, 107–8; for the original, see Machiavelli, *Tutte le opere*, ed. Mario Martelli (Florence, 1971), 1131–32. An important vehicle of this particular image is Albert O. Hirschman, *The Passions and the Interests: Political Arguments for Capitalism before Its Triumph* (Princeton, 1977), 41.

[3] Mark Jurdjevic, "Virtue, Commerce, and the Enduring Florentine Republican Moment: Reintegrating Italy into the Atlantic Republican Tradition," *Journal of the History of Ideas* 62, no. 4 (2001): 742. Jurdjevic has rightly called the incompatibility of wealth and virtue "the dialectical engine" of J. G. A. Pocock's classic *The Machiavellian Moment: Florentine Political Thought and the Atlantic Republican Tradition* (Princeton, 1975), though he is

Hume, himself committed not to a wealth-virtue dichotomy but to showing that wealth and even luxury were compatible with public virtue, also looked to Florence. Indeed, Emma Rothschild has persuasively argued that Hume, in his essay "Of Refinement in the Arts," employed a "Florentine model" of political economy. The quintessential "opulent republic," Florence showed how wealth and virtue could coexist, and its model, Rothschild writes, "lay at the centre of Enlightenment optimism about the progress of commerce and industry."[4] Hume knew that "the Florentine democracy applied itself entirely to commerce" and his argument is telling: "The same age, which produces great philosophers and politicians, renowned generals and poets," he argues, "usually abounds with skillful weavers, and ship-carpenters. We cannot reasonably expect, that a piece of woolen cloth will be wrought to perfection in a nation, which is ignorant of astronomy, or where ethics are neglected."[5] For Hume, the Renaissance Italians were good at *doing* political economy but bad at *thinking* it, bad at *teaching* it, leaving behind the evidence of riches and a "profound silence" about their role in politics and, even more so, the role of politics in acquiring them. But was Hume right about the silence of the Italians? In this essay we explore the politics (or perhaps the geopolitics) of the transformation of raw wool into finished cloth, using the case of Medici entrepreneurs in the sixteenth century. In light of this, we

here addressing more particularly the claims of Pocock's "Civic Humanism and Its Role in Anglo-American Political Thought," in *Politics, Language, and Time: Essays on Political Thought and History* (Chicago, 1989), 80–103. Just as Pocock's seductive heuristic uncouples the economic from the political, there is also in him and his intellectual heirs a quasi-permanent displacement from Florence to the Atlantic, which at once marginalizes and masks the local and regional and, thus, the economic. On the economic Machiavelli, see especially the important work of Jérémie Barthas, *L'argent n'est pas le nerf de la guerre: Essai sur une prétendue erreur de Machiavel* (Rome, 2011) and, more recently, Barthas, "Machiavelli, the Republic, and the Financial Crisis," in *Machiavelli on Liberty and Conflict*, ed. David Johnston, Nadia Urbinati, and Camila Vergara (Chicago, 2017), 257–79. Some of the most important new thoughts on Machiavelli, it might be added, deal with the issue of class. See, for example, John M. Najemy, "Society, Class, and State in the *Discourses on Livy*," in *The Cambridge Companion to Machiavelli*, ed. John M. Najemy (Cambridge, U.K., 2010), 96–111; Najemy, "Machiavelli's Florentine Tribunes," in *Renaissance Studies in Honor of Joseph Connors*, ed. Machtelt Israëls and Louis A. Waldman (Cambridge, MA, and Milan, 2013), 65–72; and John P. McCormick, *Machiavellian Democracy* (Cambridge, U.K., 2011). As Lauro Martines long ago concluded, however, "wealth was associated with *virtù* and honor" in Renaissance Florence, "poverty with dishonor." Martines, *The Social World of Florentine Humanists* (Princeton, 1963), 25.

[4] Emma Rothschild, "Faith, Enlightenment, and Economics," in *Natural Law, Economics, and the Common Good: Perspectives from Natural Law*, ed. Samuel Gregg and Harold James (Exeter, 2012), 2–8. For some additional context, see Maxine Berg and Elizabeth Eger, "The Rise and Fall of the Luxury Debates," in *Luxury in the Eighteenth Century: Debates, Desires and Delectable Goods*, ed. Maxine Berg and Elizabeth Eger (Basingstoke, 2002), 7–27.

[5] Hume, *Political Essays*, 110, 107.

argue that context in the history of political-economic thought must mean not only the context of other books and ideas but also of business practices and—glancing at an even richer possible future of the field—that the history of political economy might well be incomplete without business history.[6] If we wish to know what Italian Renaissance thinkers had to say about politics, we ourselves cannot be ignorant, *pace* Machiavelli, of the "wool business" and of "profits and losses." If we wish to hear voices where Hume heard nothing, we must attend to the "skillful weavers" and the perfection of pieces of "woolen cloth."

When Voltaire famously opined that France, overfed with narrative and moral fantasies, "around 1750 . . . finally turned to reasoning about grain," he captured with his usual crispness nothing less than the start of an "economic turn" in European Enlightenment thought, a turn manifested in step with the emergence of political economy as an increasingly distinct and increasingly indispensable science of human affairs at the very heart of which lay the literal (especially in France) and metaphorical problem of grain.[7] The coming decades witnessed the appearance in France of physiocracy (etymologically the "rule of nature"), an ideology associated with the thought of the *économistes* gathered around the court physician François Quesnay, which celebrated agriculture and devalued the urban world and saw land as a nation's sole source of wealth and clearly superior to "unnatural" and even "sterile" industry. Even though applied physiocracy led disastrously to food shortages, riots, deaths, and political destabilization, its influence was long lived, leaving an indelible imprint on classical economics from its inception.[8] But the physiocrats were not, of course, the first to weigh the relative merits of agriculture and industry in economic terms. This matter was already in the sixteenth century (if not much earlier) a quintessential problem of political economy *avant la lettre*. In his internationally best-selling *On the Causes of the Greatness of Cities* (1588), Giovanni Botero devoted considerable attention to precisely the question of "which is of greater value for improving a place and increasing its

[6] We are, needless to say, not the first to argue this. See, for example, Steven L. Kaplan, *Bread, Politics and Political Economy in the Reign of Louis XV* (1976; London, 2015); and Michael Sonenscher, *Work and Wages: Natural Law, Politics, and the Eighteenth-Century French Trades* (1989; Cambridge, U.K., 2012).

[7] Voltaire, "Bled ou Blé," in *Questions sur l'Encyclopédie*, ed. Nicholas Cronk and Christiane Mervaud (Oxford, 2007–2013), 3:412–13. Here we follow the argument of Steven L. Kaplan and Sophus A. Reinert, "The Economic Turn in Enlightenment Europe," in *The Economic Turn: Recasting Political Economy in Eighteenth-Century Europe*, ed. Steven L. Kaplan and Sophus A. Reinert (London, 2019), 1–33. On the centrality of grain to French political economy, see Kaplan, *Bread, Politics and Political Economy*.

[8] The literature on physiocracy is vast, but see, for example, the essays in Kaplan and Reinert, *The Economic Turn*.

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population: the fertility of its soil, or the industry of its people?" His answer, the opening of which is quoted at length below, was clear:

> The answer is undoubtedly industry, first of all because the things made by skilled human hands are far more numerous and costly than those produced by nature, for nature furnishes the material and the subject, but human skill and cleverness impart to them their inexpressible variety of forms. Wool is a crude, simple product of nature, but how beautiful, manifold and varied are the things that human skill creates from it? How many and how great are the profits that result from the industry of those who *card it, give it its warp and its weft, weave it, dye it, cut it, and sew it, and shape it* [*la scardassa, l'ordisce, la trama, la tesse, la tinge, la taglia, e la cuce, e la forma*] in a thousand ways and transport it from one place to another?[9]

Just as Hume more than a century and a half later unmistakably pointed to Venice and Florence, respectively, by invoking shipbuilders and silk and skilled weavers and wool, for Botero's audience the production of wool was tangibly linked to Florence, the wool city *par excellence*, to its greatness (*grandezza*), and to *industria* itself, understood both as a virtue, for men and women as for cities, and as an economic process of adding variety and value to nature's raw materials. The Italian cities of Florence, Genoa, and Venice "of whose *grandezza* there is no need to speak, and where the wool and silk industries support almost two-thirds of the inhabitants," were proof enough of the power of industry.[10] In making these connections, Botero—the renegade Jesuit of Piedmont, secretary to the famed Milanese archbishop Carlo Borromeo, adviser to his nephew Federico in Paris and earlier to the Duke of Savoy Carlo Emanuele I, a thinker whose epochal importance is only now being fully recognized—was not alone.[11]

[9] Giovanni Botero, *Delle cause della grandezza delle città libri 3* (Rome, 1588), 39. The chapter "Dell'industria" (II.7), 38–43, was removed from later editions and incorporated into book 8 of Botero's *Della ragion di stato* (1589), to which the entire work was appended beginning with its second edition. Here we follow a new translation—Botero, *On the Causes of the Greatness and Magnificence of Cities*, trans. Geoffrey W. Symcox (Toronto, 2012), 43, which is based on the 1598 text edited in Luigi Firpo, ed., *Della ragion di Stato di Giovanni Botero: Con tre libri Delle cause della grandezza delle città, due aggiunte e un discorso sulla popolazione di Roma* (Turin, 1948)—altering it to more literally reflect Botero's use of the technical language of wool production and adding italics for emphasis.

[10] Botero, *Delle cause*, 40; Botero, *On the Causes*, 44.

[11] Working in the immediate wake of Friedrich Meinecke and Benedetto Croce, Federico Chabod's study "Giovanni Botero," in *Opere di Federico Chabod*, vol. 2, *Scritti sul Rinascimento* (1934; Turin, 1967), 271–458, remains a landmark work. For the broader context of Botero's thought, see, especially, Robert Bireley, *The Counter-Reformation Prince: Anti-Machiavellianism or Catholic Statecraft in Early Modern Europe* (Chapel Hill, 1990). Apropos of the subject matter of this essay: Michel Senellart, *Machiavélisme et raison d'état: XIIe–XVIIIe siècle* (Paris, 1989), 71–83, treats Botero as a mercantilist; Romain

Botero's extraordinary observation that "the power of industry is such that there is no silver mine or gold mine in New Spain and Peru that can be compared to it" seems to have informed if not inspired the 1613 *Short Treatise on the Causes That Can Make Kingdoms Abound in Gold and Silver Even in the Absence of Mines* of the jailed Neapolitan writer Antonio Serra, whom Joseph Schumpeter called "the first to compose a scientific treatise . . . on Economic Principles and Policy."[12] And the eighteenth-century philosopher Ferdinando Galiani, who possessed a rare copy of the *Short Treatise*, explicitly followed Serra's precocious technical analysis ("If a given piece of land is only large enough to sow a hundred *tomoli* of wheat, it is impossible to sow a hundred and fifty there. In manufacturing, by contrast, production can be multiplied not merely twofold but a hundredfold, and at a proportionately lower cost") in his devastating attack on the physiocrats in his 1770 *Dialogues on the Commerce of Grain*: "And *voilà*," writes Galiani, "the great difference between manufactures and agriculture. Manufactures increase with the number of hands you put in, while agriculture decreases."[13] And these are just furtive glimpses of what we have elsewhere called the "Italian tradition" of political economy, practiced from the late Middle Ages on and first theorized around the turn of the seventeenth century, a tradition that highlighted the individually competitive and civic benefits of pursuing and protecting high-value-added economic activities, such as the production of luxury woolen cloth.[14]

Descendre, *L'état du monde: Giovanni Botero entre raison d'état et géopolitique* (Geneva, 2009)—in the finest discussion of the *Delle cause* (pp. 173–212)—examines Botero's political economy (pp. 186–201).

[12] Botero, *Delle cause*, 41; Botero, *On the Causes*, 45; Joseph Schumpeter, *A History of Economic Analysis* (New York, 1954), 195. On Antonio Serra and his *Breve trattato delle cause che possono far abbondare li regni d'oro e argento dove non sono miniere*, see Sophus A. Reinert, introduction to Antonio Serra, *A "Short Treatise" on the Wealth and Poverty of Nations (1613)*, ed. Sophus A. Reinert, trans. Jonathan Hunt (London and New York, 2011), esp. 37–46, 65 (for an analysis of the relationship between the economic analyses of Botero and Serra); and Rosario Patalano and Sophus A. Reinert, eds., *Antonio Serra and the Economics of Good Government* (New York, 2016). Immediately following Schumpeter, Arthur Cole, librarian of Harvard Business School's Baker Library, also highlighted Serra's temporal primacy. See Cole, *The Historical Development of Economic and Business Literature* (Boston, 1957), 16. The polymath Schumpeter similarly declared that "the 'Malthusian' Principle of Population sprang fully developed from the brain of Botero in 1589." Schumpeter, *A History*, 254, but see also 143–46. The linkages between Botero and Serra are also explored in [Enzo R. Grilli], *Antonio Serra visto da Enzo Grilli* (Rome, 2006).

[13] Serra, *"Short Treatise,"* 121; [Ferdinando Galiani], *Dialogues sur le commerce des bleds* (London, 1770), 150; in the edition published by Fausto Nicolini (Milan, 1956), 142. For context, see Sophus A. Reinert, *Translating Empire: Emulation and the Origins of Political Economy* (Cambridge, MA, 2011), 186–232; and Steven L. Kaplan, "Galiani: Grain and Governance," in Kaplan and Reinert, *The Economic Turn*, 221–303.

[14] Sophus A. Reinert, "The Italian Tradition of Political Economy: Theories and Policies of Development in the Semi-Periphery of the Enlightenment," in *The Origins of Development Economics: How Schools of Economic Thought Have Addressed Development*, ed. Jomo

The Business of Florence Is (the Wool) Business

In January of 1460 a civic debate (*pratica*) was held in Florence to address a proposal to move the Florentine *Studio*, the city's underfunded institution of higher learning, to Pisa, which had been purchased by the Florentines in 1402 and wholly subjugated four years later. The prominent lawyer Messer Otto Niccolini, who suggested that a university's proper functions—to train students in classical literature and the humane letters—were not compatible with the passions and interests of the Florentines, gave a striking speech in favor of the move:

> This city, indeed from its very origins, has been dedicated to commerce and manufacturing, to which it has always devoted all its energies and efforts. Florentines believe that these activities are entirely responsible for sustaining and enhancing their republic, for ensuring the prosperity and the notable enrichment of private citizens, convinced that wealth has led to the growth of its reputation and authority. Putting other occupations to one side, they have always dedicated themselves especially to business.[15]

The business of Florence, put simply, was and would always remain business.

Although the economy of Renaissance Florence was diverse, and premodern merchants and entrepreneurs tended toward diversification and not specialization in order to guard against sector-wide downturns, the most important business in Florence was the production of woolen textiles. Woolens were the most significant domestic manufacture and export commodity in Florence between roughly 1200 and 1600. Wool textile manufacturing and, more broadly, the cloth and clothing sectors represented a large share of the Florentine rural and urban economies. In 1480, for example, they dominated the urban shop (*bottega*) economy, with nearly 8 percent of all shops, the highest for any group, being wool shops and nearly 27 percent dedicated to the cloth trade—very significant percentages especially if we keep in mind that a great deal of cloth production was done in the countryside and domestically (Figure 1). Profits from the local sale and regional and international

K. Sundaram and Erik S. Reinert (London, 2005), 24–47. See also Sophus A. Reinert, "'A Sublimely Stupid Idea': Physiocracy in Italy from the Enlightenment to Fascism," in Kaplan and Reinert, *The Economic Turn*, 699–733. For a brief survey of the late medieval Italian economy, see Sophus A. Reinert and Robert Fredona, "Merchants and the Origins of Capitalism," in *The Routledge Companion to Makers of Global Business*, ed. Teresa da Silva Lopes, Christina Lubinski, and Heidi J. S. Tworek (London, 2019), 171–188.

[15] Gene Brucker, "A Civic Debate on Florentine Higher Education (1460)," *Renaissance Quarterly*, no. 34 (1981): 531; Robert Black, "Education and the Emergence of a Literate Society," in *Italy in the Age of the Renaissance: 1300–1550*, ed. John M. Najemy (Oxford, 2004), 34.

