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## APPRENTICESHIP IN EARLY MODERN VENICE<sup>1</sup>

The desire of the Republican state to regulate the production and sale of food led to the establishment, during the twelfth century, of the *Giustizia Vecchia*, a magistracy which later developed an authority over the majority of the city's guilds. The further decision to set a public register of contracts of apprenticeship reflects the ambition of Venetian authorities to regulate and control both vocational training and access to the urban job market, acting as a guarantor between masters and young apprentices. This chapter presents an historical overview of apprenticeship in early modern Venice, examining the development of the city's legislation on the matter, and analysing a new sample of contracts recorded in the city's apprenticeship registers during the sixteenth and seventeenth centuries. In particular, we discuss the complex relationship between the general legal framework established by Venetian public authorities and the particular set of norms detailed in guilds statutes.<sup>2</sup>

Our analysis reveals that apprenticeship contracts were used to accommodate a variety of situations, including paying for intense training to masked working contracts, while following the general framework provided by state and guild regulations. We then present an in-depth study of apprenticeship contracts from three crafts (goldsmiths, carpenters and printers), chosen for their economic importance, and because they possibly represented different realities in terms of technological specialization, capital (or labour) intensiveness and typology of market. This highlights yet another aspect of apprenticeship in Venice: the influence of guilds. Some guilds such as the Goldsmiths, were more closed to foreigners, favouring Venetians instead. Apprenticeship in early modern Venice is an institution which, despite appearing as highly regulated and formalized, accommodated a variety of realities with remarkable

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<sup>2</sup> Previous research on apprenticeship in early modern Venice focuses on institutions (e.g. Lazzarini, 1929; Costantini, 1987 and 1990), specific crafts (e.g. Vianello, 1993; Trivellato, 2000; Della Valentina, 2006), or its relationship to the economic decline of Venice during the seventeenth century.

flexibility.

## **Part 1: The institutional and historical framework**

Apprenticeship in Italian cities was diverse in its structure and functions, and its edges were blurred. The variety of lengths, salaries and clauses that are found in apprenticeship contracts reflected the craft, the age and gender of the apprentice, and also on the relationship between the master and the apprentice or his/her family. As has been pointed out, the registration of a contract was not necessarily the beginning of a work relationship between two actors who did not have any previous social or economic relationship. It was sometimes the conclusion of a probationary period, during which masters tested the apprentices' (Curatolo, 1997; Caracausi, 2016; Maitte, 2017). Once an apprentice, a boy or girl was involved in several activities; he or she had to learn the trade, work, and take part in the more general family life of the master. Domestic tasks were commonly expected of apprentices, especially girls, but other activities, ranging from selling in the shop to helping with the harvest are also mentioned in contracts (Sciarrotta, 2012; Klapisch-Zuber, 2016).

A recent study has shown that fewer than half of Italian guilds, in all kind of crafts, had specific rules on apprenticeship (Mocarelli, 2008). Guilds' rules and apprenticeship contracts give very little information about what was actually taught to an apprentice or what they needed to know in order to become a member of a guild. This has certainly a lot to do with the 'mysteries' and the secrets of the crafts, but also with the continuous evolution of standards and quality requirements that was necessary in order to deal with competition. As pointed out by Mocarelli (2008), in several Italian cities "apprenticeships were not officially recognized. However, that does not necessarily mean they were non-existent. In various cases, in fact, it has been possible to discover that increasingly a private contract between the parties was adopted". Nevertheless, regulations of the apprenticeship can be found in the most important Italian manufacturing centres, resulting in a variety of different legal frameworks.

The variety of contract terms also affected the methods of payment – sometimes apprenticeship contracts were used to provide similar conditions to those given to journeymen. Even when it came closest, like in the great industrial cities of the Italian Renaissance – Florence, Milan or Venice – and especially so in the textile industry, where apprentices did not commonly pay a premium to the master but received instead a *salario* (literally a salary, but in most cases it was a payment) at the end of the contract, the use of an apprenticeship contract

entailed an institutional distinction with journeymen. In most cases, when compared to the salaries received by the journeymen in the same craft, those ‘apprenticeship salaries’ seem almost symbolic: for example, in the wool industry of Florence, apprentices were paid not more than 15 liras per year, when the average annual salary of a journeyman was about 500 liras (Marcello, 1993). On one side this payment can be considered an incentive to complete the contract, but on the other it sometimes results in sums that confirm the idea that apprentices could constitute a less expensive labour force and/or compensate a possible scarcity of waged workers.

Over the variety of rules, another element of difficulty is given by the endpoint and language of apprenticeship, often vaguer than we might expect. Not only should the career trajectory from apprentice to journeyman to master not be taken for granted, but the real meaning of the words used to designate those stages is a subject of discussion among historians (Martinat, 2017). Masters could head a workshop, with journeymen and apprentices under their authority, but they could also be under someone else’s authority. In some crafts, this distinction was captured by different words: ‘chief-masters’ (*capo maestro*) were the head of the workshop while ‘masters’ (*maestro*) had passed the masters’ examination, but did not have a workshop on their own (Molà, 2000; Della Valentina, 2003). On the other hand, a crucial ambiguity sometimes existed in the language used for apprentices and waged workers: the junior personnel called ‘*garzoni*’ could either be apprentices or salaried workers (Caracausi, 2008). This was not always the case. Sometimes complexity went in the other direction. In the Venetian glass industry two words, *garzonetto* and *garzone* designated two separate steps in the apprenticeship process: in the former case, the apprentice was younger and not trained in glass-blowing (Maitte, 2017).

We concentrate here on apprenticeships by individual masters and apprentices. However, apprenticeship in charity institutions was also widespread across Europe. In early modern Italy, institutions that provided an education and a dowry to poor girls were particularly important (Groppi, 1998). The development of the possibility for girls to leave their family home to become apprentices or servants is a subject of debate among historians, and has even been offered as an explanation for the so-called “little divergence” between Northern and Southern Europe (De Moore and Van Zanden, 2010). We shall not enter this debate here, but we will emphasise some simple facts: as part of the guild system, apprenticeship was much more accessible for boys, while domestic service was one of the most widespread activities for young women. Yet, the boundaries between domestic service and apprenticeship were often less clear than we imagine (Bellavitis, 2016).

## 1.1. The Institutions of Apprenticeship in Venice

The existence in Venice of a specific court charged with the recording of apprenticeship's contracts for the majority of guilds, albeit not all of them, is an exceptional opportunity for historians. The *Giustizia Vecchia* supervised the activity of all guilds, except for the wool sector that was under the authority of the *Provveditori di Comun* and the silk sector that was under the authority of the *Provveditori di Comun* and the *Consoli dei Mercanti*. After 1291, Venetian master craftsmen had to inform the *Giustizia Vecchia* about any apprentices in their workshops. The aim of this rule was to protect apprentices from abuse by their masters, and to safeguard masters from misbehaviour of their apprentices. The master was obliged to record the *accordo* (agreement) with the apprentice in a book of the *Giustizia Vecchia*; sometimes this agreement could be preceded by a written contract (*cum carta*) before a notary. The main task of this magistracy was to check whether the length of the agreement respected the norms of the guild's statute; it could also change the level of the salary and sometimes impose a tax on the agreement.<sup>4</sup>

During the same period, a major evolution was occurring in the organization of the Venetian Republic: the progressive exclusion of artisans from political power and the concentration of political decision-making in the hands of the mercantile elite, the so-called "patriciate". This culminated in the reform of the Great Council that started in 1298 (1297 according to the Venetian calendar) and its main constitutional consequence was the hereditary right of the membership of the Great Council and the exclusion of everyone else. The reformed Council came therefore at the centre of the Venetian political life; in fact, it elected the Doge and the members of all the most important institutional bodies, among which the *Giustizia Vecchia*. The imposition of State controls over work relations can be seen as part of this process. Formally the statutes of the guilds had to be approved by the *Giustizia Vecchia*; in other words, even if the guild laws were passed by the assembly of their members, only after the approbation of the *Giustizieri* they obtained the same legal effectiveness of the State laws. Therefore, in case of disputes between artisans – also regarding apprenticeship the *Giustizia Vecchia* was the court that had to judge.

In 1396, the *Giustizia Vecchia* passed a law requiring the registration of apprenticeship contracts before its officers. The main difference from the earlier registration system was the

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<sup>4</sup> State Archive of Venice (ASVe), *Compilazione Leggi (CL)*, b. 49, March 10th 1396 and Lazzarini, 1929, p. 885.

explicit prohibition to sign contracts before a notary. The reason given for this law was that apprentices were being forced to sign another, less favourable contract, in front of a public notary or the *Capi di Sestiere*, the magistrates that supervised domestic service.<sup>5</sup> The same law was recalled in 1444; probably this norm was hardly enforced and the *Giustizieri* had to specify again the same prohibition and fixed a penalty of 100 *lire* for offenders. It is interesting to consider this law in light of one from a few years earlier, in 1440, which specified that domestic service contracts with merchants and artisans were to be registered at the *Giustizia Vecchia*, while those with patricians and Venetian citizens were to be registered with the *Capi di Sestiere*. The fact that servants in artisans and merchants' houses also took part in the economic activities of their masters is clearly the reason for this distinction, which also raises the problem of the exploitation of workforce as, in theory, a servant was a worker who was not being taught a trade, while an apprentice was learning a craft, and aspiring to a career in the guild. Moreover, under the new laws, masters were obliged to hire apprentices who were older than a certain age – provided by the guild's statute – and to ensure they received adequate living and working conditions. Forty years later, the *Giustizieri* passed another law requiring the recording of both apprentices hired for a “long time” (“garzoni ... accordati per lungo tempo”) and those hired yearly. At the end of the fifteenth century, Venetian master craftsmen were required to register any apprentices hired for a period longer than one month. (Lazzarini, 1929, p. 889).

The surviving records of the *Giustizia Vecchia* cover the period 1575-1772, with some lacunae.<sup>6</sup> The number of contracts slightly exceeds 53,000 and includes only apprenticeship agreements; the *Giustizia Vecchia* in fact did not register journeymen, even if some guilds used to record also their journeymen separately. Three of the most prominent guilds of the city, the silk weavers, the wool producers and the Murano glass makers, were under the control of other magistrates, as was the most important state industry, the Arsenal: their contracts were not registered at the *Giustizia Vecchia*, as was the case for everyone else.<sup>7</sup> During the period 1586-1624 the population of Venice fell from 148,637 to 141,625 (Beltrami 1954, p. 38). Given that during the 1590s, around one thousand contracts a year were recorded by the *Giustizia Vecchia*,

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<sup>5</sup> ASVe, CL, b. 49, March 10th 1396 and Lazzarini, 1929, pp. 885-6.

