WHY WAR IS NOT ENOUGH: MILITARY DEFEAT, THE DIVISION OF LABOR, AND MILITARY PROFESSIONALIZATION

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
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Graduate School of The Ohio State University

By

Nathan W. Toronto, B.A., M.A.

* * * * *

The Ohio State University

2007

Dissertation Committee:

John Mueller, Adviser
Brian Pollins
Marcus Kurtz

Approved by

[Signature]
Adviser
Graduate Program in
Political Science
Does war make states? If it does, it does not make professional militaries. Scholars have often linked war and state development, but one important process of state development—military professionalization—does not seem to follow the “war makes states” logic. There are two reasons for this. First, states are most likely to begin professionalizing the military in response, not to war or the threat of war, but to dire military defeats, or defeats resulting in the occupation of national territory, abnormally high casualties, and the recognition of military incompetence. The humiliation associated with these dire defeats seems to spur political systems into action. Second, the division of labor tends to concentrate the population in urban centers and increase society’s human capital and the level of resources available to the state. Thus, an advanced division of labor enables long-term military professionalization. The division of labor thus seems to be a necessary condition, and dire military defeats a sufficient condition, for thorough military professionalization. To evaluate these propositions, I use original data on military professionalism—compiled in a data set spanning from 1800 to 2005—and case studies of military professionalization in Prussia, France, Turkey, and Egypt. The findings of this study suggest that we should rethink how states develop professional military institutions in response to war.
For Noni,

eyes on the prize
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VITA

1999 ........................................... B.A., International Politics
Brigham Young University

2001 ........................................... Certificate of Arabic Fluency
Center for Arabic Study Abroad
American University in Cairo

2003 ........................................... Summer Intensive Hebrew Program
University of Utah

2004 ........................................... M.A., Political Science
The Ohio State University

2001–06 ........................................ Graduation Teaching and
Research Associate
The Ohio State University

FIELDS OF STUDY

Major Field: Political Science
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Dedication</td>
<td>iii</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>iv</td>
</tr>
<tr>
<td>Vita</td>
<td>vi</td>
</tr>
<tr>
<td>List of Tables</td>
<td>xii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xiii</td>
</tr>
<tr>
<td>Chapters:</td>
<td></td>
</tr>
<tr>
<td>1. WAR MAKING WITHOUT STATE MAKING?</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Examining the Conventional Wisdom</td>
<td>2</td>
</tr>
<tr>
<td>1.2 Two Schools of Thought</td>
<td>3</td>
</tr>
<tr>
<td>1.2.1 The Structural Neorealist School</td>
<td>3</td>
</tr>
<tr>
<td>1.2.2 The Comparative Historical School</td>
<td>5</td>
</tr>
<tr>
<td>1.3 What is Military Professionalization</td>
<td>6</td>
</tr>
<tr>
<td>1.4 State Making and Military Professionalism</td>
<td>7</td>
</tr>
<tr>
<td>1.5 Why Not Professionalize?</td>
<td>8</td>
</tr>
<tr>
<td>1.6 Overcoming the Hurdles to Professionalization</td>
<td>10</td>
</tr>
<tr>
<td>1.6.1 Why Simply Going to War is Not Enough</td>
<td>11</td>
</tr>
<tr>
<td>1.6.2 Why an Advanced Division of Labor Matters</td>
<td>12</td>
</tr>
<tr>
<td>1.6.2.1 Why Simply Going to War is Not Enough</td>
<td>12</td>
</tr>
<tr>
<td>1.6.2.2 Why an Advanced Division of Labor Matters</td>
<td>13</td>
</tr>
<tr>
<td>1.6.2.2.1 Accumulation of Wealth</td>
<td>12</td>
</tr>
<tr>
<td>1.6.2.2.2 Urbanization</td>
<td>13</td>
</tr>
<tr>
<td>1.6.2.2.3 Increased Human Capital</td>
<td>15</td>
</tr>
<tr>
<td>1.6.2.2.4 Why Is it the Division of Labor and Not Economic Development?</td>
<td>16</td>
</tr>
</tbody>
</table>

vii
<table>
<thead>
<tr>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6.3</td>
</tr>
<tr>
<td>1.6.3</td>
</tr>
<tr>
<td>1.6.3</td>
</tr>
<tr>
<td>1.6.3</td>
</tr>
<tr>
<td>1.7</td>
</tr>
<tr>
<td>1.7.1</td>
</tr>
<tr>
<td>1.7.2</td>
</tr>
<tr>
<td>1.7.3</td>
</tr>
<tr>
<td>1.7.4</td>
</tr>
<tr>
<td>1.7.5</td>
</tr>
<tr>
<td>1.7.6</td>
</tr>
<tr>
<td>1.7.7</td>
</tr>
<tr>
<td>1.8</td>
</tr>
<tr>
<td>1.9</td>
</tr>
<tr>
<td>1.9.1</td>
</tr>
<tr>
<td>1.10</td>
</tr>
<tr>
<td>1.10.1</td>
</tr>
<tr>
<td>1.10.2</td>
</tr>
<tr>
<td>1.10.3</td>
</tr>
<tr>
<td>1.11</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>2.1</td>
</tr>
<tr>
<td>2.2</td>
</tr>
<tr>
<td>2.2.1</td>
</tr>
<tr>
<td>2.2.2</td>
</tr>
<tr>
<td>2.2.3</td>
</tr>
<tr>
<td>2.3</td>
</tr>
<tr>
<td>2.3.1</td>
</tr>
<tr>
<td>2.3.2</td>
</tr>
<tr>
<td>2.3.3</td>
</tr>
<tr>
<td>2.3.4</td>
</tr>
<tr>
<td>2.4</td>
</tr>
<tr>
<td>2.4.1</td>
</tr>
<tr>
<td>2.4.1</td>
</tr>
<tr>
<td>2.4.1</td>
</tr>
<tr>
<td>2.4.1</td>
</tr>
</tbody>
</table>
Systemic Structure ........................................ 58
Domestic Variables ...................................... 61

2.5 Results ................................................. 63
2.5.1 Military Expenditures per Soldier ................. 67
2.5.2 Military Academy .................................. 69
2.5.3 Military Periodicals ................................. 71
2.6 Motivating the Case Studies ......................... 73

3. PRUSSIA: THE SHOCK OF DEFEAT .................. 75

3.1 From Rout to Reform ................................ 76
3.2 The Scharnhorst Reforms .............................. 77
3.2.1 The Stage Is Set: Prussia’s Post-Frederick Decline ........... 77
3.2.2 Scharnhorst Sets to Work .......................... 79
3.2.3 The Reforms Endure ............................... 82
3.3 The Impact of Jena ................................... 83
3.3.1 Society Backs Reform, and the King Demands It ........... 84
3.3.2 Why 1806 Was Unique .............................. 85
3.4 The Division of Prussian Labor ....................... 86
3.4.1 The Situation in 1806 ............................... 87
3.4.2 Prussian Labor Begins to Divide .................... 88
3.5 Prussia: Shocked into Reform ....................... 90

4. FRANCE: FROM THE LEVÉE EN MASSE TO A “REDOUBTABLE
INSTRUMENT OF WAR” .................................. 92

4.1 Two Episodes of Reform, One Success Story .......... 93
4.2 French Military Reforms from 1793 to 1805: Away from the Levée en Masse .................. 94
4.2.1 Reform: Toward the Grande Armée ................ 94
4.2.2 The Revolutionary and Napoleonic Wars: No Dire Defeat .................. 98
4.2.3 The Division of Labor and Revolutionary Reform ........ 99
4.3 France after Sedan: Toward a “Redoubtable Instrument of War” .................. 102
4.3.1 Military Reforms after the Franco-Prussian War ........ 107
4.3.2 The Humiliation of 1870 ......................... 111
4.3.3 The Division of French Labor after 1850 .............. 113
4.4 What Napoleon Began, Sedan Finished ................ 116

5. TURKEY: EVEN DEFEAT IS NOT ENOUGH .......... 120

5.1 A Punishing International Environment .............. 121
5.2 Ottoman Turkey: The Slow Pace of Reform .......... 122
Appendices:

A. MILITARY PROFESSIONALISM (MILPRO) PROJECT CODEBOOK 175

A.1 Introduction .................................................. 176
A.2 Conceptual Definitions ........................................ 176
  A.2.1 Military Professionalism ................................. 176
  A.2.2 An Advanced Division of Labor ....................... 177
  A.2.3 Dire Military Defeat ............................ 178
A.3 Operational Definitions ..................................... 178
  A.3.1 Military Professionalism ............................... 178
    Large-\(n\) Statistical Analysis ......................... 178
    Coding Rules ........................................... 181
    Small-\(n\) Qualitative Analysis ...................... 182
  A.3.2 Division of Labor .................................. 184
    Dispersion of Workers ................................ 184
    Non-agricultural Workers ............................ 185
    Urban Population ................................. 185
  A.3.3 Dire Military Defeat .................................. 185
    Casualties per day per loss .......................... 186
    Loss of homeland territory in war .................. 186
A.4 Guide to the Data Sets ................................... 186

BIBLIOGRAPHY .................................................. 192
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Pairwise Correlations for the Dependent Variables</td>
<td>51</td>
</tr>
<tr>
<td>2.2 Statistical Models of Military Expenditures per Soldier</td>
<td>64</td>
</tr>
<tr>
<td>2.3 Statistical Models of the Presence of a Military Academy</td>
<td>65</td>
</tr>
<tr>
<td>2.4 Statistical Models of the Number of Military Periodicals</td>
<td>66</td>
</tr>
<tr>
<td>2.5 Predicted Probabilities—Military Expenditures</td>
<td>68</td>
</tr>
<tr>
<td>2.6 Predicted Probabilities—Military Academy</td>
<td>70</td>
</tr>
<tr>
<td>2.7 Predicted Probabilities—Military Periodicals</td>
<td>72</td>
</tr>
<tr>
<td>A.1 Variables in the Military Periodicals Data Set</td>
<td>189</td>
</tr>
<tr>
<td>A.2 Variables in the Military Academies Data Set</td>
<td>190</td>
</tr>
<tr>
<td>A.3 Variables in the Division of Labor Data Set</td>
<td>191</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Predictions of the Study</td>
<td>28</td>
</tr>
<tr>
<td>1.2</td>
<td>Predictions for the Case Studies</td>
<td>32</td>
</tr>
<tr>
<td>5.1</td>
<td>Indicators of Military Professionalization in Turkey</td>
<td>136</td>
</tr>
<tr>
<td>6.1</td>
<td>Indicators of Military Professionalization in Egypt</td>
<td>156</td>
</tr>
</tbody>
</table>
CHAPTER 1

WAR MAKING WITHOUT STATE MAKING?
1.1 Examining the Conventional Wisdom

The notion that “war makes states” is not only intuitively appealing, it is widely accepted among students of state development and state behavior.\(^1\) However, is it always the case that war making leads to state making? In this study, I examine one important facet of state making, military professionalization, and argue that simply being involved in war does not fully explain how states develop. Only certain types of war outcomes—dire military defeats—systematically result in professionalizing military reform, and only certain characteristics of economic development—an advanced division of labor—systematically make these reforms lasting. Thus, this study contends that the conventional wisdom needs to be adjusted when it comes to military professionalization: war may make states in other ways, but it does not necessarily make professional militaries.

To develop this claim, this introductory chapter will answer three questions. First, what do scholars of state development argue when it comes to the relationship between war making and state making? Second, what does it mean for a military to become professional, and how is this related to state making (i.e., what is it about having a professional military that makes a state more stately)? Third, if simply being involved in wars does not explain the development of professional militaries, what does? I conclude this chapter by outlining how this study will examine these arguments empirically.

\(^1\)The quote is from Tilly 1985, 170.
1.2 Two Schools of Thought

In the study of how states develop, there are two schools of thought that link war making and state making. Taking different paths, they both arrive at essentially the same conclusion: war makes states. The first school comes from the study of international relations, and the second from the comparative study of history.

1.2.1 The Structural Neorealist School

The first school of thought argues that states’ military institutions are a function of interstate politics, and is most closely associated with structural neorealism in international relations theory, the leading proponent of which is Kenneth Waltz. In Theory of International Politics, Waltz contends that the hierarchy of power among states—or what he labels the structure of the state system—produces similarity in states’ internal institutions, including military ones. This effect occurs “through socialization of the actors and through competition among them.” For Waltz, the logic of natural selection underlies these twin forces of socialization and competition: “the close juxtaposition of states promotes their sameness through the disadvantages that arise from a failure to conform to successful practices.” Furthermore, the principal motor of structure-based socialization and competition is war or the threat of war. Thus, it is in this sense that, for structural neorealists, war makes states.

Building off of this insight, Barry Posen argues that units in a state system that is anarchic—i.e., that does not have an overarching, governing authority—will emulate the most successful unit or units in that system. Explaining why states adopted

\(^2\)Waltz 1979, 74.

\(^3\)Waltz 1979, 128.
nationalistic mass armies beginning in the eighteenth century, Posen argues that because states seek to preserve their autonomy in an anarchic international environment, they “will be concerned about the size and effectiveness of their military organizations relative to their neighbors.” In another study, Posen explains why states adopt offensive or defensive military doctrines, arguing that civilian leaders respond to interstate competition—of which war is an important element—reining in the offensive doctrinal proclivities of military leaders when necessary.

Thus, in explaining the origin of individual states’ military institutions, this first school of thought emphasizes the importance of external influences on shaping states’ internal politics. In what Peter Gourevitch calls the “second image reversed,” the systemic influences of competition and socialization, originating in the interstate struggle for power in an anarchic system, tend to define the types of military institutions that states choose.

Even theorists not typically associated with structural neorealism in international relations have adopted the notion that war influences the shape of states’ military institutions. Eliot Cohen, for example, points to two demands affecting states’ military manpower choices: external necessity and ideology. States, in Cohen’s view, respond to external threats—including war—as they must and to domestic ideologies as they can. For instance, a state may have many hostile neighbors (and, hence, an incentive to maintain a large, ever-ready military), but it may have to balance the size of the military or its method of preparation for war with societal norms against

4Posen 1993, 82.
5Posen 1984. Another neorealist scholar who, like Posen, uses the structure of the international system to explain military modernization is Resende-Santos 1996.
7Cohen 1985, 25, 32–3, 35.
long-term military service or conscription. In sum, the structural neorealist understanding of the “war makes states” argument has significant influence in the study of international relations.

1.2.2 The Comparative Historical School

Comparative historians have arrived at similar conclusions to those of international relations scholars. Two of the most influential are Otto Hintze and Charles Tilly. In his essay “Military Organization and the Organization of the State,” Hintze observes that “class conflict” and “conflict between nations” have “manifestly worked together in the design of the military order and the state organization.”\(^8\) For Hintze, there is a clear relationship between war and how states’ military institutions develop.

For his part, Charles Tilly emphasizes preparation for war in influencing the development of the state. Tilly argues that a state consolidates “when the accumulation and concentration of coercive means grow together.”\(^9\) Some states take a coercion-intensive approach to consolidating the state, some a capital-intensive approach, and others one of capitalized coercion. Despite the mode of consolidation, though, it is the preparation for war that leads to the expansion of state apparatuses, like bureaucracies. Though Tilly does not make the argument explicitly, this expansion of state apparatuses might in turn explain why some states’ militaries are more professional than others. States more intensively engaged in the preparation for war may be more likely to construct bureaucracies that professionalize the use of military violence.

\(^8\)Hintze 1975, 183.

Thus, the idea that war makes states—and, though Tilly does not make the connection explicitly, how war can make professional militaries—is central to the historical understanding of state development, as it is in international relations scholarship. This study, then, can serve to illuminate two different understandings of how war makes states, insofar as military professionalization also makes states. To establish this, however, it is necessary to describe what military professionalism is and how it is related to state development.

1.3 What is Military Professionalization?

Samuel Huntington, in one of the seminal works on military professionalism, identifies three major characteristics of a professional military, or, more specifically, of a professional officer corps: military expertise, social responsibility, and corporate spirit. “The peculiar skill of the officer,” he notes in reference to military expertise, “is the management of violence.”10 With respect to responsibility, “the motivations of the officer are a technical love for his craft and the sense of social obligation to utilize this craft for the benefit of society.”11 Finally, as “a public bureaucratized profession,” professional officers have a sense of corporateness.12 A professional military, then, is an institution that has a corporate officer corps, that cultivates a specifically military expertise, and that employs this expertise for the good of society.

10Huntington 1957, 13.
11Huntington 1957, 15.
12Huntington 1957, 16.
As militaries develop these characteristics, their organization becomes more modern and rational, in a Weberian sense. This is how Morris Janowitz, no less a scholar of the professional military than Huntington, describes the development of modern, or professional, militaries:

Armies can be thought of as being modern when they (a) incorporate the result of intensive scientific and technological processes, and (b) make use of bureaucratic and managerial forms; that is, they are “rational” in the sense of the term as used by Max Weber. Modern military institutions—and the various forms of political militarism or civil supremacy that have resulted—have meant the gradual emergence of a military profession with a system of selection, education, and training, career promotion, honour (code of ethics), and a measure of self-regulation.\textsuperscript{13}

Military professionalization, then, refers to the incorporation of rational, Weberian bureaucratic forms into military institutions. Officers in professional militaries are agents of the state (as opposed to being non-state actors), organized hierarchically into one corporate body; as organizations, they strive to translate scientific knowledge into military expertise; and they use such devices as selection, education, training, and promotion to ensure that their efforts are for society’s benefit. In sum, professional militaries are modern, rational organizations with three basic characteristics: they are corporate entities, they perpetuate a high level of expertise, and they are focused on the societal good.

\subsection{1.4 State Making and Military Professionalism}

For at least two reasons, having a modern, professional military helps perpetuate the state. On the one hand, professional militaries tend to be more loyal to state

\textsuperscript{13}Janowitz 1975, 417.
leaders than unprofessional ones. Under democratic regimes, a professional military is less likely to intervene in the democratic process; under authoritarian regimes, a professional military tends to maintain its political loyalty to the political leader. For decades, for example, the Prussian officer corps exhibited a fierce personal loyalty to the Kaiser, and the United States military is professional to the point that any intervention in the democratic process is unthinkable. In short, a professional military is a more reliable tool of statecraft: it is more likely to come to the state’s defense in time of crisis, and to remain on the sidelines when the state requests it.

On the other hand, professional militaries give the state more potent means for doing what states do: extracting resources, defending territory, enforcing rules, establishing physical security, projecting power, and so forth. This is because professional militaries—as rational bureaucracies—are more efficient at providing these services to the state. For instance, one reason that sovereign territorial states endured beyond the seventeenth century, while city-states and city-leagues largely did not, was that they were better at centralizing authority in the territory under their jurisdiction, something that coherent, hierarchically organized military institutions facilitate. So, states with truly modern, professional militaries are more likely to survive the attacks of enemies both foreign and domestic. A professional military is thus not only a more reliable, but also a more effective, tool of statecraft. For these two reasons, it is in state rulers’ interest to develop and maintain professional military forces.

1.5 Why Not Professionalize?

If having a professional military is so desirable, then why don’t all states simply get their military institutions right? The answer is that developing professional military

\[\text{Spruyt 1994, 527–8.}\]
institutions can be risky, costly, and politically difficult. It is risky when state leaders are not certain of the military’s loyalty during the period of transition to a professional military. For example, the Ottoman Sultan Selim III lost his throne—and nearly lost his life—in 1807 in a failed attempt to reform the Empire’s army along modern lines, due mostly to a revolt by the very forces that had sworn to defend him. So, if this military is not loyal, it can be a powerful—and potentially even deadly—enemy to state leaders. Professionalizing the military is a political risk.

Professionalizing the military is also very costly. It takes money to remove otherwise economically productive members from society and put them to work in the military, a quintessentially unproductive endeavor. It takes money to remove soldiers from directly military tasks (liking building fortifications and filling the breach) to train and educate them on the finer points of military knowledge, something that is required in highly professionalized militaries. It takes money to reorganize the military in a way that makes this training more effective. It takes money to keep soldiers in the military longer, so as to retain their knowledge, and thus the military’s professionalism. For example, a lack of resources likely hindered early Egyptian efforts at military professionalization—when Muhammad Ali Pasha tried to modernize the army in the first half of the nineteenth century, he had to drain the countryside of labor and create state monopolies for the sale of basic foodstuffs. Egypt went so far into debt that, in 1874, the treasury declared bankruptcy. In short, another reason that leaders may not be able to professionalize (at least not effectively, at any rate) is that it simply costs too much.

15 This resource crunch has been a problem in other eras, as well. See Kennedy 1989 and Smith 1776, Book 5, Chapter I, Part First.
Finally, changing the way militaries do things can be politically difficult. Elements of the polity—including the military itself—sometimes have a vested interest in keeping things the way they are. Conservative Prussian officers, for instance, watered down some of the farthest-reaching Scharnhorst reforms at the beginning of the nineteenth century. What is more, if professionalizing reforms contradict deep-seated norms or ideologies in society, it can be quite difficult for state leaders to push them through. For instance, the Ottoman Empire’s Janissary Corps literally had to be destroyed in 1826 in order to make way for reform—before that date, this institution managed to mobilize clerical and popular passion against the introduction of non-Muslim ways. State leaders are in power because some constituency supports their being there; if professionalizing military reforms challenge any significant part of this constituency, then ruling becomes that much more difficult. In sum, because reforming the military is risky, costly, and politically difficult, state leaders often find it hard to reform the military along professional lines.

1.6 Overcoming the Hurdles to Professionalization

War, it would seem, should stimulate military professionalization. War provides state leaders with an excuse to squelch internal dissent in order to professionalize, not to mention a reason to squeeze even more resources out of society to pay for the effort. In the presence of a clear external threat, moreover, the military is less likely to shift its loyalties away from state leaders. If societal survival is at stake—which it can be during war—then state leaders should have carte blanche to reform military

\footnote{Clemente 1992. See also Kier 1997.}

\footnote{Cohen 1985.}
institutions. War, in short, can make professionalizing military reform less risky, costly, and difficult for state leaders. This logic underlies a good deal of research on how states and military institutions form, not only in international relations, but also in history.

The problem with this logic is that it does not always obtain empirically. Time and again states have been involved in wars—and even some sound defeats—without truly professionalizing their militaries. The large-\textit{n} analysis of most states from 1820 to 2001 (in Chapter Two) suggests that, in the five years after wars, states are no more likely than at any other time to professionalize the military.\textsuperscript{18} France fought in the Napoleonic Wars and a raft of smaller colonial conflicts before professionalizing thoroughly after 1870. Egypt’s military was embarrassed by the Israelis in both 1948 and 1956, but did not professionalize until after 1967. Ottoman Turkey suffered defeat after defeat for nearly two centuries before finally achieving a modern level of professionalism around the middle of the twentieth century. One thing, then, seems clear: just being involved in a war is not enough to bring about military professionalization.

\subsection*{1.6.1 Why Simply Going to War is Not Enough}

The reason is that not all wars are created equal, a point that the “war makes states” logic can marginalize. In fact, this study suggests that there are two reasons why some wars are better than others at creating truly modern, professional militaries.

First, some war outcomes make it politically more feasible for state leaders to institute professional reforms. Not least among these are what I call dire military

\textsuperscript{18}The non-effect of war on military professionalization obtains even if this window is extended to ten years after wars.
defeats, or those wartime losses that are particularly severe. Dire defeats usually result in the loss or occupation of national territory, the recognition of incompetence on the part of the military, and a particularly high number of casualties. Furthermore, in the aftermath of dire military defeats, the discourse of defeat usually involves striving to regain lost territory and/or advocating significant changes to military (or even societal) institutions. The revelation of military incompetence diminishes the military’s societal position in opposing reform, and the loss of casualties and of national territory gives leaders a cause to rally society around. Thus, dire defeats make the professionalization of the military less risky and less difficult politically.

1.6.2 Why an Advanced Division of Labor Matters

The second reason has more to do with the pre-war economic situation than with the war outcome itself. If a state’s economy has developed to a critical point—what I call an advanced division of labor—then it is much more likely to develop and maintain a professional military in the wake of a war.

Accumulation of Wealth

There are at least three ways in which an advanced division of labor makes it more likely that state leaders will be able to professionalize the military. First, an advanced division of labor usually means that there is a greater amount of wealth in society, wealth from which the state can draw to finance expensive military reforms. The professionalization of the military—and the maintenance of this professionalism in
the long-term—is not a cheap endeavor. Thus, it is no surprise that defense spending rises considerably when countries launch professionalizing military reform programs (see, for instance, Figure 5.1 on page 136 and Figure 6.1 on page 156).

Simply put, professionalizing the military is very costly, and having an advanced division of labor, capable of generating the necessary resources, is one key to the effort. An advanced division of labor creates new sources of wealth due to the law of comparative advantage: producers of goods and services can produce them more cheaply as labor divides, since divided labor performs simpler tasks in the process of production, which is more efficient and reliable than one worker seeing the production of a good or service from its beginning to its end. This lower cost of production, in turn, increases the gains from trading these goods and services in the marketplace. These increased gains, which typically accrue to both buyer and seller, can be turned into greater production in the future (and, hence, into even greater gains). In addition, the increased productivity of workers in such a situation allows the state to remove otherwise economically-productive members of society from the workforce and set them to an economically-unproductive task: the military. Thus, as labor divides and the gains from trade percolate throughout society, societal wealth expands. If the division of labor has arrived at a sufficiently advanced stage, therefore, it is much more likely that there will be sufficient resources for the state to underwrite military professionalization.

**Urbanization**

The second link between an advanced division of labor and military professionalization is the level of urbanization. Scholars have noted that, as the division of labor
advances, urbanization also seems to increase. For instance, sociologists Jack Gibbs and Walter Martin find a statistical correlation between urbanization and sectoral differentiation in labor markets. They argue:

If large-scale urbanization requires that materials be brought from great distances, and if a high degree of division of labor and technological development are necessary for this, then the level of urbanization is contingent, at least in part, on the division of labor and technology.\(^{19}\)

This association may also be because labor division tends to occur more rapidly in urban, as opposed to rural, sectors—especially in manufacturing, service, or industrializing sectors of the economy—rather than in agriculture, since the gains from trade in the former tend to be shorter-term, more reliable, and potentially more lucrative. Urban gains from trade do not wait for the seasons to change, are not subject to the vagaries of weather, and often involve the production of luxury goods as opposed to basic ones, as is agriculture. All of this implies a faster, more reliable, and higher profit margin for the sale of goods and services produced in an urban setting. This, in turn, draws potential laborers from rural to urban areas, seeking higher-paying and more reliable work. All this may explain why we tend to see the division of labor and the level of urbanization advance together.

