Political Economy and the Medici

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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 of 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, and "[e]ven 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, "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

[1] Hume, *Political Essays*, ed. Knud Haakonssen (Cambridge: Cambridge University Press, 1994), 51-8, quoting 52, perhaps following Nicholas Barbon, *A Discourse of Trade* (London: Milbourn, 1690), A3v-r; Hont, *Jealousy of Trade: International Competition and the Nation-State in Historical Perspective* (Cambridge, MA: Harvard University Press, 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 9 April 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: Princeton University Press, 1993), 4 and 107-8; for the original, see Machiavelli, *Tutte le opere*, ed. Mario Martelli (Florence: Sansoni, 1971), 1131-2. For an important vehicle of this particular image, see Albert O. Hirschman, *The Passions and the Interests: Political Arguments for Capitalism before Its Triumph* (Princeton: Princeton University Press, 1977), 41.

"commercial interests, attitudes, and priorities were thoroughly accommodated by Renaissance republicanism" in Italy.[3]

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 co-exist, 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

[3] Quoting Mark Jurdjevic, "Virtue, Commerce, and the Enduring Florentine Republican Moment: Reintegrating Italy into the Atlantic Republican Tradition," *Journal of the History of Ideas* 62 (2001): 721-43, at 742; Jurdjevic has rightly called the incompatibility of wealth and virtue "the dialectical engine" of Pocock's classic *The Machiavellian Moment: Florentine Political Thought and the Atlantic Republican Tradition* (Princeton: Princeton University Press, 1975), though he is 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: The University of Chicago Press, 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: École française de Rome, 2011) and, more recently, idem, "Machiavelli, the Republic, and the Financial Crisis" in David Johnston et al., eds., *Machiavelli on Liberty and Conflict* (Chicago: University of Chicago Press, 2017), 257-279. 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 Najemy, ed., *The Cambridge Companion to Machiavelli* (Cambridge: Cambridge University Press, 2010), 96-111; idem, "Machiavelli's Florentine Tribunes," in Machtelt Israëls and Louis A. Waldman, eds., *Renaissance Studies in Honor of Joseph Connors*, (Cambridge, MA: Harvard University Press; Milan: Officina Libraria, 2013),65-72; and John P. McCormick, *Machiavellian Democracy* (Cambridge: Cambridge University Press, 2011). As Lauro Martines long ago concluded, however, "wealth was associated with *virtù* and honor" in renaissance Florence, "poverty with dishonor", see his *The Social World of Florentine Humanists* (Princeton: Princeton University Press, 1963), 25.

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

[5] *Political Essays*, 105-114, quoting 110 and 107.

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 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)

[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* (The Hague: Martinus Nijhoff, 1976; 2nd edition, London: Anthem, 2015) and Michael Sonenscher, *Work and Wages: Natural Law, Politics, and the Eighteenth-Century French Trades* (Cambridge: Cambridge University Press, 1989; second edition 2012)

[7] As argued in Steven L. Kaplan and Sophus A. Reinert, "The Economic Turn in Enlightenment Europe" in Kaplan and Reinert, eds., *The Economic Turn: Recasting Political Economy in Eighteenth-Century Europe*, 2 volumes (London: Anthem, 2019), 1-33. For the quotation, see Voltaire, "Bled ou Blé," in *Questions sur l'Encyclopédie*, eds. Nicholas Cronk and Christiane Mervaud (Oxford: Voltaire Foundation, 2007-2013), volume 3,402-422, at 412-413. On the centrality of grain to French political economy, see again Kaplan, *Bread, Politics and Political Economy*.

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

a quintessential problem of political economy *avant la lettre*. In his internationally best-selling 1588 *On the Causes of the Greatness of Cities*, Giovanni Botero devoted considerable attention to precisely the question of "which is of greater value for improving a place and increasing its population: the fertility of its soil, or the industry of its people?" and 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 (its *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

[9] *Delle cause della grandezza delle città libri 3* (Rome: Giovanni Martinelli, 1588), 39; the chapter *Dell'industria* (II.7), at 38-43, was removed from later editions and incorporated into Book 8 of Botero's 1589 *Della ragion di stato*, to which the entire work was afterwards appended beginning with its second edition. We follow the new translation of Geoffrey Symcox, *On the Causes of the Greatness and Magnificence of Cities, 1588* (Toronto: University of Toronto Press, 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: UTET, 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; *On the Causes*, 44.

importance is only now being fully recognized—was not alone.[11]

Botero's extraordinary observation,"[t]he 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,[12] whom Joseph Schumpeter called "the first to compose a scientific treatise… on Economic Principles and Policy".[13] 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"[14]—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".[15] 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

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[11] Working in the immediate wake of Friedrich Meinecke and Benedetto Croce, Federico Chabod's study "Giovanni Botero" in *Opere di Federico Chabod*, volume 2: *Scritti sul Rinascimento* (Turin: Einaudi, 1967 [1934]), 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: University of North Carolina Press, 1990). Apropos of the subject matter of this essay: Michel Senellart, *Machiavélisme et raison d'état: XIIe-XVIIIe siècle* (Paris: Presses universitaires de France, 1989), 71-83, treats Botero as a mercantilist; Romain Descendre, *L'état du monde: Giovanni Botero entre raison d'état et géopolitique* (Geneva: Droz, 2009), in the finest discussion of the *Delle cause*, 173-212, examines Botero's political economy, at 186-201.

[12] Botero, *Delle cause*, 41; *On the Causes*, 45. On 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 Reinert, ed., *A "Short Treatise" on the Wealth and Poverty of Nations (1613)*, trans. Jonathan Hunt (London and New York: Anthem, 2011), particularly at 37-46 and 65 for an analysis of the relationship between the economic analyses of Botero and Serra; and the essays in Rosario Patalano and Sophus A. Reinert, eds., *Antonio Serra and the Economics of Good Government* (New York: Palgrave Macmillan, 2016).