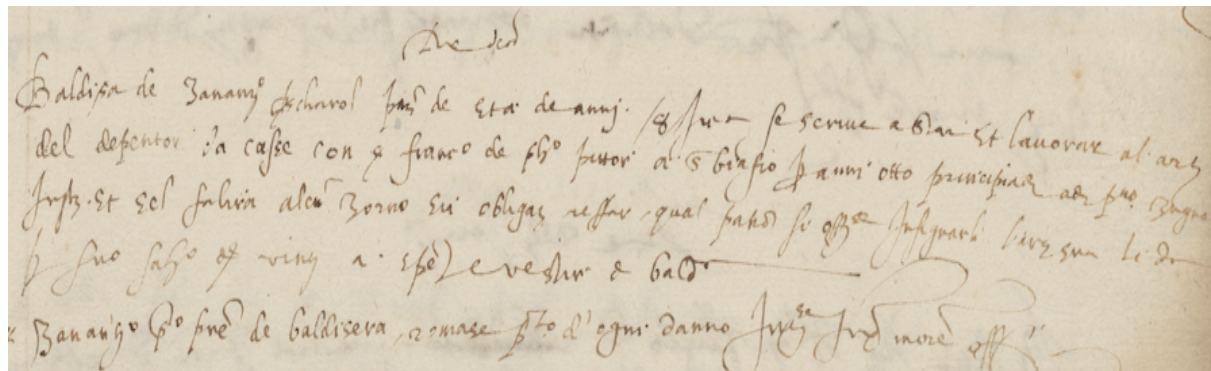
<sup>6</sup> ASVe, *Giustizia Vecchia (GV)*, b. 112, r. 151 (1575-6), 152 (1582-3); b. 113, r. 153.1 (1583-4), 153.2 (1584-5), 154 (1591-2); b. 114, r. 155 (1592-3), 156 (1594-5); b. 115, r. 157 (1596-7), 158 (1597-8); b. 116, r. 159 (1598-99), 160 (1606-7); b. 117, r. 161 (1609-10), 162 (1620-21); b. 118, r. 163 (1621-22), 164 (1625-27); b. 119, r. 165 (1632-33), 166 (1642-44); b. 120, r. 167 (1644-46), 168 (1646-48); b. 121, r. 169 (1653-4), 170 (1656-58); b. 122, r. 171 (1658-60), 172 (1662-4); b. 123, r. 173 (1664-5), 174 (1669-71); b. 124, r. 175 (1681-82), 176 (1703-7), 177 (1707-10); b. 125, r. 178 (1710-3), 179 (1713-8), 180 (1724-36); b. 126, r. 181 (1736-51), 182 (1766-72)

<sup>7</sup> The silk sector was under the supervision of the magistracies of the *Consoli dei Mercanti* and the *Provveditori di Comun*, while the glass sector under the authority of the *Podestà di Murano*.

apprentices in the guilds it covered represented less than 1.5 percent of the population.<sup>8</sup> Clearly this is just a rough approximation, but it underlines the fact that apprenticeship was not as widespread a means for education and training as it was in England, for example. Instead, in Venice apprenticeship was, at least from an institutional point of view, strictly linked to the crafts and regulated by guilds and the state. This contrast was already noted in 1498 by the Venetian ambassador in London, in some critical remarks on the English system of education. He wrote that English parents did not love their children, because at the age of seven or eight they sent them as servants in someone else’s house for seven or nine years calling them *aprendizi*, and very few were rich enough to be exempted from this destiny (Bellavitis, 2012).

Interestingly, the expression used in the *Giustizia Vecchia* registers is not contract (*contratto*), but *accordo*, whose literal translation would be agreement. According to Ferro (1845, *ad vocem*), the contract is an “pact made between two or more people, with which one of the parties, or set each of them is obliged to give or do something, or agrees to give or third do something”, while the agreement is a “consensus [...] between two parties, who are contending” and generally it is an out of court settlement whose main purpose is to find a solution to a conflict without proceeding in court.

**Figure 1: Accordo between Baldissera de Zuanantonio (apprentice) and Francesco de Filippo (master). ASVe, GV, b. 112, r. 151, June 23th 1575<sup>9</sup>.**



<sup>8</sup> In 1592, 984 contracts were registered, whose average length was 5 years; to proxy the number of *garzoni* in Venice during the period 1592-97 we summed the number of registrations for each year. Other contracts have been recorded in a less systematic way by other magistrates or by notaries: research on these sources is still in progress.

<sup>9</sup> “Baldissera de Zuanantonio Barcharol [al] presente de età de annj / 8 jn circa se scrive a star et lavorare al arte de depentor da casse con messer Francesco Filippo pittor a San Biagio per anni otto principianti adi primo Zugno infrascritto et sel falara alcun zorno sii obligato reffar, qual patron si offerisse insegnarli l’arte sua, li da per suo salario ducati vintj a spese e vestir di Baldissera”: Baldissera de Zuanantonio boatman, now about 8 y.o., registers to work as *depentor da casse* and to stay with *messer* Francesco de Filippo painter in San Biagio for eight years, starting from next June 1<sup>st</sup> and if he will lose any day, he is obliged to recover it, and the master will teach him his trade, and he gives him a salary of 20 ducats and the apprentice has to buy his clothes.

According to the formula set out in the law, the contracting parties were the apprentice, most of the time underage, and the master (an example is given in Figure 1). The name of a guarantor, who usually was the father or the widowed mother of the apprentice, was not always registered. The *accordo* contains two sets of mutual obligations: the master commits to teach their trade and to provide the apprentice with adequate living conditions (and sometimes a salary); the apprentice commits to remain with and work for their master for the whole period of the contract; sometimes other more specific obligations are also mentioned, such as clothing and other expenses. From a legal perspective, the agreements registered at the *Giustizia Vecchia* were not exactly contracts in their own right – which in Venice needed to be undertaken by two persons of age, fully accountable for their acts, in the presence of witnesses.

Although the basic structure of the agreements recorded by the *Giustizia Vecchia* did not vary over the two centuries for which the registers survive, some of the content changed. In particular, in the sixteenth and seventeenth centuries, contracts include a more specific description of obligations and financial conditions, for example noting when salaries change over the duration of the contract. These are more difficult to find in the eighteenth century.

These contracts were registered in Venice; they are not as such representative of the whole Republic. However, a great number of apprentices came to Venice from the Venetian Mainland and some came from foreign territories. They therefore can help us to understand migration flows to Venice, its role as a training hub for its subject territories, and the organization and professional specialization of non-Venetian communities.

Apprenticeship contracts still had to respect the rules established by each guild. The statutes of Venetian guilds are more detailed for apprenticeship than in many other Italian cities. The majority of them were first established in the thirteenth and fourteenth centuries, and were adapted and modified over time. In 1519, the Council of Ten instituted a special magistracy, the *Cinque Savi sopra le Mariogole*, with the task of revising all guild statutes “for the good of our Venetians and of our city”.<sup>10</sup> The Senate passed numerous laws, often at the request of individual guilds, to regulate apprenticeship in particular crafts. The rules of the Venetian crafts were complex and changeable, mainly concerning the duration of contracts, apprentices’ starting ages, the numbers of apprentices masters could take, and exams for journeymen to become masters. For example, the Silk and Gold Weavers set the minimum length of apprenticeships at four years, while the Mirror Makers required five years; the statutes

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<sup>10</sup> ASVe, *Provveditori di Comun*, b. 1, *Capitolare*, f. 235, October 13<sup>th</sup> 1519, in the Council of Ten.

of the Glass Makers did not mention duration, but set a minimum age of apprenticeship at fourteen years. The statute of Mirror Makers specified the exam and “masterpiece” that had to be made to become a journeyman and a master, while the Silk and Gold Weavers imposed an exam only to become masters. The Mattress Makers demanded apprenticeships lasting two years. The Fustian Makers expected six years, but reduced this to two years at the end of the sixteenth century.<sup>11</sup> The Goldsmiths’ statutes did not specify the length of the apprenticeship, but instead stated that seven years had to pass between the beginning of apprenticeship and the exam to become a master: after the end of his apprenticeship, a young man could work in a goldsmith’s shop, waiting to sit the mastership exam (Fiorucci, 2017).

At the beginning of the sixteenth century, the Cap Makers required a new master to have served as an apprentice for four years and as a journeyman for two, to be older than twenty, to pay taxes and entry fees, and to pass the exam.<sup>12</sup> In 1623 the Dyers’ Guild forbade contracts with apprentices older than eighteen; the limit imposed by the Bricklayers’ Guild was twenty, and twenty-five in the Boatmen’s Guild (Lazzarini 1929).

The main goals of the authorities and guilds alike were achieving an equilibrium between supply and demand in the workforce, and ensuring an adequate level of employment for the urban population. When the population drastically declined because of the plagues, the Senate passed new laws to attract skilled artisans from the mainland and abroad. For example, from 1577 to 1580 and from 1631 to 1636, foreign masters only had to pay taxes and guild fees, and were exempted from requirements to serve in Venice as apprentices and journeymen.<sup>13</sup> These measures caused frequent conflicts between Venetians and foreigners: in 1577, the magistrates supervising the guilds’ statutes (*Cinque Savi sopra le mariegole*) punished those who threatened or used violence against foreign journeymen and masters working in Venice.<sup>14</sup>

The openness of Venetian guilds varied according to economic circumstances. In the fifteenth and sixteenth centuries, some guilds, such as the Silk Weavers and Wool Weavers, excluded foreigners, or required them to attain Venetian citizenship in order to become members and, especially, officers of the guild. However, it seems that it was only the Goldsmiths’ guild that had always, since the Middle Ages, had different rules for Venetians and foreigners (Mozzato, 2002; Rauch, 2009; Perez, 2017). Guilds became increasingly closed

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<sup>11</sup> ASVe, *CL*, b. 50, January 23<sup>rd</sup> 1512.

<sup>12</sup> ASVe, *CL*, b. 50, July 16<sup>th</sup> 1506.

<sup>13</sup> ASVe, *CL*, b. 51, March 4<sup>th</sup> 1577, January 8<sup>th</sup> 1577, and b. 53 January 30<sup>th</sup> 1630, June 17<sup>th</sup> 1634.