This advancing urbanization also makes military professionalization easier to institute. For individuals in urban settings, living with many other, densely-packed people requires much more restraint and discipline than rural life does. In urban settings, authority structures are more impersonal and rigid than in rural areas, and urban life requires working with other people on complex tasks, sometimes involving

\(^{19}\)Gibbs and Martin 1962, 668.
machines. Coincidentally, the skills that predispose one to success in urban life also define success as a military professional. For instance, a RAND Corporation study group notes that

the general concomitants of urban industrial existence—the ability to work in organized teams with advanced equipment—outweigh the martially useful qualities generated in nomadic or rural societies—fierce loyalties, personal bravery. 

A truly modern, professional military requires soldiers and officers that demonstrate discipline in response to impersonal authority, the ability to work in teams, and the ability to ascertain their place in complex systems. Since these skills are favored in urban life, a greater level of urbanization—one more element of an advanced division of labor—tends to also favor the long-term professionalization of the military.

Increased Human Capital

Related in some ways to urbanization, a third reason that an advanced division of labor facilitates military professionalism is in the accumulation of human capital. An advanced division of labor requires workers to be very specialized in their field. To give a simple example, instead of hiring artisans to mix, throw, shape, fire, and paint clay pots, a company that produces such pots will employ workers to perform each of these tasks individually. If the process is mechanized at all, then technicians are required to maintain, repair, and install machinery. As sales and production increase, the company will require managers of various stripes to effectively coordinate the workers’

\[\text{Pascal et al. 1979, 38. See also Pollack 1996, 148, who notes that “industrial societies require an extensive division of labor and a high degree of specialization among its members, far more so than is the case in any other sort of society. Because this specialization requires people to obtain a vast number of goods and services they do not provide for themselves, life in an industrialized society is dramatically more complex than is life in any other sort of society.”}\]
efforts. Moreover, as the workers themselves gain experience performing their highly-specialized tasks, they tend to become faster and more reliable at doing them. All of this implies increases in human capital, from knowing how to perform specialized tasks efficiently to understanding the complexities of managing large numbers of employees.

This human capital reserve is readily applicable to military professionalization. The modern battlefield requires much more than the illiterate fighter of yesteryear. It requires officers capable of being trained in the general problems of war. It requires officers that can read their orders and act in conjunction with other arms. It requires officers that can manage violence (and provisioning and planning and forecasting) given tolerance levels at least as low as those required in factories—modern warfare, after all, is even less forgiving than the primitive kind. It also requires both officers and men who understand the benefits of teamwork and can reliably learn their roles on that team. A professional military, in sum, requires individuals that can count on a good deal of human capital—the military expertise required on the modern battlefield depends on it.

**Why Is It the Division of Labor and Not Economic Development?**

The division of labor is related to economic development, but is not equated with it. Having an advanced division of labor means achieving a critical mass of human capital in the work force: workers develop attributes like the ability to follow schedules and work in teams, as well as the ability to function in a regimented, urban setting. In addition, an advanced division of labor implies having more productive workers, which increases the overall output of society and which makes urban life possible. Thus,
an advanced division of labor is associated with urbanization, significantly increased human capital, and an accumulation of societal wealth, all of which are facets of economic development.

Economic development, however, is a much broader concept than this. In addition to the division of labor, economic development has been associated with increased consumption, the secularization of society, improved quality of life, and increased political participation. These elements of economic development may or may not have an influence on the state’s ability to professionalize the military over the long term. Hence, I choose to develop a more constrained concept—an advanced division of labor—that directly targets the elements of economic development that have an effect on military professionalization.

1.6.3 When Do Dire Defeats and an Advanced Division of Labor Lead to Military Professionalization?

If these arguments are correct, then we should see greater military professionalization when we also see dire military defeats and an advanced division of labor. In order to predict—given the presence or absence of either or both of these two factors—when a state will or will not professionalize the military, it is important to be more specific about the role these forces play in the process. Are these two factors both sufficient for military professionalization, or are they merely necessary for effecting such reform, or is it a combination of the two that results in long-term military professionalism?

21 See, for instance, Huntington 1968; Lerner and Pevsner 1964.
The Division of Labor: Necessary for Long-term Professionalism

For three reasons, an advanced division of labor encourages the professionalization of the military: it generates wealth, applicable skills learned in city life, and human capital. In this sense, an advanced division of labor constitutes an enabling condition for military professionalization—it sets the stage for and underpins reform, but is not necessarily a catalyst in itself. The reason is that, without an external catalyst to destabilize the status quo, state leaders are likely put the resources gained via labor division towards things other than shoring up their rule—funding pet projects, lining their pockets, patronage, or rewarding constituents, for example. An advanced division of labor is thus an enabling—though not a sufficient—condition for the professionalization of the military.

In conjunction with some external catalyst, however (such as a dire military defeat), an advanced division of labor ensures long-term, thorough professionalizing reform. Absent such an advanced division of labor, reforms are more likely to die after a short time, given that the same human and material capital resources are less likely to be present. Such resources may originate from other places, but, assuming that this and other things are equal, an external catalyst is less likely to generate long-term military professionalism in the absence of an advanced division of labor. Hence, while an advanced division of labor is not necessary for prompting military professionalization in the short-term, it is necessary for perpetuating it in the long-term.
Dire Defeats: Sufficient for Initiating Reform

On the other hand, dire military defeats—severe defeats resulting in the loss of national territory—are powerful catalysts for changing military institutions. In the event of such a defeat, state leaders face a choice between making no changes to the military—and seeing their legitimacy crumble, since they proved unable to defend the nation and its land—and making changes to the military—and potentially seeing the effectiveness of their rule increase. Needless to say, most leaders would choose the latter option. Even Gamal abd al-Nasser, for instance, who wanted to resign in shame after Egypt’s dire defeat to Israel in 1967, shortly afterwards began a complete overhaul of the military. In this sense, then, a dire military defeat is a stimulant for immediate military professionalization.

In addition to increasing the effectiveness of their rule by professionalizing the military after dire defeats, state leaders can also use the loss of national territory to motivate the extraction of increased resources from society. In fact, state leaders may even be able to ratchet extraction up to previously unheard of levels. Continuing with the Egyptian example, in the wake of the 1967 defeat the government began conscripting college graduates (human, not material, resources) to serve as military officers, with an understanding that they would serve until the Sinai Peninsula was retaken. The conscription of college graduates would have been anathema before the war—and even elicited serious dissent after its introduction—but the government’s plan went forward nonetheless. This is one example of state leaders using the opportunity provided by a dire military defeat to increase the level of resources they
extract from society, resources they can use to help professionalize the military. So, there are at least two reasons—seeking legitimacy and taking advantage of a political opportunity—why dire military defeats are sufficient for the initiation of reform.

Dire Defeats and Labor Division Together: Necessary and Sufficient for Long-term Professionalism

Long-term, thorough professionalization—not short-lived reform—is the subject of this study. The former encourages state development much more than the latter. In this light, dire defeats, not to mention war outcomes that are neither dire nor defeats, do not necessarily result in long-term professionalism. The reason is that passion over territorial loss or crushing defeat fades with time; without the resources to build professionalizing military institutions, a dire defeat alone cannot sustain a long-term reform program. This is why an advanced division of labor is so important to long-term military professionalism, and, by extension, to the state’s overall, long-term development. Absent an advanced division of labor, a dire military defeat is not sufficient for sustaining professionalism over the course of decades. On the other side of the same coin, without a dire military defeat, an advanced division of labor may not be enough to catalyze reform in the first place. Hence, separately, these two forces would probably not bring about long-term military professionalization, but together they are both necessary and sufficient for effecting military professionalism in the long-term.
1.7 Other Pathways to Professionalism

This is not to say that having an advanced division of labor and being direly defeated in war is the only path to military professionalism. Other factors can undoubtedly influence state leaders’ decision to professionalize. The question to ask here is, what would reduce the costs—or increase the payoffs—to state leaders of professionalizing the military?

1.7.1 International Competition

For one, state leaders might be confronted with an international situation that cannot be considered a dire military defeat but can nonetheless increase the costs of not professionalizing. This could be called sub-dire international competition. For example, the threat of a superpower attack (or superpower subversion) likely motivated more than one state leader to modernize the military during the Cold War. In addition, military defeat can result in territorial loss without the military’s incompetence being plainly revealed, as in Mexico’s loss of most of its territory north of the Rio Grande in the Mexican-American War. It would be folly to claim that any international competition short of a dire military defeat implies no costs for not professionalizing. The point is that, of all forms of international competition, dire military defeats likely exhibit the highest costs—short of state annihilation—associated with not professionalizing the military.
1.7.2 Personality

In addition to international threats that do not reach the level of dire defeats, state leaders might simply have innovating proclivities, pathologies for reform, or some other personal motivation for professionalizing the military. In this group would surely be rulers such as Peter the Great of Russia and Francisco Solano López of Paraguay. Neither benefitted from a particularly advanced division of labor, nor did they suffer dire military defeats (at least not prior to reforms), but they managed an appreciable level of military modernization nonetheless. Thus, one alternative pathway to professionalization may be chalked up to the personality of state leaders.

1.7.3 Patronage

Another factor that could influence a state leader’s decision to professionalize is the presence of an international patron to pay for the reform effort. Where dire defeats and an advanced division of labor can together reduce the political and economic costs of professionalization, having another country finance reforms can constitute a serious incentive to do the same. For instance, during the Cold War the United States poured billions of dollars into modernizing other countries’ militaries. When approached, it is doubtful that many turned U.S. dollars away.

1.7.4 Technology

Another possible explanation for military professionalization is technological change. Simply put, battlefield technology may drastically increase the costs of maintaining old military institutions. For example, the pike and the longbow unhorsed the knight and sheared him of (most of) his armor. Why not the rifled cannon, high explosives,
and the machine gun? The “storm of steel” present on the modern day battlefield requires a fundamentally different tactical doctrine—what Stephen Biddle calls the “modern system”—which in turn could require the complete retraining of a military. Whether this implies an increase in professionalism \textit{per se} is unclear; the point is that technology could plausibly increase the cost to state leaders of not pursuing a more professional military.

1.7.5 Luck

A final alternative pathway to military professionalization may be dumb luck. Professionalizing innovations could arise from many quarters of a military organization, or even of society; coupled with benevolent international and domestic conditions, these innovations could spread and flourish into professional military institutions. Of course, as a social science explanation for military professionalization (or any social phenomenon, for that matter), this explanation is fundamentally unsatisfying. It is impossible to predict when luck will strike, and thus extremely difficult to falsify an explanation based on it. Still, the possibility is worth recognizing, since it may strike at a particularly (in)opportune time in the history of a particularly important case of professionalization.

1.7.6 What If They Are Right?

To say that my explanation for why state leaders professionalize the military is correct is not to say that any of these alternative pathways is incorrect. The opposite
is also true: if these alternative explanations are correct, then mine is not necessarily disproved. Military professionalization is a complex historical process, so it is very difficult to definitively eliminate one pathway or another as explanations.

This is not to say that one alternative pathway cannot be demonstrably more prevalent throughout history than the others. To determine whether this is the case, however, one must have criteria for verifying when any given pathway is active. For instance, if states are professionalizing in response to international competition that does not reach the level of a dire defeat (or, sub-dire competition), then the historical record would reveal a prevalence of professionalization around wars or militarized disputes in general, instead of following dire defeats and an advanced division of labor. If state leaders’ personal characteristics drive military professionalization, then the historical record would show these leaders’ personality resulting in professionalization even in the absence of dire military defeats and an advanced division of labor. If states tend to professionalize the military in response to international patronage, then such reforms should be more prevalent in time periods of increased patronage—like the cold war—or in the presence of potential patrons—as when states have great powers for allies. If states professionalize the military in response to technological change, then the process of professionalization might look different after the change, as compared to before.

While this study is not set up to systematically disqualify any of these alternative explanations, it does take steps to tease out their relative historical prevalence. The large-\( n \) analysis, for example, includes controls for sub-dire international competition and the presence of potential patrons, and includes time-variant variables that might account for changes in technology. The case studies, in their turn, examine countries
both before and after World War I (a major watershed in terms of war-related technological change), and they examine two cases of professionalization—Muhammad Ali’s Egypt and Ottoman Turkey—where there was neither a dire military defeat nor an advanced division of labor, which could reveal the presence of alternative pathways to military professionalization. In sum, while it is extremely difficult to say that one of these alternative pathways is false, it is possible to judge their relative historical prevalence as compared with my dire defeat–division of labor argument.

1.7.7 What If Military Professionalization Precedes the Division of Labor?

Despite all this, there is one alternative pathway that, if shown to be correct, would seriously weaken my argument. This is the notion that a professional military is a precondition to achieving an advanced division of labor, instead of the other way around. If having a professional military necessarily precedes the development of an advanced division of labor, then there is no way that the latter could help cause the former, as I argue is the case.

The argument underlying this alternative pathway is as follows: before the development of a professional military, it is much more difficult for a state to provide an environment conducive to labor division. Without the predictability and restraint that typically accompany a professional military, there is little incentive for producers to reinvest their earnings in value-adding enterprises. For instance, a farmer is less likely to expand from subsistence to cash crops if there is a good chance that state

\[22\] In fact, Ottoman Turkey experienced decades of sub-dire international competition, and Muhammad Ali seems to have thrown the weight of his ambition behind his military professionalization project.
agents will arbitrarily expropriate the fruit of his labors. This lack of investment, in turn, limits the creation of new labor tasks, and limits the incentive for workers themselves to work more efficiently. Hence, prior to the development of a professional military, significant advances in the division of labor are very unlikely.

While understanding what leads to an advanced division of labor is beyond the scope of this study, it is possible to judge how susceptible my argument is to this counter-causality. The question to be asked here is, What evidence would confirm or cast doubt on the notion that the causality is reversed, that military professionalization actually precedes an advanced division of labor? With respect to the large-n analysis, examining these two variables—military professionalism and the division of labor—at the same point in time would be inconclusive; I would not be able to eliminate the reverse-causality argument, which would in turn weaken my argument. As a result, in the large-n analysis I use lagged values of the division of labor, such that I am always examining the division of labor in years before the level of military professionalism. For example, it is impossible for the division of labor in 1955 France to have been caused by the level of French military professionalism in 1956. If my argument is supported under these conditions, then it would cast doubt on the reverse-causality argument.

In the case studies, military professionalization systematically occurring before the advent of an advanced division of labor would lend credence to the counter-causality argument. In four cases—Napoleonic France, early nineteenth-century Prussia, Ottoman Turkey, and nineteenth-century Egypt—state leaders embarked on some sort of military reform in the absence of an advanced division of labor. Given this, the question then becomes, Did these reforms lead to an advanced division of labor? For
this to be the case, professionalizing military reforms would have to endure up to and through significant labor division, since the argument is that a professional military sets the stage for the latter. If professional military reforms do not endure, however, but the division of labor advances significantly nonetheless, then it may be due to factors other than the presence of a professional military. Such an outcome would also cast some doubt on the veracity of the counter-causality argument. In sum, by looking at lags in the large-\(n\) analysis and the trend of professionalization in the absence of labor division in the case studies, I can judge how vulnerable my argument is to the counter-causality argument.

### 1.8 Predicting Professionalization

Under what conditions, exactly, will states professionalize the military, and when will they not? Figure 1.1 on the following page summarizes the predictions of this study. Based on the presence or absence of an advanced division of labor and a dire military defeat, states will professionalize their militaries to varying degrees. According to the argument just given, in the presence of both an advanced division of labor and a dire military defeat (represented by the northwest quadrant of Figure 1.1), states will engage in enduring, thorough military professionalization. As previously explained, this is because dire defeats stimulate states to launch reforms, and an advanced division of labor makes these reforms stick. In the northeast quadrant of Figure 1.1 are cases without an advanced division of labor that still experience dire military defeats; in these cases, states will launch professionalizing military reforms,
but these reforms will not endure. This is because, in spite of the political system’s being moved to reform the military, the human and material resources inherent in an advanced division of labor are not present to perpetuate military professionalism.

Considering the other half of Figure 1.1 (the two southern quadrants of Figure 1.1), this theory predicts that states not having experienced a dire military defeat will be less likely to attempt professionalizing military reforms than if they had experienced a dire military defeat. Even assuming, however, that they do launch reforms—perhaps because of some other element of international competition, say, an enduring rivalry or a sub-dire defeat—the efficacy of these reforms will depend on whether the state has an advanced division of labor.\textsuperscript{23} If the division of labor is not advanced (represented by

\textsuperscript{23}I must entertain the possibility of factors other than dire defeats stimulating reforms, since dire military defeats are rather rare—albeit extremely significant—events. I do not say, after all, that a
the southeast quadrant of Figure 1.1), any reforms that are attempted will most likely not endure. Again, this is because the conditions necessary for enduring, thorough military professionalization—conditions provided by an advanced division of labor—are not present. If, on the other hand, the division of labor is advanced (represented by the southwest quadrant of the figure), then any attempted reforms will be much more likely to succeed than with a backward division of labor.

1.9 Case Selection

I have selected the cases for this study so as to maximize inferential traction. For the large-\( n \) analysis in Chapter Two, I have gathered data on as many states as possible, such that the sample includes a significant majority of the countries in the world. I test the theory on as wide a sample as possible in order to support (or reject) the theory’s validity with respect to its basic claim, that dire defeats and an advanced division of labor explain long-term military professionalism.

By the same token, this theory of military professionalization does not apply to all political entities in all times and places. In order to qualify as a subject of study, a political unit must first be a state, which Charles Tilly defines as a

relatively centralized, differentiated [organization] the officials of which more or less successfully claim control over the chief concentrated means of violence within a population inhabiting a large, contiguous territory.\(^{24}\)

dire military defeat is the only stimulant to military professionalization. Rather, it seems to be one of the most significant of a number of such stimulants.

\(^{24}\)Tilly 1985, 172.
Statehood generally also means that other states recognize the state-ness of the organization that exerts its claim to control over a society. Secondly, to qualify as a subject of study, a state must have a military, which excludes such states as Costa Rica after 1948, Iceland, and Haiti after 1994.

There are a number of reasons for the case selection of the individual country studies: Prussia (Chapter Three), France (Chapter Four), Turkey (Chapter Five), and Egypt (Chapter Six). The principal reason is that these countries professionalized their militaries at different times. Prussia embarked on professionalizing reforms early in the nineteenth century, and France followed after the Franco-Prussian War later in the century. In addition, Turkey seems to have professionalized earlier than Egypt. Thus, if the expectations of the theory hold empirically, we can be relatively certain that it was due not to some global phenomenon (like technological change) but to the characteristics of the countries themselves.

There are other reasons for examining these cases, as well. One reason that I include France and Prussia is that there is a veritable treasure trove of scholarship on the military institutions of these two countries, and any credible study of military institutional change would be remiss if it did not include at least some discussion of these two cases. Beyond this, and related to why so many scholars have studied these two countries, the vast majority of the world’s militaries—including other European ones—have at one time or another borrowed militarily from one or both of France and Prussia: the general staff, mission-specific orders, critical military thought and literature, meritocratic advancement, the skirmish line, in-depth operational planning, and
an impressive array of weaponry were all innovations born in France or Prussia, or both. These two nations are the grandfathers of most modern military institutions; to avoid discussing them would leave many an eyebrow raised.

I have included Egypt and Turkey for at least two reasons. First, at different times in their histories they have professionalized to varying degrees. Both countries launched reform efforts in the nineteenth century, but neither succeeded in making these reforms last. Deeper reforms had to await the twentieth century. Thus, in addition to providing variation in the timing of professionalization, they also provide variation in the degree of professionalization. It will be easier to understand how enduring military professionalism develops by including these cases.

Second, Egypt and Turkey are poorer, non-European countries. This is important for establishing how states have developed professional militaries outside of Europe, and for determining whether overall economic wealth—of which an advanced division of labor is a part—plays a decisive role. If the study’s predictions seem to hold in all four cases, in spite of variation in the timing and degree of professionalization, not to mention any region- or wealth-related factors, then the theory would be supported. If the predictions do not hold, then the variation between cases may hold clues as to why.

1.9.1 Predictions for the Case Studies

What outcomes, specifically, does the theory predict for the case studies? Figure 1.2 on the next page shows where each of the seven cases falls in terms of having a dire military defeat and/or an advanced division of labor when state leaders launched
professionalizing military reforms. Each case study asks, “Does the case fit with the outcome predicted by the theory? If not, why not, and does this imply a reassessment of the theory itself?”

Each group of cases tells us something different about the theory. Cases from the northwest quadrant—France after 1870 and Egypt after 1967—should suggest how dire military defeats and an advanced division of labor, considered together, are necessary and sufficient for achieving long-term, thorough military professionalization. Of the seven cases, they most closely illustrate the causal story this study tells.

This study would be incomplete, however, if it did not examine the other cases. Investigating cases in which one or both of the two main variables in my causal story are absent would more clearly define their individual impact on state behavior. So,
for instance, the northeast quadrant—Prussia after 1806—predicts only short-lived reform, which patently did not obtain in this case; at least by the middle of the nineteenth century, Prussia had one of the most professional armies in Europe. This may be because, from about 1820 on, the Prussian economy underwent a period of rapid labor division. Thus, where Prussia experienced a dire military defeat in the absence of an advanced division of labor as it began professionalizing the military, an increasingly advanced division of labor may have been enough to perpetuate and deepen these reforms.

The southwest quadrant of Figure 1.2—an advanced division of labor but no dire military defeat, represented by Turkey after 1947—also tells an interesting theoretical story. Republican Turkey has never experienced a dire military defeat, but did experience a period of significant labor division beginning just before World War I. In the context of this advanced division of labor, after World War II Turkey launched an enduring military professionalization program in response to, first, the Soviet threat and, second, American financial assistance. This case, then, lends credence to two alternative pathways to military professionalization: sub-dire competition and international patronage. That said, the division of labor also played a critical role, as evidenced by Turkey’s earlier, Ottoman experience with military professionalization.

From the southeast quadrant, the history of Ottoman Turkey highlights the necessity of an advanced division of labor for long-lasting professionalizing reform. Time and again, Ottoman Turkey suffered military defeat—though never a dire defeat—in which the military was routed, eventually resulting in the break-up of the Empire itself.25 These defeats often resulted in attempts at military reform, but—perhaps

25The Ottoman Empire never lost national—i.e., Turkish—land, only the land of subject peoples. After World War I, Italian and Greek forces invaded Turkish Anatolia, but the Turks drove them
due to a backward division of labor—these reforms did not last. It was not until the middle of the twentieth century—after the division of labor had reached a fairly advanced stage—that the Turkish military became a modern, professional force.

The cases of nineteenth-century Egypt and Napoleonic France also highlight the importance of an advanced division of labor for long-term military professionalism. In neither case did the military suffer a dire military defeat; more often than not, they were victorious. Based largely on the ambition of the principal state leaders—Napoleon and Muhammad Ali—these two countries made significant strides in professionalizing the military. While this lends support to the personality pathway to military professionalism, these reforms do not seem to have been enough to truly professionalize these two militaries. The fact that there was not an advanced division of labor in these countries during these two episodes is illuminating; it was not until after these two countries had experienced significant labor division, not to mention dire military defeats, that they underwent long-term, enduring military professionalization (France after 1870 and Egypt after 1967).

So, while there may be subtle divergences from what the theory predicts in these cases, these divergences are not uninstructive. In the absence of a dire military defeat, some elements of international competition or leaders’ personalities may be enough to launch reforms, but in the absence of an advanced division of labor, they will likely not endure.

back before the end of the war. In the nineteenth century, Egypt’s Muhammad Ali managed to cross with his armies into Anatolia, but the European powers forced him to retreat almost immediately. Thus, Ottoman Turkey’s military experience very nearly reached the level of a dire military defeat on a number of occasions, but never quite achieved that level.
1.10 Measuring War, the Division of Labor, and Military Professionalism

Evaluating the empirical claims of this study requires the measurement of three variables: military professionalism, dire military defeats, and an advanced division of labor. This section describes the guidelines for measuring these variables in broad terms—more specific guidelines are left for later chapters and the appendix.

1.10.1 Military Professionalism

To measure military professionalism, I use indicators of Huntington’s three characteristics: expertise, responsibility, and corporateness.\(^\text{26}\) For the large-\(n\) analysis (in Chapter Two), I use the presence of a military academy in a country, the number of military periodicals published in a country, and a country’s military expenditures per soldier.\(^\text{27}\) Military academies are related to all three elements of professionalism: expertise because they impart training to military officers, responsibility because they instill duty and loyalty in the officer corps, and corporateness because an academy education is often a barrier to entry into the corps. Military periodicals are related to expertise and corporateness: expertise because they are a forum for the development and dissemination of military knowledge, and corporateness because they define the knowledge required to be a military professional. Finally, military expenditures per soldier are also related to expertise and corporateness: expertise because a military

\(^{26}\)Huntington 1957, 13–6.

\(^{27}\)In addition to the definitions for quantitative measures given in Chapter Two, the Appendix gives in-depth coding rules for each of the main variables in the large-\(n\) analysis.
with more resources can train better soldiers, and corporateness because a more elite pool of soldiers from which to select officers translates into a more elite officer corps.

In addition to tracking changes in these three indicators, the case studies will also describe improvements in military training and education (in terms of both length and quality), increases in the transparency of and requirements associated with promotion and pay, the formation of general staffs and staff schools, the sending of officers overseas for training, improvements in discipline, and indications that the military—as an institution—is becoming more loyal or dedicated to the state or society. In short, measuring military professionalism in the case studies goes beyond that of the large-\(n\) analysis.

### 1.10.2 Dire Military Defeats

A dire military defeat is a war that results in the loss of national territory and severe casualty rates.\(^{28}\) For the large-\(n\) analysis, I consider a country to have suffered a dire defeat if they are on the losing side of a war and if they have lost territory. Data for this measure come from the Correlates of War Inter-State War and Territorial Change data sets.\(^{29}\) I also examine the average number of battlefield deaths the losing side suffered per day of fighting—a quick conflict with high casualties for the losing side would suggest a dire defeat, but a longer conflict with fewer casualties would suggest a military defeat that was not so dire.

\(^{28}\)Typically, dire military defeats also reveal military incompetence in the losing side, although it would be difficult to imagine a military defeat that results in national territorial loss and high casualties but in which the military’s performance is regarded as adequate.

\(^{29}\)Correlates of War Project 2005a,b; Tir et al. 1998.
For the case studies, in addition to using the aforementioned measures, I look at other indicators of a dire military defeat: the mobilization of significant societal resources in response to the defeat, calls for change in the military by political leaders, and evidence that regaining territory motivated political or military change. This will be the working definition for dire military defeats in the case study chapters.