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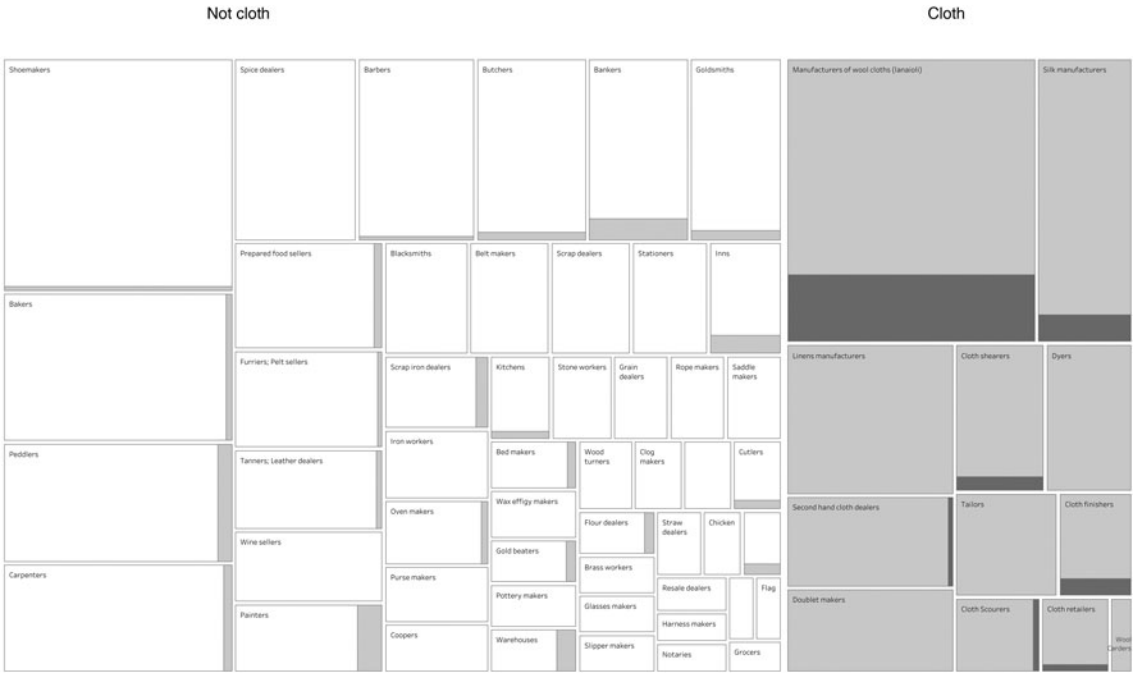

Figure 1. Shops (*botteghe*) in Florence by type, 1480. Darker shades represent closed or vacant shops. (Sources: Catasto 992-1024 [1480], Archivio di Stato di Firenze; Maria Luisa Bianchi and Maria Letizia Grossi, "Botteghe, economia, e spazio urbano," in Gloria Fossi and Franco Franceschi, eds., *Arti fiorentine: La grande storia dell'artigianato*, vol. 2 [Florence, 1999], 27–64.) See supplementary material for a color version of this figure.

exportation of woolens enriched Florence, increased its population, funded much of the cultural production for which it remains famous, and allowed Florentines to create a regional state in Tuscany that remained a major player in geopolitics for centuries. The export of woolens also allowed great Florentine families and family-centered partnerships to dominate the international banking sector in the fourteenth and fifteenth centuries, which in turn allowed Florentines to capture the English supply of very fine raw wool early in this period. Until its decline over the course of the sixteenth century, the Florentine woolen cloth industry sometimes outcompeted much larger wool-producing and manufacturing regions in Europe (chiefly England, and the Low Countries in manufacturing) to dominate some large markets for medium- and high-quality cloth in southern Europe, across the Mediterranean basin, and in the Near East.[16] Thus, the Florentine wool industry is an important early case of industry and commercial globalization that still has a great deal to tell researchers about international competition; the dynamics of comparative advantage, protectionism, and state capitalism; and the nature of East-West commercial encounters.[17]

Unlike the silk and cotton textile industries, which relied in the earliest instance on the long-distance importation of raw materials and required larger-scale investments to get off the ground, the production of woolen cloth emerged organically all across northern and central Italy out of the traditional techniques and animal and material sources of *longue durée* domestic cloth production, and it dominated the industrial economy of the region, along with, for a while, the production of cotton-linen blends (fustians). By the early thirteenth century the production and export of cloth had become a global industry. Genoese merchants brought raw wool and dyestuff from North Africa; these were turned into low- and mid-quality cloths for mass consumption in Milan and the Lombard countryside and then traded by Florentine cloth merchants all over central Italy or exported to Mediterranean ports, especially Byzantine and Muslim ones, through Genoa. Yet Italian wool manufacturers could not, owing to technological inferiority and supply constraints, compete with the luxury woolens of Flanders and Brabant. On the Provençal market in 1308–1309, Florentine cloths fetched only around one-third of what the cloths of Ypres did.[18] In the

[16] Richard Goldthwaite, *The Economy of Renaissance Florence* (Baltimore, 2009), esp. 265–340 (on Italian cloth production).

[17] See, more generally, Sophus A. Reinert, "Rivalry: Greatness in Early Modern Political Economy," in *Mercantilism Reimagined: Political Economy in Early Modern Britain and Its Empire*, ed. Philip J. Stern and Carl Wennerlind (Oxford, 2013), 248–70.

[18] Roger Aubenais, "Commerce des draps et vie économique à Grasse en 1308–9," *Provence historique* 9, no. 37 (1959): 204–6.

early fourteenth century, the merchants of the famous Arte di Calimala (Cloth Merchants' Guild) in Florence, such as the Del Bene company studied in detail by Armando Sapori in one of the early serious business-historical case studies, mostly purchased northern cloths for resale in other markets.[19] They also occasionally added economic value to their products by purchasing undyed and unfinished cloths from northern looms, finishing and dyeing them in Florence, and exporting them to the Levant, relying on their greater proximity to alum and dye supplies to undersell the Flemish in that market. Given industrial and supply factors, *panni de Ypro tinti in Florentia* (Ypres cloths dyed in Florence) could be more lucrative for Calimala merchants than local cloths.[20] As Giovanni Villani famously noted in his *Chronicle*, the Florentine wool industry saw enormous growth in price per cloth, and thus value, only when it switched its focus from the import and export of high-quality woolens to the local production of them, which required a steady supply of high-quality raw wool. The total production of woolen cloths fell precipitously between 1310 and 1336, the chronicler noted, but the later cloths, made from English wool, were worth twice as much as the earlier, which had been coarse and of low quality.[21] The 1330s, before the demographic collapse of the late 1340s, represented the high point of Florentine wool production value (Figure 2). It remains unclear to what extent this decline was the product of population decline, the shift to smaller-scale but higher-price cloths, or the contraction of the supply of English wool in relation to fluctuating royal policies and tariffs.[22]

Until gradually surpassed by Spanish *merino* in the sixteenth century, England was the chief producer of the world's finest raw wool.[23] The best English wool was sourced from Lindsay and

[19] For a classic case study of a Florentine Calimala firm involved in the over-land cloth trade, see Armando Sapori, *Una compagnia di Calimala ai primi del trecento* (Florence, 1932).

[20] Giovanni Filippi, *L'arte dei mercanti di Calimala in Firenze ed il suo piu antico statuto* (Turin, 1889), v, xv, 162.

[21] Giovanni Villani, *Nuova Cronica*, 2nd ed., ed. Giuseppe Porta (Parma, 2007), volume 3, book 12, chapter 94, at 197–202. John Najemy has shown, based on Villani's figures, that the labor force of the woolen textile industry represented at least one-sixth of Florence's adult population.

[22] On the demographic collapse, see, among others, W. R. Day Jr., "The Population of Florence before the Black Death: Survey and Synthesis," *Journal of Medieval History* 28, no. 2 (2002): 93–129.

[23] John Munro, "Wool-Price Schedules and the Qualities of English Wools in the Later Middle Ages, c. 1270–1499," *Textile History* 9, no. 1 (1978): 118–69; Munro, "Medieval Woolens: The Struggle for Markets," in *The Cambridge History of Western Textiles*, ed. David Jenkins, 2 vols. (Cambridge, U.K., 2003), 1:228–324; Munro, "Spanish *Merino* Wools and the *Nouvelles Draperies*: An Industrial Transformation in the Late-Medieval Low Countries," *Economic History Review* 58, no. 3 (2005): 431–84; Robert S. Lopez, "The Origin of the

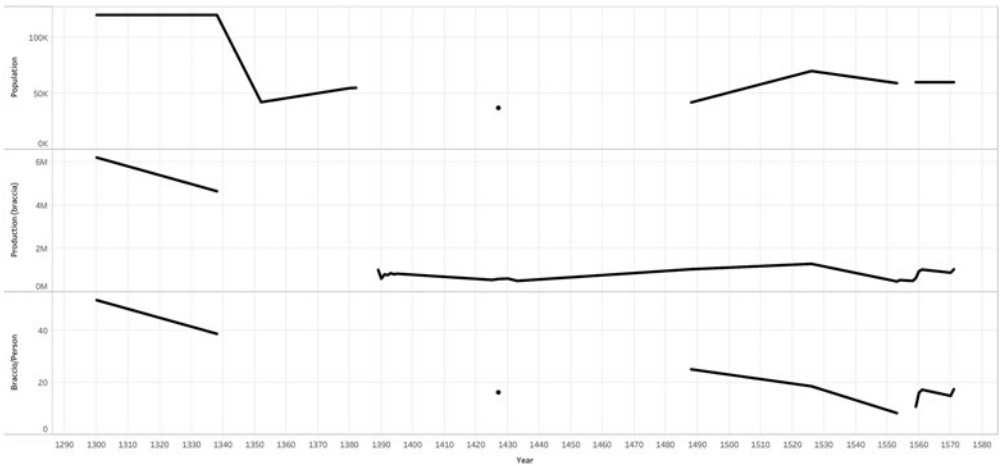

Figure 2. Wool production in Florence, 1300–1571. Production by amount (in *braccia*) and by amount per person. (Sources: For wool production, Francesco Ammannati, "L'Arte della Lana a Firenze nel Cinquecento: Crisi del settore e riposte degli operatori," *Storia economica* 11 [2008]: 1–39; Ammannati, "Florentine Woolen Manufacture in the Sixteenth Century: Crisis and New Entrepreneurial Strategies," *Business and Economic History On-Line* 7 [2009]: 1–9; Patrick Chorley, "Rascie and the Florentine Cloth Industry during the Sixteenth Century," *Journal of European Economic History* 32, no. 3 [2003]: 487–526; and Chorley, "The Volume of Cloth Production in Florence, 1500–1650: An Assessment of the Evidence," in Giovanni Luigi Fontana and Gérard Gayot, eds., *La lana: Prodotti e mercati, 13–20 secolo* [Padua, 2004]; Franco Franceschi, *Oltre il 'Tumulto': i lavoratori fiorentini dell'Arte della Lana fra Tre e Quattrocento* [Florence, 1993]; and Richard Goldthwaite, *The Economy of Renaissance Florence* [Baltimore, 2009]. For population figures, Maria Ginatempo and Lucia Sandri, *L'Italia della città: Il popolamento urbano tra Medioevo e Rinascimento (secoli XIII–XVI)* [Florence, 1990]; David Herlihy and Christiane Klapisch-Zuber, *Tuscans and Their Families: A Study of the Florentine Catasto of 1427* [New Haven and London, 1985]; and David Nicholas, *Urban Europe, 1100–1700* [New York, 2003].)

Lincolnshire (*Lindisea*), the Cotswolds (*Contisgualdo*), and the Welsh Marches (*La Marcia*), with the Herefordshire town of Leominster providing a common name for it (*lana di limistri*) in the Italian vernacular; by midcentury, it was precisely these "best of the best" regions that supplied the raw wool for Florentine firms.[24] After the invention of the foot-operated horizontal loom in the Middle Ages, production costs remained relatively steady, and the cost and availability of high-quality raw wool were the most important factors in the international trade.[25] Due to their high value-to-weight ratio, very fine woolens gave merchants a superior profit margin even in long-distance maritime and overland trade, where transportation and protection costs could be forbiddingly high for lower-quality cloths.[26] Until the third decade of the fourteenth century, though, the Italian wool trade centered on the sale of lower-quality textiles, while the Low Countries dominated the trade in fine wool cloth.[27] By the 1320s, though, and taking advantage of the disruption of western European industry caused by endemic warfare, Italian wool manufacturers were importing English raw wool of the highest quality directly from Southampton.[28] This transformation was also mirrored inside Florence by the simultaneous decline of the once-powerful Arte di Calimala, whose members had control of Florentine trade at the Champagne fairs, and the rise of the Arte della Lana (Wool Guild), whose producer-merchant members manufactured and exported woolens internationally.[29] By this time, Florentines dominated both international finance and the incredibly lucrative collection of taxes for the papacy. As a result, powerful "companies" like the Bardi and Peruzzi were able to make extensive loans to the English Crown, secured by income from

Merino Sheep," in *The Joshua Starr Memorial Volume: Studies in History and Philology* (New York, 1953), 161–68.

[24] Like the Del Bene firm, whose sources are described in Hidetoshi Hoshino, *L'arte della lana in Firenze nel basso medioevo: Il commercio della lana e il mercato dei panni fiorentini nei secoli XIII–XV* (Florence, 1980), 216, table 26.

[25] On the nature of loom technology, widely speaking, see both Marta Hoffmann, *The Warp-Weighted Loom: Studies in the History and Technology of an Ancient Implement* (Oslo, 1964); and Walter Endrei, *L'evolution des techniques du filage et du tissage: Du moyen âge à la revolution industrielle* (Paris, 1968).

[26] John Munro, "I panni di lana," in *Il Rinascimento italiano e l'Europa*, ed. Luca Ramin, vol. 4, *Commercio e cultura mercantile*, ed. Franco Franceschi, Richard Goldthwaite, and Reinhold C. Mueller (Treviso, 2007), 105–41.

[27] Patrick Chorley, "The Cloth Exports of Flanders and Northern France during the Thirteenth Century: A Luxury Trade?," *Economic History Review*, 2nd ser., vol. 40 (1987): 349–79.

[28] John Munro, "The 'Industrial Crisis' of the English Textile Towns, 1290–1330," in *Thirteenth-Century England VII*, ed. Michael Prestwich, Richard Britnell, and Robin Frame (Woodbridge, 1999), 103–41.

[29] On the wool guild, see Hoshino, *L'arte della lana*.

English duties on the export of wool.[30] The "bill of exchange," invented in medieval Italy, allowed Florentines resident in England to buy English wool with English papal taxes and to have their partners resident in Italy give the pope profits from other transactions in lieu of those English taxes.[31] By the mid-fourteenth century, three-quarters of the Florentine wool trade was in fine English wool imported raw to Florence and manufactured there for export, and the Arte della Lana had come to dominate the long-distance trade in high-grade textiles.[32] Similarly, Florentine *lanaioli* (manufacturer-merchants of woolen cloth), now working with the best wools, were better able to emulate the traditionally superior cloths of northern Europe: in 1341, for example, the firm of Cione and Neri Pitti and Co. offered cloths *a modo di Borsella* (in the style of Brussels), *a modo di Doagio* (of Douai), and *a modo di Mellino* (of Mechlin).[33] John Munro has cogently argued that this transformation also reflected and was causally linked to the decline of the Champagne fairs system under the weight of increasing transportation and transaction costs in western Europe as a result of endemic warfare and the decreasing costs of navigation and commercial transport at sea.[34] Similarly, later in the century, warfare in northern Italy may have disastrously increased the transportation costs for Lombard fustians heading to traditional markets in southern Germany, where new textile industries were then able to emerge.[35] Around the turn of the fifteenth century, if the accounts of the famed Datini firm of Prato are representative, the market in Spain—increasingly an exporter of raw wool—was still very hungry for finished Florentine cloths, with more than thirty times as many Florentine as non-Florentine cloths (including those of Prato) being sold at an average of more than double the price.[36]

[30] Edwin S. Hunt, *The Medieval Super-Companies: A Study of the Peruzzi Company of Florence* (Cambridge, U.K., 1994).

[31] Terence Lloyd, *The English Wool Trade in the Middle Ages* (Cambridge, U.K., 1977), 60–140; on the letter of exchange generally, see Raymond de Roover, *L'evolution de la lettre de change, XIVe–XVIIIe siècles* (Paris, 1953).

[32] Hidetoshi Hoshino, "The Rise of the Florentine Woolen Industry in the Fourteenth Century," in *Cloth and Clothing in Medieval Europe*, ed. Negley B. Harte and Kenneth G. Ponting (London, 1983), 184–204, esp. 187–90.

[33] Adrienne Atwell, "Ritual Trading at the Florentine Wool-Cloth Botteghe," in *Renaissance Florence: A Social History*, ed. Roger Crum and John Paoletti (New York, 2006), 198.

[34] 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, no. 1 (2001): 1–47.

[35] Maureen Mazzaoui, "The Cotton Industry of Northern Italy in the Late Middle Ages, 1150–1450," *Journal of Economic History* 32, no. 1 (1972): 262–86.

[36] Federigo Melis, "La diffusione nel Mediterranea occidentale dei panni di Wervicq e delle altre citta della Lys attorna al 1400," in *Studi in onore di Amintore Fanfani*, vol. 3, *Medioevo* (Milan, 1962), 229, table 4 (dealing with the period from 1394 to 1410).