[13] *A History of Economic Analysis* (New York: Oxford University Press, 1954), 195; immediately following Schumpeter, Arthur Cole, librarian of Harvard Business School's Baker Library, also highlighted Serra's temporal primacy in his *The Historical Development of Economic and Business Literature* (Boston: Baker Library, 1957),16. The polymath Schumpeter similarly declared that "the 'Malthusian' Principle of Population sprang fully developed from the brain of Botero in 1589", 254, but see also 143-46. The linkages between Botero and Serra have also been explored by [Enzo R. Grilli], *Antonio Serra visto da Enzo Grilli* (Rome: Luiss University Press, 2006), *passim*.

[14] Serra, "Short Treatise", 121.

[15] [Galiani], *Dialogues sur le commerce des bleds* (London: N.p,, 1770), 150; in the edition of Fausto Nicolini (Milan: Ricciardi, 1956), 142. Quoted in Reinert, "Introduction", 72; for context see Reinert, *Translating Empire: Emulation and the Origins of Political Economy* (Cambridge, MA: Harvard University Press, 2011), 186-232, and Kaplan, "Galiani: Grain and Governance" in Kaplan and Reinert, eds., *The Economic Turn*, at 221-303.

individually-competitive and civic benefits of pursuing and protecting high-value-added economic activities, such as the production of luxury woolen cloth.[16]

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In January of 1460 a civic debate (*pratica*) was held in Florence to address a proposal to move the Florentine *Studio*, its under-funded institution of higher learning, to Pisa, which had been purchased by the Florentines in 1402 and wholly subjugated four years later. The speech given in favor of the move by 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, is striking. "This city," he declared,

> 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.[17]

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

Although the economy of Renaissance Florence was diverse and pre-modern merchants and entrepreneurs tended towards 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 important domestic manufacture and export commodity in Florence, ca. 1200-1600. Wool textile manufacturing and, more broadly, the cloth and clothing sections represented a large share of the Florentine rural and urban economies. In 1480, for

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[16] "The Italian Tradition of Political Economy: Theories and Policies of Development in the Semi-Periphery of the Enlightenment', in Jomo K. Sundaram and Erik S. Reinert, eds., *The Origins of Development Economics: How Schools of Economic Thought Have Addressed Development* (London: Zed Books, 2005), 24–47. See also Reinert, "'A Sublimely Stupid Idea': Physiocracy in Italy from the Enlightenment to Fascism," in Kaplan and Reinert, eds., *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 Teresa da Silva Lopes, Christina Lubinski, and Heidi Tworek, eds., *The Routledge Companion to Makers of Global Business* (London: Routledge, 2019), forthcoming.

[17] Gene Brucker, "A Civic Debate on Florentine Higher Education (1460)", *Renaissance Quarterly*, no. 34 (1981): 517-33, at 531; translated by Robert Black, "Education and the Emergence of a Literate Society," in John M. Najemy, ed., *Italy in the Age of the Renaissance: 1300-1550* (Oxford and New York: Oxford University Press, 2004), 18-36, at 34.

example, they dominated the urban shop (*bottega*) economy, with nearly 8% of all shops, the highest for any group, being wool shops; and with nearly 27% 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 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 the Near East.[18] 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.[19]

Unlike the silk and cotton textile industries, which relied in the earliest instance on the long-distance importation of raw materials and which 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, for a while, with 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, they 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

[18] Richard Goldthwaite, *The Economy of Renaissance Florence* (Baltimore: Johns Hopkins University Press, 2009), especially pp. 265–340 on Italian cloth production.

[19] See, more generally, Sophus A. Reinert, "Rivalry: Greatness in Early Modern Political Economy," in Philip J. Stern and Carl Wennerlind, eds., *Mercantilism Reimagined: Political Economy in Early Modern Britain and its Empire* (Oxford: Oxford University Press, 2013), 248-270.

Italy or exported to Mediterranean ports, especially Byzantine and Muslim ones, through Genoa. Yet Italian wool manufacturers could not, due to technological inferiority and supply constraints, compete with the luxury woolens of Flanders and Brabant. On the Provençal market in 1308-9, Florentine cloths fetched only around 1/3rd of what the cloths of Ypres did.[20] In the early fourteenth century, the merchants of the famous Arte di Calamala 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.[21] They also occasionally added economic value to their products by purchasing undyed and unfinished cloths from Northern looms, finishing and dying 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.[22] The Florentine wool industry, as Giovanni Villani famously noted in his *Chronicle*, saw enormous growth in price per cloth and thus value only when it switched 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 were coarse and of low quality.[23] 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.[24]

Until gradually surpassed by Spanish *merino* in the sixteenth century, England was the

[20] Roger Aubenais, "Commerce des draps et vie économique à Grasse en 1308-9," *Provence historique* 9:37 (1959): 201-12, 204-206.

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

[22] Giovanni Filippi, *L'arte dei mercanti di Calimala in Firenze ed il suo piu antico statuto* (Turin: Fratelli Bocca, 1889), V, XV, 162.

[23] Giovanni Villani, *Nuova Cronica*, second edition, ed. Giuseppe Porta (Parma: Guanda, 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 1/6th of Florence's adult population.