<sup>14</sup> ASVe, *CL*, b. 51, July 12<sup>th</sup> 1577.



to foreigners during the eighteenth century, as a consequence of the crisis of the Venetian economy. Laws passed at the start of the century were relatively permissive. For example, a 1719 law established that in those guilds that “have already been opened admitting subjects and foreigners”, someone who had learned the art in another city, in the Venetian State or abroad, and who did not have the capital to open a workshop as a “chief master”, could pay just the admission tax that was paid by workers. However, by the 1760s, the focus had changed. A law passed in 1767 restricted access to apprenticeship in many guilds according to the origins of the candidates. Apprentices in many food retailing guilds, and also, ironically, in the German Gold Beaters’ Guild, now had to be from the city of Venice. In other guilds, for example the Shoemakers and the Carpenters, apprentices could be Venetian natives or subjects of the State; their masters had to show the guilds’ officers their apprentices’ baptismal certificates.<sup>15</sup> Other regulations passed in 1767 and 1768 also tried to protect the Venetian labour force. In response to the crisis of the Venetian economy, the guilds were divided in three groups: guilds for those born in Venice; guilds for those born in Venice or the Venetian mainland; and guilds open to Venetians and foreigners.<sup>16</sup>

The complex formal norms introduced in Venice to regulate apprenticeship were not always fully enforced. Several laws passed in the seventeenth and eighteenth centuries responded to failures to enforce the laws of apprenticeship. According to a report of the *Inquisitorato alle Arti*, at the end of the eighteenth century more than 300 apprentices in 35 guilds were not registered; some had been working for their master for more than three years.<sup>17</sup> The degree to which the laws of apprenticeship were enforced is still debated; it is clear that several regulations were widely ignored, especially in the eighteenth century. Guilds monitored apprenticeship, but needed the intervention of the *Giustizia Vecchia* to enforce their regulations. Usually, the magistracy simply passed new laws to increase the penalties for violating rules, rather than spending greater effort on seeing that rules were followed. The apprenticeship system thus became less and less effective during the last century of the Republic, as Venetian urban manufacturing, with a few exceptions, shrank, and new industries outside of the guilds grew on the mainland.

## **Part 2: Apprentices in Venice**

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<sup>15</sup> ASVe, *CL*, b. 59, f. 833, April, 19<sup>th</sup> 1721; f. 1009, September, 12<sup>th</sup> 1767.

<sup>16</sup> ASVe, *IA*, b. 2, after 1771.

<sup>17</sup> ASVe, *IA*, b. 2, no date but end of the eighteenth century.

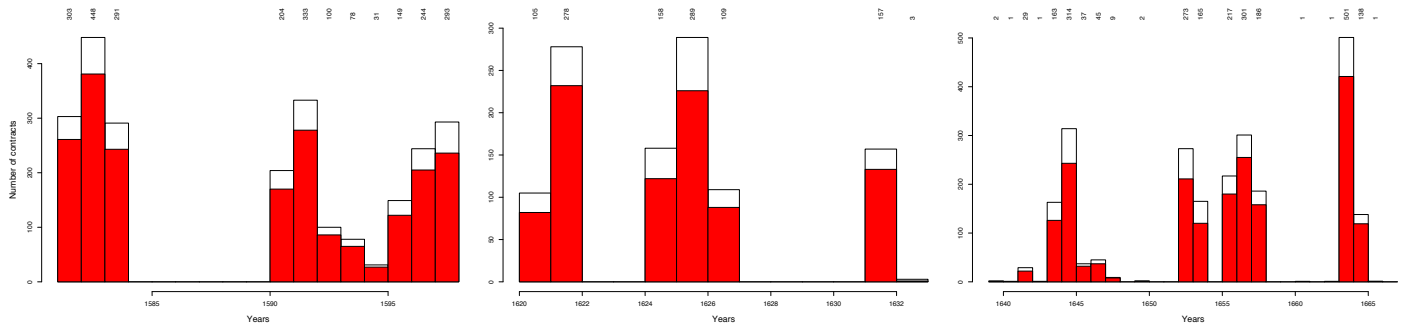
We consider here a sample of contracts of apprenticeship registered at the *Giustizia Vecchia*. Our dataset includes 5,962 contracts<sup>18</sup>, selected to represent specific trades over three periods: the end of the sixteenth century (2,474 contracts, from 1582 to 1598), which was a period of renewed prosperity and demographic growth after the 1576-77 plague; the early seventeenth century, when Venice was struck again by a major epidemic outbreak (1,099 contracts, from 1621 to 1633); and the middle of the seventeenth century (2,389 contracts, from 1640 to 1665, plus a few later contracts), when the decline of the Venetian economy had commenced. Our sample covers a selection of trades in several sectors: luxury and fashion (jewellers, gold beaters, tailors, shoemakers and mercers), art, architecture and furniture (painters, stonecutters, carpenters, glass makers) and printing. The detailed list of trades we consider is given in the Appendix (Table 7). The selection of trades is motivated by the focus of the first phase of our project on activity sectors related, directly or indirectly, to fine, luxury and artistic goods. However, in order to provide a complete picture of highest number of guilds and provide a comparison between them, the research focused only on the cited industries, while other important and numerous sectors were excluded, among which transportation and textile manufacturing, a major activity in Venice, and one of the few in which girls were apprenticed. In part as a consequence, in our dataset only 11 apprentices and 59 masters are female.

By sampling data from three periods, we can identify the stability of the terms of contracts. It has been suggested that during prolonged periods of crisis, even if many masters were unemployed, there was not the general collapse in the number of apprentices that could have been expected. Apprentices were instead possibly used as an unskilled labour force and were more rarely trained as demanded by legislation. As a consequence, during this period of crisis, apprenticeship contracts did not only organize the transmission of skills and the formation of human capital, they were also a means to control and exploit the workforce (Rapp, 1976 and Pezzolo, 2003 for the specific case of the crisis of the printing press sector).

Figure 2: The distribution of contracts per year, for the three periods (left to right). The sample mainly accounts for the end of the sixteenth century, the 1620s and the middle decades of the seventeenth century. In red/grey the contracts with a salary paid by the master to the apprentice. Above each bin, the count of contracts for that year is given.

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<sup>18</sup> An original sample of 6,117 contracts has been trimmed of contracts without an explicit date of registration (18) or with the use of foreign currency for payments, instead of Venetian ducats (137), resulting in the final count of 5,962. The contracts come from the following records: ASVe, *GV, Accordi dei Garzoni*, b. 112, r. 152; b. 113, r. 153-4; b. 114, r. 155-6; b. 115, r. 157-8; b. 118, r. 163-4; b. 119, r. 165-6; b. 120, r. 167-8; b. 121, r. 169-70; b. 123, r. 173.



To ease comparison, we group occupations into a hierarchy. An *activity sector* is a group of occupations which, broadly speaking, relate to the production or sale of similar goods or services and/or use similar materials. An *occupation* or trade is a recognised activity within a sector. A *specialization* is an identifiable sub-group within an occupation. Sometimes classification at the occupation and specialization levels is difficult and somewhat arbitrary, thus we mainly focus on activity sectors here. A guild in Venice usually contained the masters of a single occupation or even specialization, as was the case in many textile guilds, but could sometimes cover an activity sector, or even multiple occupations and sectors. This was the case for the guild of printers and booksellers, which included all activities involved in the production and distribution of books, and was organised in this way to sustain censorship as well as for the purpose of market control. The registers usually state both the occupation of the master and the specialization or occupation of the apprentice. A master printer might register apprentices in specific specializations, for example as workers at the press. Some contracts mention multiple specializations for the apprentice or master. In these relatively rare cases, it is difficult to know how the training and work of the apprentice was going to be distributed, thus we exclude these contracts in what follows. The most important guilds and activity sectors in our sample are relatively stable across the sixteenth and seventeenth centuries, aside from two notable exceptions: printers, who virtually disappeared during the seventeenth century, and mirror makers, a new occupation which in a few decades became the most common craft in our sample.

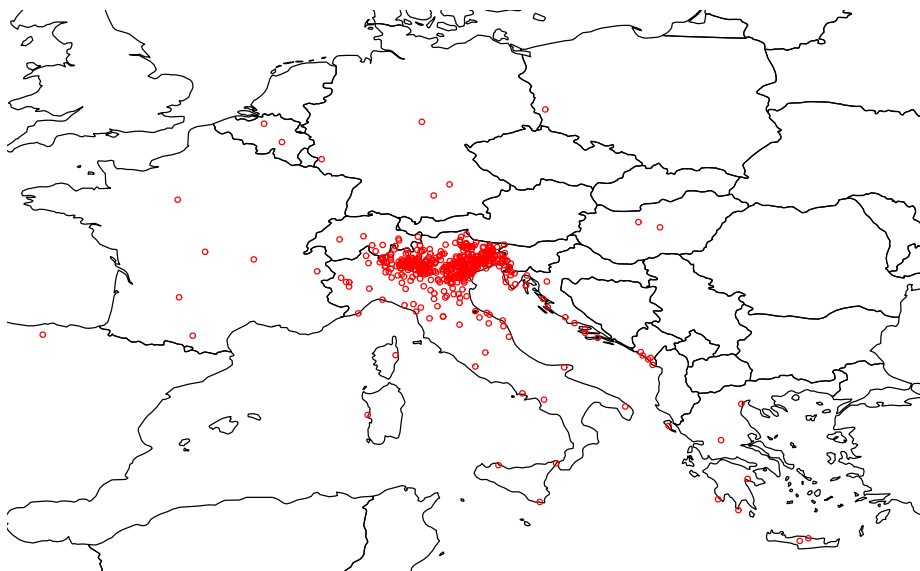
## 2.1 Who became apprentices?

Despite its importance with respect to the general economy of the Republic, especially during the sixteenth century, Venice cannot be considered as an obvious hub for entrance into an occupation. Several cities in the Venetian dominions possessed thriving economies with

their own guilds and apprenticeship systems. Examples include Padua, Vicenza, Verona, Bergamo and Brescia, among others. Yet it is undeniable that Venice gave access to a wider market, and was always in need for workers. The role of Venice in this respect depended on economic circumstances, notable among them the crisis of the seventeenth century, which may have reduced the importance of the capital with respect to the mainland (Lanaro 2008, p. 32)

Signs of this long-term trend are apparent in the increasing share of Venetians among the city's apprentices (Table 1) from 34% to 44%, yet a complementary explanation is also the opening of the market to foreign workers after the plague of 1630-31, and for a period of six years, likely causing a drop in their registration at the *Giustizia Vecchia*. This explanation cannot thus cover our third period, from 1640 onwards, when Venetians keep being more than at the end of the sixteenth century. Nonetheless, Venetians never exceeded half of registered apprentices, showing how much immigration there actually was in the city. Figure 3 illustrates the origins of Venetian apprentices at the European level. Despite Venice attracting some Spaniards, Germans, Frenchmen and Italians, the bulk of new apprentices came from Venice's own mainland. In general, all the main areas of the Venetian mainland were well represented, running from west to east: Bergamo, Brescia, Verona, Vicenza and Padua, Treviso, the Bellunese area and Friuli. Noteworthy, also are the Grisons and Milan.

Figure 3: The origins of Venetian apprentices.