The commercial relationship between England and Florence around high-quality raw wool is revealing: wool was England's most lucrative export and one of the chief concerns of royal fiscal policy. Until approximately 1400, duties on English wool continued to rise and, since the cost of wool was the most important factor in profitability, to decrease profit margins in the international trade. Florentines, because of their loans to the Crown, were exempt from some of these duties but, even so, were quickly losing their competitive advantage over England and the Low Countries, particularly once the English Crown began a policy of systematically favoring the export of cloth over raw wool to encourage domestic industry.[37] Florentines therefore had to seek out other sources of wool. Florentine wool manufacturing firms fell into two distinct classes or sectors: the convent of San Martino, which manufactured English wool; and the convents of Garbo (in the neighborhoods of San Pancrazio and San Piero Scheraggio and in the Oltrarno), which manufactured wool sourced in Castile, Majorca, Minorca, and Provence and from Italian producers (so-called *lana matricina*). Beginning in 1408 the Arte della Lana demanded a strict separation between the two in order to maintain the international reputation of exporters in the San Martino cloths.[38] Nor did the power of the Arte della Lana end at the city walls: in the 1420s, the Florentines organized the entire Tuscan industry in terms of permitted and forbidden wool sources, privileging the capital and prejudicing the production of possibly rival city-industries like that of Pisa.[39] Such measures meshed nicely with the overall political-economic policies of the pre-Medicean Florentine state, which involved, in the words of Franco Franceschi, "support for and stimulus of textile manufacturing, regarded as the foundation of the Florentine economy; and protectionism on a massive scale to regulate in- and outflows."[40]

[37] Lloyd, *English Wool Trade*, 225–87. On this transition, and the long shadow it cast on the history of Italian political economy, see Sophus A. Reinert, "Blaming the Medici: Footnotes, Falsification, and the Fate of the 'English Model' in Eighteenth-Century Italy," *History of European Ideas* 32, no. 4 (2006): 430–55; and Reinert, "Lessons on the Rise and Fall of Great Powers: Conquest, Commerce, and Decline in Enlightenment Italy," *American Historical Review* 115, no. 5 (2010): 1395–425.

[38] Franco Franceschi, "Lane permesse e lane proibite nella Toscana fiorentina dei secoli XIV–XV: Logiche economiche e scelte 'politiche,'" in *La pastorizia mediterranea: Storia e diritto*, ed. Antonello Mattone and Pinuccia F. Simbula (Rome, 2011), 878–89. For other regulations, see Franceschi, "Criminalità e mondo del lavoro: Il tribunale dell'Arte della lana a Firenze nei secoli XIV e XV," *Ricerche storiche* 18 (1988): 551–90; on the different sectors, see also Goldthwaite, *Economy of Renaissance Florence*, 276–78.

[39] Franco Franceschi, "Industria, commercio, credito," in *Storia della civiltà Toscana*, vol. 2, *Il Rinascimento* (Florence, 2001), 547–53.

[40] Franco Franceschi, "Medici Economic Policy," in *The Medici: Citizens and Masters*, ed. Robert Blacke and John E. Law (Florence, 2015), 143. Discussing a series of import bans on foreign fabrics between 1439 and 1458, Franceschi quotes a telling justification: "it will not

By the late 1480s, after a steady decline in the availability of English wool, the Garbo sector in Florence was dominant, at least in terms of production volume, with less than 25 percent of the total cloths produced based on English wool.[41] It was around the same time that Spanish wool began to overtake *matricina* in Florentine production, both in price and in volume. By the end of the fifteenth century, Spanish *merino* wool was beginning to rival English wool in quality and was becoming an essential part of the Florentine luxury woolens trade. After the mid-fifteenth century, the most important markets for Florentine *garbo* cloths were Ottoman territories in the Eastern Mediterranean and the *panni di levante* shipped eastward were made from *matricina* and from the wool of Castile.[42] By the 1470s as much as half of the total production of the Garbo sector was bound for the Levant, and this market helped revive the Florentine woolens industry, in a slump since the second half of the fourteenth century even though San Martino cloths remained popular in domestic and luxury markets.[43] The Florentine-Ottoman trade was fostered in the later period by Lorenzo de' Medici's peaceful diplomacy with the Turks, including the Sultans Mehmed II and Bayezid II, and the opening up of new overland routes to compete with shipping from the Florentine ports of the Tyrrhenian Sea.[44] Florentine *lanaioli*, such as those of the collateral branch of the Medici family discussed at length later in this essay, imported raw wool from Spain, manufactured and finished it in Florence, and shipped the finished woolens by sea and then across overland routes (such as that through Nuovo Bazzaro, today's Novi Pazar, in the Raška region of Serbia) developed by the Turks to Pera, the Christian trading quarter of Constantinople. Silks from Bursa, at the end of the fabled Silk Road, along with other precious commodities, were then shipped back to Florence and on to other markets, like Lyon (Figure 3). Yet the late 1520s saw another serious downturn in the Florentine woolens industry: the product of plague, war (Rome would be sacked in 1527), more competition and higher prices for Spanish wool, and, very possibly,

be believed elsewhere that the textiles of Florence are satisfactory if we ourselves use foreign imports" (p. 147).

[41] Hoshino, *L'arte della lana*, 231–44.

[42] Hidetoshi Hoshino, "Il commercio fiorentino nell'Impero Ottomano: Costi e profitti negli anni 1484–1488," in *Aspetti della vita economica medievale*: *Atti del Convegno di Studi nel X anniversario della morte di Federigo Melis* (Florence, 1985), 81–90; Hidetoshi Hoshino and Maureen Mazzaoui, "Ottoman Markets for Florentine Woolen Cloth in the Late Fifteenth Century," *International Journal of Turkish Studies* 3, no. 2 (1985–86): 17–31.

[43] Patrick Chorley, "*Rascie* and the Florentine Cloth Industry during the Sixteenth Century," *Journal of European Economic History* 32, no. 3 (2003): 489.

[44] Lorenzo Tanzini, "Il Magnifico e il Turco: Elementi politici, economici e culturali nelle relazioni tra Firenze e Impero Ottomano al tempo di Lorenzo de' Medici," *Rivista dell'Istituto di Storia dell'Europa Mediterranea* 4 (2010): 271–89.

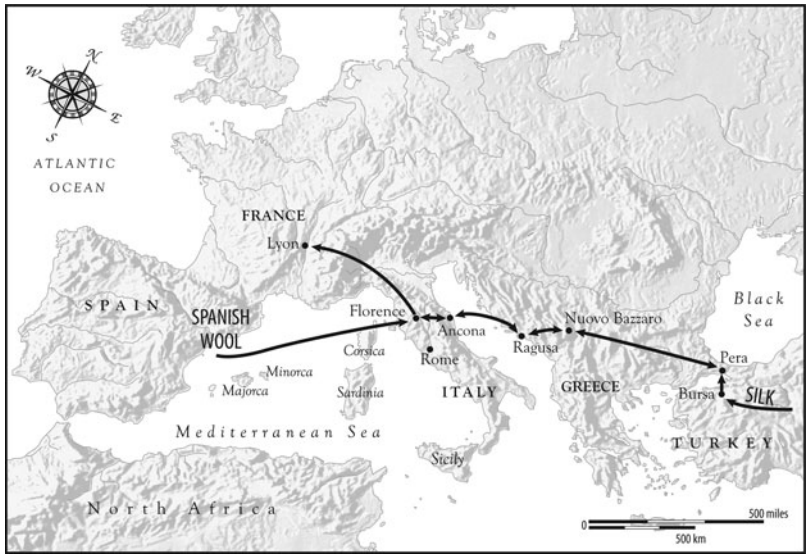

Figure 3. The Medici wool business in the Mediterranean, ca. 1520. (Sources: Simplified schematic from Mss. 553 and others, Selfridge collection. Medici Collection, Baker Library Historical Collections, Harvard Business School; and Gertrude R. B. Richards, *Florentine Merchants in the Age of the Medici* [Cambridge, MA, 1932].)

the rapidly diminishing Levant trade. Though silk was by this point coming largely from local and western sources, Sultan Selim I's embargo, from 1514 to 1520, on the import of Persian silk into Ottoman lands played havoc with the western trade at Bursa, where raw silk had once been lucratively traded for finished Florentine woolens, and which would soon lose its central role in the East-West cloth trade to Aleppo, giving an advantage to the Venetians over the Genoese and Florentines.[45]

The Selfridge Collection and Renaissance Business History

The scale, industrialization, and centralization of Florence's late medieval wool industry became an essential issue in economic historiography when Alfred Doren, at the turn of the twentieth century and in a monumental volume subtitled "A contribution to the history of modern capitalism," presented, on the basis of chiefly normative

[45] Chorley, "*Rascie*," 487–91; Halil İnalcık, "Part I: The Ottoman State: Economy and Society, 1300–1600," in *An Economic and Social History of the Ottoman Empire, 1300–1914*, ed. Halil İnalcık (Cambridge, U.K., 1994), 218–56.

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sources like guild statutes, premodern Florentine *lanaioli* as highly organized, large-scale "supercapitalists" with partly centralized control over labor and production in their workshops. In his terms, they were industrial magnates (*Industriemagnaten*) with a huge accumulation of capital (*gewaltige Anhäufung von Kapital*) and of great capital (*Großkapital*) and with enormous economic power (*ungeheure wirtschaftliche Machtmittel*), in control of the guild of great industrialists par excellence (*die Zunft der Großindustrielle* κατ' εξοχήν).[46] In a long note in the later edition of his *Modern Capitalism* (1916–1919), Werner Sombart, who along with his near exact contemporary and critic Max Weber shaped the debate on the origins of capitalism in the first half of the twentieth century, rebelled against Doren's view, declaring wool firms in the city "essentially craft-based (*handwerksmäßige*) or at best small capitalist (*kleinkapitalistische*) enterprises," adding, "Nowhere do we find the beginnings of large-scale enterprises. Any operations exceeding the dimensions of individual enterprises were built by the guild (e.g., the *Tuchspannen*)," the lattermost term being a reference to large structures for wool stretching (*tiratoi*), of which there were four in late sixteenth-century Florence.[47] Sombart was right. Wool manufacturing in Florence—which remained in essential ways the same from the fourteenth through the sixteenth centuries—was largely decentralized due to the protoindustrial system in place there, commonly called the "putting out" system. Wool was initially distributed to and worked by artisans, often women on the borders of Florence or in the countryside, in their own homes using their own tools. The wool was then collected and distributed to urban weavers and dyers.[48] Very little of the labor or production was centralized in a central workshop (Doren's *zentralwerkstatt*),

[46] Alfred Doren, *Studien aus der Florentiner Wirtschaftsgeschichte*, vol. 1, *Die Florentiner Wollentuchindustrie vom 14. bis zum 16. Jahrhundert: Ein Beitrag zur Geschichte des modernen Kapitalismus* (Stuttgart, 1901), 202, 400, 469; and vol. 2, *Das Florentiner Zunftwesen vom 14. bis zum 16. Jahrhundert* (1908), 505, 560, 721. Early caveats about Doren's methodology were presented by, among others, Edwin F. Gay, soon to be the first dean of Harvard Business School (HBS), in his long review in *Political Science Quarterly* 19, no. 2 (1904): 310–15: "Doren bases all this on gild documents, which he uses with dexterity and vivacity," Gay writes, "[b]ut this vivacity has its dangers" (p. 314). On the scale of the Florentine wool industry, see also the important early revisionism of Gertrud Hermes, "Der Kapitalismus in der Florentiner Wollenindustrie," *Zeitschrift für die gesamte Staatswissenschaft* 72, no. 3 (1917): 367–400.

[47] Werner Sombart, *Der moderne Kapitalismus: Historisch-systematische Darstellung des gesamteuropäischen Wirtschaftslebens von seinen Anfängen bis zur Gegenwart*, vol. 2, part 2 (Munich, 1919), 767 (translation ours). On Sombart and Max Weber, see Hartmut Lehmann, "The Rise of Capitalism: Weber versus Sombart," in *Weber's Protestant Ethic: Origins, Evidence, Context*, ed. Hartmut Lehmann and Günther Roth (Cambridge, U.K., 1993), 195–208.

[48] For a study of one production system, see Francesco Ammannati, "Francesco di Marco Datini's Wool Workshops," in *Francesco di Marco Datini: The Man and the Merchant*, ed. Giampiero Nigro (Florence, 2010), 489–514. On protoindustrialization more generally, see

and most occurred outside of direct oversight. Nearly all of the workers in the system earned piecework pay, rather than wages, and the presence of large numbers of precariously situated urban woolworkers in the city had been a significant cause of political agitation in the second half of the fourteenth century.[49] The consequences of this unrest led to decreasing (not increasing) centralization in the Florentine woolen cloth industry, which did survive the political strife, the demographic collapse of the Black Death, and significant regional depressions but ultimately fell victim to international competition.[50] Our image of the scale of the industry is now quite clear: the well-known and relatively large Del Bene firm, studied by the great Japanese business historian Hidetoshi Hoshino, produced (using over 98 percent English wool) an average of around 155 cloths per year in the period from 1355 to 1359 and, in its best year, had a profit margin of 40 percent before a sudden downturn in its business (Figure 4). And Franceschi has found, on the basis of production totals for 402 firms, that the average in precisely this period (1355–1374) was 122 cloths per annum.[51] The Arte della Lana was, as Doren had argued, controlled by the interests of the *lanaioli*, the full members or *artefices pleno iure* of the guild; however, they had likely never been, as in Flanders, master weavers or loom operators, but instead were and remained petty industrial entrepreneurs whose role in manufacturing was largely restricted to continuous processes of capital generation and management.

An unusually auspicious confluence of women, men, and institutional support in the 1930s led to the earliest extensive use of a firm's account books to understand the business-historical and entrepreneurial dynamics of Renaissance wool manufacturing. And it was this approach that, practically speaking, consigned Doren's view to obsolescence and spurred much of the most vibrant premodern business-historical research of the twentieth century. The shift in approach came, like a

Sheilagh C. Ogilvie and Markus Cerman, eds., *European Proto-Industrialization* (Cambridge, U.K., 1996).

[49] The literature on woolworker agitation is vast, but see Alessandro Stella, *La révolte des Ciompi: Les hommes, les lieux, le travail* (Paris, 1993) and Robert Fredona, "Baldus de Ubaldis on Conspiracy and Treason (*Crimen laesae maiestatis*) in Late Trecento Florence," in *The Politics of Law in Late Medieval and Renaissance Florence: Essays in Honour of Lauro Martines*, ed. Lawrin Armstrong and Julius Kirshner (Toronto, 2011), 141–60; and, for a wider context, Samuel Cohn, "Florentine Insurrections, 1342–1385, in Comparative Perspective," in *The English Rising of 1381*, ed. Rodney H. Hilton and T. H. Aston (Cambridge, U.K., 1984), 143–64. On the organization of labor in the wool guild, see Franco Franceschi, *Oltre il 'Tumulto': I lavoratori fiorentini dell'Arte della Lana fra Tre- e Quattrocento* (Florence, 1993).

[50] Franco Franceschi, "L'imposa mercantile industriale nella Toscana dei secoli XIV–XVI," *Annali di storia dell'impresa* 14 (2003): 229–49.

[51] Franceschi, *Oltre il 'Tumulto,'* 8.

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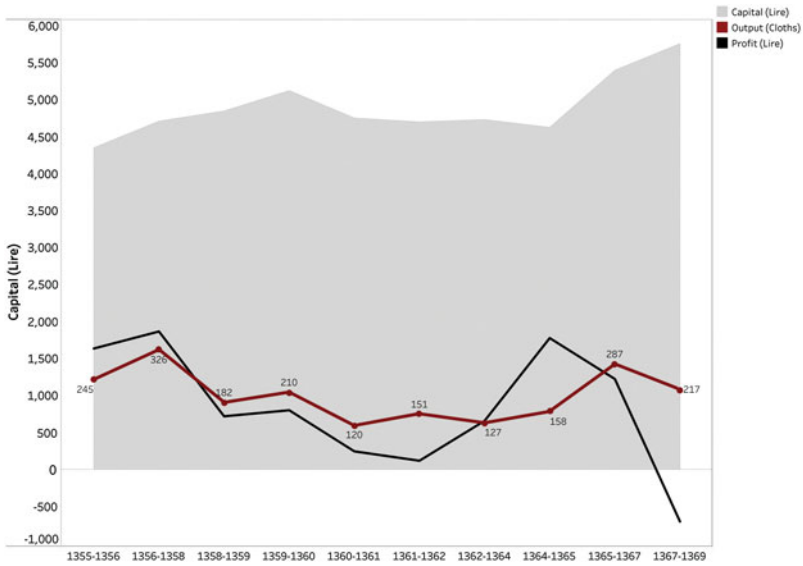

Figure 4. Del Bene wool manufacturing firms, 1355–1369. (Sources: Hidetoshi Hoshino, *L'arte della lana in Firenze nel basso Medioevo: Il commercio della lana e il mercato dei panni fiorentini nei secoli XIII–XV* [Florence, 1980], 213.)

bolt, with the publication in 1941 of Raymond de Roover's essay "A Florentine Firm of Cloth Manufacturers," which had been written while the young Belgian business historian was an MBA student at Harvard Business School—working under N. S. B. Gras, holder of the first chair in business history and architect of HBS's business history curriculum—and submitted originally as a thesis for a Harvard University prize in 1938.[52] De Roover's "fresh perspective" in the article "led to a major revision in our understanding of the organization of the cloth industry in Florence," according to Richard Goldthwaite; it did so by focusing on the "actual business practice of an individual firm" and by "de-emphasizing the guild and revealing the considerable fluidity in human relations inside the system and therefore the more amorphous quality of

[52] Raymond de Roover, "A Florentine Firm of Cloth Manufacturers: Management and Organization of a Sixteenth-Century Business," *Speculum* 16, no. 1 (1941): 3–33, reprinted in Julius Kirshner, ed., *Business, Banking, and Economic Thought in Late Medieval and Early Modern Europe: Selected Studies of Raymond de Roover* (Chicago, 1974), 85–118. De Roover's original sixty-six-page typescript, with charts, is located in Harvard University's Archives. On the early history of business history at HBS, see Robert Fredona and Sophus A. Reinert, "The Harvard Research Center in Entrepreneurial History and the Daimonic Entrepreneur," *History of Political Economy* 49, no. 2 (2017): 267–314.