1.10.3 An Advanced Division of Labor

The division of labor is the diversification of tasks among an economically active population, which follows on Adam Smith’s *Wealth of Nations*. For the large-*n* analysis, I gauge how divided a labor market is using three indicators: the dispersion of workers across the different sectors of an economy, the proportion of agricultural workers in an economy, and the level of urbanization. Data for the first two measures come from Brian R. Mitchell’s *International Historical Statistics*, which uses the International Labour Organisation sectoral classifications and catalogues the number of workers per sector per year. Data for the third measure—the level of urbanization—come from the Correlates of War Project.

Determining whether a state has arrived at an advanced division of labor, however, goes beyond this. Such an economy would have achieved critical levels of these three indicators. In Chapter Two, then, I develop critical levels beyond which a country could be considered to have an advanced division of labor.

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30Smith 1776, Book I, especially pp. 15-7. See also Becker and Murphy 1992; Carter and Keon 1986; Gibbs and Poston 1975; Smith and Snow 1976.

31Mitchell 2003a,b,c.

32Correlates of War Project 2005e; Sarkees 2000; Singer 1987.
The case studies employ additional indicators of the division of labor. For one, an advanced division of labor may be correlated with significant middle class growth (which generally results from economic diversification and the emergence of service and trade sectors), with liberalizing economic reforms (which allow producers to take advantage of competitive labor costs and laborers to reap the gains of new work), and with growth in collective labor movements (which form to help specialized workers compete in the market). The division of labor may also be associated with a decrease in the importance of agriculture to the economy relative to non-agricultural pursuits, especially manufacturing (since this often involves the adoption of new skills and trades). Thus, if labor markets are specializing we should observe a highly-diversified labor market, a high level of urbanization, high labor collectivization rates, advanced economic liberalization, a significant shift away from agriculture and/or a growing middle class.

1.11 Why War May Still Make States, After All

The intent of this study is to tease out the links between war making and state making, not to refute the link entirely. To this end, it examines one piece of the puzzle: how states professionalize the military in response to war. The reform of military institutions has, historically, been an important pathway to state development, so if war (or even international competition writ large) does not systematically result in military professionalization, then it may suggest the need to emend the war-making-as-state-making link itself. This study, however, will examine only military
professionalization, not other facets of state development. As a result, the conclusions are duly restricted: even if the evidence fully confirms the theory, the conclusion cannot be that war making does not lead to state making.

In sum, this study intends to make a unique contribution to our understanding of state development, in general, and military professionalization, in particular. It uses comparative measures of military professionalism to study a large number of countries over a long period of time, something which no other study has done. It also makes cross-regional comparisons, something that only one other study, to my knowledge, has done. I hope to show in the chapters that follow that, in states that continue to remain states and that retain their militaries, experiencing a dire military defeat and having an advanced division of labor are—together—necessary and sufficient to produce long-term, thorough military professionalization. Inasmuch as having a modern, fully-professional military is an important marker of state development, it is worth knowing how—or if—war drives this process.

33 This study is Ralston 1990, which examines military reform in only a few countries.
CHAPTER 2

WAR AND MILITARY PROFESSIONALIZATION: A STATISTICAL EXAMINATION
2.1 A Closer Look at War

Is there a systematic relationship between war and military professionalization? If such a relationship exists—and intuition suggests that it does—what are its characteristics? Structural neorealist theory, from the study of international relations, might contend that war—as an important manifestation of inter-state competition—provides a powerful motivation for changing the military. In this view, war tends to result in similar military institutions across states; and, since professionalization has been the norm over the last two centuries, war should result in greater military professionalism. From comparative history, scholars like Charles Tilly might argue that war—as an important manifestation of states using violence—allows state leaders to increase the extractive reach and capital intensiveness of their coercive means. In this view, also, war would result in greater military professionalism, since it is an important facet of state making. For both schools, then, the notion that war makes states probably also means that war makes professional militaries.

Few studies, however, examine this question using a cross-regional framework or comparative statistical measures. This chapter seeks to fill this gap by developing comparative measures of military professionalism and by examining how war—among other factors—affects when states will professionalize the military.

The results suggest that we should refine our thinking about how states professionalize the military in response to war. First, simply being involved in a war does not seem to make a state more likely to professionalize the military. Not surprisingly, however, wars that result in defeat—and perhaps even those that are dire defeats—do

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[^34]: Two possible exceptions are Pascal et al. 1979, which uses statistical measures of military quality, but only for Middle Eastern countries, and Ralston 1990, which examines military modernization cross-regionally, but only for a small number of countries.
seem to increase the probability that a state will professionalize the military. Thus, not all wars are created equal, a point that probably warrants greater scrutiny if we wish to better understand how states develop.

Second, reaching a critical point in the process of economic development—achieving an advanced division of labor—also seems to be important for the timing of military professionalization. Neither war, nor even defeat in war, affects the probability that states will professionalize the military as consistently as having an advanced division of labor does. As the argument of this study goes, having the material and human capital resources that come with an advanced division of labor may be essential to realizing a truly professional military. This is another point that likely warrants a more explicit place in our understanding of how states develop.

This chapter proceeds by building upon the conceptual definition of military professionalism from Chapter One to develop indicators that can usefully compare a large number of countries over a long period of time. Then, it touches on the data collection process and briefly describes the data arising from these efforts. It continues with the specification of and justification for the statistical models, and concludes by discussing the results and laying the groundwork for the case study chapters.

2.2 Measuring Military Professionalism

Military professionalism is the ability of the state to manage the use of military violence. In particular, professional militaries tend to exhibit three characteristics,

\[\text{35}\text{The codebook in the Appendix goes into greater detail about data sources and coding rules.}\]
typically thought of as applying to the officer corps: expertise, responsibility, and corporateness.\textsuperscript{36} The first characteristic, expertise, refers to the existence of a military-specific body of knowledge, and to the development, dissemination, and application of that knowledge through training or education. The state can better manage a more expert military if that military is efficiently trained to defend the state.

Responsibility refers to the loyalty and duty that the officer corps demonstrates towards the state or society, or both. A loyal officer corps is more likely to accede to the state’s wishes, which in turn makes the state’s management of military violence more effective.

Finally, corporateness refers to the extent to which officers regard the corps as a separate entity in society, with its own unique function. In this regard, there may be barriers to entry into the officer corps or specific knowledge or skill sets that are necessary for being considered part of the club, so to speak. A more corporate officer corps has a greater sense of state control over the military insofar as the corps, as a body, exists to serve the state. Thus, the existence of expertise, responsibility, and corporateness in an officer corps generally make it easier for the state to manage the military violence that is used in its name; such a military can be considered professional.

\subsection*{2.2.1 Military Academy}

This study employs three measures of military professionalism, each capturing two or three of the aforementioned characteristics: the presence of a military academy, the

\footnote{Huntington 1957 originally developed these three characteristics, and took them to apply specifically to the officer corps. Others arguing that military professionalism applies only to the officer corps are Alagappa 2001; Caforio 1988; Harries-Jenkins 1989; Janowitz 1971; Teitler 1977; Vagts 1994.}
number of military periodicals, and military expenditures per soldier. The presence of a military academy is associated with a greater level of expertise, responsibility, and corporateness in the officer corps of a state’s military. Officers’ level of expertise is likely to be higher if the state has a military academy because academies focus on training future officers in the skills and knowledge they will need to perform their functions. In addition, another of academies’ primary responsibilities is to instill in the officer corps duty and loyalty to the state or to society. Finally, attendance at an academy is typically regarded as necessary for gaining an officer’s commission, and is often required for advancement in the higher ranks. Thus, inasmuch as an academy training is a barrier to entry into the officer corps, it is also an indication of the corps’ level of corporateness. One would expect that, with a military academy, a state would be better positioned to train the number and type of officers it needs to manage the use of military violence. In short, the presence of a military academy suggests that a military has achieved a non-trivial level of professionalism.

2.2.2 Military Periodicals

The number of military periodicals is associated with expertise and corporateness. Military periodicals are a forum for the cultivation and conveyance of the knowledge that officers use in performing their duties, so a greater number of military periodicals indicates that the level of expertise in the officer corps is more varied and broader than that in states with fewer military periodicals. Additionally, military periodicals serve to define the knowledge set that effective officership requires, and, since a greater number of periodicals further refines and specifies this knowledge—and, hence, implies
stiffer barriers to entry—it indicates a higher level of corporateness in the officer corps. Hence, a greater number of military periodicals suggests a greater level of military professionalism.

### 2.2.3 Military Expenditures per Soldier

A higher level of military expenditures per soldier is also associated with expertise and corporateness. A state that devotes more resources per soldier to its military is likely to have better-trained officers and men. Military expenditures per soldier are, on the one hand, a direct indicator of the level of expertise in the officer corps. On the other hand, more military expenditures per soldier imply a greater level of expertise in the ranks. Since all militaries promote at least some officers from the ranks (often, but not always, via an officer training course), a better-trained pool of rank-and-file soldiers and non-commissioned officers (NCOs) allows the state to be more selective in the granting of commissions. This greater selectivity, in turn, suggests a greater level of corporateness in the officer corps, since its members are chosen from among a more elite pool of candidates. Thus, greater military expenditures per soldier suggest a higher level of military professionalism. Taken together, in sum, a higher level of military expenditures per soldier, the presence of a military academy, and a greater number of military periodicals suggest that a state is better able to manage the use of military violence.

### 2.3 Modeling Military Professionalization

Since the institutions of a professional military are “upwardly sticky”—i.e., it is more difficult for a military to de-professionalize than it is to professionalize once that
military has achieved a certain level of professionalism—I transform these indicators into dummy variables: a country receives a 0 until it reaches a critical threshold of military professionalism, after which it receives a 1.\footnote{I am indebted to Brian Pollins for alerting me to the notion that institutions can be “upwardly sticky”. In a related vein, this non-linear way of modeling military professionalization is not an inappropriate way to understand reality. Abbott 1988 argues that treating reality as if it is linear should be done with caution—the assumptions underlying the general linear model do not always obtain in reality.} In what follows, I describe how I arrive at the critical thresholds for each indicator.

2.3.1 Military Expenditures per Soldier

Of the three indicators of military professionalism, only the data on military expenditures per soldier are not original. These expenditure data come from the Correlates of War Project, and observations are arranged as country-years from 1816 to 2001. These data are in British pounds sterling through 1914 and in United States dollars thereafter (for neither currency are figures adjusted for year-to-year inflation), and they generally refer only to amounts spent in the current year (not projected spending), and only spending on active military forces (not reserves or paramilitary units).\footnote{The data are from the National Material Capabilities data set, version 3.02. See Correlates of War Project 2005e; Singer 1987; Singer et al. 1972.}

The critical threshold for the \textit{military expenditures per soldier} dummy variable is related to the annual average level of expenditures across all states in the data set. Since nearly all of the individual country series exhibit significant peaks and valleys in this indicator, I do not consider a country to have attained the critical level of professionalism until their annual military expenditures per soldier are greater than
the global annual mean expenditures for five consecutive years.\footnote{As with any cut-off point, a certain degree of arbitrariness is inherent in this five-year standard. Still, a sampling of individual country time series revealed only one obvious miscoding: Prussia/Germany experienced only one year in the nineteenth century in which its military expenditures per soldier were above the global mean, and it was not coded 1 until 1919.} Out of the 10,322 country-year observations in the data set, 3,706 (35.9 percent) are assigned a 1 and 6,616 (64.1 percent) are assigned a 0. As one would expect with a threshold of this sort, some country series begin and end with a 1, although many others begin and end with a 0.\footnote{Of the 214 country series in the data set, 23 are missing data for this variable. Of the 191 non-missing series, 131 (68.59 percent) end with 0, and 12 (6.28 percent) begin with 1.} Typically, when a country has attained this critical level of military expenditures per soldier, it does not fall below the mean thereafter.

### 2.3.2 Military Periodicals

The data on military periodicals and military academies, on the other hand, are original. Observations in the military periodicals data set—described in more detail in the Appendix—are individual military periodicals, with information on the country and years of publication, as well as any other names by which the periodical has been known (to avoid double-counting). Almost all observations come from two sources: Ulrich’s Periodicals Directory (On-line) and WorldCat (also known as OCLC or UnionLists).\footnote{FirstSearch 2005; Ulrich’s Periodicals Directory 2005. I gathered the data on military periodicals from June to December, 2005.} These two sources complement each other well: Ulrich’s gathers information directly from publishers and is useful for documenting most twentieth-century and some nineteenth-century periodicals, while WorldCat catalogues the ac-
tual holdings of libraries worldwide and is thus useful for documenting nineteenth-century periodicals and confirming twentieth-century observations. In most cases the two sources agree, and I have not yet come across a historical source that mentions a military periodical not included in the data set.\footnote{My search of historical sources has by no means been exhaustive, however, so I welcome any suggestions on improving the data.}

The oldest periodical appears in this data set in 1796, and observations run through 2005. After transforming this data into a series of country-year observations, most country-years report no military periodicals, and some report one or two. The tail tapers off from there: a small number of observations—coming only from the United States and the United Kingdom, and only after World War II—have more than 100 periodicals.\footnote{The greatest number of military periodicals published in any country in one year is 671, for the United States in 2004. The next closest country to the US is the United Kingdom, with 199 periodicals in 2004.} The mean number of periodicals in the data set is 5.007 and the standard deviation is 28.760.

The critical threshold for the \textit{military periodicals} dummy variable is the point at which the number of military periodicals is greater than the global mean in a given year. Almost as a rule, when an individual country series goes above the global mean, it does not descend below it again.\footnote{In calculating the mean for the critical threshold, I exclude country-year observations of 100 or more periodicals. This lower mean made the results seem more valid in robustness checks. Moreover, only US and UK country-years are excluded—they are clear outliers, which may be because Ulrich’s and WorldCat are English-language sources.} Moreover, since the peaks and valleys that afflict the data on military expenditures per soldier are absent with the number of military

...
periodicals, there is no five-year “trial period” before a country goes from a 0 to a 1 on this variable. Of the 13,596 country-year observations in the data set, 4,512 (33.19 percent) are coded 1 and 9,084 (66.81 percent) are coded 0. 45

2.3.3 Military Academy

In the military academies data set, observations are individual military schools, with information on which state the school is located in, the years the school has been or was in operation, whether it meets the criteria for being a military academy (being controlled by the state and graduating cadets to commissions), and the sources used to support the observation. The main sources for this data are Jane’s World Armies and John Keegan’s World Armies, which have entries on training and officer selection for many of the militaries in the world.46 The military academy data also rely extensively on individual states’ Ministry of Defense and armed forces websites, the websites of military schools, and a wide array of secondary historical sources (all of which are documented in the data set itself).47 The data set includes a number of schools that opened as early as the eighteenth century, but the statistical analysis reported here only includes schools that were still in operation after the Napoleonic Wars. Observations do not include information after 2005. After transforming this

45Of the 214 country series in the data set, 160 (74.77 percent) never move from a 0 to a 1, 10 (4.67 percent) begin and end with 1, and 44 (20.56 percent) move from 0 to 1 at some point in the series.


47Of these sources, I was not able to gather the required information if they were not in one of the following languages: English, Spanish, Arabic, French, or Portuguese. Most Ministry of Defense websites had English-language versions, however.
information into a data set of country-year observations, most country-years report either no academy or one academy, although some report as many as 17. The mean observation across all country-years is 1.432, and the standard deviation is 1.634.

The critical threshold for the military academy dummy variable is whether a country has opened a military academy at some point in its history. As with the military periodicals variable, there is no “trial period” before a country is coded 1 instead of 0. Since many countries have opened an academy at some point, this threshold sets a substantially lower bar than for the other two indicators of military professionalism: of the 10,243 non-missing country-year observations in the data set, only 2,216 (21.63 percent) are coded 0, while fully 8,027 (78.37 percent) are coded 1. Of the 117 country series that have non-missing data, only 3 (1.4 percent) never establish a military academy (i.e., they are never coded 1 in the data set), while 42 (19.63 percent) begin and end with 1. Ninety-seven country series have no non-missing data, and 72 move from 0 to 1 at some point during the series.

2.3.4 Correlation between the Dependent Variables

Table 2.1 on the following page reports the pairwise correlation coefficients between these three indicators of military professionalism. Because these three measures represent different elements of military professionalism, it is not necessary that they demonstrate extremely high levels of correlation one with another to pass as valid. The number of military periodicals, for instance, focuses on the specialization of military-specific knowledge and the knowledge necessary for good officership, as well as elements of expertise and corporateness, whereas the level of military expenditures

48By and large, when a country opens a military academy it generally does not close it without opening another in its stead.
per soldier focuses on the extent of training for both officers and men and the selectivity of officer selection, which are also elements of expertise and corporateness but which get at slightly different facets of these overarching concepts. For its part, the presence of a military academy emphasizes the training and selection of officers in particular, which also captures elements of expertise and corporateness, but also responsibility. So, while these indicators measure the three conceptual characteristics of military professionalism, they may actually be measuring subtly different aspects of these characteristics.

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\(^a\) All pairwise correlation coefficients are significant at the .05 level.

Table 2.1: Pairwise Correlations for the Dependent Variables

2.4 Explaining Military Professionalization

Given the transformations of these three indicators of military professionalism, this chapter reports statistical models fitted to three dependent variables: military academy, military periodicals, and military expenditures per soldier. For each variable, I report a series of logistic regression (logit) models, as well as the predicted probabilities derived from these models. Logit models estimate the effect of one or more regressors, controlling for covariates, on the probability of a case falling into one of two discrete categories (in this case, being a 1 as opposed to a 0).\(^{49}\) All of

\(^{49}\)Hsiao 2003, 188–224.
the logit models I report here employ year fixed effects variables, in order to control for a potential lack of randomness over time, and to examine the variation between countries, as opposed to that within countries.\textsuperscript{50}

2.4.1 Explanatory Variables

What factors might explain the propensity of states to professionalize the military? The answer to this question—and, hence, the decision regarding which variables to include in regression models—should be driven by theory. So, this section describes the included variables, as well as the theoretical justification for including them.

War

The conventional wisdom indicates that war should affect the probability that states will professionalize the military. The reasoning is twofold. The first is the ratchet effect: state leaders use the threat created during war to justify the extraction of increased resources from society, resources that can be used after the conflict for military professionalization, since extraction rarely returns fully to pre-war levels after the guns have fallen silent.\textsuperscript{51} The second is the learning effect: during a war, states learn which military institutions work on the battlefield—the more intense or costly

\textsuperscript{50}Kristensen and Wawro 2003 suggest the use of fixed effects models for panel data such as this, although they suggest that unit—in this case, country—fixed effects should also be used. I do not employ country fixed effects, which could be problematic if there are significant country-level factors explaining the variation in the dependent variables. Since, however, many of the entered covariates—e.g., being a great power, economic wealth, and state size—probably account for a good deal of variation; and since large numbers of countries drop out of the analysis when I control for unit effects—given the lack of within-country variation in the dependent variables—I have chosen to employ only year fixed effects.

\textsuperscript{51}Barnett 1992, 3–11.
the war is, the more likely it is to result in reforms once the war is over. Given this logic, I include five variables intended to gauge war’s effect on state decisions to professionalize the military.

Data for the first four war variables come from the Correlates of War Inter-State War Participants data set, version 3.02. The first war variable I include is *war recent*, which equals 1 if a state has ended its participation in an interstate war in the last five years, and 0 otherwise. If involvement in interstate war systematically increases the likelihood of military professionalization—something suggested by both structural neorealists and comparative historians—then one would expect the coefficients for the *war recent* variable to be both positive and statistically significant in the regression models.

Second is the *deaths per day* variable, which assigns the average number of battlefield deaths a state endures in a conflict to the five years following that conflict. If, furthermore, a state ends participation in another war during this five-year period, the average number of battlefield deaths per day from this second conflict are added to those of the first in any overlapping periods. Ninety-two percent of all non-missing

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52 Correlates of War Project 2005a.

53 This five-year window has a historical precedent: most states that have engaged in far-reaching military institutional reforms seem to have done so in the five years or so after a war. For instance, the Prussians began the Scharnhorst reforms almost immediately after their 1806 defeat to France at Jena (see Clemente 1992); the French overhauled their general staff, officer training, and military manpower policies shortly after their crushing defeat in the Franco-Prussian War of 1870-71 (see Posen 1993); and the British pushed through the Haldane reforms beginning in 1905, in the wake of the Boer War (see Preston 1980).

54 For example, Egypt suffered an average of 1666.667 battlefield casualties per day in the 1967 Six Day War, so this number is applied to the years 1968–72 for Egypt for this variable.

55 To continue the Egypt example, Egypt suffered 9.615 battlefield deaths per day during the 1969–70 War of Attrition, so for the years 1971 and 1972, the *deaths per day* variable for Egypt is coded $1666.667 + 9.615 = 1676.282$. 

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observations of this variable are coded 0 (i.e., no interstate war occurred in the previous five years), while those that are coded 1 range from .023 to 25,416.67. If wars that are more costly or damaging lead to greater military learning—and, hence, increase the probability of military professionalization—then one would expect the coefficients for this variable to be positive and significant in the regression models.

The third war variable is war lost, which equals 1 if a state has lost a war in the last five years, and 0 otherwise. Other things equal, one would expect defeat in war to increase the probability of military professionalization, since defeat imposes costs that increase the value of military learning. So, coefficients for this variable should be positive and significant in the regression analysis.

Dire Defeat

What if, as this study contends, simply participating in a war—or even losing one—is not enough to engender professionalizing military reform? To analyze this proposition, I include two variables intended to capture the idea of a dire military defeat, presented in the last chapter. These variables are deaths in loss and territory lost. The deaths in loss variable equals 0 if a state has not lost any war in the previous five years, but is the average number of battlefield deaths per day for the five years after a wartime loss. If the notion that dire military defeats are what it takes to jolt the political system into reforming the military, then one would expect the coefficients for this variable to be positive and statistically significant in the regression models.

56 The mean is 18.26, and the standard deviation is 399.48.

57 Only casualties from losing wars are included, so it is not an interaction term, per se, between the deaths per day and war lost variables. So, had Egypt won the War of Attrition from 1969–70, the 9.615 average battlefield deaths per day from that war would not have been included in the deaths in loss variable.
The *territory lost* variable equals 1 if a state has lost homeland territory as a result of military conflict in the last five years, according to the Correlates of War Project’s Territorial Change data set.\(^5^8\) Otherwise, it equals 0. It is included here to capture the direst of wartime defeats; short of state destruction, little is more costly than losing a portion of the national homeland. So, one would expect the coefficients for this variable to be positive and significant in the regression models.\(^5^9\)

**The Division of Labor**

The previous chapter argued that having an advanced division of labor—with its martially-useful increases in human and material capital—increases the probability of military professionalization. This is because an advanced division of labor enables state leaders to implement professionalizing military reforms and to maintain this professionalism into the future. As a way of testing this argument, the regression models I report here include three variables intended to capture when states have

\(^{58}\)The version number is 3.0. See Correlates of War Project 2005b; Tir et al. 1998.

\(^{59}\)That said, an important caveat is worth noting here. From the documentation accompanying the Territorial Change data set, it is unclear that military conflict is the same thing as the war described for the other war variables. The Territorial Change Coding Manual notes only that “a major focus of interest in these data is the comparison between those cases that involved violence. This is coded if there was military conflict between organized forces of both sides” (Correlates of War Project 2005g, 4). This is a seemingly lower bar than the Inter-State War data set’s 1,000 battlefield deaths inclusion rule. Perhaps more important than the military conflict/war distinction, it is also unclear what constitutes homeland territory. The Territorial Change Coding Manual refers only to “dependent” and “homeland” territory; the lack of other options may have resulted in some dubious coding choices. Two examples with which I am familiar come to mind. First, Israel is coded as having lost homeland territory in 1949, but the poor definition of Israel’s state borders before this point—they had been a bone of military contention from May 15, 1948, on—makes this coding odd. Besides, it is unclear from the data set exactly what territory Israel lost at all during its War for Independence. Second, the data set codes Ottoman Turkey as having lost territory throughout the nineteenth century and up to the Balkan Wars, but it seems ahistorical to describe the territory thus lost as homeland (i.e., Turkish), as opposed to dependent (or some other type of) territory. For the analysis I report here, I have excluded these Turkish and Israeli losses from the generation of this variable. Still, it is unclear whether other cases should be excluded or included, so the reader should interpret the coefficients of this variable with caution.

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arrived at an advanced division of labor: *urbanization, non-agricultural workers*, and *labor dispersion*. As with the military professionalism variables, since I am trying to measure when states attain a critical level of the division of labor, and since the division of labor is “upwardly sticky”—i.e., these economic gains tend not to regress once they have been made—I have transformed these indicators into step-functions: they are coded 0 until a state arrives at a critical threshold of the division of labor, after which they are coded 1. Establishing those critical thresholds, then, is the key.

Urban life requires a certain degree of economic specialization; without a substantially productive agricultural sector, for example, large cities would be difficult to perpetuate.\(^60\) Using data from the Correlates of War Project’s National Material Capabilities data set, I obtained country-year observations of the percentage of a state’s total population that dwelt in urban areas. The critical threshold of urbanization is whether a state’s level of urbanization is greater than the annual global mean level of urbanization.\(^61\) From the first year it is greater than the mean, an observation is coded 1 for the rest of the country series, resulting in the *urbanization* dummy variable. Of the 13,020 non-missing observations in the data set, 6,702 (51.47 percent) are 1 and 6,318 (48.53 percent) are 0. In addition, there are 102 countries that have only 0’s and 46 with only 1’s (out of a total of 213 countries) for this variable.

The *non-agricultural workers* and *labor dispersion* variables are based on data from Brian R. Mitchell’s *International Historical Statistics*,\(^62\) which gives the numbers of

\(^{60}\)See Gibbs and Martin 1962.

\(^{61}\)This annual global mean increased steadily from 2.2 percent in 1816 to 24.1 percent in 2001. Although the difference is slightly wider, this range is comparable to the 7 to 17 percent range that Daniel Lerner gives as distinguishing a society as having passed into a modern level of literacy. See Lerner and Pevsner 1964, 59.

\(^{62}\)See Mitchell 2003a,b,c.
workers in different economic sectors at different times. Since countries have typically only gathered these data once every ten years or so (during a census) and since there is not a great deal of labor movement from one time period to the next, I interpolated missing data. Using critical thresholds of these two indicators, I transformed this data into the two aforementioned variables.

