

Political Entanglements. A Network Study on Contracts, Power, and Defection in Renaissance Italy's Warfare Market

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This study explores the dynamics of contractual relationships, power, and betrayals in the warfare market of Renaissance Italy (1375-1615). It seeks to explain why, in a politically fragmented landscape marked by conflicts and territorial shifts, certain mercenary leaders (*condottieri*) were rehired by states despite breaching previous contracts. Central to the analysis is the concept of embeddedness (Granovetter 1985), particularly how the integration of contracts within kinship structures allowed mercenaries to increase states' political dependence on their military resources. Given that mercenary companies were organised around family units, family ties—whether by blood or acquired—played a critical role in enhancing mercenaries' power and influence over states. The Italian Renaissance political scene was fragmented into competing states, many lacking the fiscal, logistical, and military resources to sustain prolonged conflicts. As a result, these states depended heavily on mercenaries, during what has been termed the "golden age" of Italian mercenaries (Leeson and Piano 2020).

The analysis focuses on "*condotte*", contracts between states and mercenary leaders that detailed i.e. length of service and compensation. These contracts were inherently incomplete (Hart 2003) due to the lack of external enforcement mechanisms, weak state oversight of mercenaries' actions, and the high cost of punishing betrayal. Although rational expectations would suggest that states would avoid rehiring those who had previously betrayed them, Granovetter (1985) theory of embeddedness offers an explanation for this seemingly contradictory behavior. The embeddedness of mercenaries within kinship networks served two important purposes. Mercenaries could betray their employer, potentially drawing in many relatives - also in the service of the state - to their defection. This act could lead to the entire company, led by the traitorous mercenary, offering its resources to a rival state. On the other hand, having many relatives still in the service of the betrayed state provides an opportunity to renegotiate the mercenary's return on more favourable terms negotiated by the family members.

Traditional historiography has portrayed *condottieri* as opportunistic adventurers - mere fungible commodities on the military market (Machiavelli 1535). In contrast, our study shifts the analytical focus from state actors (principals) to mercenaries and their relatives (agents) (Milgrom and Roberts 1988), demonstrating that mercenary families evolved into a distinct political elite (Padgett 2010). Mercenary families formed marriage and kinship ties as a deliberate strategy to consolidate power. These alliances linked multiple elite houses, ensuring they could pool military expertise, coordinate their forces, and exert greater control over political decisions. Mercenaries organised their companies through inheritance (Pezzolo 2011), thereby securing long-term advantages in a volatile political environment (Padgett and Ansell 1993). Historical analyses of Renaissance warfare and the transition to permanent armies have long highlighted the political and economic imperatives that drove states to professionalise their armed forces (Mallett 1974; Tilly 1992). While some scholars attribute the eventual emergence of standing armies to the unreliability of these mercenaries (Mallett 1974), others underscore the organisational challenges faced by states with weak administrative structures that nonetheless required rapid and flexible military responses (Caferro 2008). However, such explanations do not fully resolve the puzzle of why states persist in hiring *condottieri* with histories of contractual violations.

Building on Granovetter (1985) concept of embeddedness, this research contends that contractual exchanges were not isolated economic transactions but were inherently intertwined with extensive familial and political ties. In this light, the financial transactions underpinning contracts are inseparable from the overlapping social, political, and familial processes that sustain them. We hypothesised a positive correlation between the probability of states rehiring treacherous *condottieri* and the centrality of these mercenaries in kinship networks, which serves as a proxy for their power and influence.

The analysis is based on an original dataset extracted from condottieridivventura.it. This dataset comprises records of 1,735 mercenaries, 223 regional Italian states, 6,991 contractual relations, and 1,385 kinship ties, organised into 14 waves corresponding to 20-year intervals (the average length of a mercenary career). The sample is representative of all regional Italian states, ensuring the robustness and representativeness of the findings.

To analyse the contractual relationships between states and mercenaries, we used an ego-network approach: each ego represents a state, and alters are the mercenaries. Ego-alter ties occurred when a state (ego) had at least one contract (tie) with a mercenary (alter) during the specified period. Alter-alter ties represented kinship relationships between mercenaries. Attributes of the ego-alter ties included the number of contracts and their status:

- *Unbreached*: The mercenary never breached any contract with that state in that wave;
- *Breached*: The mercenary breached a contract with that state in that wave, and after that breach the relationship was terminated (i.e. never restored)
- *Reinstated*: The mercenary breached a contract with that state, and after that breach a new contract was signed and the mercenary was reinstated in his relationship with that state

To operationalise the embeddedness of *condottieri* within a state's military network (i.e. ego-

network), we calculated each *condottiero*'s degree centrality in the ego-network. To capture their structural position as brokers, we calculated their betweenness centrality (log) as the proportion of geodesics that passed through them. To test the robustness of the association between centrality and probability of reinstatement, we estimated a set of logistic, cross-classified multilevel models (Vacca 2018) of contract status (*unbreached* vs. *reinstated* ; *reinstated* vs. *breached*) as a function of *condottieri*'s degree and betweenness centrality. We also controlled for the number of contracts in each contractual relationship as a possible confounder. To manage longitudinal effects, we adjusted the models for waves as fixed effects. Finally, to handle cross-classification, we assumed random effects both at *condottiero* and state levels.

Our models indicate that higher network centrality is associated with increased odds of both contract infringement and reinstatement. For instance, when measured as a count, degree centrality increases the likelihood of infringement by approximately 13% (*Odd Ratio*=1.13, 95% *Confidence Interval*: 1.04–1.22) in the baseline model, though this effect diminishes (*OR* of 1.10 and 1.06) after including additional controls. Similarly, a one-unit increase in betweenness centrality (log) is associated with a roughly 15% higher odds of infringement (*OR*=1.15, 95% *CI*: 1.05–1.27) in bivariate models, though its significance fades in fully specified models. In contrast, when degree centrality is expressed as a percentage of ties within an ego network (ie each state), the effect is near null (*OR*=0.99, 95% *CI*: 0.97–1.00). Regarding reinstatement, degree centrality (count) shows a 17% increase in probability of being reinstated for each unit increase of ties (*OR*=1.17, 95% *CI*: 1.03–1.35) in the simplest model, while an increase in betweenness centrality (log) shows a 22% increase in the odds of reinstatement (*OR*=1.22, 95% *CI*: 1.04–1.43) in bivariate models. The number of contracts robustly predicts both outcomes—each additional contract is associated with a 9% increase in infringement odds (*OR*=1.09, 95% *CI*: 1.06–1.12) and a striking 43% increase in reinstatement odds (*OR*=1.43, 95% *CI*: 1.33–1.53). Random effects further reveal substantial unobserved heterogeneity at both the *condottiero* and state levels, underscoring the importance of individual and contextual factors in these contractual dynamics.

To conclude, we have sought to shed light on the relationship between contractual and non-contractual factors in the warfare market of Renaissance Italy, with a particular focus on the role of network embeddedness in the control of power and resources. This is a first step in understanding the transition from decentralised warfare markets to the emergence of state monopolies of military power in the modern era, with the overall aim of exploring the historical interplay of markets and political elites. Our aim here is to show how an interesting historical puzzle can be fruitfully approached from a network perspective, while using historical data on contracts to reconstruct the interplay of political, social and market processes in shaping institutional dynamics.

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