The pattern of migration into apprenticeships in Venice changes between the late sixteenth and mid seventeenth centuries, as can be seen in Figures 4a to 4c. During the late sixteenth century, Venice was still the main hub of the state, a position it gradually lost during the seventeenth century. The importance of Venice had dropped sharply in the 1620s and

1630s. By the 1640s to 1660s, Venice was attracting immigrants from nearby surrounding cities and countryside, or from the more underdeveloped areas of its territory, such as the Friuli, rather than the metropolitan centres in the western parts of the mainland.

Figure 4a: Apprentices, 1582-1598

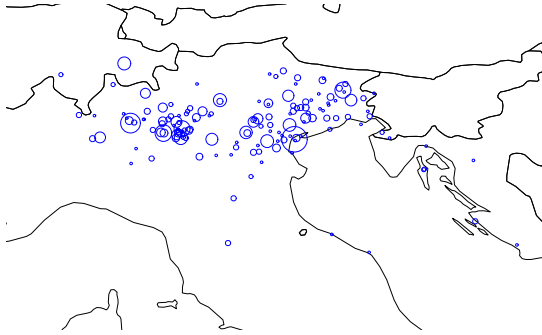


Figure 4b: Apprentices, 1621-1633

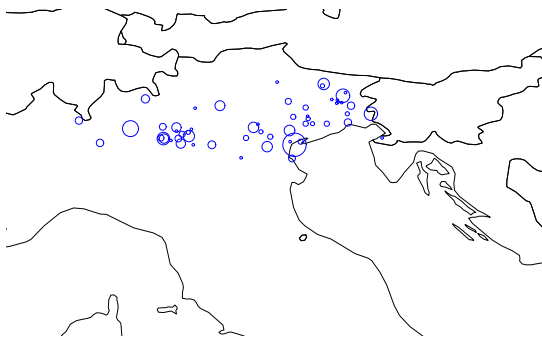
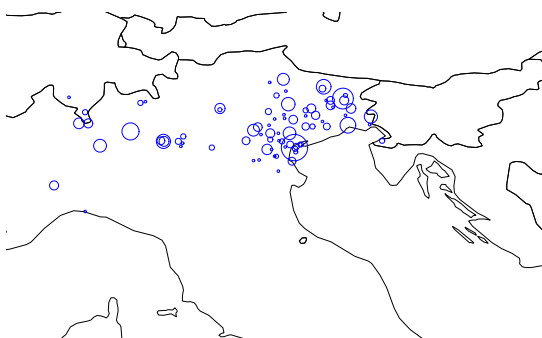


Figure 4c: Apprentices, 1640-1665



*Note: The size of the circles is proportional to the logarithm of the number of apprentices from that place. Longitude and latitude coordinates have been approximated to second digit precision.*

Table 1: Summary statistics of some variables part of the dataset. “f.d.” stands for father deceased. The last four rows account for the proportion of times the master was responsible to provide for the given contractual condition.

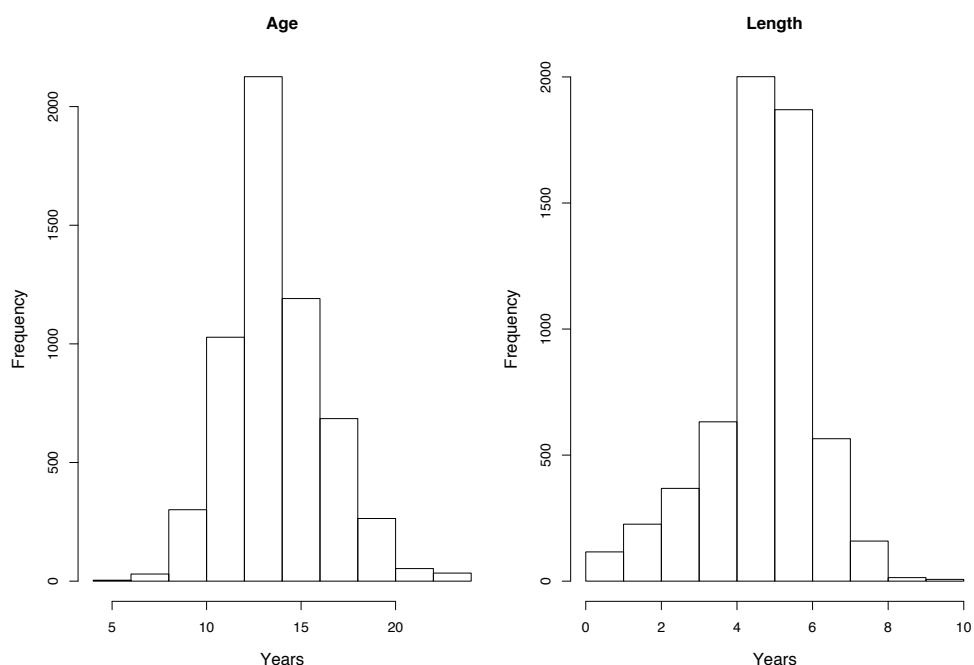
	All	1582-1598	1621-1633	1640-1665
Age (years)	14.4	14.4	14.7	14.4
Length (years)	5.1	5.2	5.1	5
Gender (males)	99.8%	99.6%	100%	99.9%
Fem. guarantor	5.1%	6.8%	4.9%	3.3%
Venetians	40.6%	34.6%	44.7%	44.9%
Father deceased	36.3%	38.2%	42.9%	31.4%
Venetians f.d.	32%	35.1%	34.8%	28.3%
Foreigners f.d.	39.3%	39.8%	49.3%	34%
Accommodation	75.3%	72.6%	70.9%	80.1%
Personal care	69.7%	72.5%	67.8%	67.6%
Expenses	75.5%	72.3%	71.8%	80.1%
Clothes	16.9%	20.4%	12%	15.4%

Previous studies showed that apprentices in Venice on average started apprenticeships at age fourteen, or nearby, and that the majority of contracts lasted four to six years, meaning apprentices finished their contract at around eighteen to twenty years old. There were some exceptional younger apprentices, but fewer older ones, who can be linked to unusual behaviour, such as the registration of very mature “apprentices” seeking to meet the minimum requirements for mastership (Lazzarini, 1929, pp. 877-8). Our data support these previous findings. Both the age of apprentices and the length of their contracts were stable over time, and normally distributed (minus outliers). In general, the age at entry affected the length of the contract. Older apprentices tended to have shorter contracts and vice-versa, even if there were some notable exceptions (Bellavitis, 2006). For example, the 1,884 apprentices who were older than fifteen years entered contracts that on average lasted for four years, whilst the contracts of the 240 apprentices who were older than twenty-five years, lasted something more than three years on average. On the other hand, the 1,574 apprentices younger than thirteen years were apprenticed for six years, on average.

Although apprenticeships for older apprentices were usually shorter, they were not below the minimum duration necessary under the guilds’ rules. In general, most contracts were

designed to finish when the apprentice was around an age of nineteen years, while still respecting the minimum requirements given by the respective guild. However, a still considerable number of contracts did not meet the minimum term established by guild regulations, which was usually in between four to six years. While perhaps not surprising in itself, as internal regulations could easily be overlooked, this disregard for guild requirements indicates that a share of apprenticeships were not expected to lead to entry into the occupation as a journeymen or master. These masters were possibly just using apprenticeships as a form of labour contract.

Figure 5: Histograms of the age at entry and length of contracts. We trim 246 contracts where the apprentice was aged 25 years or more.



Masters in different occupations had specific preference for apprentices with certain common characteristics, or *occupational profiles*, which include their age at entry (Colavizza, 2017). This preference was not only shared within occupations, but was stable over time. Some occupations recruited older apprentices, for example mirror makers or press workers in a print shop, while others usually recruited younger apprentices, such as goldsmiths or stonecutters. It is difficult to say at this stage why this was so, as these activities did not obviously have commonalities in terms of the strength required, the geographical origins of the apprentices, or the degrees of specialization involved.

Apprenticeship was also part of the system for welfare and poor relief. A substantial

proportion of apprentices in fact had deceased fathers, as Table 1 shows, although it is very difficult to know if the share was higher than in the wider population, particularly at times of plague. As Bellavitis found before, the share of apprentices with deceased fathers differed by the gender of the apprentice. In the last decades of the sixteenth century, 56% of girls had deceased fathers, but less than 40% of boys. This strongly suggests that apprenticeship was chosen as a last resort in the case of girls, but was a normal way to enter work for boys (Bellavitis, 2006). Even though our data excludes the textile sector, the main one employing girls, more than one apprentice in three had lost their father. The proportion is 55% if we consider the eleven female apprentices in our sample. Most notably, a higher proportion of foreigners had their father deceased than Venetians, for reasons yet to investigate. The drop in the proportion of orphans during the mid-sixteenth century might be due to the recovery through immigration after the plague.

Virtually every contract required the presence of one or more guarantors for the apprentice. For the most part, the guarantor was the father, or a male close relative, more rarely it was the widowed mother. Sometimes, the guarantor could be a social broker of sorts. The guarantor might be a master from the same profession, or a representative of a local community of immigrants, long-established in Venice, but still helping newcomers to establish themselves. This happened in the not-uncommon case of a pastry maker, Cristofolo Galas from the Grisons, who stood as guarantor for several apprentices from the same place who apprenticed in printing over a period of a few days in late October 1582.<sup>19</sup> Notably, women were guarantors in 302 contracts (5%), which testifies to the fact that women were able to take the role of tutor in the Venetian legal system (Bellavitis, 2008).

Our data only contain a very limited number of female apprentices, thus no further discussion on female apprenticeships is possible at this stage. However, the powerful way gender affected apprenticeship has been recently explored through a sample of one thousand contracts from the end of the sixteenth century. Only 7 percent of the apprentices were girls, mostly in textile crafts, retail and domestic service. The length of their contracts was extremely variable: apprenticeship in wool weaving could last from two to seven years; in silk weaving from six to eight; in sewing from two to eight. In some cases, these differences depended on the age of the apprentice, but this was not always the case. While boys were mostly apprenticed at the age of fourteen, girls started at a wider range of ages. Some, mostly in knitting or sewing,

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<sup>19</sup> See ASVe, *GV, Accordi dei Garzoni*, b. 112, r. 152, 97r-v.



were very young, often four to six years old: they did not lodge with their masters or mistresses but returned home every night. A wage was usually paid at the end of these contracts, mostly in money, but in some cases in goods (Bellavitis, 2006 and 2012).

A crucial issue for our understanding of apprenticeships is the rate of completion. Given the position of Venice as the capital and main economic and political hub of the state, not to mention its consistently high demand for immigrants to sustain its population, it is also important to see how apprentices' origins affected their behaviour. The practice of switching masters, or interrupting a contract and registering a new one at a subsequent time, was relatively uncommon in Venice, at least for what we now know (Colavizza, 2017). Contracts could instead end prematurely in two ways: with the mutual consent of both parties, or on the initiative of one side. In the former case, the master and the apprentice asked to the *Giustizia Vecchia* to cancel the agreement and this registration usually concludes with the statement "they declare themselves satisfied and pleased". The proportion of contracts that ended by mutual agreement has been estimated by previous studies to be low, likely under 10% (MacKenney 1997, pp. 37-38). Similarly, the number of contracts that ended by a court decision was likely negligible due to the costs involved for legal action.