[24] 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* 22 (2002): 93-129.

chief producer of the world's finest raw wool.[25] The best English wool was sourced from Lindsay and 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; it was, by mid-century, precisely these "best of the best" regions that supplied the raw wool for Florentine firms.[26] 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.[27] Due to their high value-to-weight ratio, very fine woolens gave merchants a superior profit margin even in long-distance maritime and over-land trade, where transportation and protection costs could be forbiddingly high for lower-quality cloths.[28] Until the third decade of the fourteenth century, though, the Italian wool trade centered on the sale of lower quality textiles, and the Low Countries dominated the trade in fine wool cloth.[29] 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.[30] This transformation was also mirrored inside Florence by the simultaneous decline of the once-powerful Cloth Merchants' Guild (*Arte di Calimala*), whose members had control of Florentine trade at the Champagne Fairs, and rise of the Wool Guild (*Arte della Lana*), whose producer-merchant members manufactured and exported woolens internationally.[31] By this time, Florentines

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[25] John Munro, "Wool Price Schedules and the Qualities of English Wools in the Later Middle Ages," *Textile History* 9 (1978): 118–69; idem, "Medieval Woolens: The Struggle for Markets," in *The Cambridge History of Western Textiles*, ed. David Jenkins, 2 vols. (Cambridge: Cambridge University Press, 2003), 1:228–324; idem, "Spanish *Merino* Wools and the *Nouvelles Draperies*: An Industrial Transformation in the Late-Medieval Low Countries," *Economic History Review* 58 (2005): 431–84; and Robert S. Lopez, "The Origin of the Merino Sheep," in *The Joshua Starr Memorial Volume: Studies in History and Philology* (New York: Conference on Jewish Relations, 1953), 161–68.

[26] Like the Del Bene firm, whose sources are described in Hoshino, *L'arte della Lana*, table 26, at 216.

[27] 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: Universitetsforlaget, 1964) and Walter Endrei, *L'evolution des techniques du filage et du tissage: du moyen âge à la revolution industrielle* (Paris: Mouton, 1968).

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

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

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

[31] On the wool guild, see 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: Olschki, 1980).

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 English duties on the export of wool.[32] 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.[33] 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 came to dominate the long-distance trade in high-grade textiles.[34] Similarly, Florentine *lanaioli*, 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* (Douai) and *a modo di Mellino* (Mechlin).[35] 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.[36] 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.[37] 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 30 times as many Florentine as non-Florentine cloths (including those of Prato) being

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

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

[34] Hidetoshi Hoshino, "The Rise of the Florentine Woolen Industry in the Fourteenth Century," in *Cloth and Clothing in Medieval Europe*, eds. N. B. Harte and K.G. Pointing (London: Heinemann, 1983), 184-204, especially 187-190.

[35] Adrienne Atwell, "Ritual Trading at the Florentine Wool-Cloth Botteghe," in Roger Crum and John Paoletti, eds., *Renaissance Florence: A Social History* (New York: Cambridge University Press , 2006), 182–215, 198.

[36] 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 (2001): 1–47.

[37] Maureen Mazzaoui, "The Cotton Industry of Northern Italy in the Late Middle Ages, 1150–1450," *Journal of Economic History* 32 (1972): 262–86.

sold at an average of more than double the price.[38]

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 ca. 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 with the exemptions, 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.[39] 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, San Piero Scheraggio, and in the Oltrarno), which manufactured wool sourced in Castile, Majorca, Minorca, 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.[40] Nor did the power of the Arte della Lana end inside 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.[41] 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

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[38] 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: Giuffré, 1962), 219–43, table 4, at 229 dealing with period 1394 to 1410.

[39] Lloyd, *English Wool Trade,* 225-287. See, on this transition, and the long shadow it cast on the history of Italian political economy, Reinert "Blaming the Medici: Footnotes, Falsification, and the Fate of the 'English Model' in Eighteenth-Century Italy," *History of European Ideas* 32 (2006): 430-455 and "Lessons on the Rise and Fall of Great Powers: Conquest, Commerce, and Decline in Enlightenment Italy", *The American Historical Review* 115 (2010): 1395-1425.

[40] 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*, eds. Antonello Mattone and Pinuccia F. Simbula (Rome: Caracci, 2011), 878-89. For other regulations, see Franco 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; see also Goldthwaite, *Economy*, pp. 276-78 on the different sectors.

[41] Franco Franceschi, "Industria, commercio, credito" in *Storia della civiltà Toscana*, volume 2, *Il Rinascimento* (Florence: Le Monnier, 2001), 533-60, 547-53.

protectionism on a massive scale to regulate in- and outflows".[42]

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% of the total cloths produced based on English wool.[43] It was around the same time that Spanish wool began to overtake *matricina*, both in price and in volume, in Florentine production. By the end of the fifteenth century, Spanish *merino* wool was beginning to rival English wool in quality and became 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.[44] By the 1470s as much as half of the total production of the Garbo section 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.[45] The Florentine-Ottoman trade was fostered in the later period by the peaceful diplomacy of Lorenzo de' Medici 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.[46] 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, the rapidly diminishing Levant trade. Though silk was by this point coming largely from local and Western sources, Sultan Selim I's 1514-20 embargo 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

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[42] Franco Franceschi, "Medici Economic Policy" in *The Medici: Citizens and Masters*, eds. Robert Blacke and John E. Law (Florence: Villa I Tatti, 2015), 129-154, 143. Discussing a series of import bans on foreign fabrics between 1439 and 1458, Franceschi quotes a telling justification, "it will not be believed elsewhere that the textiles of Florence are satisfactory if we ourselves use foreign imports," at 147.

[43] Hoshino, *L'arte dela Lana in Firenze,* 231-244.

[44] 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; Maureen Mazzaoui, "Ottoman Markets for Florentine Woolen Cloth in the Late Fifteenth Century," *International Journal of Turkish Studies* 3 (1985–86): 17–31.

[45] Chorley, "Rascie and the Florentine Cloth Industry," 489.