A higher percentage of non-agricultural workers in an economy suggests a greater division of labor. This is because, as agricultural labor divides and becomes more productive, it frees up labor and capital for other, potentially more productive sectors of the economy. To arrive at the non-agricultural workers variable, I compared the Mitchell data to a critical threshold similar to that for the urbanization variable: a country series was coded 1 from the point that its proportion of non-agricultural workers exceeded the annual global mean. As with the level of urbanization, once countries went above the annual global mean, they tended not to fall below it once again. Of 5,904 non-missing observations of this variable, 2,452 (41.53 percent) are coded 0 and 3,452 (58.47 percent) are coded 1. In addition, of 106 country series with non-missing data, there are 34 (32.08 percent) that have only 1’s and 36 (33.96 percent) with only 0’s.

The labor dispersion variable is derived—once again, using a critical threshold—from a measure of the division of labor developed by sociologists. After interpolating data for country series with missing data, I again used the point at which this measure indicated a division of labor greater than the annual global mean, coding the series 1

63This mean varied between 17.9 and 90.9 percent. It increased steadily from 1816 on.

64For the formula itself, as well as further discussion of this and other measures, see the Appendix. This formula, which calculates the dispersion of workers across all sectors of the economy, has been used by Carter and Keon 1986; Gibbs and Martin 1962; Gibbs and Poston 1975; Smith and Snow 1976.
from then on. Of 5,904 non-missing observations, 1,948 (32.99 percent) are coded 0 and 3,956 (67.01 percent) are coded 1. In addition, there are 24 country series with only 0’s and 37 with only 1’s.

**Systemic Structure**

In structural neorealist thought, war is only one of the determinants of state behavior. Much more central to such theories is the structure of the system, or the distribution of power and the security concerns this distribution engenders for states. States whose security is more susceptible to variations in the system’s structure are more likely to be influenced by the socializing and competitive pressures of that system, pressures that, in turn, can lead states to professionalize the military in order to compete. In order to more accurately capture this important element of neorealist theories, I include seven variables that try to get at the distribution of power and the security environment that states face.

The first systemic structure variable is *great power*, which equals 1 if a country is considered a great power by the Correlates of War Project in the year in question, and 0 otherwise. It is included because great powers tend to be more attuned to competition in the international environment and are thus more likely to adopt the

---

65 Raw values of this measure vary continuously between 0 and 1. Once a non-Western country increased on this measure above the annual global mean—which rose steadily from .24 in 1816 to a peak of .56 in 1999, and then fell to .53 in 2001—it tended to remain above the mean from then on, validating the measure. Western, industrialized countries, however, tended to descend steadily after a peak around World War II. Rather than calling into question the validity of the measure, this is likely evidence of the effect of the Bretton Woods system on international trade: post-WWII trade amongst industrialized countries allowed for increasing specialization *between* countries, as opposed to *within* them. See Verdier 1998.

66 Data for this and the next variable, *great power as ally*, come from the Correlates of War State System Membership data set, version 2004.1. See Correlates of War Project 2005f.
most successful military practices. If being a great power makes having a professional military more likely, then the coefficients for this variable should be positive and significant in the regression models.

The *great power as ally* variable equals 1 if a state has any formal alliance with any great power in a given year, and 0 otherwise, and is included because those states with great power allies may be socialized by the great power to adopt their more professional military ways. Coefficients for this variable should also be positive and statistically significant.

The *great power war recent* variable equals 1 for all observations if a great power war has occurred in the previous five years, and 0 otherwise. It is inserted in the analysis to capture the notion that the systemic forces of socialization and competition are likely to be strongest on the heels of a great power war, given that it is a system-changing event. If states respond to great power wars by professionalizing the military, then the coefficients for this variable should be both positive and significant in the regression models reported here.

The fourth system structure variable is *material capabilities*, which is a state’s Composite Index of National Capabilities (CINC) score from the Correlates of War Project’s National Material Capabilities data set (version 3.02). This score is based on six indicators of a state’s material power capabilities, and represents that state’s share of the world’s total material capabilities in a given year. This variable varies

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67In addition to using the aforementioned State System Membership data set, I also used data from the Correlates of War Project’s Formal Alliances data set (version 3.03) to generate this variable. See Correlates of War Project 2005c; Gibler and Sarkees 2004.


69Correlates of War Project 2005e; Singer 1987; Singer et al. 1972.

70So, for instance, a country-year observation of .05 on this index means that a country boasts 5 percent of the world’s material capabilities in a given year.
from near zero \((3.59 \times e^{-7})\) to .38, with a mean of .015. The reason for including this variable is that it is easier for states with higher CINC scores to professionalize the military, since they already benefit from corollary material capabilities. So, coefficients for this variable should be positive and significant in the regression models.

Fifth is the cold war variable, which equals 1 if the cold war is going on, and 0 otherwise.\(^{71}\) I include this variable because the superpower competition of the cold war—an important aspect of systemic structure—may have changed the calculus of state leaders when it came to professionalizing the military: a threat by one power, or an inducement by the other, could have made states more likely to professionalize during this time.\(^{72}\) Given this argument, coefficients for the cold war variable should be positive and significant in the regression models.

The sixth systemic structure variable is militarized interstate dispute (MID), a dummy that equals 1 if, in a given year, a state engaged in any dispute with another state that involved the use or threat of force.\(^{73}\) Otherwise, it equals 0.\(^{74}\) In the data set, 67 percent (8,417) of the observations are coded 0, while 33 percent (4,121)

\(^{71}\) I set the somewhat arbitrary dates of 1948 and 1991 as the start and end dates for the cold war, 1948 because the Berlin airlift was one of the first instances of superpower tension, and 1991 because that is the year the Soviet Union was officially dissolved. Though arbitrary to a certain extent, even if these dates are “off” by a few years it would not matter very much—this variable’s coefficients are rarely statistically significant in the regression models, and a perusal of the coefficients for the year fixed effects variables suggests that none of the years just before 1948 or just after 1991 had a robust, systematic effect on the propensity of states to professionalize the military.

\(^{72}\) It is noteworthy that, before the cold war, military missions from great powers were often paid for by the receiving country, whereas during and after the cold war such military missions have typically been on the great power tab.

\(^{73}\) Data for this variable come from the Correlates of War Project’s Militarized Interstate Dispute data set, version 3.02. See Correlates of War Project 2005d; Ghosn et al. 2004.

\(^{74}\) Using this dummy variable as opposed to finer-grained measures does not seem to have resulted in a consequential loss of information. When, instead of this MID dummy, I inserted (a) the number of MIDs a state was involved in or (b) the highest level of hostility a state demonstrated in a given year, neither the sign of the coefficients nor the statistical significance changed in the regression models.
are coded 1. Since states that are involved in MIDs are likely acting in a more hostile security environment, it is plausible that such states would be more likely to professionalize the military. Thus, coefficients for this variable should be positive and significant in the regression models.

The final variable in this group is the state size variable, which is measured as the natural log of a state’s total population.\textsuperscript{75} It is included here to capture the notion that larger states likely have more resources with which to professionalize the military, but they are also likely to have more neighbors and longer borders, and thus a greater likelihood of becoming embroiled in interstate conflicts. Hence, because larger states tend to have more resources and more threats to deal with, they are expected to be more likely to professionalize the military, other things equal. Given this, coefficients for this variable should be positive and significant in the regression models.

**Domestic Variables**

Whereas the structure of the international system can have an influence on the timing of military professionalization, state-level factors can also have an effect. Thus, three more variables are included in the regression models, corresponding to three domestic-level factors that can plausibly be linked to a state’s propensity to professionalize the military: regime type, economic wealth, and time since independence. The regime type variable equals 1 if a country is an established democracy in a given year, and 0 otherwise.\textsuperscript{76} It is included to examine the notion that democracies may be

\textsuperscript{75}Data for this variable come from the Correlates of War Project’s National Material Capabilities data set, version 3.02.

\textsuperscript{76}Data for this variable come from the Polity Data Project (see Polity IV Project 2005). If a country is coded 6 or higher in the Polity IVe data set’s polity2 variable, it is coded 1 for this study’s regime type variable.
better suited to develop professional militaries. In particular, Dan Reiter and Allan Stam argue that democratic militaries are more loyal to the regime, more efficient organizationally, and more meritocratic, factors which may be correlated with military professionalism.\textsuperscript{77} If this argument is to be believed, coefficients for this variable should be both positive and significant in the regression models.

\textit{Economic wealth} is measured as a country’s real GDP per capita in constant 1990 dollars,\textsuperscript{78} and is entered here because wealthier societies are likely to have more resources with which to professionalize the military. It is also important to include here because economic wealth has been linked to the modernization of society as a whole, which could also include the professionalization of the military.\textsuperscript{79} Based on this, coefficients for this variable should be positive and significant in the regression models.

The final variable entered in these regression models—\textit{time since independence}—is intended to capture the notion that state capacity generally increases over time. The reasoning behind including this variable is that more established states are more likely to be able to professionalize the military: they tend to have more established security apparatuses and/or political institutions, so to professionalize is less of a jump for these states than for comparatively “younger” ones. This variable begins with 1 and increases by one unit for each year a state remains in the data set.\textsuperscript{80} It

\textsuperscript{77}Reiter and Stam 1998.
\textsuperscript{78}Data come from Maddison 2005.
\textsuperscript{79}This is a reference to the modernization thesis, two important proponents of which are Huntington 1968 and Lerner and Pevsner 1964.
\textsuperscript{80}Thus, it is not really “time since independence” for the states that begin as part of the data set. Establishing a reasonable starting point for when such states became independent—say, the year 1648, the date of the Treaty of Westphalia—not only begs what independence really means, but also runs the risk biasing the regression estimates. If there were a small group of countries that had already reached a very high number for this variable when the data set began—they would already
varies from 1 to 189, with a mean of 52.7 years and standard deviation of 45.4 years. Coefficients for this variable, if the reasoning behind its inclusion is sound, should be statistically significant and positive in the regression models.

2.5 Results

The results, reported in Table 2.2 on the next page, Table 2.3 on page 65, and Table 2.4 on page 66, suggest that dire defeats could influence the process of military professionalization—although the effect of war in general is inconclusive—and that there is a clear, positive relationship between an advanced division of labor and military professionalization. With respect to the first, whether states will professionalize the military in response to a war is contingent on the type of war outcome: wars resulting in losses, or those resulting in a high number of casualties, have a greater tendency to be associated with military professionalization, as compared to war involvement in general. With respect to the second point, whether a state has been involved in a war or not—and irrespective of war outcomes—having arrived at a critical stage in the division of labor gives states a significant advantage in professionalizing the military. In other words, there is more to the military professionalization story than simply being involved in a war.

There are other findings, as well. For instance, there is some support for the notion that the structure of the international system also plays a role in the timing of military
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<td>.0002*</td>
<td>.0002</td>
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<td>.0032*</td>
<td>.0032*</td>
<td></td>
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<td>-.8511</td>
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<td></td>
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<td></td>
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</tr>
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<tr>
<td>Economic wealth</td>
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<td></td>
<td></td>
<td>.0003*</td>
<td></td>
</tr>
<tr>
<td>Time since independence</td>
<td></td>
<td></td>
<td></td>
<td>.0468*</td>
<td></td>
</tr>
</tbody>
</table>

| N (country-years)                       | 10,295  | 10,295  | 5,534   | 5,534   | 5,174   |
| N (countries)                           | 191     | 191     | 106     | 106     | 99      |
| Prob. > χ²                              | .000    | .000    | .000    | .000    | .000    |

*a Coefficients with an asterisk (*) are significant at the .05 level, one-tailed.

*b All models include year fixed effects.

Table 2.2: Statistical Models of Military Expenditures per Soldier
## Table 2.3: Statistical Models of the Presence of a Military Academy

<table>
<thead>
<tr>
<th></th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
<th>Model 9</th>
<th>Model 10</th>
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<td>.2318</td>
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<td></td>
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<td>1.2100*</td>
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<td>Regime type</td>
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<td>Time since independence</td>
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<td>117</td>
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<td>82</td>
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<td>Prob. &gt; $\chi^2$</td>
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<td>.000</td>
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<td>.000</td>
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*a Coefficients with an asterisk (*) are significant at the .05 level, one-tailed.

*b All models include year fixed effects.
<table>
<thead>
<tr>
<th>Model 11</th>
<th>Model 12</th>
<th>Model 13</th>
<th>Model 14</th>
<th>Model 15</th>
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<tbody>
<tr>
<td>War recent</td>
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<td>.6874*</td>
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<tr>
<td>Deaths per day</td>
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</tr>
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<td>Economic wealth</td>
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<tr>
<td>Time since independence</td>
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<td>106</td>
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<tr>
<td>Prob. &gt; χ²</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

a Coefficients with an asterisk (*) are significant at the .05 level, one-tailed.
b All models include year fixed effects.

Table 2.4: Statistical Models of the Number of Military Periodicals
professionalization: great power status and state size occasionally have a positive effect, in these models, at least, on the probability that a state will professionalize the military. Moreover, there is some evidence that stable democracies are more likely to professionalize, and—not surprisingly—the level of economic wealth and the amount of time since independence seem to be strongly associated with the likelihood of military professionalization.

There are puzzling results, as well, however. Many of the systemic structure variables are neither significant nor in the anticipated direction, which is also often the case for the war variables. Perhaps most surprising, though, is that losing territory in a military conflict demonstrates no positive effect on the propensity of states to professionalize the military, and in one model this association is statistically significant and negative. In the rest of this section, I further discuss the conclusions to be drawn from each of these three sets of models.

2.5.1 Military Expenditures per Soldier

The models of military expenditures per soldier highlight the role of an advanced division of labor, dire defeats, and domestic variables in fomenting military professionalization. Of the main variables in this study—those concerning war, dire defeats, and the division of labor—only four variables demonstrate a consistently positive and statistically significant association with whether a state’s military expenditures per soldier increase above the global mean for five consecutive years. These four variables are: deaths in loss, urbanization, non-agricultural workers, and labor dispersion. In addition, the coefficients of four control variables—state size, regime type, economic wealth, and time since independence—are positive and statistically significant. The
fact that three of these four control variables refer to domestic-level factors, and only one to systemic structure, suggests that characteristics internal to states may play an important role in determining the timing of military professionalization.

<table>
<thead>
<tr>
<th>If...</th>
<th>moves...</th>
<th>then the $\Delta$ in $Pr(\text{military expenditures})$ is...</th>
</tr>
</thead>
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<tr>
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<td>Labor dispersion</td>
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<td>+.107</td>
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<td>State size</td>
<td>min→mean</td>
<td>+.026</td>
</tr>
<tr>
<td></td>
<td>mean→max</td>
<td>+.237</td>
</tr>
<tr>
<td>Regime type</td>
<td>0→1</td>
<td>+.015</td>
</tr>
<tr>
<td>Economic wealth</td>
<td>min→mean</td>
<td>+.016</td>
</tr>
<tr>
<td></td>
<td>mean→max</td>
<td>+.972</td>
</tr>
<tr>
<td>Time since independence</td>
<td>min→mean</td>
<td>+.025</td>
</tr>
<tr>
<td></td>
<td>mean→max</td>
<td>+.916</td>
</tr>
</tbody>
</table>

All other continuous variables are held at their means, except the war lost and deaths in loss variables, which are held at their minimums. All other binary variables are held at their minimums, except for the cold war variable, which is held at its maximum.

Table 2.5: Predicted Probabilities—Military Expenditures

To gauge the relative effect of these variables on the level of military expenditures per soldier, Table 2.5 shows the changes in the probability of developing a professional military given changes in these key variables, all while holding other variables at base values. Of the division of labor variables, it appears that surpassing the non-agricultural workers threshold has the deepest impact on the propensity to professionalize: it translates into a 15.4 percent increase in the probability of having passed the military expenditures per soldier threshold, whereas passing the urbaniza-
tion and labor dispersion thresholds translate into increases of 2.3 and 10.7 percent, respectively. Thus, it seems that having an advanced division of labor increases a state’s prospects of professionalizing the military.

Also noteworthy is the impact of economic wealth and the amount of time since independence on the propensity to professionalize. Holding other variables at their base values, states that move from mean to maximum values of the economic wealth and time since independence variables are 97.2 and 91.6 percent more likely to have surpassed the military expenditures per soldier threshold. So, it seems that domestic factors and the division of labor play an important role in the military professionalization process.

### 2.5.2 Military Academy

The results for the military academy models are not as definitive as those for the military expenditures per soldier. In fact, the only division of labor variable that is significant is the urbanization variable, but this drops out of statistical significance in the fully-specified model (Model 10). A similar pattern obtains for the dire defeat and war variables: of all these, only the deaths in loss variable is statistically significant, but this significance also drops out in the fully-specified model. Of the systemic structure variables, only one—state size—is significant and in the positive direction.
If . . . moves . . . then the \( \Delta \) in \( \Pr(\text{military academy}) \) is . . .

<table>
<thead>
<tr>
<th>Variable</th>
<th>Movement (min→mean)</th>
<th>Movement (mean→max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State size</td>
<td>+.520</td>
<td>+.010</td>
</tr>
<tr>
<td>Economic wealth</td>
<td>+.005</td>
<td>+.010</td>
</tr>
<tr>
<td>Time since</td>
<td>+.081</td>
<td>+.010</td>
</tr>
</tbody>
</table>

a All other continuous variables are held at their means, except the war lost and deaths in loss variables, which are held at their minimums. All other binary variables are held at their minimums, except for the cold war variable, which is held at its maximum.

Table 2.6: Predicted Probabilities—Military Academy

As in Models 1–5, the domestic variables again make a strong showing. The regime type variable appears to be negatively correlated with the probability of having established a military academy at some point, which is puzzling, but the amount of time since independence and the level of economic wealth seem to have a positive effect on this aspect of military professionalization.

Table 2.6 summarizes these results. Moving from the minimum to the maximum of the economic wealth and time since independence variables increases the probability of having established a military academy by 1.5 percent and 9.1 percent, respectively. With respect to the time since independence, states that survive approximately 52 years as opposed to only one year increase their chances of professionalizing the military by 8.1 percent, and if that same state survives for 189 years, it increases its chances of having professionalized by a further one percent. Also noteworthy is the one statistically significant systemic structure variable: state size. States that are
of average size are about 50 percent more likely than their very small counterparts to have established a military academy at some point in their history. In sum, while there is almost no support in these models for the notion that war, dire defeats, or an advanced division of labor increase a state’s chances of professionalizing the military, there is noticeable support for the idea that domestic-level factors play a role in this process.

### 2.5.3 Military Periodicals

The models that use military periodicals as the dependent variable reiterate the findings of the previous two sets of models: an advanced division of labor and domestic variables have a substantial impact on the propensity to professionalize, as does the size of a state. In the fully-specified model, the *time since independence* and *economic wealth* variables are positive and statistically significant, as are the *non-agricultural workers* and *labor dispersion* variables.\(^81\)

Interestingly, these models also suggest that being a great power and losing a war promote military professionalization. What is more, neither of the other two fully-specified models (Model 5 on page 64 and Model 10 on page 65) suggests that these two factors are positively associated with military professionalization.

\(^{81}\)The *urbanization* variable is also significant and positive, but not in Model 15, which includes all of the variables.
If... moves... then the Δ in Pr(military periodicals) is...

<table>
<thead>
<tr>
<th>Variable</th>
<th>Change</th>
<th>Probability Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>War lost</td>
<td>0→1</td>
<td>+.197</td>
</tr>
<tr>
<td>Non-agricultural workers</td>
<td>0→1</td>
<td>+.098</td>
</tr>
<tr>
<td>Labor dispersion</td>
<td>0→1</td>
<td>+.082</td>
</tr>
<tr>
<td>Great power</td>
<td>0→1</td>
<td>+.213</td>
</tr>
<tr>
<td>State size</td>
<td>min→mean</td>
<td>+.055</td>
</tr>
<tr>
<td></td>
<td>mean→max</td>
<td>+.943</td>
</tr>
<tr>
<td>Economic wealth</td>
<td>min→mean</td>
<td>+.043</td>
</tr>
<tr>
<td></td>
<td>mean→max</td>
<td>+.945</td>
</tr>
<tr>
<td>Time since independence</td>
<td>min→mean</td>
<td>+.050</td>
</tr>
<tr>
<td></td>
<td>mean→max</td>
<td>+.918</td>
</tr>
</tbody>
</table>

* All other continuous variables are held at their means, except the war lost and deaths in loss variables, which are held at their minimums. All other binary variables are held at their minimums, except for the cold war variable, which is held at its maximum.

Table 2.7: Predicted Probabilities—Military Periodicals

Table 2.7 further interprets these findings. Losing a war in the previous five years increases a state’s chances of publishing more than the mean number of military periodicals by 19.7 percent. Having reached the non-agricultural workers and labor dispersion thresholds increases this probability by 9.8 and 8.2 percent, respectively. With respect to the systemic structure variables, being a great power increases the probability of having professionalized by 21.3 percent, and being a very large state as opposed to an average-sized state increases this probability by something on the order of 90 percent. Once again, the domestic variables also seem to play an important role: being one of the richest or one of the oldest countries dramatically increases a state’s propensity to have already published more than the mean number of military
periodicals in some year. In sum, there is some support for the war, division of labor, and systemic structure variables, but very strong support for the domestic variables influencing the process of military professionalization.

2.6 Motivating the Case Studies

If it were enough to know that, holding other factors to their mean effects, having an advanced division of labor tends to generate greater professionalism in a military, then this study could end here. Of course, this is not enough, for two reasons. First, a statistical analysis cannot establish whether dire defeats and an advanced division of labor are either necessary or sufficient (or neither, or both) for producing long-term military professionalism. In order to establish these effects more definitively, it is important to observe these two factors in isolation—to see how they act alone—and in temporal proximity—to ascertain their sequence vis-à-vis military professionalization.

Second, and probably more importantly, these results are inconclusive with respect to war, in general, and dire military defeats, in particular. True, in a number of models the deaths in loss variable—one indicator of a dire defeat—is statistically significant and in the anticipated direction, but the territory lost variable never achieves statistical significance in a positive direction, which is puzzling. Also puzzling is the almost complete lack of positive, statistically significant correlations between the general war variables and military professionalization. Does all this mean that wars and dire defeats really have that little of an effect on military professionalization, or is the statistical analysis missing something?

The case studies that follow seek to illuminate these two questions. Using seven cases from four different countries, they investigate how some wars matter more than
others and how the presence or absence of an advanced division of labor affects state leaders’ incentives to professionalize the military. In doing so, they support the notion that dire military defeats are a sufficient condition for launching professionalizing military reforms, but also that such reforms cannot be made permanent in the absence of an important enabling condition: an advanced division of labor. In short, these two forces are—together—necessary and sufficient for achieving the type of long-term military professionalism that helps build states.
CHAPTER 3

PRUSSIA: THE SHOCK OF DEFEAT
3.1 From Rout to Reform

The most significant reforms in Prussian military history occurred between 1806 and 1813.\textsuperscript{82} To be sure, there were changes in Prussian military institutions after the Napoleonic wars. For instance, in the 1850s Helmuth von Moltke used mission directives based on a common military doctrine and a great deal of subordinate initiative, introduced field telegraph units and camping equipment for the infantry, and planned operations using railroads for increased mobility.\textsuperscript{83} In the 1920s, Hans von Seeckt had troops trained on every weapon available to the army after Versailles, reinforced the unpolitical nature of the officer corps, and increased the number of non-noble officers.\textsuperscript{84} However, no reforms had as far-reaching implications as those that occurred after France’s October, 1806, rout of the Prussian army at Jena and Auerstadt.\textsuperscript{85}

There is more to the story of Prussian military professionalization, however, than the crushing 1806 defeat; the division of labor also played a role. Significant labor specialization began taking hold at about the same time that the military reforms got underway, but the Prussians arguably could not have made the reforms last in the absence of a continually dividing labor market. In short, the Prussian case indicates that

\textsuperscript{82}Prussian military history extends well beyond German unification in 1871, since Prussian military institutions dominated the German armed forces even after World War I. This Prussian influence on the German military did not peter out until after Hitler came to power. See Craig 1984.

\textsuperscript{83}Goerlitz 1953, 40–1, 76–7. Moltke’s use of mission directives was not completely original, however. August von Gneisenau implemented the concept of general directives when he took over as Chief of the General Staff upon Gerhard von Scharnhorst’s death in 1813.

\textsuperscript{84}Goerlitz 1953, 223–5.

\textsuperscript{85}For an account of the French victories at Jena and Auerstadt, as well the subsequent military campaign in Prussia, see Connelly 1987, 95–116.
dire military defeats can be a powerful spur to professionalizing military reform, although the Prussian military probably would not have achieved its nineteenth-century professional preeminence had Prussia not begun achieving an advanced division of labor at about the same time.

With this in mind, this chapter asks three sets of questions. First, what was the professionalizing nature of the post-Jena reforms? Did they serve to increase the Prussian state’s ability to manage the use of military violence? Second, what role did Prussia’s utter battlefield defeat play in these reforms? How did Prussian society and political leaders respond to Jena? Finally, what was the extent of the division of labor as the Prussian military professionalized?

3.2 The Scharnhorst Reforms

The father of Prussian military reform was Gerhard von Scharnhorst. The son of a tenant farmer, he made a name for himself as one of the preeminent military thinkers of his time, even before he entered the Prussian service. When he did enlist with the Prussians, in 1801, he made as conditions of his entry, first, his ennoblement and, second, the opportunity to reform the Prussian army, an opportunity that only truly presented itself after 1806.

3.2.1 The Stage Is Set: Prussia’s Post-Frederick Decline

When the Prussian army went to war against Napoleon in 1806, it was anything but the paragon of discipline and expertise it had been during the Seven Years’ War,
under Frederick the Great. From the end of this war, in 1763, the army had been in a gradual state of decline. Officer advancement was made based on seniority and nobility, not merit. Moreover, periodic parade reviews served only to “[accustom] the officers to having everything arranged; instead of developing commanders the reviews brought into being a corps of automatons.”

To make matters worse, since Prussian rulers had been setting up ad hoc military bureaus with poorly-defined authorities for decades, “the Prussian army had a decentralized and even chaotic administration.” The officer corps was also rife with corruption. There was no formal auditing system, and regimental colonels were allowed “a large discretion . . . in handling money.” Low officer pay and an anemic pensioning system made “most officers [feel] justified in making a profit out of the military pay and supply system.”

Training was also in an abysmal state before 1806. For one, there were rarely division- or corps-sized maneuvers. “Commanding officers were therefore inexperienced in handling large bodies of troops, and the men were unaccustomed to any drills or exercise that involved more than one regiment.”