In Table 2, we report the proportions of apprentices declared as ran away in the registers of the *Giustizia Vecchia*. We distinguish between Venetian and foreign apprentices. Clearly, on this evidence, only a small proportion of apprentices, around 11 percent, ran away early. The share running away decreased over time among both Venetians and foreigners alike, yet Venetians were consistently less likely to run away than foreigners. Possibly, some foreign apprentices went to Venice to receive training, and then returned to their homeland to work, giving them little interest in official recognition by the city's guilds.

Table 2: The proportion of early interruptions because the apprentice ran away. "r.w." stands for declared as ran away.

	<b>All</b>	<b>1582-1598</b>	<b>1621-1633</b>	<b>1640-1665</b>
Apprentice r.w.	10.8%	14%	12.6%	7%
Venetians r.w.	8.4%	12.6%	8%	5.2%
Foreigners r.w.	12.5%	14.8%	16.4%	7.9%

These figures are based on the apprenticeship registrations at the *Giustizia Vecchia*, where an interruption of any kind discussed above could be registered in the margins beside a

contract. Nevertheless, interruptions were likely to be systematically recorded only when the apprentice was declared as ran away. In these cases, the only proof a master could offer in support of his intent to register a new apprentice, and at the same time respect the cap on apprentice numbers imposed by guild regulations, was this kind of evidence of having abandoned a previous contract.

## 2.2 Paying for Opportunity

One important aspect of apprenticeship in Venice was the degree of freedom to negotiate payments between parties. Compensation were given to either the apprentice or the master (no contract mentions both receiving payments), during or upon completion of the apprenticeship. There was no concept of a premium paid in advance to the master, or at least none were recorded, although premiums were paid in several other Italian cities. This flexibility allowed masters and apprentices to balance the supply and demand for training. Colavizza suggests that, as a result, apprenticeship in Venice followed a ‘*double-track*’ system (Colavizza 2017). On the one hand, large numbers of contracts involved the apprentice receiving a regular wage or end-of-term payment. In these, the amount of (skilled and unskilled) work required of the apprentice likely surpassed the time spent on training. The presence of working contracts masked as apprenticeships has been already noted in the literature, in situations where no previous training was to be assumed for the apprentice, yet an apprenticeship was still used as contractual form (Martini and Bellavitis 2014). This is a *slow track* into the occupation, in which paid apprentices accepted conditions entailing less intense training and extra work, in exchange for higher wages. On the other hand, another smaller group of contracts included no wage or payoff for the apprentice, or even required payments to the master during or after the apprenticeship. These contracts gave more emphasis on training, and perhaps the apprentice’s good positioning for a future entry in the regulated craft, effectively offering a *fast track* into the occupation.

This double-track system can only work in the presence of a flexible institution able to accommodate such different agreements. It allowed the relatively closed Venetian guild system to attract a workforce that met the requirements of different crafts, and to accommodate to exceptional situations or periods of crisis. At the same time, the two tracks should not be taken as creating a binary division over contracts of apprenticeship, but more reasonably as two polar and mostly theoretical opposites, present in most contracts with different degrees of intensity resulting in a variety of different tracks. In this respect the system can fit a standard model of

apprenticeship as proposed by Hamilton (1996) and Minns and Wallis (2013), with the main trade-off for the apprentice being between work and training intensity. We do consider work to be possibly skilled and unskilled, and to have in Venice extremes such as labour contracts in all respects, thus entailing no training, under the form of an apprenticeship (this would be the slowest track possible). In this respect the wage is perhaps the most discriminating bargaining option, which we then compare with the age of entry, the length of contracts and the provenance of apprentices in order to further motivate the double track system.

The most common practice for an apprentice in Venice was to be rewarded by their master for their work at the end of their contract, usually with a sum of money, or goods of an equivalent value. Most end-of-term payments were relatively small, but not negligible amounts. As Table 3 shows, 74% of apprentices in our sample received an end-of-term payment. On average, they received 5 Venetian ducats for each year they served: 25 ducats in total given the average length of contracts of five years. As in Florence, these were almost token payments, if compared to the wages received by other workers, yet in most cases they were an extra given on top of food and shelter.<sup>20</sup> The size of end-of-term payments was relatively stable over time, even if perceptible differences existed that depended on the craft, the age of the apprentice and the length of the contract. These final payments can be considered as both an incentive to complete the contract, and compensation for the work done by the apprentice. Cases where this payment was in practice used, at least in part, to cover personal expenses, such as clothes and materials or tools, can also be imagined. The proportion of apprentices receiving this sort of final compensation nevertheless marks a clear regularity in Venetian apprenticeships.

Outside of this case, three other regimes applied. Sixteen per cent of apprentices were to receive no payment of any kind, nor their masters. This sort of agreement becomes increasingly common over time. The lack of a final payment is perhaps less of a discontinuity and identifies contracts where an incentive to keep the apprentice in place was not deemed as needed. The other two regimes are more distinctive, and represent two extremes in the double-track system view: in one, apprentices received a regular wage in contracts which can be taken to be equivalent to regular employment (very slow track); in the other, a payment is instead given to the master (fastest track).

In the first case, the average wage was substantially higher than most end-of-term payments. Wages which rise over time—usually increases occurred every one or two years—

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<sup>20</sup> For comparisons, see Zannini, 1999.

are only common during the late sixteenth century, and were afterwards mostly replaced with stable wages. We consider these payments to be almost salaries because, despite not being as high as those paid to journeymen under similar conditions (living-in), they were made in yearly, half-yearly, monthly, sometimes even weekly instalments, and they were not increasing over time—which would imply that the apprentice was being compensated for their improved capacity due to training. Regular wages of this kind could also be the result of unregistered, pre-contract training which took place during a period of assessment of the apprentice, prior to formal registration, and which might lead to a better deal being given to apprentices who were in fact already partly trained. This possibility remains to be investigated.

In the second case, when payments were made to the master, it is striking that substantially higher amounts were paid, on average 16 ducats for each year of contract. These payments were made by the apprentice’s parents or close relatives. Several times, contracts specify that the payment to be a compensation for the cost of hosting and training the apprentice, at times even detailing how the training was broadly to unfold. For example, Colavizza (2017) discusses the case of an apothecary apprentice who paid (or the family for him) decreasing amounts of money to his master to guarantee his training, and was supposed to be sent to school to learn how to read and write during his first year of apprenticeship.

Table 3: The distribution of payments and their amounts.<sup>21</sup>

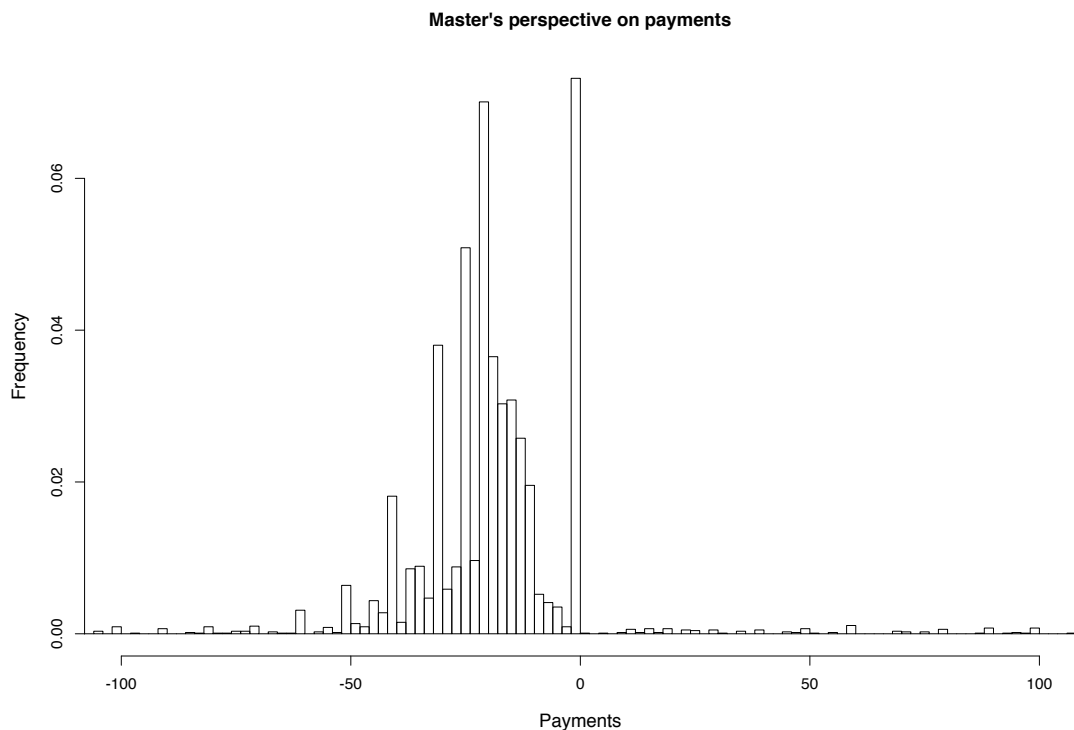
	<b>All</b>	<b>1582-1598</b>	<b>1621-1633</b>	<b>1640-1665</b>
<b>Payment to apprentice from master</b>	4,893 (82%)	2,074 (84%)	884 (80%)	1,935 (81%)
<b>One final instalment</b>	4,393 (90.5%)	1,867 (90.8%)	771 (87.5%)	1,755 (91.6%)
<b>Average (median) amount in ducats</b>	5.1 (4)	4.4 (3.3)	5.1 (4)	5.9 (5)
<b>Regular wage</b>	320 (6.6%)	83 (4%)	94 (10.6%)	143 (7.5%)
<b>Average (median) amount in ducats</b>	10 (6)	13 (6)	8 (6)	9.7 (6)
<b>Incremental wage</b>	139 (2.9%)	105 (5.1%)	17 (1.9%)	17 (0.9%)

<sup>21</sup> Most contracts entail a final payment to the apprentice, some instead provide regular payments in the form of a wage, to be paid at yearly, half-yearly, monthly instalments (under regular wage). Some contracts also specify a rising wage over time (under incremental wage). We always normalise by considering the equivalent annual average or median over the whole contract.