[46] 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.

an advantage to the Venetians over the Genoese and Florentines.[47]

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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 sources like guild statutes, premodern Florentine *lanaioli* (manufacturer-merchants of woolen cloth) as highly-organized, large-scale "supercapitalists" with partly centralized control over labor and production in their workshops: in his terms, 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 der Großindustrielle* κατ' εξοχήν).[48] In a long note in the later 1916-19 edition of his *Modern Capitalism*, 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 again 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.[49] Sombart was right. Wool manufacturing in Florence—which

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[47] Chorley, "Rascie," 487-91, and Halil İnalcık, "Part I: The Ottoman State: Economy and Society, 1300-1600," in İnalcık, ed., *An Economic and Social History of the Ottoman Empire, 1300-1914* (Cambridge: Cambridge University Press, 1994), 9-410, 218-256.

[48] Doren, *Studien aus der Florentiner Wirtschaftsgeschichte*, volume 1:*Die Florentiner Wollentuchindustrie vom 14. bis zum 16. Jahrhundert: Ein Beitrag zur Geschichte des modernen Kapitalismus* (Stuttgart: J. G. Cotta'sche, 1901); quotations from202, 400, and 469; and from volume 2, *Das Florentiner Zunftwesen vom 14. bis zum 16. Jahrhundert* (1908),505, 560, and 721. Early caveats about Doren's methodology were presented by, among others, Edwin F. Gay, soon to be first Dean of Harvard Business School, in his long review in *Political Science Quarterly* 19 (1904): 310-315. "Doren bases all this on gild documents, which he uses with dexterity and vivacity," Gay writes, "[b]ut this vivacity has its dangers",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 (1917): 367-400.

[49] Sombart, *Der moderne Kapitalismus: Historisch-systematische Darstellung des gesamteuropäischen Wirtschaftslebens von seinen Anfängen bis zur Gegenwart*, volume 2, part 2 (Munich: Duncker & Humblot, 1919),767. On Sombart and Weber, see Hartmut Lehmann, "The Rise of Capitalism: Weber versus Sombart", in Lehmann and Günther Roth, eds., *Weber's Protestant Ethic: Origins, Evidence, Context* (Cambridge: Cambridge University Press, 1993), 195-208.

remained in essential ways the same from the fourteenth through the sixteenth centuries—was largely decentralized due to the proto-industrial 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.[50] Very little of the labor or production was centralized in a central workshop (Doren's *zentralwerkstatt*), 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.[51] The consequences of this unrest led to decreasing (not increasing) centralization in the Florentine woolen cloth industry,[52] which did survive the political strife, the demographic collapse of the Black Death, and significant regional depressions, but ultimately fell victim to international competition. 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% English wool) an average of around 155 cloths per year in the period 1355-59 and, in its best year, had a profit margin of 40% before a sudden downturn in its business. [FIGURE 3]. And Franco Franceschi has found, on the basis of production totals for 402 firms, that the average in precisely this period (1355-74) was 122 cloths per annum.[53] 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, but 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.

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[50] 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: University of Florence Press, 2010), 489–514. On proto-industrialization more generally, see Sheilagh C. Ogilvie and Markus Cerman, eds., *European Proto-Industrialization* (Cambridge, 1996).

[51] The literature on woolworker agitation is vast, but see Alessandro Stella, *La révolte des Ciompi: les hommes, les lieux, le travail* (Paris: Editions EHESS, 1993) and, for a wider context, Samuel Cohn, "Florentine Insurrections, 1342–1385, in Comparative Perspective," in *The English Rising of 1381*, eds. Rodney H. Hilton and T. H. Aston (Cambridge: Cambridge University Press, 1984), 143-164; 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: Olschki, 1993).

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

[53] Franceschi, *Oltre il tumulto*, 8.

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 bolt, with the publication in 1941 of the young Belgian business historian Raymond de Roover's essay "A Florentine Firm of Cloth Manufacturers", which had been written while he 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.[54] 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, by focusing on the "actual business practice of an individual firm" and by "de-emphasing the guild and revealing the considerable fluidity in human relations inside the system and therefore the more amorphous quality of industrial society" in the Renaissance.[55] 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*. De Roover's preliminary investigation of the Medici bank had been published 15 years earlier and dedicated to Gras, "whose teaching inspired this study on one of the most famous business firms in history",[56] 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 the together foundation of his extraordinary talents and productivity. But the "Florentine

[54] "A Florentine Firm of Cloth Manufacturers: Management and Organization of a Sixteenth-Century Business", *Speculum* 16.1 (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: University of Chicago Press, 1974), 85-118. De Roover's original 66-page typescript, with charts, has been deposited in Harvard University's Archives. For context for the early history of history at Harvard Business School, see Robert Fredona and Sophus A. Reinert, "The Harvard Research Center in Entrepreneurial History and the Daimonic Entrepreneur", *History of Political Economy* 49 (2017): 267-314.

[55] Richard A. Goldthwaite, "Raymond de Roover on Late Medieval and Early Modern Economic History", in Kirshner, ed., *Business, Banking, and Economic Thought*, 3-14, 10-11.

[56] "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: New York University Press, 1948), v and xv.

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.[57] 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 laid the groundwork for his *magnum opus*.[58] This essay, in returning to the same Selfridge manuscript books used by Edler in her *Glossary* and De Roover in a "Florentine Firm", is similarly based upon the couple's pioneering efforts.

* * *

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 to the family's banking activities, a large source of profits; in the period 1420-35, for example, the one wool shop then operating provided only 3.1% of the bank's profits.[59] 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 to some of the other wool manufacturing firms in the Selfridge Collection, the 1556-8 firm of Francesco di Giuliano di Raffaello de'Medici and Co., which produced only 71 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

[57] Florence Edler, *Glossary of Mediaeval Terms of Business, Italian series, 1200-1600* (Cambridge, MA: The Mediaeval Academy of America, 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: Olschki, 1999), xv-xxiii. We are currently completing a biography of this remarkable and sadly little-known scholar.