Also, after 1798, all military cantons—except Brandenburg, which had a royal review every year—trained their reservists only every other year. Cavalry were not trained to cooperate with

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87 Rosinski 1966, 40–4.
88 In addition, Goerlitz 1953, 2, notes that most Prussian officers did not even have a university education prior to 1806. See also Shanahan 1945, 29.
89 Shanahan 1945, 24.
90 Shanahan 1945, 25.
91 Shanahan 1945, 27.
92 Shanahan 1945, 27. At this time, a system very similar to the Italian condottiere system—from about a century earlier—existed in the Prussian army. See Rosinski 1966, 39, 41–2, who also notes, on p. 42, that “the moral integrity of the officers . . . was not yet above reproach, nor their unity and cohesion anything like what it was to become during the nineteenth century.”
93 Shanahan 1945, 21.
the infantry, or to provide screening actions or reconnaissance. The training of the artillery was especially dismal: they did not practice firing at unknown ranges during peacetime, and they were drilled just as much as the infantry (a skill that was not nearly as useful to the artillery as it was to the infantry).\textsuperscript{94} Soldiers were also poorly paid and trained for only a few months out of the year, and desertion was widespread.\textsuperscript{95} Historian Walter Goerlitz describes the situation thus:

\begin{quote}
The Army, the backbone of this State of warriors and colonizers, had gone from bad to worse. Its outmoded tricks of drill, its rough and brutal methods of discipline, its scourgings and runnings of the gauntlet, made it seem like a single huge antediluvian penal institution.\textsuperscript{96}
\end{quote}

### 3.2.2 Scharnhorst Sets to Work

As a leader of a group of reform-minded officers, Scharnhorst immediately set about implementing his ideas.\textsuperscript{97} Made director of military education in 1801, he reorganized Berlin’s War School into the War Academy and focused its curriculum on training future staff officers. He also organized the \textit{Militärische Gesellschaft} on January 24, 1802, to provide a forum for current officers to discuss war on a scientific level.\textsuperscript{98} When the king put him in charge of one section of the general staff in 1803, Scharnhorst instituted “staff journeys”, in which staff officers would make

\textsuperscript{94}Shanahan 1945, 22–4.
\textsuperscript{95}Shanahan 1945, 31–3, 43–4.
\textsuperscript{96}Goerlitz 1953, 17.
\textsuperscript{97}In endeavoring to mobilize the nation for the defense of the state—the key to Napoleon’s success, according to Scharnhorst—the reformers tried to “[transform] military service from a despised occupation reserved to foreign mercenaries and the ‘lower orders’ into the highest honor of every citizen” (Rosinski 1966, 67).
\textsuperscript{98}Shanahan 1945, 64. Meetings were held often and were well attended. Shanahan notes that not less than “160 meetings were held before 1806, with an average attendance of 188.” Goerlitz 1953, 17, gives the opening date of the \textit{Militärische Gesellschaft} as July, 1801. This forum would later become the famed \textit{Kriegsadademie} (in 1859). See Clemente 1992, 172–5.

79
reconnaissance and planning trips to the sectors under their purview.\textsuperscript{99} He also made advancement to the general staff contingent upon passing a competitive examination.\textsuperscript{100}

Still, Scharnhorst and other reformers met mostly with frustration before 1806.\textsuperscript{101} A peacetime general staff structure was implemented in 1803, but “it had no real authority and the Army and divisional staffs lacked the skill born of experience.”\textsuperscript{102} Moreover, Scharnhorst correctly saw the need for a reorganization of the army along divisional lines, as the French army was organized. As it was, the different arms of the Prussian army—infantry, cavalry, and artillery—were not trained to act in concert. One key to Napoleon’s success was the combination of the different arms in large tactical units, or divisions.\textsuperscript{103} Some movement was made in 1805 toward restructuring the army in this way, but it was too little, too late: when the time came to take the field against the French, neither officers nor men were trained to take advantage of the new organization.\textsuperscript{104} Still, the pre-Jena efforts were not fruitless:

Though the king and his advisors were stirred into action only by [the Jena] debacle, the reform movement that was sanctioned after 1806 owed much to the previous efforts. . . . The attempts to reform the Prussian army only began to yield tangible results after the battle of Jena.\textsuperscript{105}

At Jena, the Prussian army’s shortcomings were laid bare, and far-reaching reform ensued shortly thereafter (even before hostilities with the French were concluded in

\begin{itemize}
  \item \textsuperscript{99}Goerlitz 1953, 59–60.
  \item \textsuperscript{100}Shanahan 1945, 71–3.
  \item \textsuperscript{101}Shanahan 1945, 86–7. In fact, most commanders simply ignored their staff officers’ advice during the 1806–07 war with France.
  \item \textsuperscript{102}Goerlitz 1953, 25. See also pp. 20–2.
  \item \textsuperscript{103}Goerlitz 1953, 13–4.
  \item \textsuperscript{104}Rosinski 1966, 48; Shanahan 1945, 85–6.
  \item \textsuperscript{105}Shanahan 1945, 68.
\end{itemize}
1807). Scharnhorst was made chair of the Military Reorganization Commission, which more fully instituted the divisional structure, tried to make promotions based more on merit than on seniority or nobility, established schools for the scientific training of officers (including the War Academy in Berlin), subordinated all military education under a Central Office for Military Education, introduced a more significant role for the general staff, created a Ministry of War, and pushed through measures to reduce corruption in the officer corps.\textsuperscript{106}

The post-1806 Prussian army was thus very different from the one that took the field at Jena in 1806. The army produced new field manuals, for instance, that outlined the new divisional tactics and training methods and abolished brutal disciplinary procedures, which were detrimental to morale and to a sense of social responsibility. Attaining an officer’s commission and advancement thereafter became dependent on performance in competitive examinations. Training on the general staff became a mark of special prestige, and commanders began taking advantage of staff planning and advisement. The new Ministry of War began coordinating military affairs, eliminating the overlapping jurisdictions and inter-agency rivalries that had prevailed before 1806. Finally, the reformers laid the groundwork for mobilizing the nation’s entire manpower by eliminating nearly all exemptions to conscription and creating the \textit{Landwehr}, \textit{Landsturm}, and officer training units.\textsuperscript{107}

\textsuperscript{106}Goerlitz 1953, 33–6.

\textsuperscript{107}Goerlitz 1953, 38, 51. See also Rosinski 1966, 71–2; Shanahan 1945, 124, 128–36, 141–6, 181–5, 197.
3.2.3 The Reforms Endure

Through these reforms, the Prussian army became more professional. The technical specialization of the general staff, the new divisional organization, and the inclusion of talented middle-class candidates in the officer corps allowed the army to achieve a previously unknown level of expertise. The scientifically-based military education system and competitive officer examinations at multiple levels contributed to the corporateness of the officer corps by specifying the knowledge base necessary for command and creating barriers to entry into the corps. The expanded series of military schools and the expansion of conscription to all citizens also fomented an even greater degree of responsibility to society in the officer corps. In short, the Prussian army was, by 1814, becoming much more professional than it had been in 1806.

That said, Scharnhorst’s reforms did not have as deep an impact as he had hoped, especially when it came to officer selection. For decades after 1806, the nobility successfully limited the impact of middle-class officers, often relegating them to the artillery and engineers and lobbying for the consideration of “character”—actually, nobility—when selecting officers. Thus, not a few noble-born but under-qualified candidates made it into the Prussian officer corps ahead of their middle class counterparts, especially in the first half of the nineteenth century.\textsuperscript{108}

Nonetheless, these reforms have a singular place in Prussian military history. Over time, the middle classes were effectively integrated into the officer corps, and the basic institutions that Scharnhorst advocated—a scientific officer education system, comparatively open competition for officer commissions, and a rational military hierarchy based on a general staff—maintained their significant impact until after Hitler came

to power. To be sure, there were other reforms throughout Prussian military history: in addition to the Moltke and Seeckt reforms, there were reforms from 1859–61 that made attendance at a War School mandatory for obtaining an officer’s commission and made merit the sole basis for receiving a commission.\textsuperscript{109} The Moltke and Seeckt reforms, furthermore, were not nearly as fundamental as those of Scharnhorst. Moltke’s most important innovations were using mission directives and technology (like the telegraph and railroads) in staff planning, and Seeckt’s were training individual soldiers to use as many weapons as possible and secretly maintaining a skeletal general staff organization, to allow for rapid army expansion when the time came. After Jena, by contrast, Prussia created an active, peacetime general staff, completely overhauled the military education system, mobilized the manpower of all Prussians, and undertook the total reorganization of the army along divisional lines. These later periods of reform, in comparison, seem to embellish the earlier reforms, not replace them.

3.3 The Impact of Jena

In the words of historian William Shanahan, “[Prussian officers’] complacence received a rude shock in 1806.”\textsuperscript{110} The Jena defeat was the product of indecisive leadership, overconfidence, and poor operational planning.\textsuperscript{111} Facing Napoleon’s army of

\textsuperscript{109} However, these reforms were watered down, and the king retreated from them under conservative pressure. See Clemente 1992, xiv, 12–5.

\textsuperscript{110} Shanahan 1945, 11.

\textsuperscript{111} Goerlitz 1953, 26–7. Discipline, in fact, broke down to such an extent that some Prussian soldiers began looting and subjecting especially-hated Prussian officers to violent treatment. Shanahan 1945, 34, for his part, argues that the Prussians’ “fatal defect” at Jena was “the absence of great corps and the dependence upon masses of battalions which did not cooperate with one another.”
185,000 with 166,000, the Prussians lost the day due not to their numerical disadvantage, but to poor organization and leadership. Split into three separate groups, the Prussians could not communicate their need for reinforcements in a timely fashion, nor did commanders demonstrate the initiative that very well could have turned the tide. Able to bring concentrated force to bear on the individual Prussian forces, the French induced general retreat and, in some cases, capitulation without a shot being fired. As fortress after fortress fell in the aftermath, the royal court had to relocate from Berlin to Königsberg, in East Prussia. In short, what began as defiance of Napoleon’s continental hegemony ended as a complete rout.

### 3.3.1 Society Backs Reform, and the King Demands It

How did this defeat precipitate the Scharnhorst reforms? On the one hand, Prussian society became much more enthusiastic about military reform. “It was the ultimate humiliation, but it was also the turning point, and the beginnings of a new climate in public affairs were marked by a novel and interesting manifestation, namely the appearance of parties, a thing so far unprecedented in Prussian history.”¹¹² The German press, furthermore, lambasted the Prussian officer corps for shirking its duty, calling for change.¹¹³ In addition, the provinces most burdened by the French occupation—especially East Prussia, which was the launching point for Napoleon’s ill-fated invasion of Russia—were more willing to comply with the general mobiliza-

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¹¹² Goerlitz 1953, 30.

¹¹³ Shanahan 1945, 105.
tion of 1813, as well as the creation of the Landwehr and officer training units.\textsuperscript{114} So it was that Prussia’s 1806 defeat resulted in greater societal support for military reforms.

On the other hand, and more importantly, the king’s attitude toward reform witnessed a radical shift in the months after Jena. He “issued a series of decrees recommending immediate changes in the tactics, discipline, and organization of his remaining armed forces.”\textsuperscript{115} He called for energetic reconnaissance and opportunistic attack, the dismissal of all officers that shirked their duties, the dismissal (or execution) of officers who left the field unwounded (or who capitulated), greater use of column and skirmisher tactics, the opening of the officer corps to non-nobles, reforms to officer education, new military regulations and revised Articles of War, a reorganization of the cavalry and the supply system, the creation of a Ministry of War, and the reorganization of the army into divisions.\textsuperscript{116} In late 1806, he also created the Military Reorganization Committee, charging it with overseeing the reform program.\textsuperscript{117} So, as with Prussian society as a whole, Jena made the king immediately recognize the importance of professionalizing military reforms.

3.3.2 Why 1806 Was Unique

It is instructive that other Prussian wars did not result in comparably extensive reforms. This speaks to the uniqueness of the Jena defeat; it resulted in a complete Prussian military breakdown—a dire military defeat—where earlier and later conflicts

\textsuperscript{114}Shanahan 1945, 194–6, 208.
\textsuperscript{115}Shanahan 1945, 94.
\textsuperscript{116}Shanahan 1945, 94, 103.
\textsuperscript{117}Shanahan 1945, 109.
did not. Prussia did not reform its military after fighting the French Revolutionary army in 1795, nor did Prussia reform its military to a similar degree after the wars of German unification and the Franco-Prussian War, later in the century, or even after World War I, which also resulted in a German defeat. Even when the combatants signed the armistice to end World War I, some in the Prussian military establishment maintained that they could have continued the struggle.\textsuperscript{118} This was not the case in 1806 and 1807. The Prussian military’s will to fight was broken, and its capacity to resist the French onslaught evaporated in a string of ignominious surrenders. Thus, the Prussian experience of military reform reveals that it was not simply involvement in war but involvement in overwhelming wartime defeat that precipitated military reform. This may shed light on how states react to war by professionalizing the military—being on the receiving end of a rout may be more likely to produce professionalizing reforms than merely being involved in a war of any sort.

\textbf{3.4 The Division of Prussian Labor}

If a dire military defeat seems to have sparked the most significant military reforms in Prussian history, the division of labor may have helped these reforms endure. To be sure, the Prussian division of labor was fairly primitive in 1806, but the advancement that Prussian labor experienced, coterminous with military reform, makes it difficult to say either that it played no role in making the reforms last or that the division of labor advanced as a result of the reforms themselves, instead of the other way around.\textsuperscript{118}Nickerson 1940.
3.4.1 The Situation in 1806

In 1806, Prussian labor was involved mostly in agricultural pursuits, and the economy was only just beginning to industrialize, with about two decades to go before large-scale advancement truly set in.\textsuperscript{119} By the turn of the nineteenth century, more than 80 percent of Prussians “were occupied in, or derived their living from, agriculture.”\textsuperscript{120} Less than 5 percent of economic output was from industrial production, and the guilds were still quite strong in Prussia at the time.\textsuperscript{121} Historian Jürgen Kuczynski characterizes the Prussian division of labor thus:

In the beginning of the [nineteenth] century, practically the whole labor force [in Germany] consisted of serfs working under feudal bondage and of apprentices, journeymen and small masters, organized in the feudal guild system. . . . There were probably less than 50,000 factory workers, and perhaps half as many employed in mines and quarries.\textsuperscript{122}

By the time of the post-Jena reforms, then, the Prussian labor economy was in a largely fledgling state.

Other evidence suggests that Prussian labor had yet to divide significantly. For instance, workers’ wages increased only slowly in the first half of the century, and the working day was limited to twelve hours only after 1870.\textsuperscript{123} Prussia was mostly rural in 1800, as well. Berlin—the largest city at the time—was one-sixth the size of

\textsuperscript{119}Goerlitz 1953, 55.
\textsuperscript{120}Kuczynski 1945, 14. Kuczynski also observes that more than 75 percent of the 200,000 looms in the country were used only occasionally. In addition, notes Gagliardo 1991, 139, fully 61 percent of all German manufactures were “linens, woollens [sic], and silks,” which suggests a fairly uniform character in Prussian labor.
\textsuperscript{121}Gagliardo 1991, 138. In France, by comparison, the power of the guilds had been declining since the Revolution (see Aftalion 1990, 54; Landes 1998, 243–4).
\textsuperscript{122}Kuczynski 1945, 23.
\textsuperscript{123}Kuczynski 1945, 29, 46–8, 52–3.
London in 1800 and smaller than Paris had been four hundred years earlier. On top of this, Prussia was consistently unable to accumulate wealth before and just after the 1806 military reforms. In the years leading up to reform, the Prussian treasury was increasingly pushed to the limit to provide resources to the military. In the last years of Frederick the Great’s reign, for example, the Prussian military consumed fully four-fifths of the state budget. Even after Jena, reformers found that they had to reconsider some proposals for reasons of economy. In short, Prussia did not enjoy an advanced division of labor in 1806.

3.4.2 Prussian Labor Begins to Divide

Still, economic change was in the offing. In 1807, the king abolished serfdom on all crown lands, a move that was necessary for the division of labor to advance meaningfully. Moreover, the French abolished German guilds in occupied areas after 1806, and post-Jena reforms did the same in other parts of Prussia. In 1818, furthermore, Prussia abolished internal tariffs, and the middle class, though weak during the era of reform, began to assert itself by the early 1800s. The lower classes began to assert themselves, as well. There were peasant disturbances in some

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124 Kuczynski 1945, 14.
126 Shanahan 1945, 155, 166, 179–81. See also p. 157, which notes another reason for Prussia’s financial straits (but only from 1807 to 1813): “The Prussian revenues were almost entirely consumed by the payment of the war indemnity to France.”
127 Kuczynski 1945, 25.
128 Kuczynski 1945, 11, 21–3. See also Rosinski 1966, 47.
129 This, in fact, may help explain the increasing pressure by middle class candidates to gain access to the officer corps.
Prussian villages after the French Revolution, in which economic and political disparities played some role.\textsuperscript{130} In 1813, when the king decreed a general mobilization, there were riots in Silesia protesting against army service.\textsuperscript{131} These riots that may have had an economic motivation, as well: Silesians chafed under crown control over mining and textile production in the province, control that resulted in substantial revenues for the treasury.

These nascent economic changes had clear effects later in the century. For instance, manufacturing exploded in Prussia from about the 1820s on. Railroad mileage and mining, in particular, experienced a dramatic increase. In fact, mining production remained steady from 1800 to 1820, but more than quadrupled from 1821 to 1850.\textsuperscript{132} The Königsgrube (a coal mine) illustrates this trend. Where there were only 97 miners employed at the mine in 1810, 2,886 were employed in 1870. Also, the mine produced only 1791 tons of coal in 1847, but 793,294 tons in 1870.\textsuperscript{133} Thus, at the same time that military reforms were changing the Prussian army into one of Europe’s most professional militaries, Prussian labor was dividing markedly, resulting eventually in the economic juggernaut that dominated the continent in the later nineteenth century and twice fought the world—almost single-handedly—in the twentieth.\textsuperscript{134}

In sum, given the near simultaneity of military reforms and economic change, it

\textsuperscript{130}See Goerlitz 1953, 12–3; Henderson 1963, 142.

\textsuperscript{131}Shanahan 1945, 208, 210–1, 223.

\textsuperscript{132}Kuczynski 1945, 16–7, 58.

\textsuperscript{133}Henderson 1958, 15–6.

\textsuperscript{134}Henderson 1958, 20; Henderson 1963, 165.
would be difficult to argue that one caused the other—they were probably mutually reinforcing, in any event—or that the economic changes did not have an influence on the professional development of the Prussian military.

3.5 Prussia: Shocked into Reform

What is clear, however, is that Prussia’s crushing 1806–07 defeat to the French was the principal catalyst for military reform in the short term. Prussia did not professionalize its military after fighting against France in 1794–95, but after the dire defeat that began at Jena and Auerstadt in 1806. Nor, furthermore, did any of Prussia’s other wars result in a comparably thorough reform program—all subsequent reforms seem to have built on those of Scharnhorst. One thing, then, seems apparent in this case: Prussia was shocked into reform in 1806.

Less clear-cut, but no less plausible, is that the simultaneous advancement of the Prussian division of labor served to deepen and institutionalize the military reforms. The division of labor advanced and the military professionalized together. Still, there is no evidence that one preceded the other, which this study must demonstrate if it is to conclude that the division of labor is necessary for long-term military professionalization.

The following three chapters seek to demonstrate that, indeed, the division of labor has preceded both military professionalization and dire defeats. France professionalized the military after 1870, following on nearly twenty years of significant labor division in that country; Turkey seems to have professionalized in the absence of a dire defeat but in the presence of an advanced division of labor; and Egypt proved unable to professionalize in the absence of an advanced division of labor, but met
with success when this crucial factor was present. So, these chapters reinforce an important point made by the Prussian case: when states professionalize the military in response to war, an advanced division of labor helps this professionalism endure.
CHAPTER 4

FRANCE: FROM THE LEVEE EN MASSE TO A 
“REDOUBTABLE INSTRUMENT OF WAR”
4.1 Two Episodes of Reform, One Success Story

France began significant military reforms twice in the eighteenth and nineteenth centuries, but only one of these—the second—succeeded in truly professionalizing the army. These reform episodes occurred in the late Revolutionary and Napoleonic periods and then after the crushing defeat at the hands of the Prussians in 1870–71. Both of these episodes of military reform occurred shortly on the heels of war, but—interestingly—only one of these wars—again, the second—resulted in a military defeat (let alone a crushing one) for France. What is more, while there is some evidence the French labor began dividing appreciably before the Revolution, this economic change only gained steam—and can only be considered advanced—after 1850. Thus, it seems that a dire military defeat sparked, and an advanced division of labor propelled, lasting professional military reforms in France after 1870, something that did not occur after the Revolution.

To show how this was the case, this chapter begins by discussing the two French episodes of professionalizing military reform in turn. Each of these two sections seeks to answer three sets of questions. First, how did the reforms in question make the French army more professional? Second, what effect did war involvement have on the timing of reforms? Third, what was the extent of the division of labor at the time of military reforms? This chapter concludes with a discussion of the evidence presented thus far, with an eye toward setting goals for the following chapters.
4.2 French Military Reforms from 1793 to 1805: Away from the *Levée en Masse*

Although post-Revolutionary French military reforms generated a number of professional characteristics in the army, these traits did not last. In fact, the mobilization of the French nation for war (epitomized by the *levée en masse* in 1793) effectively decreased the level of professionalism in the French army. In the year or so after the *levée en masse*, France began a return to (and an improvement on) the long-service regulars of the *ancien régime*. However, any professionalizing gains made in the French army peaked during the Napoleonic era but stagnated thereafter, with a creeping overreliance on *elan* and poorly-educated officers during the first half of the nineteenth century. Interestingly enough, there was no crushing wartime defeat that sparked military reforms after the Revolution, nor had the division of labor advanced to a stage sufficient to make any reforms endure. In short, while war involvement—consonant with a neorealist interpretation of history—may have encouraged the reforms that did occur, an insufficiently advanced division of labor could not solidify the French move away from the *levée en masse* and toward a truly modern, professional military. This move would not occur until after France’s crushing defeat to Prussia in 1870–71.

4.2.1 Reform: Toward the *Grande Armée*

The Revolution of 1789 had an immediate and deteriorating effect on the French army. As historian John Lynn notes,

The first two years of the Revolution ... greatly weakened the French army. Egalitarian ideas corroded discipline, while the turbulent confusion...
of the times resulted in a high rate of desertion. A rapid turnover in command, occasioned by the emigration of nearly sixty percent of all officers, struck the army still harder.\textsuperscript{135}

The selection and promotion of officers through seniority and elections had a particularly damaging effect on the expertise of the army, since it often put the oldest and most popular men in positions of command, rather than the most capable, and since it encouraged factionalism. Moreover, the influx of revolutionary volunteers in 1791–92 served to dilute the experience and expertise of the Revolutionary French army.\textsuperscript{136}

The early years of the Revolution did not have a uniformly negative effect on French military professionalism, however. The year 1790 saw the opening of all ranks to all citizens, the institution of examinations for advancement to three-fourths of officer commissions,\textsuperscript{137} and “a substantial boost in officers’ pay, which finally made it possible for an officer to live on his own salary.”\textsuperscript{138} These changes manifested themselves in the social composition of the officer corps: in 1794, only 2–3 percent of officers were of noble origin, while “in 1789 only nine of 196 lieutenant-generals and only six of 200 infantry colonels lacked titles.”\textsuperscript{139} This probably gave the officer corps access to more natural talent, although, on balance, the officer corps likely suffered more from the mass emigration of experienced officers than it gained from opening the officer corps to the mass of the populace.

\textsuperscript{135}Lynn 1984, 3. See also Connelly 1987, 4.
\textsuperscript{136}Lynn 1984, 48–9, 88–91.
\textsuperscript{137}The other quarter of the commissions were to be filled with NCOs promoted from the ranks. Examinations for infantry and cavalry officers were later suspended, in 1791.
\textsuperscript{138}Lynn 1984, 69–70.
\textsuperscript{139}Lynn 1984, 68. See also pp. 70–5 and Sagan 2001, 318–9.
So, the early Revolutionary army had little of the experience, organization, and
discipline that Napoleon managed to instill by 1804–05. To accomplish this end,
Napoleon went so far as to steer his men away from the egalitarian ideals of the
revolution:

When organizing the Grand Army in the camp of Boulogne, [Napoleon] carefully separated the soldiers from the population, discouraged the re-
publican and equalitarian spirit of the Revolution, cultivated pride in the military profession, and aroused greed and ambition by means of distinc-
tions, privileges, and rewards.\textsuperscript{140}

Napoleon’s most important innovation, however, was probably the development of 20–
30,000-man corps, which could give battle unsupported.\textsuperscript{141} This organization required
officers with sufficient initiative and training to effectively coordinate the different arms and take advantage of battlefield opportunities. Finally, Napoleon’s \textit{Grande Armée}—contrary to popular conception—relied heavily on well-trained, long-service volunteers, not conscripts: “Between 1800 and 1810, [Napoleon] called an average of only 73,000 men per year,”\textsuperscript{142} which amounted, roughly, to only one-tenth of his fighting force in these years. To be sure, then, Napoleon’s \textit{Grande Armée} exhibited a greater level of professionalism than the French army of the early Revolutionary years.

The military reforms that culminated in the \textit{Grande Armée} began in late 1793, reversing the ill effects of the early Revolution (and the unprofessional influence of the \textit{levée en masse}). In November of that year, officers elected by their subordinates in the \textit{levée en masse} were stripped of their ranks when their units were incorporated into the regular army. From November, 1793, to July, 1794, the Convention began

\textsuperscript{140}Kovacs 1946, 219. See also Connelly 1987, 74; Keegan 1993, 350–1.

\textsuperscript{141}Connelly 1987, 73.

\textsuperscript{142}Connelly 1987, 74.
to appoint a greater proportion of officers, which infused more talent into the officer corps. In February, 1794, illiterates were barred from both commissioned and non-commissioned ranks, and by 1795 about 80 percent of junior officers could read and write. In addition, the selection and promotion of officers began to be based more on merit and ability than on age or popularity with the men. The quality of training improved as well—the French army evolved a coherent tactical system based on column formations, skirmishers, and concentrated artillery fire, and effectively imparted this doctrine using increasingly experienced noncommissioned officers (NCOs). Moreover, the tenure of soldiers in the army increased dramatically after the levée en masse ran its course—raw conscripts were gradually replaced by long-service volunteers and recruits induced to reenlist by the prospect of material gain. Permanent camps were also established, to facilitate large-scale maneuvers and to standardize recruit training. To be sure, these efforts helped shape Napoleon’s Grande Armée, which defeated the Austrian and Russian armies in 1805 and the vaunted Prussian army in 1806.  