<b>Average (median) amount in ducats</b>	8 (6.3)	7.8 (6)	6.1 (6)	10.9 (8)
<b>No payment</b>	873 (15%)	333 (13%)	169 (15%)	371 (15%)
<b>Payment to master</b>	196 (3%)	67 (3%)	46 (4%)	83 (3%)
<b>Average (median) amount in ducats</b>	18.4 (15)	15 (10)	17.7 (14.5)	21.5 (20)

The distribution of average annual payments, given in Figure 6, highlights the variety of tracks available to Venetian apprentices. The payment is turned negative if it was given to the apprentice, as to highlight a master's gains in this specific respect. Long tails on both sides represent the very slow and fast tracks (negative and positive respectively), whilst the bulk of contracts fit a more common situation where a small payment or no payment was given to the apprentice.

Figure 6: The distribution of payments from the master's perspective. All payments to the apprentices are turned negative. We consider average annual payments. The plot is trimmed at plus and minus 100 ducats.



Payments between masters and apprentices need to be understood in the context of other elements of apprenticeship. Most important were the accommodation, clothes and other

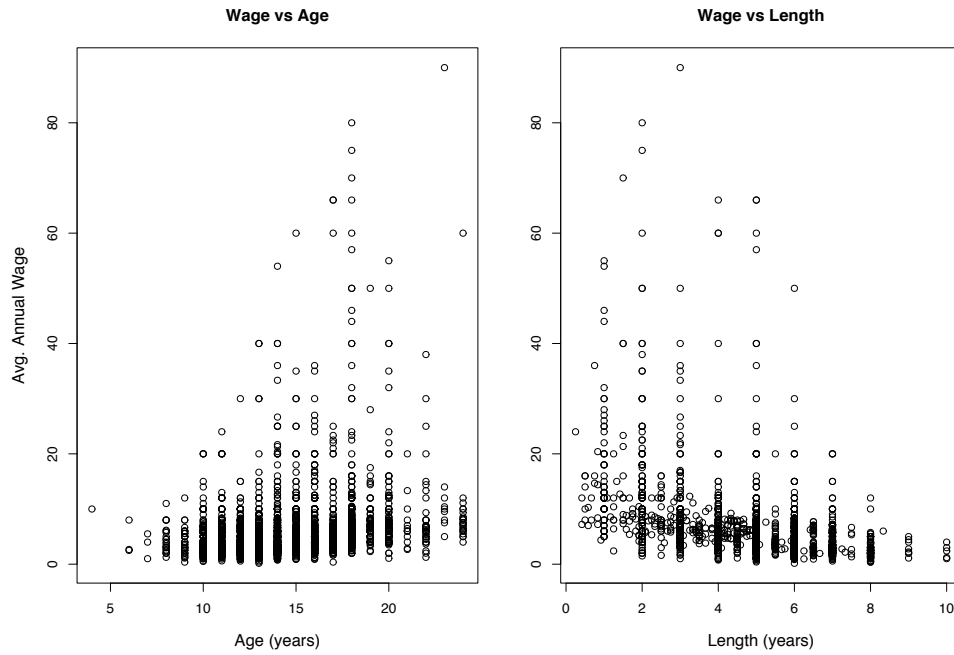
expenses, and care provided to the apprentice, such as in the case of illness. Very rarely, some contracts also involved the exchange of securities, given in kind or money to the master. Masters were usually expected to provide accommodation for their apprentices, who typically lived with them, and supply food and other basic needs. The apprentice was, however, often supposed to provide for their own clothes (cf. Table 1). More complex arrangements do appear, for example when special and costly tools were needed, but were much less common.

The impact of other contextual factors is clear from our data. Younger apprentices were less likely to receive a payment, implying that they were less useful, or less in need of incentives, and perhaps more likely to need training: 88% of apprentices aged over fifteen received a payment during or after their term; this drops to 78% for apprentices younger than thirteen years. Shorter contracts of older apprentices were also linked with a higher wage, further hinting at the possible use of some apprentices as workforce. Both trends are highlighted in Figure 7. Furthermore, conditions differed between Venetians and foreigners. Table 4 reports the proportion of each group whose contracts involved a payment to the apprentice from their master. This was lower among Venetian apprentices, which might reflect their preferential access to regulated occupations in the city, or that Venetians were less likely to run away during their term, which could mean that masters felt less need to provide them with an incentive to finish their term. Payment differences are also visible between apprentices who had lost their fathers and those who had not. Of the apprentices who had lost their fathers only 45% received a payment from their master, compared 55% of non orphans, suggesting they had somewhat weaker bargaining power. The lower average wages received by apprentices represented by a woman as guarantor is a further indicator of the similar situation.

Table 4: The share of apprentices receiving payments from their masters, by origin.

	<b>All</b>	<b>1582-1598</b>	<b>1621-1633</b>	<b>1640-1665</b>
<b>All</b>	82%	83.8%	80.4%	81%
<b>Venetians</b>	78.5%	79.6%	79.2%	77.2%
<b>Foreigners</b>	84.5%	86%	81.4%	84.1%

Figure 7: Scatter plot of the average annual wage vs the age at entry and length of contract. Younger apprentices staying for long got less. We only consider wages paid to apprentices by their masters, and trim to consider only apprentices younger than 25 years.



The following trade-offs emerge as partial explanations for the mechanics of the contracts of apprenticeship in Venice: a) higher wages to the apprentice likely signify less intense training, payments to the master entail instead more intense training; b) shorter contracts, especially below guild regulations, entail higher wages as compensation; c) younger apprentices received lower wages as they were less physically fit and required longer to become trained (in the absence of systematic previous training); d) less well represented apprentices received lower wages (father deceased, woman as guarantor); e) apprentices less likely to quit received lower wages; f) other contractual conditions should impact wages, e.g. reducing them if the apprentice was given accommodation by the master. Points a) and b) are particularly relevant for the double track system, and the possible use of apprenticeships in order to hire workforce, or anyway balance work and training intensity. The rest are part of a relatively standard model of apprenticeship. We provide results of an OLS regression in Table 6, where the average annual wage is regressed upon a set of predictor variables. We refer to the second model from Table 6, calculated after trimming outliers out, even if both models (with and without outliers) provide coherent results. Notably, we just consider wages or payments given to the apprentice by the master, thus point a) can only be discussed indirectly. Several results confirm the trade-offs just discussed. The length of the contract is negatively correlated to the wage, the age of the apprentice is positively correlated instead: older apprentices staying for less time under contract were paid on average more, meaning their bargaining interest lay in the wage to a considerable extent, especially so if the contract was below minimum length

requirements. The magnitude of the effect of contract length is sensibly higher than apprentice's age in this respect. Wages were also lower if the apprentice was having extra benefits such as accommodation and generic expenses paid by the master. In some cases, when regular or incremental salaries were paid, the wage was usually higher: these contracts might represent a rare win-win situation where initial training and subsequent compensation were given in order to retain the skilled apprentice until completion. Incremental salaries do show a particularly strong effect, to be balanced with their rarity (cf. Table 3). We cannot see conclusively that less well represented apprentices were discriminated, at least with respect to orphans. Female apprentices and guarantors are so few that any result in this respect is essentially inconclusive. Venetians were not discriminated nor favoured if they received a wage or payment, yet we know they were less likely to be in this category in the first place (cf. Table 4).

In conclusion, Venetian apprentices closely followed regulations and fitted well with standard models of apprenticeship in terms of trade-offs between the need for training and for a compensation to the master for the risks involved. Furthermore, apprenticeships in Venice were also likely used to accommodate working contracts, either with previous training or not, in order to flexibly hire cheap workforce in times of need. Some apprentices were able to pay for more intense training and privileged conditions.

### **Part 3. Case Studies: Goldsmiths, Carpenters and Printers**

In order to delve deeper into the practical use of apprenticeship, we now compare five trades, spanning three activity sectors over their respective guilds: goldsmiths, a luxury, high-value trade; carpenters, both general carpenters and furniture builders; and printers, both typesetters and press workers. Summary statistics for the three sectors can be found in the Appendix (Table 5). These three trades were chosen for two main reasons. First, they represent some of the numerically largest guilds in the sample. Mirror makers and mercers, two other guilds with a substantial number of apprentices, were not considered because of the former's relative novelty and growth during this period, and the overly varied composition of the latter guild. Second, the three activities represent different markets and systems of production. Carpenters produced a variety of goods with both high and low value, and could assist in other manufacturing activities as well. Goldsmiths were specialised in luxury objects, such as jewelry, where the market was smaller, but of higher value, and the skills of the worker were likely to be higher



on average. Lastly, print shops produced very specific goods through a relatively well-defined division of labour between typesetters and press workers (plus more episodic activities such as proof reading). As a result, the three sectors are both large enough to analyse and representative of somewhat different markets, commodities, amount of training and capital involved, and workshop organisation.

### Goldsmiths

The guild of Goldsmiths had been established 1233. According to their statute, in order to become a full member of the guild, a Venetian artisan had to work for a master for 7 years and pay a fee of 3 ducats; while artisans from the mainland and foreign goldsmiths were obliged to pay an entry fee of 15 ducats.<sup>22</sup>

Unlike Carpenters, the Goldsmiths never organised themselves into specializations. In Paris, the high level of fees paid by goldsmith apprentices' families (200-300 *livres*) led to a marked socio-economic bias. Moreover, apprentices received different types of training: some only learned to read and write, others had a more complete artistic education, a few were sent abroad (Bimbenet-Privat 1992). The high share (73%) of local apprentices among Venetian goldsmiths likewise suggests an element of selection based on their geographical origins and a pattern of endogamous reproduction within the guild.

Apprentices were thirteen on average, younger than the norm, and faced apprenticeships lasting five years, around the median for the city, which if we also consider the period served afterwards, as a journeyman, normally met the guild's regulations. An unusually high proportion of contracts did not mention payments from the master to the apprentice (31%), and relatively few had lost their fathers (25%). Furthermore, Venetians supplied an overwhelming majority of apprentices: 73% on average, increasing to 81% by the 1640s to 1660s. Probably as a consequence of this, relatively few apprentices were denounced as having ran away. If interruptions reflected a disregard for a working future in Venice, then this also suggests that goldsmiths were a relatively closed guild, with an intangible high-barrier for foreigners to join. As such, the high proportions of contracts in the fast-track, thus without any payment given to the apprentice, might either be motivated by the desire to guarantee training or simply by the reduced need to provide an incentive to complete the contract.

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<sup>22</sup> Biblioteca del Museo Correr, *Manoscritti, Classe IV*, n. 139.