[58] Raymond de Roover, "I libri segreti del Banco de' Medici", *Archivio storico italiano* 107 (1949): 236-240, 236-7; acknowledged in *The Rise and Decline of the Medici Bank, 1397-1494* (Cambridge, MA: Harvard University Pres, 1963), xii.

[59] De Roover, *Il Banco Medici dalle origini al declino (1397-1494)*, trans. Gino Corti (Florence: Nuova Italia, 1970 [Cambridge: Harvard University Press, 1963]), 80, tavola 11.

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),[60] are extant. [FIGURE 4].[61] 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 sub-systems 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 5 shows the middle volume] Like nearly all the wool companies of the period, the firm itself, which operated for the two years from 1 May 1556 to 30 April 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[62]:

- Rosso di Giovanni de' Medici, *maruffino*, 2 year term beginning 1 May 1556, salary of f.40/year, who kept the firm's books
- Amerigo di Giovanni de' Medici, *giovane*, 18 month term beginning 1 November 1556, salary of f.16/year
- Francesco di Piero Tucci, *giovane*, 13 month term beginning 1 November 1556, salary of f.20/year
- Antonio d'Agnolo fornaio, *fattorino*, 6 month term beginning 1 November 1556, salary of f.6/year

A breakdown of the firm's total operating costs of 3,076.75 florins is found in [FIGURE 6], which also serves as a basic schematic of the entire manufacturing process (from preparation to spinning to weaving to dying to finishing).[63] The 1556-58 firm was not profitable, but its overall costs

[60] Ms. 567(11), ff. 25v-26r.

[61] The Brandolini books studied by Richard Goldthwaite, "The Florentine Wool Industry in the Late Sixteenth Century: Case Study," *Journal of European Economic History* 32 (2003): 487-526, and discussed elsewhere in this article were 12 in number; another Strozzi set purchased in 1512 comprised some 9 books; see Goldthwaite, "Performance of the Florentine Economy, 1491-1512: Moneys and Accountancy", *Archivio storico italiano* 176 (2018): 245-274, at 252.

[62] 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".

[63] 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*, 362-367, 609-614. 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,

(excluding the cost of raw wool, see below) were not unlike other Medici firms, even much larger ones. [FIGURE 7] shows the two Medici firms operating in the period 1530-43, respectively more than five and fifteen times the size 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 additionally records family milestones—the births and baptisms of his children, 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 33 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.[64] 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

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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: The Johns Hopkins University Press, 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. Most unskilled workers were, however, according to Goldthwaite's calculations paid the equivalent of about .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 .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 8 hours/day and makes the Massachusetts minimum wage, $11/hour, then the current US daily unskilled wage is $88, which is either 142 times (by the Wheat Index) or 58 times larger (by the Silver Index) than the 1558 pay. So, the value of the 3,076.75 florins – due 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, *Leonardo da Vinci* (New York: Simon & Schuster, 2017), 382 shows, Leonardo da Vinci was paid 35 florins for his earlier *Virgin of the Rocks*. 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 his *Economy of Renaissance Florence,* 611-2), the firm's operating costs would have covered roughly 73 such paintings at the adjusted value (80 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 $33,000,000,000. 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: Cambridge University Press, 2018), 178-199.

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

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.[65] Giuliano himself would die in 1569 at the age of 63.

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% of the weight, or f.306 s.5 total for a nominal weight of 2,917 pounds.[66] This wool was unpacked, likely in the firm's *bottega*, and sorted into 22 sacks (of variable weight, ranging from 125 to 160 pounds) with a combined weight of 3,110 pounds.[67] In 1556-7 the firm acquired around 8,675 pounds of raw wool all told, of which approximately 63% was Spanish and the rest Italian (Tuscan *matricina* and wool from *castroni*, castrated bucks), which was sorted into 60 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% of the total production costs of this firm, by far the largest single category, even though it was lower than the 35% and 44% spent on wool by the related Medici firms operating from 1530-43 and by the Brandolini firm examined by Richard Goldthwaite at 40%. 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 hundred pounds followed by Italian wool shorn from castrated sheep at f.13 per hundred pounds. [FIGURE 8] The raw wool purchased in the period 1491-5 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 like Miguel de Miranda, Miguel de Silos, and Fernando and Juan de Castro.[68] 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

[65] Ms. 562, ff. 1r-4v.

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

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

[68] 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).

pounds"); the final purchase price (*netto a pagamento*) was calculated by the pound after the assessment of tares (*tare*), 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 18 July 1492 Miguel de Silos delivered six bales of wool weighing 1381 pounds to the Medici partners, the tares combined for 117 pounds (nearly 8.5% of the total), and the final price (f. 145, s. 6) reflected a weight of 1264 pounds.[69] The 1552-5 notebook of first-entry (*quadernaccio*) of Giuliano di Giovenco's great-great-grandson Giuliano di Raffaello's firm 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 and pink (*turchino, 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*).[70] In 1556, the same Lopez Gallo bartered his raw wool for some of the black *rascie* it would produce, or 1000 pounds of the finest Spanish wool for 3 b bolts of *rascia* together weighing 201 pounds and valued at 222.74 florins, a weight-value ratio of about 5 to 1 between the raw material and the manufactured good.[71] In the period 1490-1550, studied by Bruno Dini, the Salviati firm did business with some 26 Spanish merchants; of them, more than half either broke even (bartering goods for goods—60% of the time Spanish raw wool, and 32% of the time Spanish silk, for finished Silks and woolens) or ended up with a negative

[69] Ibid., 9r, "i[a] balla peso lorda lib. 237".