The French army also improved in terms of organization. After 1794, the division arose as the new tactical unit. French divisions were larger than their previous counterpart, the regiment, but—perhaps more importantly—they combined multiple arms (artillery, cavalry, infantry, engineers) under one command. This form of organization presupposed an effective staff to organize all the moving parts and an experienced and competent officer corps to command multiple arms coherently and train men in effective combined arms tactics. 


144Goerlitz 1953, 13–4. Despite a level of organization advanced for his time, Napoleon did not have what resembled a modern general staff. This would develop only much later, after the Prussians demonstrated the benefits of a highly-specialized staff system.
Nonetheless, any professional characteristics that the French army enjoyed under Napoleon gradually gave way to the complacence bred of success in colonial wars. Though long-service regulars remained the norm—one of Napoleon’s lasting legacies—the French officer corps never adopted a scientific approach to war, as the Prussians did during the first half of the nineteenth century. French battle tactics generally involved frontal assaults, full of *elan*, which were serviceable in colonial settings against poorly-entrenched natives, but which were disastrous when it came to European warfare. To their dismay, the French realized this only too late, in 1870.

4.2.2 The Revolutionary and Napoleonic Wars: No Dire Defeat

France was involved in war in nearly every year from 1792 to 1815, but there does not seem to have been a war-time moment—no crushing defeat—that launched military reform. Instead, this war involvement may have given the army a wealth of battlefield experience, resulting in learning by trial and error. There was no defining battlefield experience that galvanized state leaders and citizens alike around a comprehensive reform program, as there was to be in 1870. Instead, the gradual character of French army reforms indicates that the Revolutionary and Napoleonic wars had a gentler impact on French military professionalization around the turn of the nineteenth century. The Revolutionary and Napoleonic wars were qualitatively different from France’s 1870 defeat to Prussia: the earlier conflicts were rarely fought on French soil, nor did they result in the occupation of French land, and the French army was never routed, as it was in 1870. In short, there was no dire defeat to spark French military reforms after the Revolution.
That said, French Revolutionary leaders were not ignorant of the impact of war on society; these men used France’s involvement in war to their greatest political advantage. Said Robespierre:

During a war, the people forget the issues that most essentially concern their civil and political rights and fix their attention only on external affairs.... [They] tend to give all their interest and all their hopes to their generals.\textsuperscript{145}

So, while the connection between war involvement and military reform is not as striking as it was in 1870 (in France) or in 1806 (in Prussia), French politicians may have used the Revolutionary and Napoleonic Wars to consolidate their hold on power, one element of which could have been the gradual reforms of 1793–1805.

\subsection*{4.2.3 The Division of Labor and Revolutionary Reform}

What was the extent of the division of labor at the time that these gradual military reforms occurred? Evidence indicates that labor markets developed quite early in France, though it would probably be going to far to call the division of labor advanced. Throughout the Middle Ages and into the Enlightenment, French guilds were very powerful,\textsuperscript{146} and by the time of the French Revolution “only a few activities, such as large-scale trade or banking, ... managed to escape the control of the guilds.”\textsuperscript{147} The \textit{ancien régime} only legitimized rural manufacture in 1762, and, although the Assembly abolished serfdom and sought to suppress the guilds after 1789,\textsuperscript{148} it would

\textsuperscript{145}Quoted in Sagan 2001, 309.

\textsuperscript{146}Landes 1998, 243–4.

\textsuperscript{147}Aftalion 1990, 35.

\textsuperscript{148}Aftalion 1990, 54; Landes 1998, 244.
take many years for these changes to bear real fruit. Just before the Revolution (and the later military reforms), then, production was becoming slightly more liberalized, though it was likely not truly liberal.

There is direct evidence, still, that labor markets were becoming somewhat more diverse near the end of the eighteenth century. By 1789, agricultural pursuits accounted for about three-quarters of labor activity. While still too large a proportion of the labor force to consider the French division of labor advanced, this proportion was slightly less than in Prussia at the same time. Also, in Prussia this percentage had remained constant for a number of decades, while in France it had decreased more rapidly as the eighteenth century progressed, and the productivity of French agriculture was increasing prior to the Revolution. What is more, agricultural practices in France at this time were surpassed in sophistication only by those of England. Furthermore, Paris, with 600,000 inhabitants, was larger than any other city (even London) in 1789, a fact that presupposes a relatively advanced division of French labor.\textsuperscript{149} In short, the years leading up to French military professionalization seem to have witnessed some degree of labor division.\textsuperscript{150}

There is, in addition, indirect evidence of a nascent division of French labor in the Revolutionary period. The middle class was gaining ground in the decades before French military reforms. By the mid-eighteenth century, “land speculators were buying up old ancestral homes. Middle-class business efficiency and the middle-class ability to make money began palpably to breach the cherished feudal circle.”\textsuperscript{151} Also,

\textsuperscript{149}Aftalion 1990, 32.
\textsuperscript{150}Aftalion 1990, 32–4; Cook and Broadhead 2001, 270–1, 281; Price 1981, 65–6.
\textsuperscript{151}Goerlitz 1953, 8.
economic historian Jürgen Kuczynski notes, England and France were by the turn of the nineteenth century bourgeois-capitalist states, while Germany, in comparison, was not.\textsuperscript{152}

Moreover, France may have become more wealthy in this time, with the French state able to dedicate a considerable amount of resources to the military. Throughout the last half of the eighteenth century, French nobility were richer than their Prussian counterparts,\textsuperscript{153} a fact that speaks to French society’s overall wealth. Also, the French had more than 1,000,000 men under arms in 1794 and almost that many in 1805,\textsuperscript{154} but the latter force was composed mainly of well-paid, long-service volunteers, not the poorly-paid conscripts of the \textit{levée en masse}. In addition, these soldiers were better-armed and -equipped than their earlier counterparts—a number of the regiments of 1791–93 were armed with pikes and had nothing more than red berets in the way of uniforms. This significant capital investment in the military suggests that the French state had an increasing pool of resources from which to draw, resources that—in part, at least—could have resulted from the division of French labor.

Despite this, there is also evidence that the French division of labor was not as advanced as it may seem. The early years of the Revolutionary era resulted in “the pauperization of part of the country population” and an “increase in bands of vagabonds.”\textsuperscript{155} Also, the 1789 riots that sparked the Revolution were mainly over bread prices—French agriculture could not produce the grain surplus necessary to overcome a poor harvest—and not over poor working conditions, and unemployment

\textsuperscript{152}Kuczynski 1945, 11.
\textsuperscript{153}Rosinski 1966, 22–3.
\textsuperscript{154}Goerlitz 1953, 13.
\textsuperscript{155}Aftalion 1990, 33.
was *increasing* just before the Revolution, especially in the manufacturing sectors.\textsuperscript{156}

On top of this, it is very unlikely that the economic changes that occurred in the context of the Revolution—the abolition of the guilds and the increasing productivity of French agriculture—could have resulted in anything like an advanced division of labor by the time Napoleon’s military reforms ensued.

### 4.3 France after Sedan: Toward a “Redoubtable Instrument of War”

The second episode of full-scale French military reform occurred after the Franco-Prussian War of 1870–71, in which France suffered a humiliating defeat.\textsuperscript{157} Unlike the first episode, this second episode resulted in thorough, professionalizing changes in the French military. In the twenty years following the French army’s meltdown in 1870–71, military reforms managed to achieve a level of professionalism that, if not on a par with, was very nearly comparable to that of the German Imperial Army. This section describes these reforms, as well as the role of the war in precipitating them and the state of the division of labor at the time. These two forces help explain how, in the last decades of the nineteenth century, the French Army became a “redoubtable instrument of war” that was a far cry from the disorganized force that wilted under Prussian weight in 1870.\textsuperscript{158}

The French army that took the field in 1870 was poorly organized and even more poorly led. These deficiencies belied a lack of professionalism in the French officer corps, in general, and in the high command, in particular. To these weaknesses was

\textsuperscript{156}Aftalion 1990, 39–40, 43, and 52.

\textsuperscript{157}For structural neorealist interpretations of this conflict and the subsequent French reforms, see Posen 1993, 89–120; Resende-Santos 1996, 214.

\textsuperscript{158}The quote is from Porch 1981, 43.
added the Prussians’ rifled, breach-loading cannon—vastly superior to the French smooth-bore, muzzle-loading models in both range and accuracy—and the Prussians’ ability to efficiently mobilize huge numbers of well-trained reservists to neutralize France’s initial numerical superiority. It is likely that French military inferiority relative to Prussia went even beyond this, extending to “[t]he rapidity of mobilization procedures, logistics, cavalry tactics, effectiveness of artillery, communications, engineering, and above all leadership.” One historian assesses France’s 1870 performance thus:

The French had not mastered the military use of railways and their mobilization was a shambles; the standard of education and training of most officers and men was well below that of their German counterparts; the German artillery and supply services were better than those of the French; and, unlike the Prussians, the French had no general staff to keep commanders in the field supplied with a regular flow of information and advice. The failure at Sedan was not that of an army, but of a whole system.

In short, France’s military breakdown in 1870 was complete.

While superior Prussian numbers have often been touted as pivotal to France’s defeat—they were no doubt very influential—they may not have been as decisive to the conflict’s outcome as the lack of French organization and leadership. Had the French been able to follow a rational mobilization plan, they very well may have been able to attack and disrupt the Germans before they mobilized fully, fighting the war

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159 What is more, these two Prussian advantages—artillery and numbers—suggest a higher level of professional foresight on the part of the Prussians, and a lack thereof on the part of the French. Even after the Prussians’ rapid and convincing defeat of the Austrians in 1866, the French high command resisted the incorporation of the new cannon and of an effective reserve into the army, citing the former as too costly and the latter as too detrimental to troop quality. See Mitchell 1984, 8–15; Morrow 1993, 222–3.


161 Fortescue 2000, 3.

162 Mitchell 1984, 16.
on German soil and ending hostilities quickly. In fact, this is what France—and the rest of Europe—fully expected would happen. The static defense that the French did offer (itself a function of poor leadership) favored the superior Prussian artillery and, after a few days, numbers. Still, the Prussian advantage in troop strength was never tactically overwhelming due to the French *chassepot* (a breach-loading rifle superior to the Prussian needle gun) and *mitrailleuse* (a rapid-firing precursor of the machine gun).

163 In sum, the deficit of French military professionalism in 1870 proved crippling to the army’s battlefield performance.

This deficit of professionalism was widespread in the French officer corps. Officers, for one, were poorly trained—a majority of officers did not have an academy training, and the curriculum of the academies (for those officers that did attend them) emphasized rote memorization, not thought. As a result, they had a poor understanding of the “general problems of war.”

164 In fact, “an obvious stumbling block to [post-1870] republican plans to transform the army . . . was the embarrassingly low intellectual level of the officer corps,” and “intelligent, efficient officers . . . formed an eccentric and generally discouraged minority.”

165 About half of French officers in 1870 had only the most basic education, and this in an era when every Prussian officer candidate had to graduate from secondary school and pass a stringent examination before entering into

163 During unsupported frontal infantry assaults, in fact, Prussian casualties literally piled up. Their greatest tactical success came when the artillery softened French lines just before the infantry advanced. Still, the Prussians were probably better trained on their weapons than the French. Herrera 2004, 249, notes that “before the Austro-Prussian war, Prussian officers and noncommissioned officers were sent to a six-month training course on tactics and fire control with the new [Dreyse breach-loading rifle], and the Prussian army was allowed five times the number of practice shots during training as their Austrian counterparts.” By contrast, notes Kovacs 1946, 230, the French army “received no instruction in the use of the *chassepot* rifle” before 1870. See also Brogan 1970, 22–30.


One French general remarked in 1874 that Saint-Cyr, France’s premier military educational institution at the time, “hardly prepares [an officer] for intellectual development.” One inspector at Saint-Cyr complained that the cadets did not “read or think for themselves.” Saint-Cyr was also lacking in discipline, with cadets prone to riots, crude pranks, and vandalism. To make matters worse, “promotion [in the officer corps] depended upon influence rather than ability, . . . and . . . the intellectual torpor of the higher command sprang largely from this.” It is little surprise, then, that French officers were found wanting in 1870.

In addition, the French army before 1870 placed very little emphasis on training—General Lewal (who became a Minister of War in the 1880s) commented that France paid a 40,000 franc subsidy every year to the theater at the Châlons training camp, but spent only 100,000 francs per year to train the entire French army. To make matters worse, the desire for promotion and glory often led to a lack of collaboration among officers. There was also no training for general officers, and the resultant overreliance on experience in colonial wars led to a lack of innovation and the adoption of tactics that were unsuited to European continental warfare, especially against a foe of Prussia’s caliber. What training occurred was also outdated, with tactics relying on

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166 Holmes 1984, 180–1. See also Clemente 1992.
169 Porch 1981, 40, in fact, notes: “Soon after General Louis Hanrion arrived to take command in 1872, he was presented with a substantial bill for damage caused by cadets on the Paris train, mostly by sabre thrusts applied to upholstered parts of the carriages.” After this, “Hanrion placed NCOs on the Paris trains to keep order.” See also Holmes 1984, 182–8, who notes that the Artillery and Engineering Academy at Metz and the Cavalry School at Saumur—the other flagship institutions of French military education—were of equally suspect educational value.
170 Holmes 1984, 55.
1831 regulations that in their turn drew mainly from the eighteenth-century tactics of Frederick the Great, with an impractical reliance on muzzle-loading weapons.\textsuperscript{173} To be sure, the French army’s poor training practices put them at a severe disadvantage vis-à-vis Prussia, and were likely pivotal in their 1870 defeat.\textsuperscript{174}

Moreover, France’s military organization was outdated by 1870. The Ministry of War changed very little from 1851 to 1870, adding only one bureau in that time, and the army’s regional divisions did not correspond to real units, such that field formations had to be constructed from whole cloth upon mobilization. In addition, the military’s central administration often seemed confused and weak before 1870. On top of this, Napoleon III frequently intervened directly in command—which crippled initiative in the officer corps—going so far as to combine three armies into one and take command at the last moment in 1870.\textsuperscript{175}

The quality of the general staff was also very low. French Staff Corps officers often had little or no field experience, and they did not know how to organize mobilization or transport efficiently. The best graduates of Saint-Cyr went strait to the staff school, the \textit{Ecole de L’Etat Major}, instead of gaining two or three years’ field experience beforehand, as their Prussian counterparts did. Where French staff officers were trained to be functionaries, with poorly defined duties vis-à-vis commanding officers, Prussian staff officers were trained to be combat commanders themselves. Also, the


\textsuperscript{174}Porch 1981, 39.

\textsuperscript{175}Brogan 1970, 22-3; Holmes 1984, 11, 21–6, 59–60.
French officer corps suffered from a relative paucity of academies—only six to the Prussians’ twenty-three, by one estimate. One commentator of the time summed up the deficiency of the French officer corps well:

Officers were brave to excess, confident in their luck, loved by their men because they were concerned with them and were regularly seen by them: these leaders had coup d’oeil, decision, in a word all the qualities acquired by experience, but they did not understand war.

4.3.1 Military Reforms after the Franco-Prussian War

French military reforms began less than a year after the conclusion of hostilities—the Assembly passed military reform laws in 1872 and 1873—and culminated with the measures that Minister of War Freycinet pushed through in 1889 and 1890. These measures introduced a general staff akin to the Prussian general staff, improved the quality of officer training, did away with loopholes that allowed the rich and well-educated to avoid military service, and created well-trained reserves. After its encounter with the Prussian war machine in 1870–71, in other words, France engaged in a wholesale reform of its military institutions.

The 1872 and 1873 reform measures directly increased the quality of French soldiers. The 1872 law abolished replacement (also called exoneration or substitution), by which a Frenchman of means could pay a fee to avoid military service. This practice had earlier had the effect of over-representing the poor, under-educated classes in the ranks and reducing the “sense of duty and patriotic sacrifice” in the army.

177 Quoted in Holmes 1984, 180.
178 Kovacs 1946, 221.
As a result, the French people hated military service and the army’s sense of social responsibility was deficient.\textsuperscript{179} The 1873 law gave draftees the option of paying for their own training and upkeep during one year’s service in the army, after which they would pass into the reserve officer corps. This policy gave the army access to better-educated recruits—who typically assimilated training more easily—and it was not an “easy out” for the wealthy. The requirements to qualify for this program were also made increasingly stringent: there were 10,000 such one-year recruits in 1874, but only 4,700 in 1881.\textsuperscript{180} The rest of those drafted (wealthy or not) served the full three- to five-year term. The 1873 reform law also reorganized the army into eighteen regional corps of two divisions each, which made mobilization, training, and leadership more efficient. The military reform laws of 1872 and 1873, then, contributed to a greater level of expertise and higher-quality training in France’s army.

The reform of the French Staff Corps (the counterpart, though not the equal, of the Prussian General Staff in 1870) began almost immediately after the war.\textsuperscript{181} In 1871, General Miribel began to oversee the staff, and he set about organizing it after the Prussian model—he even had an entire bureau dedicated to studying the German army.\textsuperscript{182} An 1880 reform measure adopted an open recruitment system for staff positions (after the Prussian model),\textsuperscript{183} in which the most qualified officers from

\textsuperscript{179}Kovacs 1946, 221–4.


\textsuperscript{181}On the superiority of the Prussian staff, Colonel Stoffel, the French military attache in Berlin, observed before the 1870 war: “But in a future war, of all the elements of superiority that Prussia would possess, undoubtedly the greatest, the most incontestable, would be the composition of the corps of staff officers. . . . The Prussian general staff is paramount in Europe; ours cannot be compared to it” (Mitchell 1984, 82).

\textsuperscript{182}Goerlitz 1953, 97.

\textsuperscript{183}Mitchell 1984, 86.
any arm could stand for the staff examination. The general staff was thus “thrown open to honest competition,”184 which contributed to a better-organized and more competent officer corps. Finally, the reforms of Minister of War Freycinet insulated the general staff from the instability of the Ministry of War—there were almost as many ministers as there were years from 1870 to 1886—and created the position of Chief of the Army General Staff,185 all of which further institutionalized the staff and facilitated the percolation of professional standards throughout the army.

Other reforms in French military education and training also directly improved the quality of the officer corps. Discipline and dedication to study were imposed at Saint-Cyr with NCOs posted in barracks, the freedom of students to move between classes, billeting by height (instead of by social class), the replacement of some civilian instructors with military ones, and the attachment of punishment records to cadets’ permanent files. The number of applicants to Saint-Cyr and the Ecole Polytechnique (which contributed officer candidates mainly to the artillery and engineers) increased, and as entrance standards increased, so did the educational reputation of both schools. In addition, a new staff school—the Ecole Supérieur de Guerre, patterned after the Prussian Kriegsakademie—opened in 1876, replacing the Ecole d’Etat Major. With this, “entry into the general staff was reserved for graduates of the Ecole de guerre, channeling the educated and hard-working toward the top of the military hierarchy.”186 Staff officer training became more practical, as well, including such regular devices as map exercises, kriegspiel (war games), and reading military publications.

184Porch 1981, 42.
185Horne 1984, 17.
186Porch 1981, 41. See also Mitchell 1984, 89.
In fact, “regimental libraries and military publications expanded substantially. Officers who once frittered away time in bars and brothels were now expected to acquire a knowledge of their profession.” Finally, 1874 saw the implementation of large-scale field maneuvers, with division-size opponents, giving general officers the opportunity to evaluate their tactical training for the first time.

There are other indications that the French army was becoming more professional in this period. Minister of War Lewal, for instance, standardized promotion procedures in 1885, and Freycinet standardized pay scales across all arms in 1889 (raising infantry pay in the process). Freycinet also reinstituted the Conseil Supérieur de la Guerre (CSG), giving its twelve officers peace-time command over the corps they would command in war and consulting them on all military matters, which helped to standardize training and doctrine throughout the army and ensured that the French approach to war was more scientific and rational than it had been in 1870. The effect of these changes was pronounced. “A new type of French officer emerged in the 1880s—better educated, more professional and more distinguished than his pre-1870 counterpart.” The effect of French military reforms evidenced itself in 1891, when large scale maneuvers demonstrated the proficiency of French combined arms training and tactics. Of these exercises, Marshall Ferdinand Foch—one of France’s World War I heroes—remarked:

188Holmes 1984, 57.
For the first time since 1870, the French army had demonstrated the results of twenty years of labour, showing itself educated, well trained, equipped with excellent armaments, led by excellent cadres, in excellent spirits—in a word, a redoubtable instrument of war.\footnote{190}

4.3.2 The Humiliation of 1870

In the Franco-Prussian War, the French army performed “with almost complete ineptitude,” resulting in intense pressure for French military reforms.\footnote{191} Significant portions of French territory were occupied by Prussian troops until 1874, and France had to cede the provinces of Alsace and Lorraine to the Germans. Furthermore, while murmurs for military reform began in France after Prussia’s resounding victory over Austria in 1866, it was only after the direct military confrontation with Prussia that meaningful change came about.\footnote{192} What is more, French society cohered around reform in the face of defeat, and French leaders referred to the military superiority of their eastern neighbor to give continued life to the reform program.

The 1870–71 war dealt a crushing blow to French society. Historian Douglas Porch notes that “the trauma of the Franco-Prussian War convinced most Frenchmen that a thorough reform of the army was vital. Defeat came as a severe blow to a nation which believed itself the cultural and military master of Europe.”\footnote{193} The outlook was especially bleak for the French after the battle of Sedan: against 9,000 German officers

\footnote{190}Quoted in Porch 1981, 43.

\footnote{191}Horne 1984, 2. On p. 15, Horne goes on to highlight Prussia’s influence on the nature of French reforms: “The ways of the conqueror, his discipline and organization, were emulated without shame.” See also Brogan 1970, 117.

\footnote{192}Mitchell 1984, 3–14, discusses the talk of reform before 1870. This talk even bore legislative fruit—the Niel reforms—but it proved hollow: the Niel reforms did not go far enough, they were underfunded, and the Minister of War who took over from Niel in 1869, General Leboeuf, quietly let the reforms die. See also Brogan 1970, 17–9; Kovacs 1946, 230; Lebovics 1988, 29.

\footnote{193}Porch 1981, 32.
and men lost, France lost 104,000 men, 419 cannon, and ammunition and equipment for all of these, not to mention the capture of Emperor Napoleon III himself, in only one day’s worth of fighting.\textsuperscript{194} In the face of war, there is evidence that French society came together: “Even former critics of the Bonapartist dynasty supported the war effort with their wishful thinking and false hopes.”\textsuperscript{195} The war “began a long process of self-examination and conscious self-regeneration that would profoundly affect the lives of all French people.”\textsuperscript{196} So, the pall of defeat cohered French society around the notion that reform—and especially military reform—had to be borne.\textsuperscript{197}

The evidence indicates that French leaders also used the defeat to galvanize societal support for reforms. Historian Robert Tombs observes: “Revenge was a mobilizing ‘myth’, an instrument to justify and rally support for a range of actions to regenerate and strengthen the nation.”\textsuperscript{198} Primary education became free and compulsory in 1881 and 1882, in an effort to prepare the nation for revenge. In 1880, gymnastics became mandatory for all schoolchildren. In 1882, children began learning military-style drill in \textit{bataillons scolaires}, and the \textit{Ligue des Patriotes} was set up to encourage rifle and gymnastics clubs. In 1889, all children born in France (regardless of their parents’ origin) were considered citizens, in order to make them liable for

\textsuperscript{194}Fortescue 2000, 5.

\textsuperscript{195}Mitchell 1984, 15.

\textsuperscript{196}Tombs 1996, 46. See also pp. 33, 49–51.

\textsuperscript{197}That said, there was not initial agreement as to the form those changes should take. The debate over military reforms revolved around whether France should Prussify its armed forces or not. See Mitchell 1984, 8–15.

\textsuperscript{198}Tombs 1996, 52.
military service. In 1893, vaccinations were required for all children.\textsuperscript{199} Moreover, indications are that the French nation responded by giving special priority to military reform, as historian Denis Brogan suggests:

> Of all the reforms to make, all the reconstruction to be put in hand, one united the most diverse sections of the Assembly and the Nation..... One French institution above all had a claim on all the energy, courage and wealth of the defeated and humiliated nation: the Army.\textsuperscript{200}

In short, state leaders used the 1870 defeat as a motivation for state building, an important aspect of which was the professionalization of the military.

### 4.3.3 The Division of French Labor after 1850

Due to the depth of the economic changes that occurred in France after 1850, one economic historian dates the end of the \textit{ancien régime} with the period 1850–80 instead of 1789.\textsuperscript{201} The increase in the division of labor in France after the midpoint of the nineteenth century is striking. Not only were new industries created, but the two decades before the Franco-Prussian War also witnessed dramatic growth in the size of the urban population and the middle class. In addition, tensions between the state and society also increased in this period, as did the accumulation of wealth, as indicated by the size of the economy. Moreover, it is likely that both of these factors contributed to the timing of professionalizing French military reforms after 1870.

Labor specialization in France was stagnant before 1850. Prices had been declining from 1817 to 1850, and prior to the 1850s agricultural investment had generally been in land instead of improved agricultural techniques, indicating that rural labor was

\textsuperscript{199}Tombs 1996, 52–4. See also Anderson 1977, 12.

\textsuperscript{200}Brogan 1970, 117.

\textsuperscript{201}Price 1981, xii.
still cheap and plentiful. Moreover, living standards were not improving appreciably before 1850, and “the employment opportunities offered by the towns were relatively restrained.” In effect, the division of labor was not advancing very rapidly in France, if at all, before 1850. In fact, urban growth from 1789–1846 was actually slower than it had been before the Revolution.

The division of French labor began to advance markedly in the 1850s, however. Where agricultural workers constituted 75 percent of the active labor force in 1790–1815 and 70–73 percent around 1830, in 1866 they made up only 49.8 percent of labor, and by 1896 this proportion had dropped to 44.9 percent. Urban growth after 1850 was impressive as well: where the urban population was 24.4 percent of the whole in 1846, it made up 31.1 percent in 1872 (and 37.4 percent in 1891). The growth of Paris is even more striking: in 1800 Paris was home to approximately 2 percent of the French population and in 1850 2.9 percent, but by 1900 Paris housed fully 7.1 percent of the total population. This urban growth fueled the diversification of agriculture, which began to produce more pasture (meat, dairy) and vine (wine, vegetables, and fruit) products and fewer cereals than it had before 1850. After 1850, urban population, rent prices, and investment in building all increased dramatically. What is more, internal migration that had been temporary in the first half of the nineteenth century became permanent migration from the 1840s on. Another telling indication that labor was dividing rapidly after 1850 is the improvement of industrial working conditions. Whereas laws in 1791, 1810, and 1834 had forbidden worker

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202 Price 1981, 211.
204 Cook and Stevenson 1998, 278, 283. These figures are approximate, since they derive from the total French populations in 1801, 1851, and 1901, but the Parisian populations in 1800, 1850, and 1900. Nonetheless, they are suggestive.
association and suppressed workers’ rights, an 1864 law permitted strikes. Rising prices from the 1850s on also allowed employers to make concessions to workers, and the high overhead associated with training workers on specialized machines made employers less likely to fire employees. Finally, permanent migration to labor-poor areas tended to standardize national wage levels, and living conditions in towns began to outstrip those in rural areas. All of this suggests that the period 1850–70 was the scene of rapid labor division in France.