## Carpenters

The guild of Carpenters has been founded during the 14<sup>th</sup> century according to the first version of its statute.<sup>23</sup> They were divided in the guild into four groups (*colonelli*) at least by the 16<sup>th</sup> century according to the products they made (e.g. furniture, frames, building). The contracts, however, present several different specializations. The two we consider here, the carpenters, a generic group, and furniture makers, a more focused specialization, were numerous. At the end of a minimum of five-year training period, an apprentice became a *lavorante* (“worker” or journeyman), conditional on enrolling in the guild within six months without taking an exam. An exception to this norm was provided for sons of masters, which at the age of 18 y.o. had just to record themselves as masters and pay an entry fee. Most *lavoranti* chose to prepare for the specialization of carpenter, for which the mastership exam was likely easier, and, once passed, they could choose to exercise in any specialisation within the craft. Likely the most dangerous consequence was that several masters reached only low quality levels (Caniato and Dal Borgo, 1990). The exam consisted in the construction of a square and a round door and a framework. The relative high share of apprentices who ran away (15%) reflects one of the major problems for this guild: the apprentices who ran away worked for other masters and formed an informal labour market out of the control of the authority. In the eighteenth century, according to the *Inquisitori alle Arti*<sup>24</sup>, many apprentices ran away after two years of training; this suggests that the time needed to acquire the basic skills of the craft was shorter than the period required by the guild. This raises another question: when an apprentice did not complete his contract, how was he able to work in an what is usually seen as a highly regulated corporative economy? Possibly, these runaway apprentices worked for other masters in a parallel “black” labour market, or they moved out of Venice.

The variety of specializations of apprentices in carpentry increased over time. During the last period, of 167 carpenters’ apprentices, 49 specialized in mirror frames, 37 in veneering, 28 in wooden chests, 10 in walnut-wood furniture, and 7 were “carpenters for building”, as well as a few other specializations. General ‘carpenters’ accounted for only half of contracts; the proportion had been nearly four-fifths during the late sixteenth century. Apprentices in carpentry were slightly older (14.5 years) than the overall average, and usually served longer than the guild required. Most masters offered a modest payment on completion to their apprentice. One apprentice in four was Venetian, and there was no obvious difference between

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<sup>23</sup> Biblioteca del Museo Correr, *Manoscritti, Classe IV*, n. 152.

<sup>24</sup> ASVe, *IA*, b. 58, Scrittura 3, September 1752 and Scrittura 5, May 1753.

the treatment of locals and foreigners. Interestingly, the proportion of Venetians was not equal across specializations: among the furniture makers, locals supplied 36% of apprentices. Aside from this, contractual terms did not vary much between specializations. Finally, the ratio of apprentices who were denounced as fled is just above average (15%).

In the Carpenters guild thus apprentices possibly had a greater importance as a source of skilled and unskilled labour. The wage or final payment given to the apprentice in the large majority of contracts suggests that apprentices needed a further incentive to complete their period and contributed significantly to the productivity of their masters' workshops while they were training.

### Printers

The guild of Booksellers and Printers, the *Università de librai e stampatori*, was officially established by the Council of Ten in 1548-49, as part of an effort to control the sector through censorship and workshop regulation. The first surviving statutes (*mariegola*) were only given later, in 1567 (Brown, 1891, pp. 81-3, 243-48). The earliest known legislation on printing dated from 1517, however, and attempted to bring order to the early system of privileges. Venice's early legislation on printing was simply a reordering of precedents created by the decisions of several magistracies that had often crystallized in practice (Brown 1891, pp. 71-4). Some kind of organization of printers also existed well before 1548, based on the confraternities (Dondi, 2004). The fact that the formal establishment of a guild took so long bears witness to the effectiveness of this earlier system. In 1572, the guild regulated its admission procedures, requiring new masters to serve a five-year apprenticeship, properly registered at the *Giustizia Vecchia*, followed by three years as a journeyman: "he shall then be examined by experts named by the prior and officers of the guild, and, if found able, he shall, on the payment of five ducats, receive matriculation". Foreigners needed to work for five years in the city before taking the exam; their fee was ten ducats. Sons of master paid nothing (Brown 1891, p. 88). No further regulations were introduced, at least before the second half of the eighteenth century, when several attempts at reform and regulation took place. For example, in 1767, the *Riformatori allo Studio di Padova*, responsible for the regulation of the sector, enforced a joint limitation of one apprentice per master and a ban of fifteen years for new apprentices in an attempt to recover the long-past quality in the activity. It is difficult to gauge whether the guild included all the active printers and booksellers in Venice. Likely not. There is evidence of 125 to 150 presses in Venice at the end of the sixteenth century, when the guild had 75 members at most (Brown, 1891, p. 91): if so, a non-trivial share of printers might not

have been members. A normal printing shop was usually a relatively small enterprise at a time. If we take early seventeenth-century London, the average printer might have two or three presses, with a couple of journeymen and an apprentice (Weedon, 2013, p. 155). In Venice, the number of smaller shops or masters without a press was likely large at all times, while the number of active presses dropped sharply during the seventeenth century, down to 20 or little more in 1660.<sup>25</sup>

Printers apprentices were consistently divided into one of three groups in their contracts: press workers (“torcoleri”), typesetters (“compositori”), and general printers (“stampatori”). In general, printing apprentices were slightly older (14.5 years) than average, entered contracts of average length of five years, as requested by regulations, and nearly all (96%) received a wage or final payment from their master, which is above average. Both the share with deceased fathers, and the share who fled were around average. More interestingly, the distribution of Venetians across the three specializations was not even: press workers included few Venetians (14%), typesetters fell in the middle (25%), while many general printers were Venetians (55%). The explanation for this is uncertain. However, we do know that press workers encompassed men involved in two specializations: the “battitore” inked and changed sheets, and the “tiratore” operated the press. Their work was repetitive and fatiguing. The two roles involved different levels of skill, and “tiratori” were usually paid more than “battitori”, sometimes even more than typesetters (Richardson, 2004, pp. 34-5). In our sample “tiratori” were on average older, enduring shorter contracts and were paid more, typesetters were younger, endured longer contracts and were paid less, whilst generic “stampatori” fell in the middle. It is not clear whether the “torcoleri” registered in the *Giustizia Vecchia* included both “battitori” and “tiratori”, not why Venetians were usually registered as “stampatori”: it is possible, though, that several apprentices to the better paid “tiratori” specialization were following a slow track, as this would explain their contractual conditions as well as they being usually foreigners.

The printing press seems to be representative of an activity with simple but clear division of labour among differently specialized apprentices—in this case workers at the press and typesetters. This activity is characterised by having a unique output, divided in a limited set of mechanized production steps, which allows for specialization and production streamlining, also represented by the choice of apprentices with specific characteristics for any given specialization. Overall, typesetters are similar to goldsmiths and perhaps carpenters in

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<sup>25</sup> ASVe, *Arti*, b.164, *Atti V*, cc. 8v-9r.

that they have a high-skill task to learn, while workers at the press could learn their job more rapidly, and thus are paid more from the very beginning.

In summary, we find strong similarities and only some specificities for the three sectors of activity under investigation. Apprenticeship was generally used within the bounds of regulations, with most apprentices enduring contracts of sufficient length to proceed to further steps into the guild. Some important characteristics of specific guilds and their trades emerge. Goldsmiths stand out as a strongly Venetian guild, where a larger share of apprentices did not necessitate the incentive of a payment to complete their contract, and were more likely to proceed with a fast track. Carpenters and Printing press workers were instead more similar with respect to providing a basic payment to apprentices in the large majority of cases, and only very rarely use contracts in a fast track. Compositors and workers at the press further highlight how different trades, also within the same guild, adapted contractual conditions to the profile of the apprentices they needed.

## **Conclusions**

Apprenticeship in Venice was only one of the ways in which vocational training could be provided. Artisans' children usually trained in their father's workshop, while charitable institutions offered important sources for training in some trades. Nevertheless, both the Republican state and the guilds put much effort into regulating it. The state was interested in keeping an eye on guilds and securing the economic development of the city, while the guilds were interested in apprenticeship for a variety of reasons that depended on their craft's needs and their reaction to critical moments such as the seventeenth-century crisis. For goldsmiths, carpenters and printers, we have highlighted how trades attracted different profiles of apprentices, varied the incentives they provided, and differed in their openness to foreign workers. Apprenticeship also changed over time, as Venice's role in its subject territories shifted. As the city lost the central economic position it had enjoyed until the sixteenth century, the reactions of the state and the guilds diverged, one pushing for reform, the others calling for protectionism.

Apprenticeship in early modern Venice had some strong regularities in terms of the age of entry (average 14 years), the length of contracts (average 5 years) and those elements which could be used to accommodate real situations, especially the payments given to either master

or apprentice. We suggest that a double-track system might have existed, reflecting different points of balance between training and working. At one end, more work was likely demanded from an apprentice receiving a wage or end-of-term payment, and their training was less intense if compared to that expected from an apprentice who did not receive a payment, or whose master was being paid in turn. Such a system, previously identified to be in operation during period of economic crisis, may have been a normal component of apprenticeship in Venice. Indeed, despite its changes and adaptations, the main feature of Venetian apprenticeship was its high degree of flexibility, a characteristic shared with other cities in the Italian peninsula.

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## Appendix

Table 5: Summary statistics for the three sectors of activity under comparison: carpenters (C), goldsmiths (G) and printing press workers (P).

Period	All			1582-1598			1621-1633			1640-1665		
Sector	C	G	P	C	G	P	C	G	P	C	G	P
Number of contracts	736	634	261	311	224	214	119	159	13	307	255	34
Age (A/M)	14.5/1 4	13.5/1 3	14.5/1 4	14.6/1 4	13.6/1 4	15/14	15/15	13.2/1 4	12.6/1 2	14.2/1 4	13.6/1 3	13/13
Median contract length	6 (min 1. max 8)	5 (min 1. max 10)	5 (min 1. max 10)	6 (min 1. max 8)	5 (min 1. max 9)	5 (min 1. max 10)	6 (min 2. max 8)	5 (min 1. max 8)	6 (min 3. max 8)	6 (min 1. max 8)	5 (min 1. max 10)	5 (min 2. max 7)
Contracts wPM	685 (93%)	440 (69%)	251 (96%)	300 (96%)	148 (66%)	210 (98%)	105 (88%)	123 (77%)	10 (77%)	280 (91%)	169 (66%)	31 (91%)
Payment from master (A/M)	3.6/3	6/3	4.9/4	3.4/3	6/2.6	4.8/4	3.2/3	4/3	3.7/3	4/3.3	7.4/4	5.7/5
Contracts with a payment to the master	4 (0.5%)	47 (7.4%)	2 (0.8%)	1 (0.3%)	19 (8.5%)	0	1 (0.8%)	10 (6.3%)	2 (15%)	2 (0.6%)	18 (7%)	0
Contracts with no payment	48 (6.5%)	151 (24%)	8 (3%)	10 (3.2%)	57 (25%)	4 (2%)	13 (11%)	26 (16%)	1 (8%)	25 (8.1%)	68 (27%)	3 (9%)
Venetians	191 (26%)	464 (73%)	76 (29%)	63 (20%)	129 (58%)	47 (22%)	29 (24%)	129 (81%)	6 (46%)	99 (32%)	206 (81%)	23 (68%)
Venetians wPM	176 (26%)	337 (77%)	72 (29%)	59 (20%)	89 (60%)	47 (22%)	26 (25%)	105 (85%)	5 (5%)	91 (32%)	143 (85%)	20 (64%)
Early interruptions (apprentices ran away)	108 (15%)	28 (4%)	45 (17%)	60 (19%)	15 (7%)	38 (18%)	20 (17%)	8 (5%)	2 (15%)	28 (9%)	5 (2%)	5 (15%)
Father deceased	289 (39%)	163 (25%)	108 (41%)	133 (43%)	55 (24%)	98 (44%)	63 (53%)	40 (25%)	0	93 (30%)	68 (27%)	14 (41%)
Female apprentices	0	0	3 (1.1%)	0	0	2 (0.9%)	0	0	0	0	0	1 (3%)
Female guarantors	20 (2.7%)	42 (7%)	9 (3.4%)	11 (3.5%)	17 (8%)	5 (2.3%)	6 (5%)	11 (7%)	2 (15%)	3 (1%)	14 (5%)	2 (6%)

Note: Payments are expressed in average venetian ducats per year of contract, ages and lengths in years. When raw numbers are provided, the relative proportion over the relevant population is given in parentheses, unless otherwise specified. For example, Venetians wPM provides the number of Venetians with a payment from their master, in parentheses their proportion over the number of apprentices who received similar payments. Legend: wPM: with payment from master, A/M average/median.