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

[71] 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.

balance with the Salviati. [FIGURE 9].[72] In addition to wool, this firm directly purchased a number of other supplies, including some of the dyestuffs used in the dying process; these included, as the company's ledger records, "various red dyes, orchil, and others to dye this firm's cloths (*piu robbie, oricello, e altro per tignere i panni di questa ragione*)".[73] Other necessary supplies for the manufacturing and finishing processes included soap and, costliest of all, oil, for 22.5 barrels of which the Medici paid l.373 s.19 d.0 total and which they purchased over a period of 14 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.[74]

In addition to wool quality, dying and final color historically had strongly affected the quality and price of sold textiles, and the cost of dying 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.[75] An exemplary case of the role played by the dyestuffs themselves relates to the etymology of the word "scarlet". John Munro has amply shown that, before it was an adjective referring to the bright red-orange color, "scarlet" signified the most expensive and luxurious woolen cloth of the Middle Ages, in 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.[76] In a 1339 statute, the

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[72] In a striking passage in the original Christie's catalogue for the sale of the Medici ledgers which Selfridge bought and eventually donated to HBS, the auction house noted "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", see *Catalogue of the Medici Archives… which will be sold by Messrs. Christie, Manson and Woods…* (London: W. Clowes and Sons [1919?]), 185. On the institutionalization of this strategy in the European world, see Reinert, "Rivalry".

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

[74] Ms. 567 (11), ff. 5v-6r.

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

[76] John H. Munro, "The Medieval Scarlet and the Economics of Sartorial Splendour," in *Cloth and Clothing in Medieval Europe: Essays in Memory of Professor E. M. Carus-Wilson*, eds. Negley B. Harte and Kenneth G. Ponting (London: Heinemann [Pasold Research Fund], 1983), 13-70, at 13-21 and *passim*; Munro, "Scarlet", in *Encyclopedia of Dress and Textiles in the British Isles, c. 450-1450*, eds. Gale R. Owen-Crocker et al. (Leiden: Brill, 2012), 477-81, at 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): 359-372. For further details 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: Panini, 1985), 97-116, at 105-6.

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 grey only with the red dye kermes, which itself cost more than 1/3rd 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*.[77]

Dying was a craft (an *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, i.e. with colors resistant to running or fading. Inexpensive and locally-available mordants included tree bark and, especially in woad dying, wood ash, with its high alkalinity, but high-quality dying, especially with vibrant reds, increasingly came to rely on chemical mordants like *gromma* (Potassium bitartrate, or cream of tartar), a byproduct of winemaking, 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 aluminium).[78] 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 Volterra in 1472 after its leaders reneged on a concession of its newly discovered alum deposits[79]—as reflected in the amounts required for a dying firm's annual operations: in the year between July of 1498 and 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* (potassium alum) for a total of f.288 s.4 d.3 at a rate of 12 florins per 1000 pounds.[80]

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[77] Hidetoshi Hoshino, "La tintura di grana nel basso medioevo," in idem, *Industria tessile e commercio internazionale nella Firenze del tardo Medioevo*, eds. Franco Franceschi and Sergio Tognetti (Florence: Olschki, 2001), 23-39, at 24-26. The long, red roots of the common madder (i.e., *rubia tinctorum*, "dyers' red"), usually sourced from Lombardy and Flanders, was the most common red dye used in the premodern woolens industry.

[78] Franco Franceschi, "Il ruolo dell'allume nella manifattura tessile toscana dei secoli XIV-XV", *Mélanges de l'École française de Rome: Moyen Âge* no. 126.1 (2014): 159-70; see, 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: Mediaeval Academy of America, 1936), 380.

[79] Enrico Fiume, *L'impresa di Lorenzo de' Medici contro Volterra (1472)*, Florence: Olschki, 1948), 167-171; on which see Lorenzo Fabbri, "L'impresa di Enrico Fiumi contro Lorenzo de'Medici", *Rassegna volterrana* no. 84 (2007): 33-44.

[80] For the firm's main supplies, see Ms. 546, ff. 4v-7r, 42v-43r, 58v-59r, 61v-62r, and 86v-87r. The firm's total alum purchases exceeded 840 florins; for the year of purchases see Ms. 545, ff. 1r-11r.

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 dying. 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 range of blue hues common in Tuscan sources went 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 dying process, using a variety of dyestuffs, among which reds commonly predominated.[81] The large chromatic range available to Florentine *lanaioli*, and the two-stage dying process sometimes used, can be seen by looking at the cloths produced by the 1531-34 wool manufacturing firm of Raffaello di Franceco de' Medici. [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% of the cloths remained undyed. Nearly 56% of the cloths were dyed blue, of these some 18% remained sky blue (*cilestro*), 30% were dyed red after being dyed *cilestro* to produce a final black (*nero*), and 42% went from *sbiadato* to *paonazzo* (a popular dark purple) or to dark shades of green. The remaining 36% ended up as greys, tans, yellows, oranges, and a mix of other colors. The firm of this case study, Francesco de' Medici and Co., outsourced the dying of its cloths, which represented a little over 10% of its total operational costs, to five outside firms. [FIGURE 11] The data for the *arte maggiore* dying is incomplete, but the *guado* firms, as expected, charged more for darker shades of blue and for dying higher quality cloths. The costliest procedure was dying so-called *rascia* cloth sky blue in order to then be dyed a second time or over-dyed, 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 dying a *rascia* cloth sky-blue resulted in a 36% cost increase over dying 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

[81] 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 that has been edited by Giovanni Rebora, *Un manuale di tintura del Quattrocento* (Milan: Giuffré, 1970), chapters 64-66.