The demography of French political unrest also suggests that labor was shifting to new economic sectors. For instance, the late 1860s witnessed a rash of labor riots throughout France. Beginning with a revolt of factory workers in Roubaix on March 16, 1867, there were labor disturbances in Amiens, Alsace, Cambrai, la Ricamerie, and Ausin. Although such factory workers still constituted a small segment of the artisan- and peasant-dominated labor force, factory-based production was growing rapidly. What is more, a comparison of the Parisian insurrections of 1830, 1848, and 1871 suggests that professionals and the middle class were newly asserting themselves. Of all those participating in these three insurrections, white collar workers comprised only 3.1 percent of rioters in 1830, but this figure ballooned to 6.7 percent in 1848 and to 8.0 percent in 1871. Middle class workers (small business owners and professionals) made up 2.0 percent of rioters in 1830, but 7.3 and 7.6 percent in 1848 and 1871.

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205 Price 1981, 79–84, 96–100, 168–72, 211–5. See also Tombs 1996, 151; and Fortescue 2000, 13, who notes that Napoleon III implemented modernizing economic policies in the 1850s and 1860s.

206 Lebovics 1988, 11–2, 15.
respectively.\textsuperscript{207} That these types of workers were present in such higher proportions in 1871 than in 1830 speaks to the advancement of the division of labor: economic change undoubtedly produced much greater numbers of these categories in Paris.

Finally, there is evidence that the accumulation of wealth was increasing after 1850. General economic growth was quite rapid from 1852 to 1857, and, after the 1858–59 depression, the economy continued to grow—though at a slower rate—until 1882. Moreover, France was able to pay off its five billion franc war indemnity to Prussia by 1874, further evidence of the wealth it commanded. French governments invested this wealth into the military, as well: by the late 1880s, France’s per capita military expenditures were among the highest in Europe. All of this is further evidence that the division of labor influenced the permanence of professionalizing military reforms in France after 1870. Thus, while France’s crushing military defeat to the Prussians was the spark that set military reforms alight, a sufficiently advanced division of labor was the fuel that kept the fire alive.

4.4 What Napoleon Began, Sedan Finished

The French experience with military reform illustrates how war is not enough—by itself—to produce long-lasting, professional military institutions. This seems to contradict that notion that international competition—in the form of war—is a primary driver of such military change. In the absence of both an advanced division of labor and a dire battlefield defeat in the Revolutionary era, France reformed the military in only a short-term fashion. In the presence of both of these factors in 1870,\textsuperscript{207} Tombs 1996, 23.
however, France instituted military reforms that endured well beyond the immediate aftermath of the war. In fact, the French military institutions developed after the Franco-Prussian War—especially the well-trained, dedicated officer corps and general staff—in turn developed many of the tactics that were crucial to victory in World War I. Thus, what began as reforms in the late Revolutionary and early Napoleonic eras, and stagnated thereafter, only resulted in a truly modern, professional military after France’s crushing 1870 defeat at Sedan and after she had developed an advanced division of labor.

Taken with the evidence from the large-\( n \) analysis and the Prussia case study, this chapter lends support to the main argument of this study: that war alone is not enough to engender long-term military professionalization. Instead, dire defeats stimulate, and an advanced division of labor makes permanent, thorough-going professional military reforms. The large-\( n \) analysis suggests that—keeping constant such factors as war outcomes, the structure of the international system, and domestic forces—having an advanced division of labor makes it significantly more likely that states will have already engaged in thorough professionalization. For its part, the Prussia case study suggests that a dire military defeat could be enough to generate military reforms, although it seems that these reforms became fully entrenched in conjunction with an advancing division of labor.

Despite this evidence, this study has yet to overcome a potential confound: in all three cases thus far, an advanced division of labor has obtained only in proximity to a dire military defeat. Prussian labor began dividing shortly after the 1806 defeat at

\(^{208}\)For example, Marshall Foch, quoted earlier, developed a system of flexible defensive tactics that allowed the Allies to halt the Germans’ spring offensives and turn the tide of the war. See Biddle 2004; Nickerson 1940.
Jena, and French labor began dividing before the 1870 defeat at Sedan. On the one hand, to see if a dire defeat is truly a sufficient condition only for short-term reform (as opposed to long-term professionalism), it is necessary to observe such defeats in the absence of an advanced division of labor. On the other hand, to see if an advanced division of labor is truly a necessary condition for long-term professionalizing reform—indeed of whether a dire defeat occurs—it is essential to observe a case of professionalization where an advanced division of labor is present but a dire defeat is not. If I fail to account for this confound, skeptics could argue that it is military defeat alone—with nary a role for an advanced division of labor—that explains thorough military professionalization.209

The following two chapters address this confound and help to reemphasize points made thus far. In the Turkish case, the Ottoman military experienced defeat after defeat, but never engaged in long-term, professionalizing reforms. Genuine Turkish military reform came only later, midway through the twentieth century, after the division of labor was fairly advanced and in the absence of any crushing military defeat. Thus, the Turkish case offers a forum for disentangling the confound.

The Egypt case, for its part, further illustrates the causal pathway I have given thus far. Egypt could not make nineteenth-century reforms stick in the absence of an advanced division of labor, but successfully professionalized after the division of labor had become fairly well advanced, after 1967. The Egyptian case, furthermore, reiterates the importance of a dire military defeat—as opposed to simply being involved in war—for initiating reform: Egyptian professionalization came after the crushing defeat of 1967, not after the (somewhat less crushing) defeats of 1948 and 1956 which,

209See, for instance, Posen 1993.
though painful, did not result in the occupation of Egyptian territory or widespread condemnation of the army’s performance. In addition to this, both the Turkish and Egyptian cases suggest that the arguments of this study travel beyond Europe to countries whose economic and political development have been substantially different. This, in conjunction with the large-\(n\) analysis, could indicate that most, if not all, states respond to war in much the same way when it comes to professionalizing the military.
CHAPTER 5

TURKEY: EVEN DEFEAT IS NOT ENOUGH
5.1 A Punishing International Environment

Military professionalization in Turkey suggests that even suffering wartime defeat is not enough to produce long-term changes in military institutions. The Ottoman Empire experienced severe and continued military setbacks from the eighteenth century to World War I, some of which were close to dire defeats, but these resulted only in short-lived and unsuccessful reform efforts. Turkish military professionalization was a very gradual process that did not culminate until well into the twentieth century. If the international environment was stacked against Turkey so, why did it not professionalize earlier?

The reason is twofold. On the one hand, not just any war is sufficient to stimulate significant military reforms. Turkey never experienced a catastrophic military defeat that also resulted in the loss of national territory—Ottoman territorial losses were of territory that was historically not Turkish—which may help explain why Turkey professionalized so slowly. On the other hand, the division of labor seems to have been an enabling condition for lasting military professionalization in Turkey. Turkish labor did not begin dividing appreciably until the early twentieth century, and when professionalizing military reforms ensued, they did not come on the heels of war, let alone a dire military defeat. This trend in the Turkish division of labor, then, explains why Turkey professionalized so slowly over a period of 150 years, only achieving true success around 1950.

This chapter begins by describing Turkish military professionalization from the late Ottoman period to the Republican era. It describes the extent of reforms and suggests how military defeat stimulated these efforts. It continues with a discussion of Turkish labor division over the time period in question: it proceeded slowly—and
even regressed, in some ways—in the nineteenth century and then gained significant steam in the twentieth century. This chapter concludes by reviewing the lessons conveyed by the Turkish case.

5.2 Ottoman Turkey: The Slow Pace of Reform

Even though late Ottoman Turkey was frequently involved in wars—and sometimes even spectacular defeats—the pace of military reform in Turkey was, at best, slow.\textsuperscript{210} True it is that military defeat often stimulated the \textit{beginnings} of reform, but these reforms never endured. If ever there were a candidate for thorough military professionalization in the face of a threatening international environment, Turkey would be it, but for 150 years Turkish military reform plodded haltingly along, developing a modern, professional military only halfway through the twentieth century, at least twenty years after the last Turkish military defeat of any kind.

5.2.1 Ottoman Military Professionalization: Two Steps Forward, One Step Back

Ottoman Turkish military professionalization was characterized by a series of fits and starts,\textsuperscript{211} not a clear episode of sustained, enduring reforms, as occurred in France and Prussia. Turkey’s path to military professionalism began with the reforms of Sultan Selim III (begun in 1792) and then continued with a number of Ottoman reform efforts throughout the nineteenth century, and concluded with the Young Turk

\textsuperscript{210}Goldman 2002, 41, 45.
\textsuperscript{211}Hale 1994, 12–4.
reforms at the beginning of the twentieth century. While these reforms produced few lasting changes in the professionalism of the Turkish officer corps, by the middle of the twentieth century the military—with significant American help—had managed to develop a level of professionalism that was much closer to that of its Western counterparts than it had been 150 years earlier.

5.2.2 The Reforms of Selim III

The need for reform was obvious after defeat to the Russians in a 1787–92 war. In the war-ending Treaty of Jassy, the Sultan was forced to recognize Russian control over Georgia and the Crimea and effectively acquiesced in being evicted from southeastern Europe. More disturbingly, however, the backbone of the Ottoman Army—the Janissary Corps, regiments of converted Christian slaves trained to fight for the Sultan—were found wanting in terms of both training and equipment. In particular, the rout of the Ottomans from Moldavia, Wallachia, Serbia, and Bosnia in 1789 was “one of the most disastrous campaigns in Ottoman history.” The lack of “discipline, morale, and training” made it easy for Russian troops to rout the Janissaries once more in April, 1791, crippling the Ottomans’ ability to fight and making plain the need for reform.


213 Lewis 1968, 49–50. The need for reform was not a sudden realization, however. Ralston 1990, 47, notes that after defeat in a 1768–74 war with the Russians—a war that resulted in Christians gaining control of Muslim land for the first time, in the Tatar Khanate of the Crimea—the Ottomans began to comprehend the weakness of their military institutions. See also Berkes 1965, 55–8, 71–2; Hale 1994, 14–6.


215 Shaw 1976, 259.

216 Shaw 1976, 259–60.
In an effort to remedy the situation, Selim III created an entirely new army—the *Nizam-i Jedid*, or New Order—based on modern French training and weapons.\(^{217}\) The Sultan had brand new barracks built and offered new recruits exceptionally high salaries. These reforms standardized salaries, pensions, rations, and promotion procedures throughout the army; and they established military regulations for both officers and men, which called for punishments for abandoning weapons, rewards for valor, and bonuses for reporting violations of the regulations. These new regulations, furthermore, banned the insidious practice of officers underreporting the number of men in their units so that they could pocket the excess salaries, a ban that new government agents enforced.\(^{218}\) As a result of these reforms, “salaries and wages were paid on time and in full for the first time in over half a century.”\(^{219}\) Selim also opened or revived military schools to train officers, employing French instructors who used European methods.\(^{220}\)

5.2.3 The Selim Reforms Falter

As one historian remarks, however, “None of these innovations proved lasting.”\(^{221}\) By 1806 there were still only 22,685 men and 1,590 officers in the *Nizam-i Jedid* army,\(^{222}\) and existing facilities could not even accommodate these. After 1794, furthermore, most new recruits were Anatolian peasants and tribesmen, not residents

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\(^{217}\) Lewis 1968, 56–9.

\(^{218}\) Berkes 1965, 59–60; Shaw 1971, 114–6, 130–1.

\(^{219}\) Shaw 1971, 119. Akmeşe 2005, 3, notes that reforms also extended to the navy. More emphasis was placed on training and discipline, as well as experience and ability in promotions. In 1796, the Imperial Naval Engineering School was established, and, in 1805, a Ministry of the Navy.

\(^{220}\) Berkes 1965, 75.

\(^{221}\) Akmeşe 2005, 3.

\(^{222}\) Shaw 1971, 126–37. The figures come from p. 132.
of Istanbul accustomed to discipline and restraint in close quarters. As a result, the
*Nizam-i Jedid* troops “became increasingly turbulent and disorderly,” with frequent
reports of robbery, making off with weapons and uniforms, and the formation of
robber bands plaguing Anatolia and the Balkans.223 Due to the lack of training facil-
ities large enough to accommodate all the new troops at once, soldiers were rotated
through off-days, during which they could ply trades if they wished.

The *Nizam-i Jedid* army thus experienced “a continued decline in . . . discipline
and efficiency.”224 Although the new troops performed adequately against French
forces in Gaza, Alexandria, and Rossetta in 1800–01,225 one observing British officer—
complaining of the lack of “any rational system or foresight with respect to the plan of
operations to be carried on against the enemy”—decried the lack of good officership:

What is expected from such troops, or rather mob thus commanded?
Nothing but shame and disgrace, and yet they have fine men, excellent
horses, good guns, plenty of ammunition and provisions and forage, and
in short great abundance of all the materials required to constitute a
formidable army, but they want order and system, which would not be
difficult to establish if their principal officers were not so astonishingly
adverse to anything tending toward it.226

Perhaps more fatal to the reform program than the new army’s poor discipline and
leadership was that Selim III did not adequately account for the violent opposition
of two groups: the Janissaries and the *ulema*, or religious elites, both of which firmly
resisted the introduction of new, infidel methods into the army. The Janissaries, for

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223Shaw 1971, 133. The fact that urban dwellers made such better soldiers than non-urban dwellers
is indicative of one of the links between the division of labor and military professionalism: urbaniza-
tion. What is more, this influence of urbanization obtained even though the overall Turkish division
of labor was nowhere near what it would become in the twentieth century.

224Shaw 1971, 134.

225Shaw 1971, 135.

226Quoted in Shaw 1971, 136. See also p. 137.
their part, refused to serve with the new troops, which proved disastrous against Serb and Russian forces in 1806–07.\textsuperscript{227} In addition, the Janissaries allied with the \textit{ulema} to rally both the impoverished masses and the landed estates against reform, and the Janissaries revolted against reform a number of times in the late eighteenth century.\textsuperscript{228} In fact, they revolted—for neither the first nor last time—in 1805–06, when Selim proposed a general levy to fill the ranks of the \textit{Nizam-i Jedid} army.\textsuperscript{229}

The situation came to a head in 1807, when Selim ordered the Janissaries themselves to adopt the new Western military practices. The Janissaries, in response, massacred reformers loyal to Selim and forced the Sultan to step down.\textsuperscript{230} Throughout, the new army proved “almost completely ineffective in defending its master and itself against the common enemy,”\textsuperscript{231} yet another indication that the reforms had failed. When Mahmud II became Sultan in Selim’s stead, he attempted to revive the \textit{Nizam-i Jedid} reforms of his predecessor, but to no avail. In 1808, in response to Mahmud’s training of a Janissary unit in the Western fashion, the Janissaries revolted once more, and Mahmud had to back down, to wait for a more propitious moment to engage in military reform.\textsuperscript{232}

\textsuperscript{227}Shaw 1971, 120, 135. See also Ralston 1990, 45–9.
\textsuperscript{228}Berkes 1965, 62–9.
\textsuperscript{229}Hale 1994, 16.
\textsuperscript{230}Berkes 1965, 82–5; Hale 1994, 16.
\textsuperscript{231}Shaw 1971, 137.
5.2.4 The Partial Success of Mahmud II

Mahmud quietly prepared the ground for reform until 1826, when he once again launched *Nizam-i Jedid*-style reforms. He convinced the *ulema* that his reform program was acceptable, distributing wealth and high position to clerics who argued that the adoption of infidel military methods—though with Muslim *teachers*—was permissible. Mahmud also coopted key members of the Janissary Corps itself (bribing them with government appointments), such that when they once again revolted in 1826, Mahmud was ready. With the Janissaries organizing their revolt in the Istanbul barracks, the Sultan ordered his new troops—led by an ex-Janissary commander—to unleash a barrage of grapeshot on his adversaries, massacring them. In about half-an-hour, an institution that had built and defended the Empire for centuries was gone, but so also was the last real obstacle to reform, or so Mahmud believed.

A flurry of reforms ensued, though they, too, did not last. Mahmud’s reforms saw the rejuvenation of the officer education system, with the establishment of a military academy in 1834, the *Mekteb-i Ulum-i Harbiye* (School of Military Sciences), an important development given the serious lack of officers. Both instructors and cadets at this academy were paid high salaries, to lure the most qualified candidates. The year 1826 saw the establishment of a Ministry of War, and 1836 a Council of Military

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233 He did not use the term “*Nizam-i Jedid*” either, to avoid drawing attention to the fact that his proposed reforms were so similar to the reviled reforms of Selim III.


Affairs, to plan and implement further reforms.\textsuperscript{238} Mahmud sent Turkish officers to various European capitals, to learn European ways and then return to the Empire to train their colleagues; this program began with four Turkish officers sent to Paris in 1827,\textsuperscript{239} and became regular in 1834.\textsuperscript{240} In 1826, the army also drafted a new code of regulations.\textsuperscript{241} The Turkish government once again began instituting formal salary structures,\textsuperscript{242} and built new training facilities across Anatolia. The Prussian officer Helmuth von Moltke (who was later to head the Prussian Great General Staff) was retained from 1835 to 1839 to help reorganize the military, initiating a Prussian military presence that was to remain until 1918.\textsuperscript{243}

### 5.2.5 The Mahmud Reforms Falter

These changes also faltered after a few years, however. In 1840, von Moltke himself gave a dim appraisal of the Turkish officer corps, complaining that their positions were attained not by competence but by social connection.\textsuperscript{244} The curricula of the schools never improved to the level of their European counterparts, the trickle of officer-trainees to Europe never turned into a stream, and funding for training and equipment dried up after a few years. What is more, the military academy established in 1834 did not graduate its first class until 1847.\textsuperscript{245} Even by the late

\textsuperscript{238}Akme\u015f\u0131 2005, 4.
\textsuperscript{239}Lewis 1968, 83.
\textsuperscript{240}Akme\u015f\u0131 2005, 4.
\textsuperscript{241}Lewis 1968, 81.
\textsuperscript{242}Ralston 1990, 56–7.
\textsuperscript{243}Be'eri 1969, 301; Lewis 1968, 81–2; Ralston 1990, 55.
\textsuperscript{244}Be'eri 1969, 302.
\textsuperscript{245}Ralston 1990, 62–3.
1830s, the standard of instruction in Turkish military schools was below that even of Egypt; moreover, the “paucity of new officers” proved to be the “primary obstacle” to the army’s continued development.\footnote{Hurewitz 1969, 36. See also p. 37.}

5.2.6 The Tanzimat Era: Reform Slows

In the Tanzimat era, lasting from 1839 to 1876, professionalizing reform did not fair much better. During the Crimean War, for example, the Ottoman army had little to speak of organizationally between the high command and the common soldier, the army neglected training, and the pay and administrative services did not perform well.\footnote{Ralston 1990, 59–62.} Large-scale training maneuvers—especially ideal for evaluating war planning and officer training—were rare in this time period, and they ceased altogether after 1881. Although the Military Academy continued to operate (one of the few lasting effects of the Mahmud-era reforms), it produced a paltry 200 officers per year, never enough in an army that numbered 750,000 by the 1890s. The vast majority of officers, therefore, were promoted from the enlisted ranks and could neither read nor write, let alone understand war on a technical level. On top of this, the general staff section of the War College did not graduate its first class until 1860, fully twelve years after it had opened its doors.\footnote{Hale 1994, 29; Hurewitz 1969, 38.}

The one professionalizing bright spot to emerge from this era is probably the continued development of Turkey’s military education system. In contrast to the education at religious schools, where most Turks received their early education, the military established a separate primary and secondary education system in 1855,
training young men to be officers from the age of 10 or 12. The best graduates went on to the general staff course of the War College, but only after gaining a commission and serving with a line regiment for two years. Other graduates continued on to the Military Academy. This competitive military schooling system led to many careers based on merit. Indeed, “by the last quarter of the nineteenth century, these educational reforms … were on their way to producing a distinctive military elite.” This sense of corporateness was to pervade the Turkish officer corps more and more as time wore on, but, that said, the proportion of academy-trained officers never constituted a simple majority, let alone an overwhelming one, for decades. It was only after World War I that the influence of these schools began to predominate in the Turkish officer corps.

5.2.7 The Reign of Abdul Hamid II: Stagnation

In the period 1876–1908, during the reign of Sultan Abdul Hamid II, any professional qualities the army possessed atrophied. The Sultan “personally [approved] the promotion and assignment of every officer” and used the permanent commissioning of officers to extend his influence throughout the army. What is more, officers’ pay was

\footnote{Hale 1994, 23; Ralston 1990, 64–5.}

\footnote{The Mekteb-i Harbiye (War College) was created in 1846 out of the “several officer-training facilities in and around Istanbul,” and the general staff course was begun in 1848. See Hurewitz 1969, 38.}

\footnote{Akmeşe 2005, 6–7.}

\footnote{Akmeşe 2005, 2, 6–8. See also Hale 1994, 24. One product of this system was Mustafa Kemal (later Atatürk), founder of modern Turkey. See Be’eri 1969, 303.}

\footnote{Akmeşe 2005, 7–8. In the 1840s, the average graduating class from the War College was 25. This average increased to more than 100 by the 1870s, and to 500 by 1900, but was never enough to keep pace with the expansion of the military. See Hurewitz 1969, 38. Academy-trained officers made up far less than half of all Ottoman officers in the years before World War I.}
often in arrears, and enlisted men—if they were paid at all—often received overvalued government IOUs. The paranoid Abdul Hamid did not allow field maneuvers, live-fire target practice, or the distribution of artillery shells to outlying districts. Even the Mauser rifles he had purchased from Germany were not distributed to the troops for six years. Having well-educated officers also seems to have been a low priority: as late as 1894, 85 percent of officers had no formal education at all (to say nothing of an academy training), and as many as one-third of all officers may still have been illiterate.

5.2.8 The Young Turk Reforms: Too Little, Too Late

The 1908 Young Turk revolution ushered in another series of short-lived reforms. The Sultan’s personal influence on the military was ended, and a Supreme Military Council was established in 1909 to coordinate reforms, promotions, and appointments, and to coordinate General Staff and Ministry of War efforts. In July, 1909, a General Inspectorate of Education and Instruction was established to improve officer education, and in August of that year the Staff School was made separate from the War College, with staff officers required to have periodic regimental service after entering the Staff. Specialist schools (e.g., infantry and artillery shooting schools) were also established. In addition to this, operational planning improved under the reformed General Staff, and regular exercises and firing practice were instituted.

The Young Turks also sought to purge the officer corps of its less professional members. The 1909 Law for Age Limitation established age limits for each rank, resulting in the retirement of 7,500 officers. Another 1909 law purged those officers who had gained their positions by palace favoritism. By this time, however, academy-trained officers still made up only a minority of the Turkish officer corps, and the Young Turks made efforts to purge those who had been commissioned from the ranks. All told, approximately 10,000 officers, or one-third of the 1909 officer corps, were cashiered as a result of these reforms.259

These reforms, too, did not last. Many of the purged officers were called back to the colors with Italy’s invasion of Libya—an Ottoman possession—in 1911.260 The Balkan Wars (1912–13) and World War I were particularly damaging to the Young Turk military reforms, since they undermined the legitimacy of Young Turk leadership and forced the military to expand dramatically before it was ready. What is more, training was still inadequate. The 1909 military maneuvers in Thrace had been the first in thirty years. After holding maneuvers again in 1910, they were not held in 1911 due to budgetary constraints. Abdul Hamid’s pre-1908 withholding of live ammunition and equipment from troops, furthermore, had reinforced a pattern of inadequate training.261 In the three years before the outbreak of war, the post-1908 reforms could hardly reverse decades of neglect. In short, observes one historian, “these post-1908 military reforms aimed to change much in the Ottoman army in a short time. In practice, they failed to do so.”262

262Akmeşe 2005, 120. See also Hale 1994, 46, who notes that, by World War I, “[Turkey’s] fighting forces remained woefully defective in training and equipment.”
5.2.9 Reform in the Republican Era

The interwar years witnessed only token efforts at reform, although by the middle of the twentieth century the Turkish military was well on the way to becoming a professional, modern fighting force. While the years after World War I saw the gradual de-politicization of the officer corps, as well as a slow increase in the proportion of academy-trained officers,\textsuperscript{263} the military, in general, stagnated during the tenure of Kemal Ataturk. Ataturk did, to his credit, make an effort to update the military’s World War I-era transportation methods and equipment in response to Mussolini’s rise in Italy. This effort was feeble, however; even by 1948, most transport was still horse-drawn, and most equipment dated from the 1920s. Promotion during the interwar years was more often based on seniority than ability. What is more, the long tenure of one man as Chief of the General Staff—Feve Çakmak—“stifled innovation and initiative,” and “the senior ranks of the army were overstaffed and filled with men with virtually no training in modern warfare.”\textsuperscript{264}

In the late 1940s, though, Turkish military training and education programs took on new life. In September, 1947, the army demobilized an entire class of recruits, reducing the size of the army from 485,000 to 350,000 and allowing for more thorough training.\textsuperscript{265} Also, in response to Soviet demands for guaranteed access through the Dardanelles and for the leasing of bases along Turkey’s Black Sea coast, and thanks to $687 million worth of United States military aid from 1948–52,\textsuperscript{266} Turkey welcomed

\textsuperscript{263}Goldman 2002, 45, for instance, notes with respect to the Turkish military that it was “only after [the Ottoman Empire’s] collapse in World War I [that] foreign (i.e., Western) ideas and institutions [were] assimilated.”
\textsuperscript{264}Hale 1994, 79–80. The quotes are from p. 80.
\textsuperscript{265}McGhee 1990, 42–3.
\textsuperscript{266}Criss 1993, 331–41. See also Ahmad 2003, 104–7; Pitman 1988, 318; Smith 2000, 68.
American military advisors to oversee further training and joint military planning.\textsuperscript{267} These American advisors were thorough, as well—one commentator notes that “the Turks received intensive training in the fields of supply, communications, ordnance, aircraft flight and maintenance, highway construction and machine operation and maintenance.”\textsuperscript{268} In fact, the Americans created more than fifty new courses for the air force alone, and Turkish forces overall received training on new US equipment. In addition to the American military mission in Turkey, “Turkish officers and enlisted men were sent to the US and Europe to attend as regular students at service schools where they learned US military tactics and acquired skills to operate and maintain mechanical and electronic equipment.”\textsuperscript{269} As part of these reforms, the newly-created Personnel Section of the General Staff was charged with promoting officers based more on proven ability than simply on seniority.\textsuperscript{270}

Even before the advent of US military aid, though, Turkey had begun devoting increasing resources to the military: 1946 saw a 31.7 percent increase in the defense budget from 1945, and 1947 saw a 44 percent increase from 1946.\textsuperscript{271} By the time Turkey sent a brigade to fight with UN forces in Korea, in 1950, this professionalizing program was already having a significant impact: the allies regarded the Turkish brigade to have fought very well in the Korean War. Along with the US 2nd Division, they prevented the encirclement of the 8th Army after the Chinese crossed the Yalu

\textsuperscript{267}Criss 1993, 343.
\textsuperscript{268}McGhee 1990, 43–4. See also Hale 1994, 96–7.
\textsuperscript{269}Criss 1993, 343–4.
\textsuperscript{270}Hale 1994, 97.
\textsuperscript{271}Criss 1993, 341.
River, sustaining heavy casualties in the process.\textsuperscript{272} Associate membership in NATO in 1951—and full membership in 1952—were the culmination of a five-year military professionalization effort in Turkey.\textsuperscript{273} This effort was not ephemeral, either. Turkey has been able to sustain the level of military expenditures per soldier and military periodicals—two key indicators of military professionalism—for decades since 1950 (see Figure 5.1 on the next page). Also, by 1970 there were still thousands of US personnel in Turkey, working to further train and professionalize the armed forces.\textsuperscript{274} In sum, by the middle of the twentieth century Turkey can finally be considered to have developed a relatively modern, professional military, something it had been pursuing for more than 150 years.