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industrial society" in the Renaissance.[53] De Roover would go on to become, in the words of David Herlihy, "the historian *sans pair* of medieval business and banking institutions," his reputation having been secured *in perpetuum* with his 1963 masterpiece *The Rise and Decline of the Medici Bank*.[54] De Roover's preliminary investigation of the Medici bank had been published fifteen years earlier and dedicated to Gras, "whose teaching inspired this study on one of the most famous business firms in history," and there is no doubt that de Roover's background in accounting—he had been an accountant in Antwerp before emigrating to the United States—and training in business methods under Gras were together the foundation of his extraordinary talents and productivity.[55] But the "Florentine Firm" was based, more immediately, on the work of another scholar, Florence Edler de Roover, who, before meeting Raymond in Antwerp and marrying him in England in 1936, had worked under Gras's supervision on a project funded by the Medieval Academy of America to prepare a lexicon of medieval Italian business terms, the detailed appendices of which—based on her extensive use of the collection of Medici family business manuscripts (focused on cousins of the more famous branch of the Medici dynasty that was comprised of bankers, popes, and later Grand Dukes of Tuscany) donated to HBS by the Anglo-American retail magnate Harry Gordon Selfridge—laid the groundwork for Raymond's study.[56] That Edler de Roover's extraordinary paleographical skills permitted her husband to reconstruct the account books of the "Florentine Firm" is without doubt, just as her discovery of the *libri segreti* (secret books) of the Medici bank provided the foundation for his magnum opus.[57] This essay, in returning to the same Selfridge manuscript books used

[53] Richard A. Goldthwaite, "Raymond de Roover on Late Medieval and Early Modern Economic History," in Kirshner, *Business, Banking, and Economic Thought*, 10–11.

[54] David Herlihy, "The Economy of Traditional Europe," *Journal of Economic History* 31, no. 1 (1971): 160.

[55] "Before I became his [Gras's] student," de Roover further explained, "I had done some work on the history of accounting and I was familiar with medieval methods of bookkeeping. It was Professor Gras who broadened my horizon and who taught me how to apply this knowledge and how to use accounting as a tool rather than as an end in itself." Raymond de Roover, *The Medici Bank: Its Organization, Management, Operations and Decline* (New York, 1948), v, xv.

[56] Florence Edler, *Glossary of Mediaeval Terms of Business, Italian Series, 1200–1600* (Cambridge, MA, 1934), appendices at 333–426. On Edler (de Roover), see Richard A. Goldthwaite, "Florence Edler de Roover (1900–1987): Nota biografica," in Edler de Roover, *L'arte della seta a Firenze nei secoli XIV e XV*, ed. Sergio Tognetti (Florence, 1999), xv–xxiii. We are currently completing a biography of this remarkable yet little-known scholar.

[57] Raymond de Roover, "I libri segreti del Banco de' Medici," *Archivio storico italiano* 107 (1949): 236–37; acknowledged in de Roover, *The Rise and Decline of the Medici Bank, 1397–1494* (Cambridge, MA, 1963), xii.

by Edler in her *Glossary* and de Roover in "A Florentine Firm," is similarly based upon the couple's pioneering efforts.

The Medici as Industrial Entrepreneurs

In his classic *The Rise and Decline of the Medici Bank*, Raymond de Roover devoted one chapter to "the Medici as industrial entrepreneurs," examining the main branch's investment in three cloth manufacturing *botteghe*, two wool and one silk. These shops were not, compared with the family's banking activities, a large source of profits; in the period from 1420 to 1435, for example, the one wool shop then operating provided only 3.1 percent of the bank's profits.[58] But de Roover's idea of industrial entrepreneurship provides us with a model for presenting a case study of a single Medici wool firm's operations. Compared with some of the other wool manufacturing firms in the Selfridge collection, the firm of Francesco di Giuliano di Raffaello de' Medici and Co. (1556–1558), which produced only seventy-one woolen cloths, was relatively small. The survival of nearly all of its account books, however, allows for the fullest reconstruction of a firm from the Medici branch represented by the collection. All but one (a book of weavers) of the firm's eight account books, purchased as a set in 1556 from the firm of stationers (*cartolai*) Giovanbattista Fontani and Co. for 48 lire di piccioli (6.86 florins), are extant (Figure 5).[59] These books were organized hierarchically, with the ledger ("debtors and creditors" book), in which the tally of sold cloths (*panni finiti*) functioned to calculate profits and losses, as the book of final entry into which fed two subsystems of books: one dealing with the direct costs of manufacturing (Filatori, Tessitori, Tintori e Lavoranti, Manifattori) and the other with the operation's indirect costs and cash expenditures (Quadernaccio, Entrata e Uscita e Quaderno di Cassa, and Giornale). Figure 6 shows the middle volume. Like nearly all the wool companies of the period, the firm itself, which operated for the two years from May 1, 1556, to April 30, 1558, was little more than a small core of employees and an amount of capital. The firm rented its *bottega* and equipment and had only four salaried employees: Rosso di Giovanni de' Medici, *maruffino* (two-year

[58] Raymond de Roover, *Il Banco Medici dalle origini al declino (1397–1494)*, trans. Gino Corti (Florence, 1970), 80, table 11.

[59] Ms. 567 (11), ff. 25v–26r, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School (hereafter SC). The Brandolini books studied by Richard Goldthwaite were twelve in number; another Strozzi set purchased in 1512 contained nine books. See Goldthwaite, "The Florentine Wool Industry in the Late Sixteenth Century: Case Study," *Journal of European Economic History* 32, no. 3 (2003): 487–526; and Goldthwaite, "Performance of the Florentine Economy, 1491–1512: Moneys and Accountancy," *Archivio storico italiano* 176, no. 2 (2018): 252.

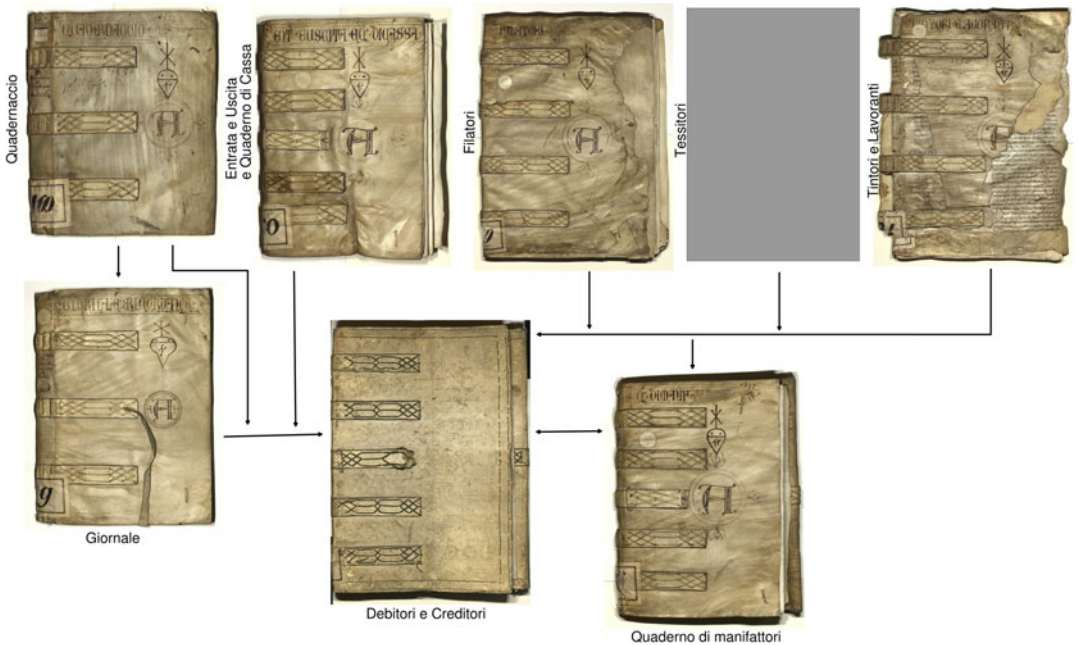

Figure 5. System of account books. For the firm of Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558. (Sources: Mss. 567-2, 567-7, 567-8, 567-11, 568 v.6, 568 v.9 [12], and 600-5, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

Figure 6. Cover of a Medici Account Book. "Inflow and Outgo and Cash Notebook," *Entrata e uscita e quaderno di cassa*, Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558. (Source: Ms. 568 v.6, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

term beginning May 1, 1556, salary of f.40/year), who kept the firm's books; Amerigo di Giovanni de' Medici, *giovane* (eighteen-month term beginning November 1, 1556, salary of f.16/year); Francesco di Piero Tucci, *giovane* (thirteen-month term beginning November 1, 1556, salary of f.20/year); and Antonio d'Agnolo fornaio, *fattorino* (six-month term beginning November 1, 1556, salary of f.6/year).[60] Figure 7, which shows a breakdown of the firm's total operating costs of 3,076.75 florins, also serves as a basic schematic of the entire

[60] Ms. 567 (11), ff. 44r (Rosso) "istato a ghoverno per marufino a salario per questa ragione"; 30r (Amerigo) "nostro giovane," 23r (Francesco) "nostro giovane," and 32v (Antonio) "nostro fattorino," SC.

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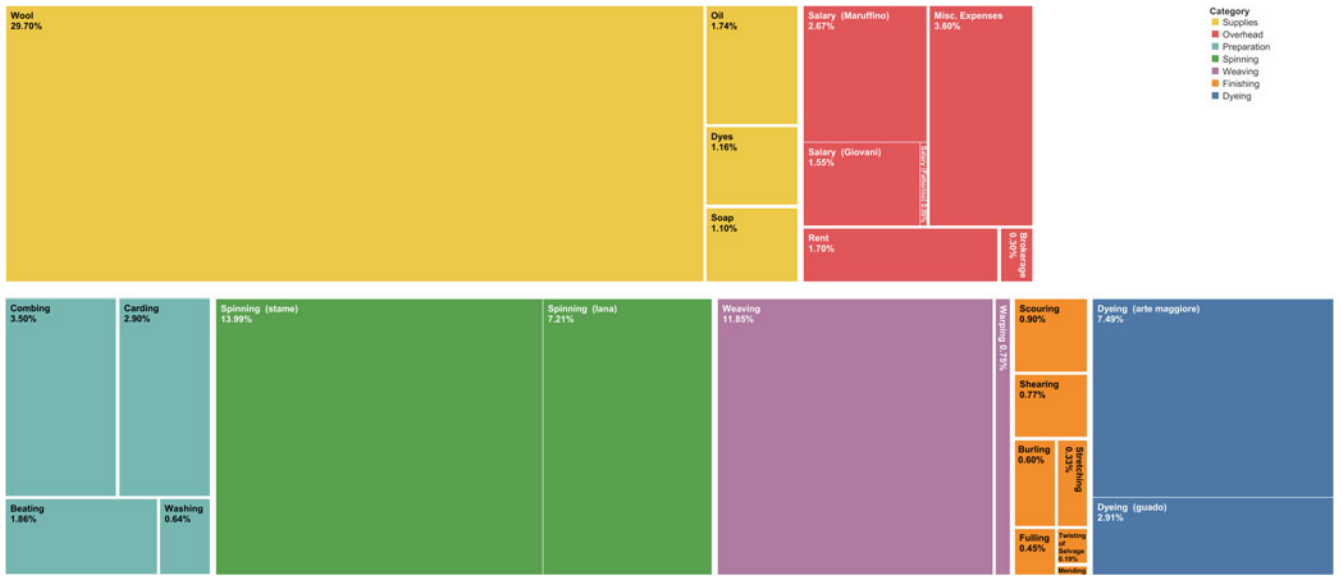

Figure 7. Breakdown of operating costs of a Medici wool firm. Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558. (Sources: Mss. 567-11 [*quaderno de' manifattori*] and 567-8 [*libro grande bianco A*], Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

manufacturing process (from preparation to spinning to weaving to dyeing to finishing).[61] The firm was not profitable, but its overall costs (excluding the cost of raw wool; see below) were not unlike those of other Medici firms, even much larger ones. Figure 8 shows the two Medici firms operating in the period of 1530 to 1543, which were more than five and fifteen times the size, respectively, in total output.

The firm was operated by Francesco's father, Giuliano, for whom we have in the Selfridge collection an extant set of *richordanze* beginning with his 1547 marriage to Margherita, the daughter of Giovanni de' Nerli, who brought him a 2,700 florin dowry. In them, Giuliano records family milestones—the births and baptisms of his children,

[61] What exactly a florin was "worth," particularly in relation to today's parameters, is a perennially vexing question to which there are no definite answers. For a premier approach to the problem, see Goldthwaite, *Economy of Renaissance Florence*, 362–67, 609–14. More experimentally, one could seek to triangulate the value of the florin by comparing different indices, some of which will be more generally acceptable than others. We know, for example, that the pure gold content of a florin in 1558 was 3.52 grams. At Spring 2019 gold prices of about $41.50 per gram, the operating costs of the Medici firm in question would be valued at $449,451.64 today by a Gold Index. The purchasing power of gold has, however, changed significantly over time. As Goldthwaite shows—in *The Building of Renaissance Florence: An Economic and Social History* (Baltimore, 1982), 438—1 florin was equal to 140 *soldi di piccioli* in 1558, or 4.96 days of a skilled laborer's wages averaging 28.2 *soldi di piccioli* per diem. The operating costs of the present Medici firm therefore amounted to the price of 15,260.68 days of skilled labor. Assuming a skilled worker in the United States today makes about $80,000 a year, or $308 per day if we consider 260 working days in a year, 3,076.75 florins would be equal to about $4,700,289 today by a Skilled Worker Index. However, according to Goldthwaite's calculations, most unskilled workers were paid the equivalent of about 0.20 *staia* of wheat per day at the time (*Economy of Renaissance Florence*, 365), and the average price of a *staio* of wheat in 1558 was 62.6 *soldi* (of the silver *lira*). There were 4.5 grams of silver in a 1558 *lira*. The price of a gram of silver is currently about 54 cents, while wheat was recently trading at $4.43/bushel. At 35.24 liters/bushel, the value is thus 12.6 cents per liter. A *staio* is 24.7 liters, so 0.20 *staia* of wheat is 4.94 liters of wheat. As such, the unskilled daily wage was about $1.52 by the current price-of-silver standard. And, the daily unskilled wage was about 62 cents per day by the current price-of-wheat standard. So, if an unskilled laborer today works eight hours per day and makes the Massachusetts minimum wage of $11 per hour, then the current U.S. daily unskilled wage is $88, which is either 142 times (by the Wheat Index) or 58 times (by the Silver Index) larger than the 1558 pay. So, the value of the 3,076.75 florins—owing to the inflation of labor costs relative to commodity prices—might really be as low as $81,040.86, or even $33,116.63. At the other extreme, as Walter Isaacson shows, Leonardo da Vinci was paid 35 florins for his earlier *Virgin of the Rocks*. Isaacson, *Leonardo da Vinci* (New York, 2017), 382. Considering this to be the average price of a Leonardo commission, and accepting Goldthwaite's assumptions regarding the reduced real value of the specie florin between 1500 and 1550 (unlike the florin as a unit of account, which remained stable between 1500 and 1600; see Goldthwaite, *Economy of Renaissance Florence*, 611–12), the firm's operating costs would have covered roughly seventy-three such paintings at the adjusted value (eighty if we consider the florin as a unit of account). Given the recent $450,000,000 sale price for Leonardo's *Salvator Mundi*, by a 1500 Leonardo Index 3,076.75 1558 florins would be worth almost $33 billion today. As such, depending on which index one picks, one can triangulate the current equivalent of the Medici firm's operating costs to fall roughly in the range between $33,000 and $33 billion. For useful caveats regarding long-term price data and the perils of scientism, see William Caferro, *Petrarch's War: Florence and the Black Death in Context* (Cambridge, U.K., 2018), 178–99.