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, 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 had similarly encouraged, in 1418, 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, which 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 the spike in the 1560s evident in FIGURE 2 and for the first time allowed Florentine cloths to penetrate ultramontane markets.[82]

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 hundred 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 hundred pounds. On Saturday 2 May 1556, for example, the washers received the first twelve sacks of Jacopo Pandolfi's Spanish wool weighing 1660 pounds. The washed wool weighed 1350 pounds, representing a loss of 18.7% of the original weight (near the average of 19.45% loss), and the washing cost l.13 s.10 piccioli, paid along with l.12 for the 60 pounds of alum used.[83] All told, 6630 pounds (final weight) were washed and returned to the Medici in 1556-7. The washed wool was then entrusted to Battista di 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); collected it, and sent it on for further work. The *capodieci* was paid by the pound—d.8 (for 554 lbs.), s.1 (for 2,729 lbs.), s.1 d.4 (for 783 lbs.), and s.1 d.8 (for 2,207 lbs.) for a total of l.391 s.2 d.8 di piccioli—with

[82] For the guild legislation, see Hidetoshi Hoshini, *L'arte della lana*, 235-239. On the importance of *rascie* on the boom of the 1560s, see Patrick Chorley, "*Rascie* and the Florentine Cloth Industry during the Sixteenth Century," *Journal of European Economic History* 32 (2003): 487–526. For the comparative seventeenth-century (1616-45) production of *perpignani* and *rascie*, see Ruggiero Romano, "À Florence au XVIIe siècle: Industries textiles et conjuncture," *Annales: économies, sociétés, civilisations* 7 (1952): 508–12. For the penetration of the Lyon cloth market, see, e.g., Albert Chamberland, *Le commerce d'importation en France au milieu du XVIe siècle, document inédit, publié avec des notes et un tableau synoptique* (Paris: Delagrave, 1894), 29-30.

[83] Ms. 567 (7), ff. 1r-2r; 567 (11), ff. 0v-1r, 42v.

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.[84] The *capodieci* sent some of the cleaned wool directly for dying-in-the-wool (*nel colore*)—for example, on 5-10 August 1556 Battista di Pasquino sent 741 pounds (equivalent to 9.5 *panni* of 78 lbs 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.[85] 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-January 1556/7 and July 1557-September 1557), Agniolo di Giovanni, called "*nostro fattore di petine* (our agent who oversees combing)" received 33 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, called "*nostro fattore di chardo* (our agent who oversees carding)" received 37 weekly cash payments (ranging from 1.5 to 1.37 s.10 di piccoli) in the total amount of l.592 s.9 d.8 di piccioli.[86]

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 (called *stame*) and held in tension on the loom, and the thicker tranversally-woven weft, made from carded wool (called *lana*). Our firm used three non-salaried 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 [FIGURE 12]: Tommaso di Christofano Brandolini (called *nostro lanino*), who distributed lana, and Alessandro di Domenico da berzighella (*nostro stamaiuolo*) and Pagholo di Lorenzo dal Borgho (*stamaiuolo*).[87] As seen in [FIGURE 13A], 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

[84] Ms. 567 (7), f. 10r.

[85] Ms. 567 (7), f.10r and 30rv.

[86] Ms. 567 (11), ff. 3v-5r, and cash accounts *passim*. The corresponding accounts in Ms. 567 (7), at cc. 50-60, are missing.

[87] 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 (2017): 118-45.

(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 [FIGURE 13B] 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, e.g., to 3-4 weeks for the Brandolini firm). 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*), ca. 2.33 meters or 2.55 yards in length, and the *braccio* (pl. *braccia*), ca. 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*), the whole woolen cloth, which varied in length, often at a rate expressed in *lire di piccioli* per *canna*. [FIGURE 14] So, for example, the Medici firm's first cloth sale on 30 January 1556/7 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.[88] Assessing a loss of f.105 s.3 d.4,[89] the firm sold the cloths it produced at the combined price of f.2970 s.15 d.9.[90] Of this, f.191 s.17 d.9 (6.46%) represented cloth sold "by the cut (*a taglio*)", i.e. in small pieces to various buyers, or by bulk weight, with the rest—some 67 cloths—sold by the *panno* to 31 firms or persons with accounts in the firm's ledger. More than a third (23 or 34.33%) of the cloths were black *rascie* sold for an average of l.30 s.4 d.0 per *canna*, and a quarter (17 or 25.37) were undyed or white *perpignani* sold for an average of l.9 s.17 d.7. The remaining 40% 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*). 6 *panni* (nearly 9% of all the cloths sold) were bartered in exchange for Spanish wool; 20 *panni* (nearly 30%) were sold for cash; and 36 panni (nearly 54%) were sold on credit. Credit transactions were of three basic types: those requiring

[88] Ms. 600 (5), f. 1v.
[89] Ms. 567 (8), f. 41r.
[90] 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.

payment (1) in equal monthly or weekly installments, (2) in full at the end of a fixed period, or (3) in two or three equal monthly payments at the end of a fixed period. The sales of 73% 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*).[91] The most prolific of the middlemen, Benedetto Falcucci, for example, 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 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 10 months.

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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 1558-61—produced and sold significantly more cloths, with a much higher percentage of them (80%) black *rascia* [FIGURE 15], just as the middle quality broadcloth *sopramani*, then the most profitable type of Florentine woolen, had equaled over 70% of his father's production in 1531-4 [FIGURE 16]. The *rascie*, as we noted above, also briefly saved the Florentine wool industry, but they 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

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

early as 1573.[92]

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 "[t]here 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 great 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.[93]

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 Lopes Gallo) and other middlemen, like the Genoese traders who dominated the

[92] ASF, Pratica segreta, 9, f. 76 (1573); 16, f. 205r (1603); cited in Francesco Ammannati. "Florentine Woolen Manufacture in the Sixteenth Century: Crisis and New Entrepreneurial Strategies," *Business and Economic History On-Line* 7 (2009): 1–9, 4 and 9.
[93] *Delle cause*, 45; *On the Causes*, 45-6 and 48.