Table 6: OLS regressions on the determinants of the payments given to apprentices.

	<i>Dependent variable:</i>	
	(1)	(2)
	Average annual wage	
Venetian (yes = 1)	-0.028 (0.019)	-0.018 (0.017)
Year	0.004*** (0.0002)	0.004*** (0.0002)
Length of contract	-0.194*** (0.006)	-0.125*** (0.006)
Age of apprentice	0.034*** (0.003)	0.040*** (0.003)
Orphan by father (yes = 1)	0.010 (0.018)	0.016 (0.016)
Apprentice fled (yes = 1)	0.010 (0.021)	0.025 (0.018)
Accommodation (paid by master = 1)	-0.125** (0.050)	-0.161*** (0.046)
Personal care (paid by master = 1)	-0.030 (0.032)	0.048* (0.029)
Clothes (paid by master = 1)	0.001 (0.018)	-0.0001 (0.016)
Generic expenses (paid by master = 1)	-0.078* (0.045)	-0.044 (0.041)
Female guarantor (present = 1)	-0.037 (0.032)	-0.020 (0.028)
Gender of apprentice (male = 1)	0.052 (0.137)	-0.061 (0.122)
Gender of master (male = 1)	-0.037 (0.073)	-0.034 (0.069)
Periodization of salary (one final instalment = 1)	-0.356*** (0.027)	-0.117*** (0.028)
Incremental salary (yes = 1)	0.189*** (0.047)	0.383*** (0.045)
Venetian orphan by father (yes = 1)	0.004 (0.029)	-0.001 (0.026)

Constant	-3.627*** (0.405)	-4.676*** (0.364)
Observations	4,533	4,010
R <sup>2</sup>	0.423	0.306
Adjusted R <sup>2</sup>	0.421	0.303
Residual Std. Error	0.446 (df = 4516)	0.378 (df = 3993)
F Statistic	206.689*** (df = 16; 4516)	109.841*** (df = 16; 3993)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

*Note: The payment is taken to be the annual average irrespective on how it was supposed to be paid (if every month, six months, year, at the end of the contract, or other arrangement). The robust standard error is given in parentheses after coefficients, while conventional significance level is given via asterisks. Two models are fitted, model 1 on all data, model 2 on data after trimming outliers. Outlier conditions, detected using Cook's distance, have been minimised removing all contracts with: an annual salary above 10 ducats a year included; an apprentice younger than 5 or older than 20 years old; a length below 1 and above 10 years. As a result, model 2 passed all standard diagnostics for OLS. In model 1 both the dependent average annual salary and the length of contracts are skewed and could benefit from a log transform, yet we maintained the original values for comparison with model 2, where transformations are not warranted (by Box-Cox and Box-Tidwell tests).*

Table 7: The list of trades considered in this study. The first column gives the number of contracts for the specific occupation, the third column identifies the guild the trade belonged to.

Contracts	Trade	Trade	Arte	Guild
249	tiraoro	gold-thread maker	battioro, stagnoli e colori	gold, silver, and tin-leaf makers
106	battioro	gold-leaf maker	battioro, stagnoli e colori	gold, silver, and tin-leaf makers
8	battiarmento	silver-leaf maker	battioro, stagnoli e colori	gold, silver, and tin-leaf makers
1	battifoglio al bagno di colori	tin-leaf maker	battioro, stagnoli e colori	gold, silver, and tin-leaf makers
1	battioro e battiarmento	gold and silver-leaf maker	battioro, stagnoli e colori	gold, silver, and tin-leaf makers
1	filaoro	gold-thread maker	battioro, stagnoli e colori	gold, silver, and tin-leaf makers
71	cartaio	papermaker	carteri	papermakers
1	cartaio - diverse specializzazioni	papermaker - specializations	carteri	papermakers
6	coronaio - diverse specializzazioni	prayer beads maker - specialization	cononeri	prayer beads makers
130	cuoridoro	golden leather decorator	dipintori	painters
104	indoratore	gilder	dipintori	painters
74	pittore	painter	dipintori	painters
63	decoratore	decorator	dipintori	painters
48	disegnatore	drawer / draftsman	dipintori	painters
38	miniador	miniaturist	dipintori	painters
12	mascheraio	mask makers	dipintori	painters
5	madonnaio	painter - specializations	dipintori	painters
3	fabbricatore di scudi	golden leather decorator	dipintori	painters

3	pittore - diverse specializzazioni	painter - specializations	dipintori	painters
1	miniaturista da santi	miniaturist - specialization	dipintori	painters
1	miniaturista da specchi	miniaturist - specialization	dipintori	painters
1	miniaturista da vetro	miniaturist - specialization	dipintori	painters
69	intagliatore	carver	intagliatori	carvers
23	intagliatore di legno	wood carver	intagliatori	carvers
11	intagliatore di pietra	stone carver	intagliatori	carvers
2	intagliatore di rame	copper engraver	intagliatori	carvers
124	compositore	typesetter	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
121	libraio	bookseller	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
85	torcolaio	pressman	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
52	stampatore	printer	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
20	fonditore di caratteri da stampa	type-founder	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
20	libraio da carta bianca e simili	bookseller	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
1	libraio da libri e carta bianca	bookseller	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
1	rilegatore di libri	bookbinder	libreri, stampatori e ligadori	booksellers, printers, and bookbinders
478	falegname - generico	woodman - generic	marangoni	woodmen
107	mobiliere - diverse specializzazioni	furniture maker - specializations	marangoni	woodmen
79	mobiliere	furniture maker	marangoni	woodmen
48	impiallacciatore	venerer	marangoni	woodmen
12	stipettaio	cabinet maker	marangoni	woodmen
8	falegname edile	carpenter	marangoni	woodmen
3	falegname - diverse specializzazioni	woodman - specializations	marangoni	woodmen
1	corniciaio	frame maker	marangoni	woodmen
504	marzer	mercer	marzeri	merciers
12	ceraio	wax maker	marzeri	merciers
8	biancheggiatore di cera	wax bleacher	marzeri	merciers
7	marzer da menuo	mercer	marzeri	merciers
6	marzer e telariol	mercer and cloth maker	marzeri	merciers
2	marzer da merze milanese	mercer	marzeri	merciers
1	bottonaio	button maker	marzeri	merciers
1	marzer da sutil	mercer	marzeri	merciers
1	marzer de panni da seda	mercer	marzeri	merciers
1	marzer e stringher	mercer and lace maker	marzeri	merciers
1	merciaio del fontego	mercer	marzeri	merciers
1	merzer	mercer	marzeri	merciers
318	muratore	bricklayer	mureri	merciers
634	orefice	goldsmith	orefici e gioiellieri	goldsmiths and jewelers
52	diamantaio	diamond cutter	orefici e gioiellieri	goldsmiths and jewelers
44	gioielliere	jeweler	orefici e gioiellieri	goldsmiths and jewelers
25	lavorazione dell'ottone	brazier	orefici e gioiellieri	goldsmiths and jewelers
10	intagliatore di rubini e pietre dure	rubin cutter	orefici e gioiellieri	goldsmiths and jewelers
4	orefice - diverse specializzazioni	goldsmith - specializations	orefici e gioiellieri	goldsmiths and jewelers

208	perlaio	lamp beads maker	paternosteri e cristalleri	bead makers
63	paternoster	glass beads maker	paternosteri e cristalleri	bead makers
54	paternoster - diverse specializzazioni	glass beads maker - specializations	paternosteri e cristalleri	bead makers
13	smalti	enamel	paternosteri e cristalleri	bead makers
44	trasportatori di sabbia	sand transporter	sabioneri	sand transporters
15	suonatore	player / musician	sonadori	plyers / musicians
999	specchiaio	mirrormaker	specchieri	mirrormakers
64	fabbricazione/vendita di colori	color maker/seller	spezieri	spice sellers
4	speciale e venditore di cere	spice and wax seller	spezieri	spice sellers
3	mercante da colori	color seller	spezieri	spice sellers
1	macinatore di colori	muller	spezieri	spice sellers
153	lavori allo squero	manufacture and maintenance of boats	squeraroli	manufacture and maintenance of boats
366	tagliapietra	stonecutter / stonedresser	taiapiera	stonecutters / stonedressers
11	segatore	stone saweyer	taiapiera	stonecutters / stonedressers
8	scultore	sculptor	taiapiera	stonecutters / stonedressers
2	lastricatore	paver	terrazeri	pavers
51	tornitore	turner	tornidori e bossoleri	turners
5	tornitore da avorio	ivory-turner	tornidori e bossoleri	turners
3	tornitore da legno	wood-turner	tornidori e bossoleri	turners
31	vetraio	glassmaker	verieri di Murano	glassmakers of Murano
1	fonditore di argento	silver founder	zecca	Mint
1	fonditore di oro	gold founder	zecca	Mint
11	lustratore di seta e lana	silk and wool textile lustrer		
10	liutaio	lutist		
5	cimbalaio	cymbal maker		
4	fabbricatore di arpicioni	harpsichord maker		
2	organista	organist		
2	produttore di anelli falsi	counterfeit rings producer		
2	venditori di oggetti in vetro	glass seller		
1	ballerino	dancer		
1	mosaicista	mosaicist		