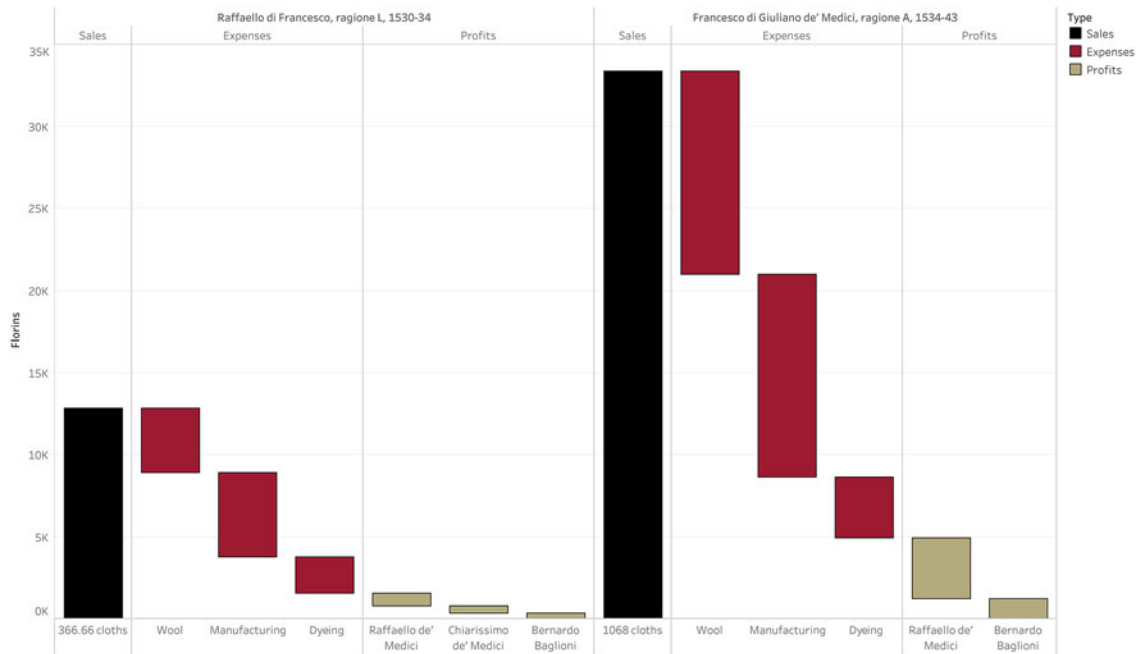

Figure 8. Two Medici wool firms. (Sources: Mss. 554-6 and 558-7, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

first Costanza, then Francesco (so named "to reinstate the name of Francesco my uncle and Francesco my brother"), Caterina, and Giovanni (named for his father-in-law), who died in his ninth month; and the deaths of Margherita at age thirty-three and of his father, both in 1555—and civic honors, from his service as Podestà of Montepoli in the Arno valley and as consul of the Arte della Lana to his election to the Otto di Pratica and Dodici Buonuomini, by this point two magistracies in the ducal administration of Tuscany.[62] Giuliano's memoranda also included a number of property transactions and were kept at the end of a *giornale* containing accounts of chiefly personal or domestic business, with about one-quarter of all entries in the first two years of his marriage to Margherita pertaining to his wife's expenses.[63] Giuliano himself would die in 1569 at the age of sixty-three.

At the start of May 1556, the merchant Jacopo Pandolfi sold the firm its first supplies of raw material: eleven bales of Spanish wool "of varying types [*di piu sorte*]" with a combined weight, including ropes and packaging, of 3,214 pounds. The firm paid f.10 s.10 per 100 pounds, which was calculated after the subtraction of combined *tare* ("tara per tutte le tare #297") equal to 9.25 percent of the weight, or f.306 s.5 total for a nominal weight of 2,917 pounds.[64] This wool was unpacked, likely in the firm's *bottega*, and sorted into twenty-two sacks (of variable weight, ranging from 125 to 160 pounds) with a combined weight of 3,110 pounds.[65] In 1556–1557 the firm acquired around 8,675 pounds of raw wool all told, of which approximately 63 percent was Spanish and the rest Italian (Tuscan *matricina* and wool from *castroni*, castrated bucks), which was sorted into sixty sacks and, in the case of the Italian wool though not the Spanish, graded (as *fina*, *seconda*, or *grossa*). The purchase of raw wool accounted for 30 percent of the total production costs of this firm, by far the largest single category, even though it was lower than the 35 percent and 44 percent spent on wool by the related Medici firms operating from 1530 to 1543 and by the Brandolini firm examined by Goldthwaite at 40 percent. The Spanish *lana della serena* supplied by the Spaniard Lopez Gallo, which made up more than a quarter of the total, was by far the most expensive at f.24 s.10 per 100 pounds, followed by Italian wool shorn from castrated sheep at f.13 per 100 pounds (Table 1).

[62] Ms. 562, ff. 140r–144v; "per rintegrare il nome di Francesco mio avolo e Francesco mio fratello," SC.

[63] Ms. 562, ff. 1r–4v.

[64] Ms. 600 (5), f. 1r. The individual *tare*, found at 568 (9), f. 1r, were 133 lb. *per le sache*, 26 *per uso*, 16 *per umido*, and 122 *per sabione*.

[65] Ms. 567 (7), f. 1r.

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Table 1
Medici Wool Supplies, 1556–1557
For the Firm of Francesco di Giuliano de' Medici and Co., ragione A

Raw Wool Supplies, 1556–1557											*Sorting and Grading*			
Date	*Supplier*	*Type*	*Bales*	*Gross Weight (lbs)*	*Net Weight (lbs)*	*% Tares*	*Price (Florins)*	*Price per 100 lbs.*	*Transaction type*	*Broker*	*Sacks*	*Weight (lbs)*	*Grade*	*% Loss of weight*
4 May 1556	Jacopo Pandolfi	Spanish (various)	11	3214	2917	9.2	306 s5 d0	10 s10 d0	Credit	Niccolò Lapi	22	3110	n/a	3.2
16 July 1556	Lopes Gallo	Spanish (della serena)	7	2270	2036	10	498 s16 d0	24 s10 d0	Barter (for *rascie*)	Tadeo Risaliti	16	2180	n/a	4
24 September 1556	Luigi and Alessandro Capponi	Italian (from *castroni*)	7	1495	1399	6.4	188 s17 d0	13 s10 d0	Credit	Benedetto Falcucci	11	1485	38% fina, 45% seconda, 17% grossa	0.7
30 June 1557	Zacheria Raparelli	*Matricina* (from Cortona)	2	530	500	6	53 s11 d3*	10 s14 d3	Barter (for *perpignani*)		**	**	**	**
3 August 1557	Andrea da Talla	*Matricina* (from Valdarno)	4	1020	1000	2	100 s0 d0	10 s0 d0	Cash		11	1456	59% fina, 41% seconda	6

Sources: Mss. 600-5 and 567-8, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.
* additional expenses of f.0 s.1 d.5 were paid for the canvas sacks, ropes, the *gabella di Cortona*, etc. ** combined with the 3 August 1557 total below.

The raw wool purchased in the period from 1491 to 1495 by the Medici firm of Giuliano di Giovenco and his son Francesco, "wool manufacturers in Porta Rossa," included both *matricina* and *garbo*, from local merchants—among them the wealthy and influential Jacopo di Giovanni Salviati, who was married to Lorenzo de' Medici's daughter Lucrezia, sister of the future pope Leo X, and a number of his relatives—and from Spaniards resident in Florence including Miguel de Miranda, Miguel de Silos, and Fernando and Juan de Castro.[66] Raw wool was delivered in bales, wrapped in cloth and tied with rope, and distinguished in accounts by gross weight (e.g., "one bale gross weight 237 pounds"); the final purchase price (*netto a pagamento*) was calculated by the pound after the assessment of tares (*tare*), with allowances for ordinary wear-and-tear (*per uso*), for humidity or wetness, dirt or sand, and the weight of the ropes and packaging materials. So, for example, when on July 18, 1492, Miguel de Silos delivered six bales of wool weighing 1,381 pounds to the Medici partners, the tares combined for 117 pounds (nearly 8.5 percent of the total), and the final price (f. 145, s. 6) reflected a weight of 1,264 pounds.[67] The notebook of first entry (*quadernaccio*) of Giuliano di Giovenco's great-great-grandson Giuliano di Raffaello's firm (1552–1555) similarly shows the Medici wool manufacturer sourcing raw wool from a variety of sources. Six decades on, Spaniards were even more common as suppliers of raw wool, both Spanish and Italian *matricina*, and notably also as buyers of finished cloths: one Luis de Polanco, for example, sold the Medici wool from central Italy (*matricina di toschanella*) and bought both undyed cloths (*panni bianchi*) and smooth black *rascie*, the most expensive cloths sold by the Medici in the sixteenth century; while Lopez Gallo, who supplied raw Spanish wool, bought lower-quality coarse cloths (*panni corsivi*), both undyed (*bianchi*) and dyed blue (*turchino*) and pink (*roseseche*), as well as undyed twill (*lana alla piana*) and again especially the fine black *rascie*. These Spaniards specialized in selling wool, but that was not all; in August of 1563, for example, Juan Alonso de Malvenda sold Giuliano di Raffaello and Co. sugar from the Canary Islands (*zuchero di canaria*), where the Spaniards had introduced sugar cane at the end of the previous century, and larger quantities of lower-quality sugar from India (*zucheri rottami d'India*).[68] In 1556, the same

[66] Ms. 516, ff. 3r–19v; 1r, "lanaiuoli in Porta Roxa"; 2r (Salviati), 4v (Michele de Miranda), 9r (Michele de Silos), and 16v (Fernando e Giovanni de Chastro), SC.

[67] Ms. 516, 9r, "i[a] balla peso lorda lib. 237," SC.

[68] Ms. 563, ff. 2rv, 31v, 32v, 35v, 40v (Luigi di Polancho), 19v, 23r, 32rv (Lopes Ghallo), and 62v–63r (Giannalonso di Malvenda), SC. For an overview of the Spanish merchant colony in Florence in the earlier period, see Bruno Dini, "Mercanti spagnoli a Firenze (1480–1530)," in Dini, *Saggi su un economia-mondo: Firenze e l'Italia fra Mediterraneo ed Europa (secc. XIII–XVI)* (Pisa, 1995), 289–310.

Lopez Gallo bartered his raw wool for some of the black *rascie* it would produce, or 1,000 pounds of the finest Spanish wool for 3 bolts of *rascia* together weighing 201 pounds and valued at 222.74 florins, a weight-value ratio of about five to one between the raw material and the manufactured good.[69] In the period between 1490 and 1550, studied by Bruno Dini, the Salviati firm did business with some twenty-six Spanish merchants; of them, more than half either broke even (bartering goods for goods: 60 percent of the time Spanish raw wool, and 32 percent of the time Spanish silk, for finished silks and woolens) or ended up with a negative balance with the Salviati (Figure 9).[70] In addition to wool, this firm directly purchased a number of other supplies, including some of the dyestuffs used in the dyeing process; as the company's ledger records show, these included "various red dyes, orchil, and others to dye this firm's cloths [*piu robbie, oricello, e altro per tignere i panni di questa ragione*]."[71] Other necessary supplies for the manufacturing and finishing processes included soap and, costliest of all, oil. The Medici paid l.373 s.19 d.0 in total for 22.5 barrels of oil, purchased over a period of fourteen months from "various oil sellers [*piu oliandoli*]" at prices ranging from l.13 s.5 d.0 to l.18 s.14 d.0 di piccioli per barrel.[72]

In addition to wool quality, dyeing and final color had historically strongly affected the quality and price of sold textiles, and the cost of dyeing was itself affected by the quality of the dyestuffs being used, the quality of the wool being dyed, and whether the cloths needed to be dyed only once or re-dyed to produce the final color.[73] An exemplary case of the role played by the dyestuffs themselves relates to the etymology of the word "scarlet." Munro has amply shown that, before it was an adjective referring to a bright red-orange color, "scarlet" signified the most expensive and luxurious woolen cloth of the Middle Ages—in

[69] Note that, in the context of the sixteenth-century Florentine wool trade, "barter" (a transaction *a baratto*) is not a direct exchange of one good for another but a market exchange, because the parties always assigned a monetary value to the items in the transaction.

[70] In a striking passage in the original Christie's catalog for the sale of the Medici ledgers (which Selfridge bought and eventually donated to HBS), the auction house noted that "the middle of the sixteenth century saw a sharp decline in the Spanish cloth industry, and it is interesting to find that the Florentine looms had obtained such an ascendancy, that wool was brought from Spain to be manufactured into cloth that at once returned to the country which had produced the raw material." *Catalogue of the Medici Archives . . . which will be sold by Messrs. Christie, Manson and Woods . . .* (London, n.d. [1919?]), 185. On the institutionalization of this strategy in the European world, see Reinert, "Rivalry."

[71] Ms. 567 (8), f. 34, and see also ff. 23v–24r, SC. Orchil (*oricello*) is a lichen-based violet dye.

[72] Ms. 567 (11), ff. 5v–6r, SC.

[73] For a basic introduction to dyeing in late medieval and Renaissance Florence, see Piero Guarducci, *Tintori e tinture nella Firenze medievale (secc. XIII–XV)* (Florence, 2005); and, for a fine case study of a Sienese dyer, Guarducci, *Un tintore senese del Trecento: Landoccio di Cecco d'Orso* (Siena, 1998).

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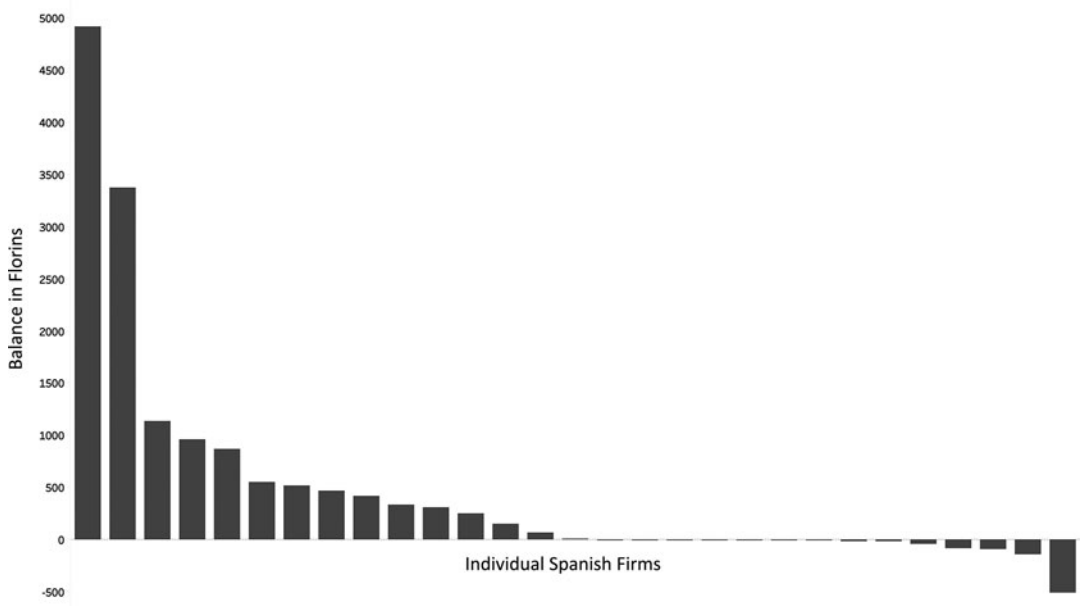

Figure 9. Spanish merchants' balance with Salviati firms, 1490–1500. (Source: Bruno Dini, "Mercanti spagnoli a Firenze (1480–1530)," in Dini, *Saggi su una Economia-Mondo: Firenze e l'Italia fra Mediterraneo ed Europa, (secc. XIII–XVI)* [Pisa, 1995], 289–310, at 297.)

Italy called *scarlatto di grana*, which was produced with the finest English wool and the red dye kermes, commonly called "grain" or *grana* and derived from the tiny, dried eggs of Mediterranean shield lice.[74] In a 1339 statute, the Florentine Arte di Calimala promulgated strict guidelines for maintaining the unique, luxury status of *scarlatti*: authentic scarlatti, called *scarlatti di colpo*, had to be dyed from white or an intermediate shade of gray only with the red dye kermes, which itself cost more than one-third of the total cost of production in the early fourteenth century, while cloths dyed with a mixture of kermes and madder, a cheaper vegetal dye called *robbia* in the Tuscan vernacular, had to be sold as *scarlattini* or *panni di mezzagrana*.[75]

Dyeing was a craft (*arte*), but it was also a chemical process requiring, in addition to the dyestuffs, the application of heat and use of mordants or fixants in order to make the finished cloths colorfast, that is, with colors resistant to running or fading. Inexpensive and locally available mordants included tree bark and, especially in woad dyeing, wood ash, with its high alkalinity; in contrast, high-quality dyeing, especially with vibrant reds, increasingly came to rely on chemical mordants like *gromma* (potassium bitartrate, or cream of tartar), a byproduct of wine-making, and, especially, *allume* (alum), of which several types were known, the best being the so-called *allume di rocca* (potassium alum, or the potassium double sulfate of aluminum).[76] The demand for *allume di rocca* could be great—and acquiring it even played a role in the decision of Lorenzo de' Medici, then the de facto prince of the Republic of Florence, to participate in the sack of Volterra in 1472 after its leaders reneged on a concession of its newly discovered alum deposits—as reflected in the amounts required for a dyeing firm's annual

[74] John H. Munro, "The Medieval Scarlet and the Economics of Sartorial Splendour," in Harte and Ponting, *Cloth and Clothing*, 13–70, esp. 13–21; Munro, "Scarlet," in *Encyclopedia of Dress and Textiles in the British Isles, c. 450–1450*, ed. Gale R. Owen-Crocker, Elizabeth Coatsworth, and Maria Hayward (Leiden, 2012), 477–78. On the basis of scientific testing of an extant cloth sample, Dominique Cardon established beyond a doubt the character of the dyestuff employed in scarlets; see Cardon, "Échantillons de draps de laine des Archives Datini (fin XIVe siècle, début XVe siècle): Analyses techniques, importance historique," *Mélanges de l'Ecole française de Rome: Moyen-Age*, no. 103 (1991): 359–72. On kermes (from the shield louse *Kermes vermilio*, formerly *Coccus ilicis*), see Costanza Perrone da Zara, "Aspetti storici e tecnici della tintura nel Medioevo e nel Rinascimento," in *Gli arazzi della Sala dei Duecento: Studi per il restauro* (Modena, 1985), 105–6.