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% to 10% between 1370 and 1410.[94] 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 1589 *The Reason of State*, 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*.[95] 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, with Richard Goldthwaite describing it as "an extraordinary policy, much ahead of its time, [that] clearly arose from Cosimo's initiatives and enthusiasm", and Judith Brown describing it as "activism aimed at the transformation of the entire economy", a full-fledged "political economy".[96]

Immediately after noting the "profound silence" of Italian Renaissance thinkers on political economy, Hume declared that "[t]he great opulence, grandeur, and military achievements of the two maritime powers"—here intending the Dutch and the English—"seem first to have instructed mankind in the importance of an extensive commerce."[97] But were those who first instructed

[94] Munro, "Medieval Woolens", 304-307. On the importance of Edward III's policies for the development of political economy, see Sophus A. Reinert, *Translating Empire: Emulation and the Origins of Political Economy* (Cambridge: Harvard University Press, 2011), 93, 118, 164-166.

[95] Botero, *The Reason of State*, trans. Robert Bireley (Cambridge: Cambridge University Press, 2017), 47 and 146; Bireley's is an excellent new translation of Botero, *Della ragion di stato*, using texts from 1590-98.

[96] Quoting Richard A. Golthwaite, "Artisans and the Economy in Sixteenth-Century Florence," in Cristina Acidini Luchinat et al., eds., *The Medici, Michelangelo, and the Art of Late Renaissance Florence* (New Haven: Yale University Press, 2002), 85-93, 86; and Judith C. Brown, *In the Shadow of Florence: Provincial Society in Renaissance Pescia* (Oxford: Oxford University Press, 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*, volume 1 (Florence: Olschki, 1983), 279-93; cf. Furio Diaz's approach is similar but negatively highlights the statist nature of the economic and political controls under the Grand Dukes, see *Il Granducato di Toscana: I Medici* (Turin: UTET, 1976), 127-48. See, on Cosimo I's political economy, and particularly his emphasis on attracting high value-added economic activities to Tuscany, also Reinert, "Introduction" to Serra's *"Short Treatise"*, 38-46 and, as evidence of a veritable "developmental state", *The Academy of Fisticuffs: Political Economy and Commercial Society in Enlightenment Italy* (Cambridge: Harvard University Press, 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: Olschki, 2005).

[97] *Political Essays*, 52.

mankind themselves without instructors? Were the Dutch and English really autodidacts? If not, who had taught them? And in what? The answer was suggested already in 1884 by the German historical economist Gustav von Schmoller: "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*),"[98] 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 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. 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".[99] And even the humanist Aurelio Lippo Brandolini would write, in his c. 1490 *Republics and Kingdoms Compared*, of how Florence could protect its "empire" only with "the help of large duties" on trade and by prohibiting the "importation" of goods "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".[100]

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[98] We quote Schmoller, *The Mercantile System and its Historical Significance* (New York: The Macmillan Company, 1897), 48, translated from an extract from Schmoller's twelve-part 1884-87 series "Studien über die wirtschaftliche Politik Friedrichs des Großen und Preußens überhaupt von 1680 bis 1786"; for the original German, see the second part, "II. Das Merkantilsystem in seiner historischen Bedeutung: städtische, territoriale und staatliche Wirthschaftspolitik," *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 8 (1884): 15-61, 42. For the context out of which Schmoller emerged, see Erik Grimmer-Solem, *The Rise of Historical Economics and Social Reform in Germany 1864-1894* (Oxford: Oxford University Press, 2003). Reinert discusses at greater length the heuristic value of Schmoller's analysis in *The Academy of Fisticuffs*.

[99] Quoted by Goldthwaite, *Economy of Renaissance Florence*, 591, from 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): 863-909, at 864. For a similar statement a century later, see Giacomo Lanteri, *Della economica* (Venice: Valgrisi, 1560), 98.

[100] Aurelio Lippo Brandolini, *Republics and Kingdoms Compared*, ed. James Hankins (Cambridge, MA: Harvard University Press, 2009), 123-5, quoting, as Hankins has shown, Terence, *A*[n]*dria 427*: "*Omnes sibi malle melius esse quam alteri*". On this theme, see Reinert, "Rivalry".

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, however, were 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*".[101] 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—and of what we have called "the Italian tradition" more broadly—allows us to adumbrate a different but no less consequential conceptual arc (one which, 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 which we inhabit.[102] 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,

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[101] Fernand Braudel, *Out of Italy: 1450-1650* (Paris: Flammarion, 1991), 226, a translation by Siân Reynolds of his *Le Modèle italien* (Paris: Arthaud, 1989), discussed in the context of Serra and the decline of Italy in Reinert, "Introduction," at 78-82. For further context, see Reinert, "Blaming the Medici" and "Lessons on the Decline and Fall of Great Powers," as well as Gino Luzzatto, "Small and Great Merchants in the Italian Cities of the Renaissance," in Frederic C. Lane and Jelle C. Riemersma (eds.), *Enterprise and Secular Change: Readings in Economic History* (Homewood: Richard D. Irwin, 1953), 41-52, at 52 and now Maria Fusaro, *Political Economies of Empire in the Early Modern Mediterranean: The Decline of Venice and the Rise of England, 1450-1700* (Cambridge: Cambridge University Press, 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 and Lucca [but Florence: Bouchard], 1765-1766), vol. II, 146-7 and *passim*.

[102] Pocock, *Machiavellian Moment*; Hont, *Jealousy of Trade*, 8-9.

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.[103]

[103] On this theme, see again Reinert, *Translating Empire*, "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 (2005): 271-286. On Botero's *Greatness of Cities* and *Reason of State* as a publishing phenomena throughout the European world, reaching at least 42 editions between them in numerous languages before 1830, see now Erik S. Reinert and Fernanda Reinert, "33 Economic Bestsellers Published Before 1750", *The European Journal of the History of Economic Thought* 26 (2019), 17-21. On Botero's extraordinary importance in England, in particular, see Jamie Trace, *Giovanni Botero and English Political Thought*, PhD Dissertation, University of Cambridge, 2018.