[75] Hidetoshi Hoshino, "La tintura di grana nel basso medioevo," in *Industria tessile e commercio internazionale nella Firenze del tardo Medioevo*, ed. Franco Franceschi and Sergio Tognetti (Florence, 2001), 24–26. The most common red dye used in the premodern woolens industry was from the long, red roots of the common madder (i.e., *Rubia tinctorum*, or "dyers' red"), usually sourced from Lombardy and Flanders.

[76] Franco Franceschi, "Il ruolo dell'allume nella manifattura tessile toscana dei secoli XIV–XV," *Mélanges de l'École française de Rome: Moyen Âge* 126, no. 1 (2014): 159–70. On the connection between wine and *gromma*, sometimes also called *allume di feccia*, see Francesco Balducci Pegolotti, *La Pratica della mercatura*, ed. Allan Evans (Cambridge, MA, 1936), 380.

operations: in the year between July 1498 and July 1499, for example, in addition to dyes including *robbia*, *oricello*, and *scòtano*, and smaller amounts of *gromma*, the firm of Raffaello di Francesco de' Medici and Co., *tintori d'arte maggiore*, purchased from the Arte della Lana more than 24,000 pounds of *allume di rocca* for a total of f.288 s.4 d.3, at a rate of 12 florins per 1,000 pounds.[77]

In order to produce a wider range of final colors, Florentine *lanaioli* relied on the layering of colors, with a first and second stage of dyeing. The first stage was often performed by *tintori di guado*, dyers who used woad, a vegetal indigo dye, to produce a wide range of blues and who often dyed "in the wool" as well as in the thread or in the finished cloth. The blue hues common in Tuscan sources ranged from *allazzato* (very light) to *turchino* to *sbiadato* (etymologically linked to our word "blue") to *cilestro* to *perso* (very dark). The second stage, generally done in the finished cloth, was executed by *tintori d'arte maggiore*, dyers who performed the more important part of the dyeing process, using a variety of dyestuffs, among which reds commonly predominated.[78] The large chromatic range available to Florentine *lanaioli*, and the two-stage dyeing process sometimes used, can be seen in the cloths produced by the wool manufacturing firm of Raffaello di Francesco de' Medici (1531–1534). Figure 10 depicts the intermediate and final colors of the cloths sold by the firm in the terminology employed in its end-of-period *ricordo* of sold cloths.

Only 8.4 percent of the cloths remained undyed. Nearly 56 percent of the cloths were dyed blue; of these, some 18 percent remained sky blue (*cilestro*), 30 percent were dyed red after being dyed *cilestro* to produce a final black (*nero*), and 42 percent ranged from *sbiadato* to *paonazzo* (a popular dark purple) or to dark shades of green. The remaining 36 percent ended up as grays, tans, yellows, oranges, and a mix of other colors. The firm of this case study, Francesco de' Medici and Co., outsourced the dyeing of its cloths, which represented a little over 10 percent of its total operational costs, to five outside firms (Table 2).

[77] Enrico Fiume, *L'impresa di Lorenzo de' Medici contro Volterra (1472)* (Florence, 1948), 167–71. On Fiume's book, see Lorenzo Fabbri, "L'impresa di Enrico Fiumi contro Lorenzo de' Medici," *Rassegna volterrana*, no. 84 (2007): 33–44. For the firm's main supplies, see Ms. 546, ff. 4v–7r, 42v–43r, 58v–59r, 61v–62r, and 86v–87r, SC. The firm's total alum purchases exceeded 840 florins; for the year of purchases, see Ms. 545, ff. 1r–11r, SC.

[78] On the medieval *guado* and indigo dye (from the flowering plant *Isatis tinctoria*), see Perrone, "Aspetti storici," 112. For the range of shades in the mid-Trecento, see Hoshino, "La tintura di grana," 28. A similar range is found in a fifteenth-century dyers' manual from the Veneto; see Giovanni Rebora, ed., *Un manuale di tintura del Quattrocento* (Milan, 1970), chaps. 64–66.

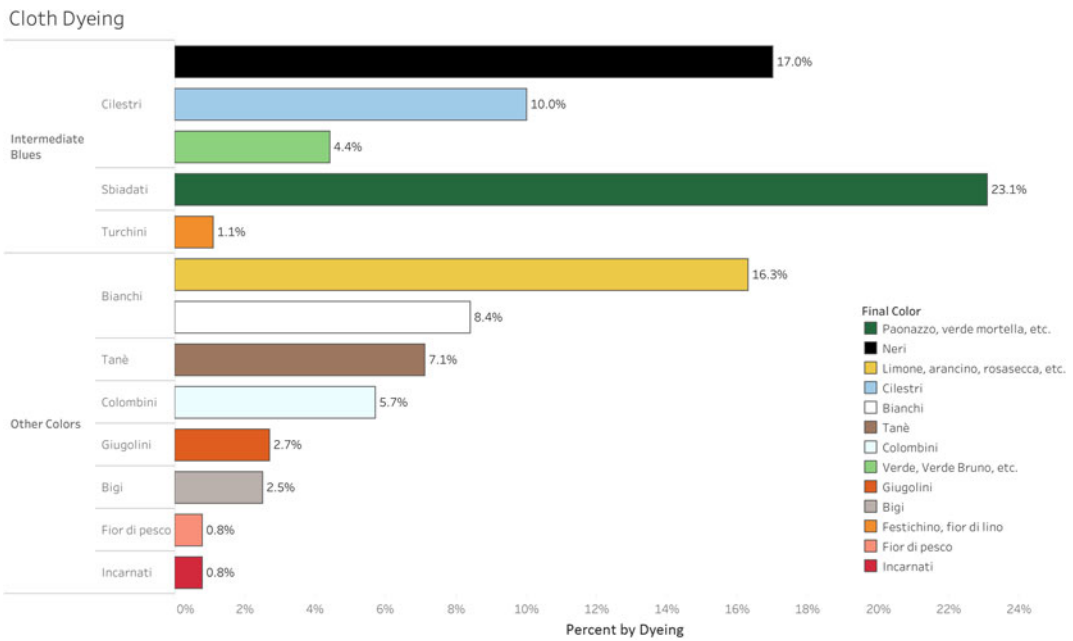

Figure 10. Cloths sold by intermediary and final color. Raffaello di Francesco de' Medici & Co., ragione L, 1531–1534. (Source: Ms. 554 [4], Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

Table 2
Medici Outsourcing to Dyers
Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558

Company	*Company type*	*Cost (Florins)*	*Dyed cloths*	*Price per cloth or equivalent weight (Lire di piccioli)*
Giovanni d'Antonio di Cione Fiegiovanni	Guado	6.0.0		
			3 turchini	14.0.0
Filippo di Messer Giovanni Malingiegni	Guado	185.2.6		
			17 rascie celeste (per nere)	60.0.0
			4 perpignani turchini	16.0.0
			3 perpignani celesti/celesti (per neri)	44.0.0
			1 grossa sbiadetta	18.0.0
Niccolò di Luigi Capponi	Guado	81.11.5		
			8 rascie celeste (per nere)	60.0.0
			6.5 turchini	14.0.0
Marco di Benedetto di Borgho	Arte maggiore	31.17.0		
			no data	
Filippo d'Averardo Salviati	Arte maggiore	4.14.3		
			3 corsivi gialli	11.0.0

Sources: Mss. 567-7 and 567-8, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.

The data for the *arte maggiore* dyeing is incomplete, but the *guado* firms, as expected, charged more for producing darker shades of blue and for dyeing higher-quality cloths. The costliest procedure was dyeing so-called *rascia* cloth sky blue so that it could then be dyed a second time, or overdyed, probably with a mix of kermes and madder, in order to produce the most sought-after cloth on the mid-sixteenth-century

Florentine market: *rascia nera*, or black *rascia*. Quality of cloth was a crucial variable: the cost of dyeing a *rascia* cloth sky blue resulted in a 36 percent cost increase over dyeing a *perpignano* the same color. The gradual shift from the predominance of blues in the fifteenth century to more costly, twice-dyed blacks in the sixteenth was naturally the result of changes in fashion, but the intervention of the Arte della Lana had also been crucial. Florentine *rascie*, plausibly deriving their name from the city of Raška in Serbia, were originally intentionally developed as an import-substitution measure to compete with the so-called *rascie di schiavonia* that were of a surprisingly high quality and were entering the Florentine market in the mid-fifteenth century. In February of 1488, the Arte della Lana, considering the invasion of foreign cloths, decided to forbid the sale of Slavic *rascie* and to encourage the manufacturing of native *rascie* by instituting production quotas. The Arte della Lana had in 1418 similarly encouraged the production of *perpignani* cloths, a kind of light and elastic serge commonly used for making men's hosiery, named for the cloths of Perpignan, and made from Spanish *garbo* and local Italian wools. The *perpignano* was the major Florentine textile of the fifteenth century and again in the seventeenth, when the cheaper fabric entirely overtook *rascia*. But it was the production of black *rascie* that, almost alone, contributed to a spike in the 1560s (see Figure 2) and for the first time allowed Florentine cloths to penetrate ultramontane markets.[79]

Once wool was purchased and sorted, the firm of Francesco di Giovanni di Giunta and Co., "washers at the canal [*lavatori alla gora*]," was hired to wash the sorted raw wool in an industrial canal and paid a flat rate of l.1 di piccioli per 100 pounds of washed wool in addition to being compensated for the alum used in the process at a rate of l.20 di piccioli per 100 pounds. On Saturday, May 2, 1556, for example, the washers received the first twelve sacks of Jacopo Pandolfi's Spanish wool, weighing 1,660 pounds. The washed wool weighed 1,350 pounds, representing a loss of 18.7 percent of the original weight (near the average of 19.45 percent loss), and the washing cost l.13 s.10 piccioli, paid along with l.12 for the 60 pounds of alum used.[80] All told, 6,630 pounds of wool (final weight) was washed and returned to the Medici in 1556–1557. The washed wool was then entrusted to Battista di

[79] For the guild legislation, see Hoshino, *L'arte della lana*, 235–39. On the importance of *rascie* in the boom of the 1560s, see Chorley, "*Rascie*." For the comparative seventeenth-century (1616–1645) production of *perpignani* and *rascie*, see Ruggiero Romano, "À Florence au XVIIe siècle: Industries textiles et conjuncture," *Annales: économies, sociétés, civilisations* 7, no. 4 (1952): 508–12. For the penetration of the Lyon cloth market, see, for example, Albert Chamberland, *Le commerce d'importation en France au milieu du XVIe siècle, document inédit, publié avec des notes et un tableau synoptique* (Paris, 1894), 29–30.

[80] Ms. 567 (7), ff. 1r–2r; 567 (11), ff. 0v–1r, 42v, SC.

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Pasquino da Bacchereto, a kind of foreman in the Medici operation called a *capodieci* (i.e., one nominally in charge of ten workers), who distributed the wool for picking, beating, and cleaning (a process called *divettatura*, from *vetta*, a stick or pole used to strike the wool); he then collected it and sent it on for further work. The *capodieci* was paid by the pound—d.8 (for 554 lb.), s.1 (for 2,729 lb.), s.1 d.4 (for 783 lb.), and s.1 d.8 (for 2,207 lb.) for a total of l.391 s.2 d.8 di piccioli—with the rate dependent on the cloth that would ultimately be produced, such that wool destined to become *rascie* fetched the highest rate and wool for selvage (*vivagno*) the lowest.[81] The *capodieci* sent some of the cleaned wool directly for dyeing in the wool (*nel colore*)—for example, between August 5 and August 10, 1556, Battista di Pasquino sent 741 pounds (equivalent to 9.5 *panni* of 78 lb. each) to two companies of woad dyers (*tintori di guado*) that were paid l.14 per *panno* for *turchini*—but most was dyed after weaving, as part of the finishing process.[82] The *capodieci* was not the only such figure in the enterprise. Indeed, Medici and Co. similarly delegated two of the other major steps in the manufacturing process, combing and carding, to agents (*fattori*) to whom it made variable cash payments on a weekly schedule (almost always on Friday or Saturday) when active and who were in turn responsible for organizing and paying workers, with whom the firm itself had no direct contact, to do the necessary work. Over the course of two active periods (July 1556 to January 1556/7 and July to September 1557), Agniolo di Giovanni—called "*nostro fattore di petine* [our agent who oversees combing]"—received thirty-three cash payments (ranging from l.2 s.12 d.8 to l.43 s.8 di piccioli) in the total amount of l.724 s.15 d.4 di piccioli, while Antonio di Domenico da Prato—"*nostro fattore di chardo* [our agent who oversees carding]"—received thirty-seven weekly cash payments (ranging from 1.5 to 1.37 s.10 di piccioli) in the total amount of l.592 s.9 d.8 di piccioli.[83]

At the artisanal core of every *lanaiolo*'s operation was the process of turning spun woolen yarn into cloth: a matrix, tightly interlaced at right angles, of longitudinal warp threads, made from combed wool (*stame*) and held in tension on the loom, and the thicker transversally woven weft, made from carded wool (*lana*). Our firm used three nonsalaried agents to distribute *stame* and *lana* and pound-rate wages to spinners in the Florentine countryside, all of them women, and to collect and deliver the spun yarn to its *botteg*a (Table 3): Tommaso di Christofano Brandolini (*nostro lanino*), who distributed *lana*; Alessandro di

[81] Ms. 567 (7), f. 10r.
[82] Ms. 567 (7), f. 10r and 30rv.
[83] Ms. 567 (11), ff. 3v–5r, and cash accounts *passim*. The corresponding accounts in Ms. 567 (7), at cc. 50–60, are missing.

Table 3
Distribution of Combed and Carded Wool
For the Firm of Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558

		Pounds												
Type	*Rate/lb*	*July 1556*	*August 1556*	*September 1556*	*October 1556*	*November 1556*	*December 1556*	*January 1557*	*July 1557*	*August 1557*	*September 1557*	*October 1557*	*TOTAL*	*lire*
LANINO														
Perpignani	l.0 s.6 d.0	164	358.875	337.125	161.375	239.625				212			1473	441.9
Turchini	l.0 s.3 d.0			86.875	397.125								484	72.6
Turchini corsivi	l.0 s.2 d.8		223										223	29.73
Rascie	l.0 s.14 d.0					122.5625	411.75	97.3125			34.375	467.125	1133.125	793.1
Corsivi	l.0 s.2 d.8								182.625	139.5		153.875	476	63.47
COST (lire, decimalized)		85.2	96.39	114.17	107.98	157.68	288.23	68.12	24.35	82.2	24.06	347.5		
STAMAIUOLI													Pounds	Lire
Perpignani	0.10.0												940	470
Turchini	0.10.0 or 0.7.0*												299	76.9
Rascie	1.10.0												1117.375	1676.063
Palmella for Rascie	0.10.0												288	144

Source: Ms. 567-2, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School. Notes: Excluded from Lanino: 276 pounds of lana grossa per vivagno at a rate of 0.2.0; 71 of grossa sbiadata per vivagno at 0.2.0; and 100 of bioccoli at 0.2.4. Excluded from stamaiuoli: 196 grosso per vivagno at 0.4.0; 51 grossa sbiadata per vivagno at 0.7.0; and 62 grossa per vivagno at 0.7.0.
* less than 15% at lower rate

Domenico da berzighella (*nostro stamaiuolo*); and Pagholo di Lorenzo dal Borgho (*stamaiuolo*).[84]

As seen in Figure 11, which shows the cash payroll of the firm by month, the distribution/collection of yarn (including spinning, indirectly) and its subsequent weaving made up the bulk of the labor cost (in cash expenditures) and manufacturing process (in time), processes that occurred immediately after the acquisition and cleaning of new raw wool supplies.

The firm paid twenty-six weavers, though each likely worked as half of a pair operating the horizontal loom, to produce all of its fabric—a cascading process that occurred when the availability of yarn and cash (on the Medici side) and of weavers aligned. In the absence of more reliable data, we can use the dates of the cash payments to weavers as a proxy for estimating the duration of the weaving process, with a full-size cloth seeming to require around two calendar weeks of weaving (compared with, for example, three to four weeks for the Brandolini firm) (Figure 12). For example, the most productive of our firm's weavers, Catarina di Gabriello da Milano, worked four months to produce seven cloths.

In the 1550s, the chief linear measures used in the Florentine cloth industry were the *canna* (pl. *canne*), roughly 2.33 meters or 2.55 yards in length, and the *braccio* (pl. *braccia*), about 58 centimeters or 23 inches, with four *braccia* combining to equal one *canna*. And wool manufacturers usually sold their product by the *panno* (pl. *panni*), with the whole woolen cloth, which varied in length, often at a rate expressed in *lire di piccioli* per *canna* (Table 4 and Figure 13).

So, for example, the Medici firm's first cloth sale on January 30, 1557, was to the firm of Benedetto di Ser Simone Guidi and Co., *linaiuoli* (manufacturers of linens), for one *panno* 17 *canne* 2 *braccia* in length at the price of 10 *lire di piccioli* per *canna*, or 175 total, equivalent to 25 florins.[85] Assessing a loss of f.105 s.3 d.4, the firm sold the cloths it produced at the combined price of f.2970 s.15 d.9.[86] Of this, f.191 s.17 d.9 (6.46 percent) represented cloth sold "by the cut [*a taglio*]" (i.e., in small pieces to various buyers) or by bulk weight, with the rest—some sixty-seven cloths—sold by the *panno* to thirty-one firms or persons with accounts in the firm's ledger. More than a third of the cloths

[84] Boccaccio's tale of Pasquino and Simona (*Decameron* 4, 7) concerns the relationship of a *lanino* and a *filatrice*; for a brilliant reading of it, see Justin Steinberg, "Mimesis on Trial: Legal and Literary Verisimilitude in Boccaccio's *Decameron*," *Representations* 138, no. 1 (2017): 118–45.

[85] Ms. 600 (5), f. 1v, SC.

[86] Ms. 567 (8), f. 41r. All information about sold *panni* here and below is based on Ms. 600 (5), ff. 1r–6r and Ms. 567 (8), ff. 6v–7r and 40v–41r, SC.

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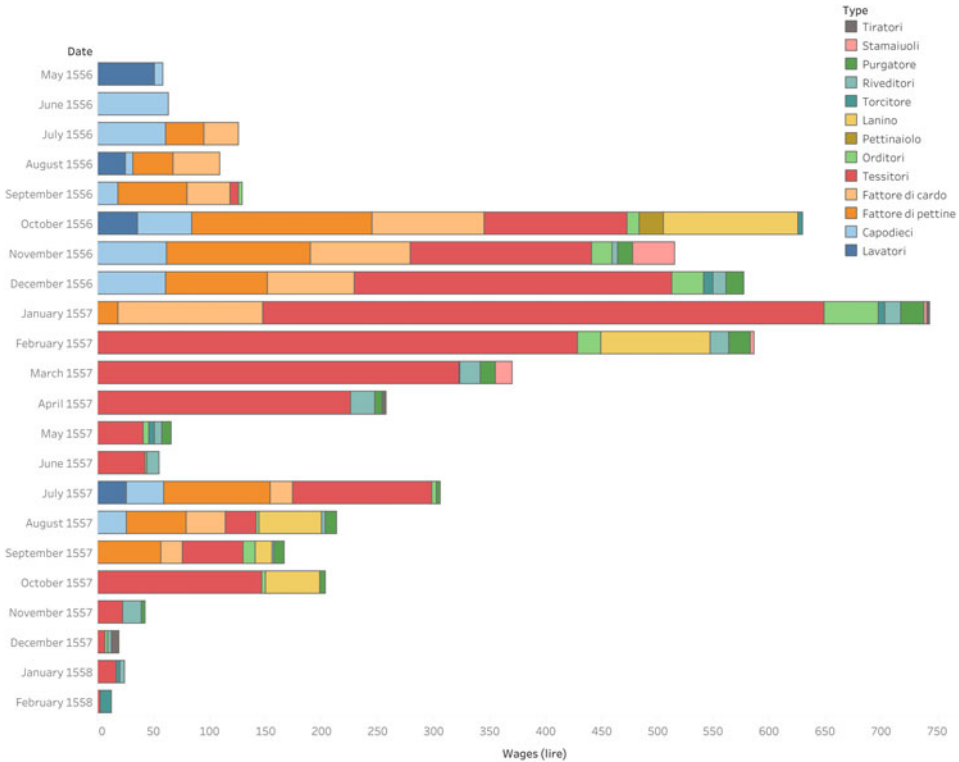

Figure 11. Payroll (wages by type) of a Medici firm. Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558. (Sources: Mss. 567-8, 567-11, and 600-5, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

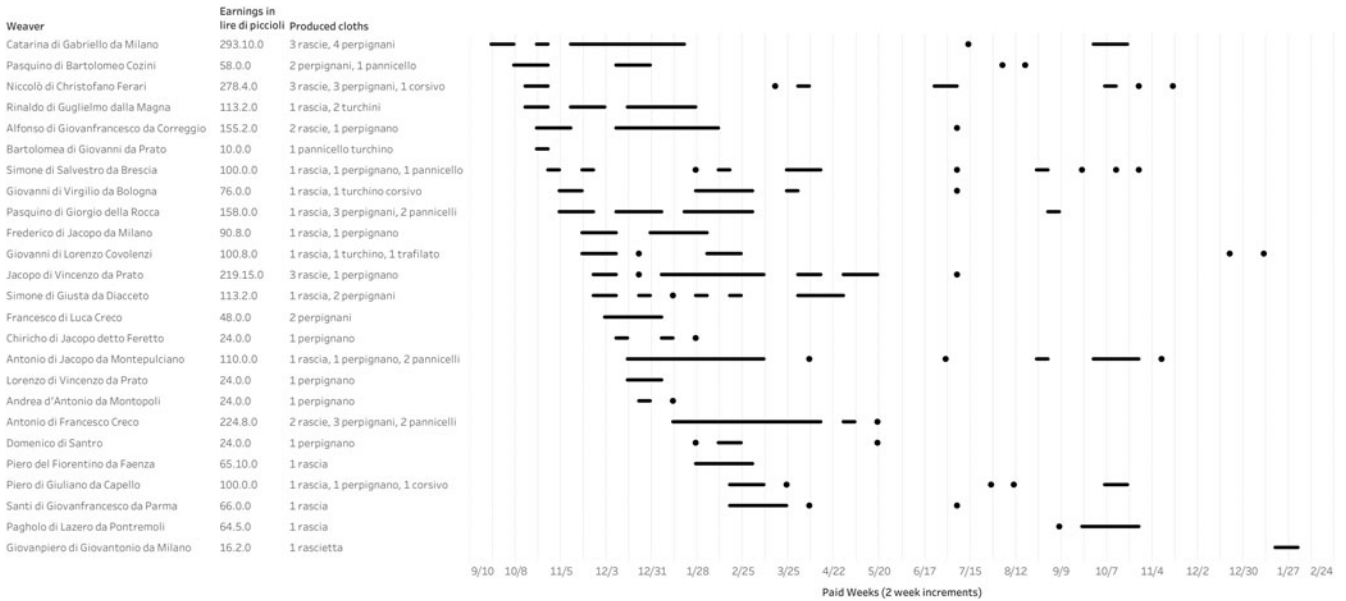

Figure 12. Payments to weavers. September 1556–February 1558, Firm of Francesco di Giuliano de' Medici and Co, ragione A. (Source: Ms. 557-8, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

Table 4
Cloth Sales of a Medici Firm
Francesco di Giuliano de' Medici and Co., ragione A, 1556–1558

Date	*Cloth*	*Buyer (person or firm)*	*Price (in florins)*	*Price per canna (in lire di piccioli)*	*Broker*	*Transaction type*
8 June 1558	1 panno perpignano nero	Alessandro da Berzichella (nostro stamaiuolo)	33.0.0	14.0.0		Barter
17 April 1557	2 panni perpignani bianchi	Alessandro di Domenico Caselesi	50.14.3	10.0.0		Credit
6 July 1557	1 panno perpignano bianco	Antonio di Jacopo (fornaio al canto de' Medici)	23.18.7	10.0.0		Credit
24 March 1558	4 panni neri per rascia	Bartolomeo and Tommaso Martelli	280.17.1	32.0.0	Tadeo Risaliti	Credit
7 October 1558	1 panno perpignano nero di guado	Bastiano di Domenico Palmieri	30.17.1	13.10.0	Giovanni Rominelli	Credit
26 May 1557	1 panno nero per rascia	Benedetto di Francesco Falcucci	59.15.0	28.0.0		Cash
30 January 1557	1 panno perpignano bianco	Benedetto di Ser Simone Guidi	25.0.0	10.0.0	Giovanni Rominelli	Credit
4 October 1558	1 panno turchino	Capitano Giovanbattista Martini	46.1.9	34.0.0		Credit
4 October 1558	1 panno turchino corsivo	Capitano Giovanbattista Martini	28.5.0			Credit
3 August 1557	2 panni neri per rascia	Cieseri Buonguglielmi and Tommaso Luci da Barzalona	135.6.11	31.0.0	Benedetto Falcucci	Credit

1 February 1557	1 panno perpignano bianco	Francesco di Filippo Gaburri	25.3.7	10.0.0	Giovanni Rominelli	Credit
15 February 1557	1 panno perpignano bianco	Francesco di Filippo Gaburri	24.12.10	10.0.0	Giovanni Rominelli	Credit
9 April 1557	2 panni perpignani bianchi	Francesco di Filippo Gaburri	49.5.8	10.0.0	Giovanni Rominelli	Credit
21 April 1558	2 panni neri per rascia	Francesco di Messer Zanobi Carletti	131.19.2	29.10.0	Francesco Carli	Cash
20 November 1557	4 panni perpignani bianchi	Francesco Quaratesi	88.11.0	9.0.0	Napoleone Aldobrandini	Cash
24 March 1558	2 panni neri per rascia	Gianalonso di Malvenda Spagniolo	136.8.1	31.10.0	Tadeo Risaliti	Cash
26 February 1558	1 panno festichino corsivo	Giovanbattista di Francesco Bonsi	31.12.0		Francesco Carli	Credit
24 March 1558	1 panno perpignano bianco	Giovanbattista di Piero de' Nerli	26.1.5	10.0.0	Francesco Carli	Cash
2 December 1557	2 panni neri per rascia	Giuliano di Bernardo del Tonaglia	131.5.2	30.1.0	Benedetto Falcucci	Credit
27 October 1558	1 panno scampolo tane di loto	Giuliano di Raffaello de' Medici	26.15.8	20.0.0		
3 June 1559	1 panno festichino	Giuliano di Raffaello de' Medici	56.15.1	34.0.0		
3 June 1559	1 panno festichino corsivo	Giuliano di Raffaello de' Medici	31.1.6			
17 December 1558	1 panno scampolo trafilato	Guido di Daniello	18.0.0			
29 January 1558	1 panno nero per rascia	Guido Ginardi	61.16.8	28.10.0	Benedetto Falcucci	Cash

Continued.

Table 4
Continued

Date	*Cloth*	*Buyer (person or firm)*	*Price (in florins)*	*Price per canna (in lire di piccioli)*	*Broker*	*Transaction type*
26 May 1557	1 panno nero per rascia	Heirs of Giuliano della Fonte	59.15.0	28.0.0	Benedetto Falcucci	Cash
21 March 1558	2 panni neri per rascia	Jacopo and Giovanni della Fonte	126.17.6	29.0.0	Benedetto Falcucci	Cash
21 March 1558	1 panno nero per rascia	Jacopo and Giovanni della Fonte	68.12.6	31.10.0	Benedetto Falcucci	Credit
31 March 1558	1 panno perpignano nero di loto	Jacopo del Seta	25.10.8	11.0.0	Giovanni Rominelli	Credit
5 February 1558	1 panno nero per rascia	Jacopo di Piero Pinadori	67.10.0	31.10.0	Benedetto Falcucci	Credit
26 January 1557	1 panno perpignano bianco	Lionardo di Francesco Mancini	30.3.9	11.10.0	Napoleone Aldobrandini	Credit
28 February 1558	1 panno perpignano tane	Lionardo di Francesco Mancini	32.18.0	13.15.0	Napoleone Aldobrandini	Credit
15 November 1558	1 panno perpignano nero	Lorenzo Ruspoli	29.0.4	12.10.10	Giovanni Rominelli	Credit
8 November 1558	1 panno bianco per rascietta	Marco Benedetti	10.0.10	4.0.0	Giovanni Rominelli	Credit
18 April 1558	2 panni neri per rascia	Messer Niccolò Gherardini da Parma	128.0.0	29.10.0	Francesco Carli	Cash
7 March 1558	2 panni bianchi alla perpignana	Michele di Francesco Ciei	51.16.0	10.5.0	Francesco Carli	Credit

17 May 1558	3 panni bianchi corsivi; 1 panno turchino corsivo	Rafaello di Domenico Borghini	126.0.0		Niccolò Lapi	Barter
17 May 1558	2 panni turchini	Rafaello di Domenico Borghini	104.11.5	32.0.0	Niccolò Lapi	Barter
26 April 1558	2 panni neri per rascia	Stefano Pasero Gienovese	124.10.10	29.0.0	Benedetto Falcucci	Cash
n.d. December 1558	3 panni gialli corsivi	Ulivo di Michele Ulivi	64.10.0			Cash
30 June 1557	1 panno perpignano nero di loto	Vincenzo di Niccolò Cinatti	24.6.7	10.18.0	Giovanni Rominelli	Credit
26 January 1558	1 panno perpignano nero di loto	Vincenzo di Niccolò Cinatti	23.7.1	10.18.0	Giovanni del Vecca	Credit
24 May 1557	1 panno perpignano bianco	Zacheria Raparelli da Cortona	25.7.1	10.0.0		Cash
30 June 1557	3 panni perpignani di piu colori	Zacheria Raparelli da Cortona	106.15.0	14.0.0		Credit/Barter

Source: Ms. 557-8, Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.

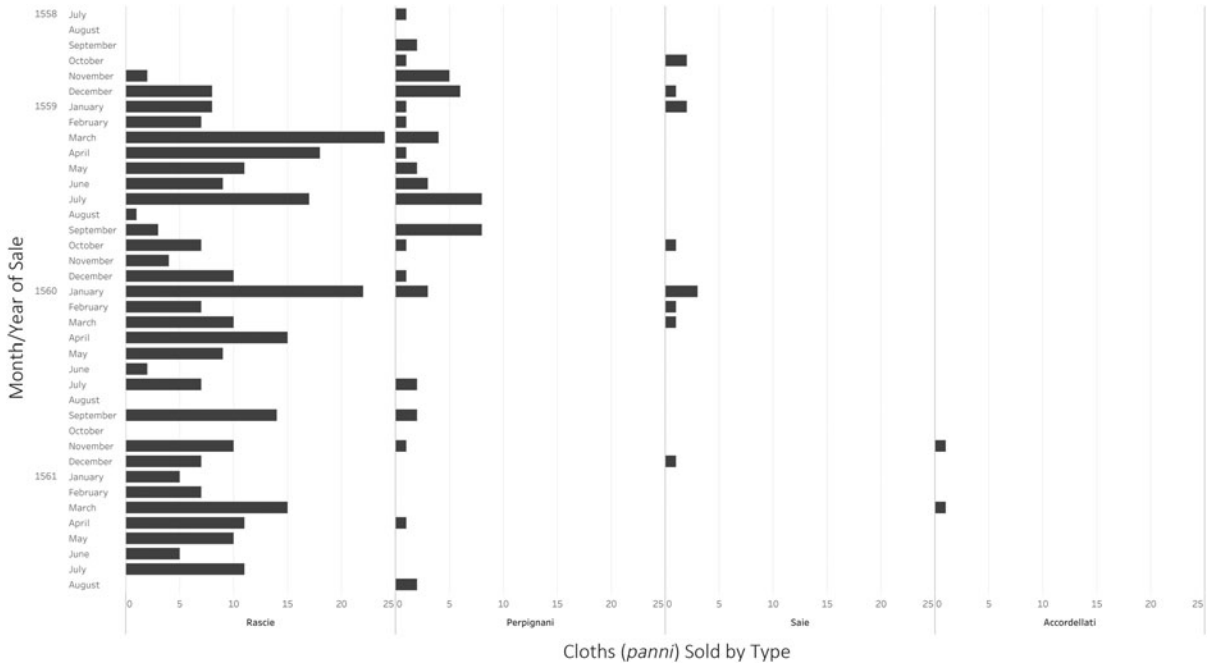

Figure 13. Cloth sold by month and type, 1558–1561. Firm of Francesco di Giuliano de' Medici and Co., ragione B. (Source: Ms. 568 v.11 [14], Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

(twenty-three cloths, or 34.33 percent) were black *rascie* sold for an average of l.30 s.4 d.0 per *canna*, and a quarter (seventeen cloths, or 25.37 percent) were undyed or white *perpignani* sold for an average of l.9 s.17 d.7. The remaining 40 percent of those sold were cloths—sometimes coarse (*corsivo*), sometimes shorter than regulation size (*scampolo*)—of various colors: blacks (*nero*, *nero di guado*, *nero di loto*), blues (*turchino*, *biadetto*), tawny (*tanè*), green (*festichino*), yellow (*giallo*), and purple (*paonazzo*). Six *panni* (nearly 9 percent of all the cloths sold) were bartered in exchange for Spanish wool; 20 *panni* (nearly 30 percent) were sold for cash; and 36 *panni* (nearly 54 percent) were sold on credit. Credit transactions were of three basic types: those requiring payment in equal monthly or weekly installments; in full at the end of a fixed period; or in two or three equal monthly payments at the end of a fixed period. The sales of 73 percent of the sold *panni* were brokered by a broker (*sensale*) or middleman (*mezzano*) and the firm paid a total of f.7 s.15 in brokerage fees (*senserie*).[87] The most prolific of the middlemen, Benedetto Falcucci, brokered the sale of more than half the firm's output of black *rascie* and purchased one himself. In the firm's account books, the language of cash and barter exchanges is simple. All of the former were recorded as "for cash [*per li contantti*]" and when the Medici and Raffaello di Domenico Borghini and Co. traded finished *panni* for five bales of wool they wrote in their *Giornale* only "to give in exchange for the Spanish wool gotten from them [*per metere a rincontro della lana ispagniola avuta da lloro*]." The language and varieties of credit exchanges were more complicated but nearly always more or less simple installment plans with no mention (in the firm's public books) of an interest payment. Francesco di Filippo Gaburri, for example, made three purchases and was required to repay the first two (f.49 s.16 d.5 combined) at a rate of 6 florins per month and the third at (f.49 s.5 d.8) at a rate of 8 florins per month. More common were plans involving staggered repayment after a term of *n* months (*per tempo di mesi* n), as in the case of the Spaniard Gianalonso di Malvenda, who was required to pay for his cloths in three equal monthly installments after a period of ten months.

Business Practices and the Threshold of Political Economy

The fine black *rascie* could mean the difference between a profitable wool enterprise and an unprofitable one, and in its subsequent period, the same firm—the highly profitable B *ragione* of Francesco di Giuliano's wool company, which operated from 1558 to 1561—produced and sold

[87] Ms. 567 (11), ff. 33v–34r for the brokerage fees.

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significantly more cloths. A higher percentage of them (80 percent) were black *rascia* (Figure 11), much as over 70 percent of his father's production, from 1531 to 1534, had comprised the middle-quality broadcloth *sopramani*, then the most profitable type of Florentine woolen (Figure 14).

The *rascie*, as we noted above, also briefly saved the Florentine wool industry but could not keep it afloat forever. By the turn of the seventeenth century, the Arte della Lana was complaining to Grand Duke Ferdinando I of Florentine producers attempting to pass off lower quality cloths as *rascie*, squeezed by growing Venetian competition for markets and, crucially, for the supply of fine Spanish wool, which increased prices and of which Cosimo I had already received complaints as early as 1573.[88]

In the aftermath of their moment of success, however, the Florentine *rascie* also crossed the blurry threshold into theory from mere business-historical datum. In a chapter on "having in one's possession some *mercantia di momento*," some commodity of particular or even unique value or quality, in his *On the Causes of the Greatness of Cities*, Botero mentions, of course, that the "best wool" comes only from "a few towns in Spain and England." But "there are also excellent manufactures," he notes, "that flourish in one place rather than another, either because of the quality of the water, the cleverness of the inhabitants, some secret method they employ, or some similar reason, such as the weapons of Damascus and Shiraz, the tapestries of Arras, *the rascie of Florence*, the velvets of Genoa, the brocades of Milan, the scarlet cloths of Venice." The success of the *rascie* was the result not of the Arno's water but of a long-term convergence of management at the level of the entrepreneur, the guild, and the state.

Just as Machiavelli advised princes, so did Botero:

> Above all he [the prince] must not permit the export of raw materials from his state, whether wool, silk, timber, metals or any other such thing. . . . The prince's revenues from the export of finished goods are much greater than from that of primary materials. . . . Taking account of this, in recent years the kings of France and England have forbidden the export of wool from their kingdoms, as the Catholic King [i.e., the king of Spain] later did too. But these prohibitions could not be obeyed at once, because those countries [*provincie*] abound in such incredible quantities of very fine wool that there were not enough skilled workers to use it all.[89]

[88] Pratica segreta, 9, f. 76 (1573); 16, f. 205r (1603), Archivio di Stato di Firenze, Florence; cited in Francesco Ammannati, "Florentine Woolen Manufacture in the Sixteenth Century: Crisis and New Entrepreneurial Strategies," *Business and Economic History On-Line* 7 (2009): 4, 9.

[89] Botero, *Delle cause*, 45; Botero, *On the Causes*, 45–46, 48.

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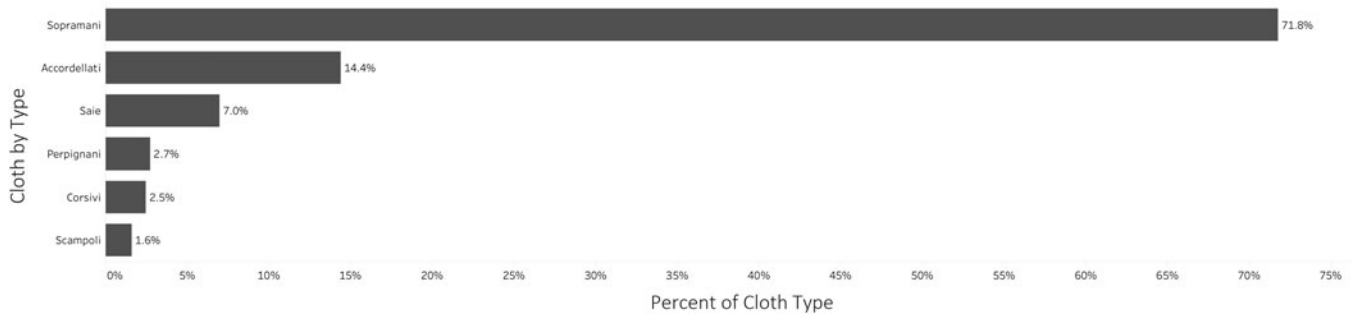

Figure 14. Cloth sold by type, 1531–1534. Firm of Raffaello di Francesco de' Medici and Co., ragione L. (Source: Ms. 554 [4], Selfridge collection, Medici Collection, Baker Library Historical Collections, Harvard Business School.)

Botero's codification of political economy can, from this perspective, be seen as a crucial link between the successful business practices that drove the Italian Renaissance, on the one hand, and Serra's revolutionary theorization of economic phenomena, on the other. But if the insights here were new, the policies behind them were surely not: by the late 1400s numerous Castilian merchants (like Lopez Gallo) and other middlemen, like the Genoese traders who dominated the financial fairs at Medina del Campo, were resident in the city offering Castilian wool, but the Florentines, it is crucial to remember, had first been forced to turn to Spanish sources for fine raw wool only when English wool export duties on "aliens" were, beginning under Edward III, increased precipitously and wool prices were fixed to ensure that the cost would not be borne by English producers, which together reduced the Italian share of English wool sales from approximately 34 percent to 10 percent between 1370 and 1410.[90] Botero had centuries of models to follow, but, in many ways, his model princes were the contemporary Medici Grand Dukes of Tuscany, especially the first of them, Cosimo I, whom he called "a prince of outstanding judgment," and his son Francesco, whose shared policy ("done most skillfully") of attracting foreign skilled laborers served as a segue—in the first edition of his more famous *The Reason of State* (1589), the first work to use that expression in its title—for repurposing the argument, quoted at length immediately above, about prohibiting the export of raw materials from the *Causes*.[91] It is often hard to find the line between deserved praise and undue flattery in Renaissance writing about princes, and Medicean dirigisme under Cosimo I and Francesco has been little studied, but the best scholars have indeed highlighted its transformational ambition. Goldthwaite describes it as "an extraordinary policy, much ahead of its time, [that] clearly arose from Cosimo's initiatives and enthusiasm," and Judith Brown characterizes it as "activism aimed at the transformation of the entire economy," a full-fledged "political economy."[92]

[90] Munro, "Medieval Woolens," 304–7. On the importance of Edward III's policies for the development of political economy, see Reinert, *Translating Empire*, 93, 118, 164–66.

[91] Botero, *The Reason of State*, trans. Robert Bireley (Cambridge, U.K., 2017), 47, 146; Bireley's is an excellent new translation of Botero's *Della ragion di stato*, using texts from 1590 to 1598.

[92] Richard A. Goldthwaite, "Artisans and the Economy in Sixteenth-Century Florence," in *The Medici, Michelangelo, and the Art of Late Renaissance Florence* (New Haven, 2002), 86; Judith C. Brown, *In the Shadow of Florence: Provincial Society in Renaissance Pescia* (Oxford, 1982), 281. See also Brown's essential "Concepts of Political Economy: Cosimo I de' Medici in a Comparative European Context," in *Firenze e la Toscana dei Medici nell'Europa del'500*, vol. 1 (Florence, 1983), 279–93; in comparison, Furio Diaz's approach is similar but negatively highlights the statist nature of the economic and political controls under the Grand Dukes: Diaz, *Il Granducato di Toscana: I Medici* (Turin, 1976), 127–48. On Cosimo I's political economy, and particularly his emphasis on attracting high value-added economic

Immediately after noting the "profound silence" of Italian Renaissance thinkers on political economy, Hume declared that "the great opulence, grandeur, and military achievements of the two maritime powers"—meaning the Dutch and the English—"seem first to have instructed mankind in the importance of an extensive commerce."[93] But were those who first instructed mankind themselves without instructors? Were the Dutch and English really autodidacts? If not, who had taught them? And in what? The answer was known long before Hume, and was later powerfully explained by the German historical economist Gustav von Schmoller in 1884: "what, to each in its time, gave riches and superiority first to Milan, Venice, Florence, and Genoa; then, later, to Spain and Portugal; and now to Holland, France, and England . . . was a state policy in economic matters [*eine staatliche Wirtschaftspolitik*]"—an applied political economy first theorized and codified in the late Italian Renaissance by thinkers ignored by Hume; thinkers in scholastic, Counter Reformation, anti-Machiavellian, and Reason of State contexts rather than republican and humanist and, later, liberal ones; thinkers for whom wealth and virtue were natural partners; thinkers who drew their lessons not from the ancients, as Machiavelli had professed, but from the successful business practices and government policies of their time. [94] That said, much suggests that these insights were even more widespread than that. For Florentines seem to have been eminently aware of the importance of measures to protect and encourage domestic manufactures throughout the Renaissance. Already in 1458, a Florentine commission declared that the city had "became powerful and great through her industries and business, and thanks to these it defended itself from all oppression."[95] And even the humanist Aurelio

activities to Tuscany, see Reinert, introduction to Serra, "*Short Treatise*," 38–46; and, as evidence of a veritable "developmental state," Reinert, *The Academy of Fisticuffs: Political Economy and Commercial Society in Enlightenment Italy* (Cambridge, MA, 2018), 400. Cosimo I was, not unexpectedly, celebrated in his own time with an outpouring of encomia. Carmen Menchini, *Panegirici e vite di Cosimo I de' Medici: Tra storia e propaganda* (Florence, 2005).

[93] Hume, *Political Essays*, 52.

[94] Gustav von Schmoller, *The Mercantile System and its Historical Significance* (New York, 1897), 48, translated from an extract from Schmoller's twelve-part series "Studien über die wirtschaftliche Politik Friedrichs des Großen und Preußens überhaupt von 1680 bis 1786" (1884–1887); for the original German, see part 2, "Das Merkantilsystem in seiner historischen Bedeutung: städtische, territoriale und staatliche Wirthschaftspolitik," *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 8 (1884): 42. On the context from which Schmoller emerged, see Erik Grimmer-Solem, *The Rise of Historical Economics and Social Reform in Germany, 1864–1894* (Oxford, 2003). For more on the heuristic value of Schmoller's analysis, see Reinert, *Academy of Fisticuffs*.

[95] Franco Franceschi, "Intervento del potere centrale e ruolo delle Arti del governo dell'economia piorentina del Trecento e del primo Quattrocento: Linee generali," *Archivio storico italiano* 151 (1993): 864, quoted in Goldthwaite, *Economy of Renaissance Florence*,

Lippo Brandolini would write, in his *Republics and Kingdoms Compared* (c. 1490), of how Florence could protect its "empire" only with "the help of large duties" on trade and by prohibiting the "importation" of goods that "we ourselves manufacture, all woolens and silks . . . so that we can sell our own, and to prevent foreign wares bringing down the price or reputation of ours." This because, as Brandolini quoted the Roman playwright Terence, "everyone prefers his own betterment to another's."[96]

In line with Hegel's frequently quoted dictum that "the owl of Minerva spreads its wings only with the falling of the dusk," the historical mechanisms of Italy's success were, however, only codified politically and theorized economically once decline already had set in and the center of gravity in the European economy had begun to move north and west. Soon enough, Italian writers themselves took note of how England and the Low Countries had come to beat them at their own game by adopting precisely the measures argued for by Botero, working their own raw materials and embracing import substitution. As Fernand Braudel concluded in his *Out of Italy*, the city-states of the peninsula declined also by virtue of teaching the rest of Europe their practices, or what he called "*le Modèle italien*."[97] There are few better lenses for appreciating this process than that of Florentine woolen manufactures and the origins of political economy.

As such, a broadening of the traditional context for considering the history of political economy to include not only texts but the worlds of business enterprise as well as guild and government policies suggests fertile fields for future inquiry. For if Pocock delineated a powerful "Atlantic Republican Tradition" originating in Renaissance Florence, the extraordinary popularity of Botero's work in the European world—"the Italian tradition" more broadly—allows us to adumbrate a different

591. For a similar statement from a century later, see Giacomo Lanteri, *Della economica* (Venice, 1560), 98.

[96] Aurelio Lippo Brandolini, *Republics and Kingdoms Compared*, ed. and trans. James Hankins (Cambridge, MA, 2009), 123–25, quoting, as Hankins has shown, Terence, *A*[n]*dria 427*: "*Omnes sibi malle melius esse quam alteri*." On this theme, see Reinert, introduction to Serra, "*Short Treatise*," 32, and Reinert, "Rivalry."

[97] Fernand Braudel, *Out of Italy: 1450–1650*, trans. Siân Reynolds (Paris, 1991), 226, original published as *Le Modèle italien* (Paris, 1989), discussed in the context of Serra and the decline of Italy in Reinert, introduction to Serra, "*Short Treatise*," 78–82. For further context, see Reinert, "Blaming the Medici"; Reinert, "Lessons"; Gino Luzzatto, "Small and Great Merchants in the Italian Cities of the Renaissance," in *Enterprise and Secular Change: Readings in Economic History*, ed. Frederic C. Lane and Jelle C. Riemersma (Homewood, IL, 1953), 52; and Maria Fusaro, *Political Economies of Empire in the Early Modern Mediterranean: The Decline of Venice and the Rise of England, 1450–1700* (Cambridge, U.K., 2015). For an earlier Tuscan analysis of this phenomenon, see Giovanni Francesco Pagnini, *Della decima e di varie altre gravezze imposte dal commune di Firenze, della moneta, e della mercatura de' fiorentini fino al secolo XVI*, 4 vols. (Lisbon, 1765–1766), 2:146–47.

but no less consequential conceptual arc (one that, because of its explicitly "economic" nature, Hont might even have called "modern") similarly bridging Renaissance Italy to the rise of Britain, the birth of the United States, and the world that we inhabit.[98] Through careful readers such as Francis Bacon, William Petty, and Veit Ludwig von Seckendorff, Botero's original observation about the superiority of industry in Renaissance Florence and the importance of nurturing domestic manufactures to secure greatness in a world of relentless international competition was sequentially institutionalized in the theories, policies, and business strategies of emerging powers everywhere, from the Germanic world of Cameralism and John Cary's England to Alexander Hamilton's nascent United States of America and, eventually, well beyond to our day and age. To engage with the political economy of the Italian Renaissance is to engage with the development of our world as we know it. For better and for worse, we are still crossing Botero's bridge, its end perennially out of sight.[99]

Supplementary material

The supplementary material for this article can be found at https://doi.org/10.1017/S000768052000001X

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[98] Pocock, *Machiavellian Moment*; Hont, *Jealousy of Trade*, 8–9.

[99] On this theme, see Reinert, *Translating Empire*; Reinert, "Rivalry"; and, for an earlier statement about Botero's influence on European political economy, Reinert, "Cameralism and Commercial Rivalry: Nationbuilding through Economic Autarky in Seckendorff's 1665 *Additiones*," *European Journal of Law and Economics* 19, no. 3 (2005): 271–86. On Botero's *Greatness of Cities* and *Reason of State* as a publishing phenomena throughout the European world, with at least forty-two editions between them published in numerous languages before 1830, see Erik S. Reinert and Fernanda Reinert, "33 Economic Bestsellers Published before 1750," *European Journal of the History of Economic Thought* 26, no. 6 (2019): 17–21. On Botero's extraordinary importance in England, in particular, see Jamie Trace, "Giovanni Botero and English Political Thought" (PhD diss., University of Cambridge, 2018).