### 5.3 Wartime Defeat and the Absence of Enduring Reform

If the conventional wisdom is to be believed, then the seemingly threatening nature of Turkey’s international environment would have impelled Turkey to professionalize the military earlier and more quickly than it did. From 1768 to 1923, Turkey fought 25 separate wars against more than a dozen foreign enemies (including every great power except the United States). In fact, in fully 83 of the 155 years in this time period—or,

\textsuperscript{272}McGhee 1990, 77–8. The brigade was replaced three times and lost two-thirds of its men as casualties overall. That said, it is likely that Turkey sent only its best-trained troops to Korea, so the Turkish brigade’s combat performance should not be taken as the sole evidence of the military’s continued professionalization. See Hale 1994, 96.

\textsuperscript{273}Criss 1993, 343.

\textsuperscript{274}McGhee 1990, 92.
Sources: Correlates of War Project 2005a; FirstSearch 2005; Ulrich’s Periodicals Directory 2005.

Figure 5.1: Indicators of Military Professionalization in Turkey
over half of the time—Turkey was involved in warfare.\textsuperscript{275} One of the notable aspects of these wars, however, is that the Turkish homeland—Anatolia—was never occupied as a result of military defeat.

Still, war quite often revealed gross incompetence in the fighting forces, which in turn prompted the initiation of reforms, but these improvements never endured beyond a decade or so. For instance, the Ottoman Empire launched military reforms beginning in the 1790s (after defeat in a war against Austria and Russia),\textsuperscript{276} in the 1820s and 1830s (after warring against Greeks, Russians, and Egyptians),\textsuperscript{277} and in the 1850s (after the Crimean War).\textsuperscript{278} Even after the withering defeats of the two Balkan Wars and World War I, which together brought about the systematic dismantling of the entire Ottoman Empire,\textsuperscript{279} Turkey did not launch a professionalizing military program. The one episode of lasting military professionalization occurred in the Republican era: in the late 1940s, the United States helped finance the re-equipping and training of the Turkish army, in response to the Soviet threat. These later efforts resulted in a greater level of professionalism, and one that seems to have endured much longer than did the earlier, Ottoman-era reforms. Thus, war has often preceded professionalizing reforms in Turkey, but post-war reforms were never of a comprehensive or long-lasting character.

\textsuperscript{275}Issawi 1980, 4. Though they were on opposing sides in World War I, Turkish and American forces never engaged in significant combat.

\textsuperscript{276}Goldman 2002, 47.

\textsuperscript{277}Goldman 2002, 48; Lewis 1968, 81.

\textsuperscript{278}The reforms of the 1850s, however, were not of a professionalizing nature, dealing more with the territorial organization of the army and the formation of reserves. See Akmeşe 2005, 6–7; Hale 1994, 21–3. Military reform programs also began in 1808 and 1909, but these did not follow on the heels of international war.

\textsuperscript{279}Ahmad 2003, 57–60.
5.4 The Division of Labor in Turkey

The relatively backwards division of labor in late Ottoman Turkey may help to explain why professionalizing Ottoman reforms did not have a lasting effect, while twentieth-century, Republican-era reforms did. Most indicators suggest that Turkish labor market specialization was stagnant in the nineteenth century, and some suggest that labor markets became even less diverse in this period. For instance, the first half of the nineteenth century witnessed an absolute decline in Ottoman textile manufacturing—where there were 2,000 looms of muslin in Sculari and Tırnova in 1812, for example, there were only 200 in 1841; and the volume of “velvets, satins, and silk-stuffs” produced in Anatolia, Diarkebir, and Broussa fell tenfold in the same period.280 Worse still, the principal decline was in small urban industry, not family manufacture, and the state-run factories established earlier in the century had to be closed, their inefficiency placing an undue strain on the state treasury.281 The decline in manufacturing was such that even the production of cotton yarn—once a staple of Ottoman manufacture—ceased entirely in Turkey, in favor of raw, unspun cotton.282

Government policies did not aid in the division of nineteenth-century Turkish labor, either. Tax farming was not abolished until 1839,283 and until the end of the nineteenth century craftsmen faced strict regulation from both the guilds and the government.284 Government tariff policies also stifled economic diversification: in

280 Ubicini 1966, 43. Textiles had been one of the mainstays of the Ottoman economy for many decades.
281 Sarç 1966, 50–1, 55–7.
284 Issawi 1966a, 46.
1847, there was a 12 percent internal tariff on silk products, a tax that at other times reached as high as 50 percent.\textsuperscript{285} Ottoman land regulations, furthermore, prescribed joint ownership of land with the state—users could not mortgage the land or “hold it in partnership without official permission,” which hindered the creation of capital for new sectors, further dampening the division of labor.\textsuperscript{286}

The Turkish economy’s poor performance is further evidence that the country was not experiencing labor division in the nineteenth century. Overall economic malaise had become endemic by 1800: in comparison to Europe, the Ottoman Empire’s economy was weaker in 1800 than it had been in 1550, and may even have suffered absolute deterioration.\textsuperscript{287} Related to this, the government was also consistently unable to finance military reform: “during the late 1830s, . . . the army was absorbing 70 percent of total revenues, and even then many of the troops were left unpaid.”\textsuperscript{288} Even later in the century, the Turkish economy proved unable to finance the needs of the state: the government contracted nineteen loans from 1854 to 1879, and “the greater part of what was received was used to pay the principal and interest on the debt itself.”\textsuperscript{289} These loans were a crushing burden. In the fiscal year 1872–73, the Empire spent twice as much on servicing public debts—44.2 percent of the state budget—as they did on the army and navy—which received 22.1 percent of the budget.\textsuperscript{290} Turkey’s economic situation became so dire that in 1876 the Ottoman Empire declared bankruptcy.\textsuperscript{291}

\textsuperscript{285}Sarç 1966, 54.
\textsuperscript{286}Owen 1981, 118–9.
\textsuperscript{287}Issawi 1980, 1.
\textsuperscript{288}Owen 1981, 62.
\textsuperscript{289}Owen 1981, 100–5. The quote is from p. 105.
\textsuperscript{290}Aktan 1966, 111.
\textsuperscript{291}Owen 1981, 122.
Also, Turkish urbanization was slow until the twentieth century. Where more than 10 percent of Turkey’s population likely lived in towns of 10,000 or more in 1800—quite a high level of urbanization, by the European standards of the time—this level had increased to only 16 percent by 1927 and 18 percent by 1945. In fact, “compared to other European countries, Turkey was relatively less urbanized in 1913 than in 1800,” and “no significant increase in urbanization seems to have taken place” from 1800 to 1914.292

5.4.1 Twentieth-century Turkey: An Advanced Division of Labor

By 1960, however, fully one-quarter of Turkish citizens were living in urban areas.293 This gradual, post-World War I increase in Turkey’s urban population may have made it easier for the state to collect the manpower and resources it needed to professionalize the Turkish military.

There is other evidence that the division of labor began to advance significantly in the first half of the twentieth century. For one, the balance between agriculture and industry began to shift after the First World War: by one estimate, in 1914 agriculture contributed 56 percent of national income and industry 17 percent. By the mid-1920s, in contrast, agriculture is estimated to have contributed 40–50 percent and industry

292Issawi 1980, 11. See also pp. 33–4 and Issawi 1979, 103–10. By contrast, Germany’s urban population increased from 1 to 16 percent from 1800 to 1900, and that of England and Wales from 7 to 38 percent in the same period. One source, Owen 1981, 189, notes that by World War I only 10 percent of Turkey’s population lived in towns of 10,000 or more, which would suggest no change in the level of Turkish urbanization from 1800 to 1914.

293Issawi 1979, 111–2. These figures refer to those living in towns of 10,000 or more. If a lower urban standard is used, according to Issawi, Turkey was 25 percent urban in 1945 and 34 percent in 1965. Issawi does not indicate what this lower standard is. The trend, however, remains the same: there was significant twentieth-century urbanization in Turkey.
Moreover, even before World War I Turkish agriculture was becoming more focused on a variety of cash crops and increasing land area was dedicated to large-scale, commercial farming, using machines and wage labor. In addition, both the mining and manufacturing sectors of the Turkish economy were growing significantly from 1881 to 1914. Just before World War I, industry, capitalistic agriculture, and the bourgeois and industrial working classes all grew significantly. Also before World War I, unskilled labor was making more demands of its employers, and socialist organizations and labor syndicates were becoming more active. On top of this, “it was only in the two or three decades preceding the First World War that a significant factory industry rose to take [the] place [of traditional handicrafts that had been declining due to foreign machine-made goods],” and between 1885 and 1913 coal output grew by an average of 8.7 percent annually and other minerals increased by 15 percent. Also indicative of an advancing division of Turkish labor is the fact that as many private industrial companies were founded in the years 1901–15 (107) as were founded in all the years previous.

296 Owen 1981, 211, 213.
298 Issawi 1980, 37. See also pp. 50–1: “It was not until the 1908 Constitution that industrial action on a large scale began; some thirty strikes took place, and in the next two or three years several trade unions were founded, notably in the railways, textile, tobacco, and food and drink industries. Particularly noteworthy was the strike by an estimated 10,000 tobacco workers for higher wages and a ten-hour day.”
300 Issawi 1980, 277.
After World War I—which was very detrimental for the Turkish economy—the division of labor continued to advance.\textsuperscript{301} Government policies in the 1920s and 1930s encouraged development: the government extended the railroads by 3,000 kilometers; established commercial and industrial banks; and adopted a Western civil code, alphabet, and system of weights and measures. What is more, the Law to Encourage Industry (1927) “granted tariff exemptions, lower transport rates, and other benefits, [and] led to the foundation of many new enterprises.”\textsuperscript{302} The increase in new enterprises also represented an increasing capital investment. Whereas in 1943 there were 421 joint stock companies with a capital value of 245 million Turkish pounds, in 1950 there were 782, with a value of 875 million Turkish pounds. This growth continued: from 1951 to June, 1957, 1,703 new companies were founded, representing a capital value of 1.5 billion Turkish pounds.\textsuperscript{303} Agriculture continued to modernize, as well—where there were 211,000 iron ploughs in use in 1927, there were 516,000 such ploughs in use in 1950.\textsuperscript{304}

The growth in overall Turkish economic productivity was also significant after World War I. Gross domestic product per capita, adjusted for inflation, increased 86.6 percent from 1923 to 1938.\textsuperscript{305} This increased productivity in the Turkish econ-

\textsuperscript{301}World War I marked a serious—though temporary—regression in overall Turkish economic development: agricultural output plummeted because of a dilapidated communications infrastructure and the emptying of the countryside, and the cost of living index rose from a base of 100 in 1914 (before the war) to 2200 in December, 1918 (after the Ottomans left the war). See Hale 1994, 52.

\textsuperscript{302}Issawi 1980, 367.

\textsuperscript{303}Issawi 1980, 370.

\textsuperscript{304}Issawi 1980, 367, 369.

\textsuperscript{305}Issawi 1980, 368, 370.
omy likely made more resources available for professionalization and decreased the aggregate economic cost of putting some of society’s most productive workers—the educated classes—into the military.

Other factors further suggest that Turkish labor division became quite advanced in the Republican era. The Turkish middle class was virtually non-existent in the nineteenth century, but gained increasing strength in the years just before and after World War I.\(^{306}\) The Turkish division of labor had advanced to such a degree that “by the late 1930s Turkey was endowed with a credible military structure, the beginnings of a diversified industrial sector, and a rapidly expanding educational system.”\(^{307}\) Notably, the growth in the number of students in schools far outstripped population growth from 1923 to 1938: population grew by 43.3 percent, while the number of enrolled students increased by 163 percent.\(^{308}\) An increasingly credible education system suggests that the state had an increasing amount of human capital at its disposal to put towards professionalizing the military.

In sum, the slow pace of Turkish military professionalization is less puzzling when one considers the timing of Turkish labor division. Until the twentieth century, urbanization and manufacturing were regressing, suggesting that the division of labor was at best stagnant. The first half of the twentieth century, on the other hand, saw the development of new economic sectors, the middle class, and the educational


\(^{307}\)Richards and Waterbury 1990, 187.

\(^{308}\)Issawi 1980, 368, 370. Seven-and-a-half percent of the population consisted of students in school in 1945, a proportion that was only 5.5 percent in 1938 and 3 percent in 1923.
system, as well as dramatic increases in levels of societal wealth and urbanization. Not coincidentally, enduring professional military reforms followed shortly afterward.

5.5 The Division of Labor and Long-term Professionalism

The case of Turkey reinforces two lessons. First, stinging military defeats—even if they are not dire defeats—can result in military reform, but these will not result in long-term professionalism without an advanced division of labor. Second, an advanced division of labor can foment long-term military professionalism even if there is no dire military defeat to stimulate reform. Both lessons revolve around one point: in order for a country to generate a truly modern, professional military, an advanced division of labor is essential.

Ottoman Turkey was involved in many wars from 1787 to 1919, resulting in varying levels of defeat and belying serious qualitative military shortcomings. However, none of the Ottoman military defeats from 1787 to 1918 can be considered dire; none resulted in the loss of territory in the Turkish homeland, Anatolia. Territorial losses occurred in the Balkans, the Crimea, the Caucusus, Greece, Egypt, and Syria, but never in the heart of the Empire. Despite the fact that none of the defeats was truly dire, many were militarily disastrous, and the Ottoman Empire chose to launch military reforms after five of them. However, none of these reforms took root or effected a real, long-term change in the level of military professionalism. It was not until more than thirty years after Turkey’s last military defeat (i.e., World War

Muhammad Ali succeeded in invading Anatolia in 1838, but European pressure made him retreat before he could make good on his gains. Also, European forces occupied Istanbul and other areas of western Anatolia in 1920, but this was not in the context of a military defeat, let alone one that belied rank incompetence on the part of Turkish forces: Turkish nationalists successfully regained control over all of Anatolia before the cessation of hostilities. See Hale 1994, 60–2.
I) that Turkish fighting forces developed into a truly modern, professional military. Not coincidentally, Turkish military professionalization did not occur until after the division of labor had become fairly advanced.

The second lesson deals with the division of labor in the absence of military defeat: it seems to be an essential condition for enduring professional military reform. In Turkey, a period of significant labor market specialization preceded the professionalization of the military. An advancing division of labor coincided with periods of remarkable urbanization and increasing economic productivity, which suggests that military professionalization was an increasingly feasible option for Republican Turkey. The division of labor did not spark military professionalization on its own, however—in the Turkish case, the threat of Russian domination and the inducement of United States military aid probably combined to launch reforms. Nonetheless, these reforms probably would not have endured in the absence of an advanced division of labor. In sum, the Turkish case suggests that an advanced division of labor is a critical ingredient for long-term military professionalism.
CHAPTER 6

EGYPT: AMBITION, DIRE DEFEAT, AND THE DIVISION OF LABOR
6.1 Two Episodes of Reform

Egypt has engaged in significant military reforms at two different times in its history: in the first half of the nineteenth century and then after the 1967 Six Day War with Israel. The former episode highlights the importance of an advanced division of labor for long-term military professionalization: the ambitious Egyptian leader Muhammad Ali undertook to reform the military, but his reforms did not outlive him—the Egyptian division of labor was too primitive. The latter episode of Egyptian military professionalization, begun after Egypt’s dire military defeat to Israel in 1967, illustrates how dire military defeats are sufficient for the initiation of reform, but also suggests that only the presence of an advanced division of labor can make these reforms endure. As I have done in the previous three chapters, for both episodes of Egyptian military professionalization I survey the nature and permanence of the reforms, the characteristics of the wars that preceded them, and the state of the division of labor in the years before reform. This chapter concludes by describing what these two cases imply for the argument of this study.

6.2 Egypt, 1811–39: The Ambition of Muhammad Ali

The irrepressible ambition of Muhammad Ali Pasha—Egypt’s leader from 1805–1849—seems to have driven Egypt’s first modern experience with military modernization, which this section examines. The other episode, which I deal with in the following section and which resulted in more lasting reforms, was the result of Egypt’s dire 1967 defeat to Israel and the presence of an advanced division of labor.
6.2.1 Muhammad Ali’s Military Reforms

In terms of professionalizing the army, Muhammad Ali’s nineteenth-century reforms met with mixed success; officers and men received good training—by the standards of the region—and the military enjoyed a sizeable state capital investment, but the officer corps remained highly politicized and army discipline was not uniform. In 1811, Muhammad Ali began sending a few of his officers to Europe, anticipating that they would come back to train his army at home.\textsuperscript{310} In 1816, he established a training course for his officers, as well as a training camp at Cairo’s Citadel and a number of specialized military schools in the years thereafter.\textsuperscript{311} In the early 1820s, Muhammad Ali also founded a printing press, one purpose of which was to publish military manuals.\textsuperscript{312} Moreover, Muhammad Ali’s conscript troops were usually fairly well disciplined—in the early 1820s, they put down a rebellion in a province from which they had been conscripted themselves, routed an enemy force reportedly ten times their size in the Hijaz, and successfully protected the regime against what was rumored to be a revolt by disaffected Albanian officers.\textsuperscript{313} In short, Muhammad Ali’s army, which numbered almost 200,000 men by the mid-1830s, exhibited some noteworthy professional characteristics.

Still, the Egyptian armed forces hardly matched the professionalism of European armies. Muhammad Ali’s officer corps, for instance, was highly politicized; the highest ranks were reserved for his personal slaves and any promotion at all depended on

\textsuperscript{310}Hurewitz 1969, 30, gives the date that Muhammad Ali first sent officers to train in Europe as 1809, while Ralston 1990 gives it as 1811.

\textsuperscript{311}Hurewitz 1969, 30; Ralston 1990, 87, 91–2.

\textsuperscript{312}Ralston 1990, 94.

\textsuperscript{313}Fahmy 1999, 64–6.
both ethnicity and unquestioning loyalty to the Pasha’s rule.\textsuperscript{314} On top of this, discipline went only so far as the officer’s lash. Of those who could not avoid life-long military servitude by flight or self-mutilation (and sometimes even the maimed were conscripted), one in three deserted.\textsuperscript{315} The Egyptians also had nothing akin to the Prussian General Staff, or even the French Staff Corps.\textsuperscript{316}

To make matters worse, what successes resulted were short-lived. The 1838 Commercial Convention, which limited tariffs on all imports into the Ottoman Empire to 5 percent and abolished all monopolies, and the 1939 Treaty of London, which drastically reduced the size of Egypt’s army, curtailed Muhammad Ali’s ability to further develop his military.\textsuperscript{317} In fact, Egyptian state control over the armed forces decreased to such an extent that, after the British invasion of 1882, all non-British foreign officers were dismissed, Egyptian officers could not gain promotions without a demonstrated loyalty to British rule, and the overall professionalism of the Egyptian officer corps decreased.\textsuperscript{318} Even before the British invasion, officers’ pay was often months in arrears.\textsuperscript{319} Under effective British control until 1937, and then under the control of the British-leaning monarch Farouq until 1952, Egyptian officer recruitment and selection remained politicized and class-based until well after World War II. In

\textsuperscript{314}Ralston 1990, 91.

\textsuperscript{315}Fahmy 1999, 64–6, 68–72. Desertion was even rampant in the elite units formed to catch deserters.

\textsuperscript{316}Hurewitz 1969, 30–1, notes that Joseph Sève—a Frenchman who was known as Sulayman Aga in Egypt and who administered the Egyptian reform program—established a “staff college,” but its products were not on a par with their European counterparts, nor have I found other evidence of an Egyptian staff college before 1939, the year in which Keegan 1983, 169, notes the establishment of an Army Staff College.

\textsuperscript{317}Barnett 1992, 60, 89; Issawi 1966b, 361–3.

\textsuperscript{318}Barnett 1992, 60–1.

\textsuperscript{319}Hurewitz 1969, 34.
addition, few military periodicals were published in Egypt during this time—*Jaridat Arkan Harb al-Jaysh al-Misri* was published for a short time after 1873, and *Majallat al-Jaysh* ran from 1938 to 1947.\textsuperscript{320} Other than this, however, no military periodicals were published with any frequency or consistency in Egypt until the Free Officers came to power in 1952 (see Figure 6.1 on page 156). In sum, although from 1816 to 1839 Muhammad Ali managed to construct a military with many professional characteristics (including rigid discipline and decent training procedures), the level of professionalism was neither complete nor enduring; Egyptian forces subsequently atrophied under the rule of the British and, later, King Farouq.

\section*{6.2.2 The Wars of Muhammad Ali}

That said, during this period of reform Egypt’s involvement in war was nearly continuous. There was a war against the Wahhabis in the Arabian Peninsula from 1811 to 1818, an expedition to conquer the Sudan (1820–39), the Greek War of Independence (1821–32), and two wars against the Turks (1831–33 and 1839–41).\textsuperscript{321} Thus, it may very well be that the explanation for Egypt’s nineteenth century improvements in military professionalism lies in Muhammad Ali’s personal ambition and Egypt’s involvement in war, but not in the division of labor.

\textsuperscript{320}Ulrich’s Periodicals Directory 2005; FirstSearch 2005.
6.2.3 Dwindling Egyptian Labor in the Early Nineteenth Century

As for the division of labor, while only anecdotal evidence exists, it appears that Egypt’s nineteenth-century labor economy was not advanced. It was nearly unheard of in early nineteenth-century Egypt for “merchants and others with money to invest in the industrial sector.”\footnote{Owen 1981, 46–7. The quote is from p. 47.} At the time of the French invasion in 1798, most manufacturing in Cairo was on a small scale and confined to the narrow alleys and dead end warrens of Fatimid al-Qahira. In Cairo, a city of more than a quarter-million inhabitants, there were only “a few large establishments like the tanneries, which employed several hundred workers, and the houses for dying cloth, with thirty or forty. Capital was very limited.”\footnote{Owen 1981, 49–50.} Of those who had capital, it was most often tied up in tax farms, not in ships, shops, or other productive enterprises. On top of this, the structure of urban tax farming in Egypt compartmentalized the different sectors of the economy, stifling labor division.\footnote{Owen 1981, 49–50.}

Muhammad Ali also instituted a poorly-run industrialization program, which he could only man and finance by draining the countryside of its inhabitants, by instituting a system of monopolies that extended even to basic foodstuffs and cash crops, and by increasing the land tax to the limit of peasants’ ability to pay.\footnote{Fahmy 1999, 65. See also Hurewitz 1969, 31–2; Owen 1981, 65–70. Begun in 1811, the outlawing of private trade eventually extended to rice, sugar, indigo, sesame, short-staple cotton, hemp, wheat, barley, and beans.} Even with this tremendous effort, at its peak the number of industrial workers—30,000 in 1838—constituted only just over one percent of the total Egyptian population.\footnote{Hurewitz 1969, 31–2.}
The factories were also not very efficient: as much as half of the raw material was wasted due to carelessness, they never ran at full capacity, and in the 1830s there were only “seven or eight steam engines” in all of Egypt.\textsuperscript{326} Furthermore, due to a lack of managerial/entrepreneurial skill, coal, iron ore, and engineers, the management of and workmanship in Muhammad Ali’s factories likely declined over time, rather than improved.\textsuperscript{327} Muhammad Ali’s monopolies program overall was also quite inefficient: goods were sometimes sold below cost, whether to get rid of them or because Egyptian accountants simply did not know how much they actually cost.\textsuperscript{328} Even without the 1838 Commercial Convention and the 1839 Treaty of London, Muhammad Ali’s industrialization program likely would have died anyway: machines, including the steam engines, were dilapidated from years of neglect, and sickness among Egypt’s cattle posed a serious problem of power, not to mention Egypt’s general economic malaise at the time.\textsuperscript{329}

The productivity of Egypt’s nineteenth-century economy was also poor. An 1836–37 decline in world cotton prices sent Egypt’s economy tumbling, evidence that the economy relied overly much on cotton and lacked a thorough division of labor.\textsuperscript{330} This malaise did not improve in the last half of the century, either: Egypt contracted eight international loans from 1862 to 1873, and in 1876 had to declare bankruptcy.\textsuperscript{331} As a result of this bankruptcy, a push to industrialize that state leaders had instituted

\begin{itemize}
\item[\textsuperscript{326}]Owen 1981, 72.
\item[\textsuperscript{327}]Owen 1981, 69–72.
\item[\textsuperscript{328}]Owen 1981, 70–1.
\item[\textsuperscript{329}]Owen 1981, 74–6.
\item[\textsuperscript{330}]Owen 1981, 73.
\item[\textsuperscript{331}]Owen 1981, 122, 126–7. Egypt’s declaration of bankruptcy, in fact, followed that of the Ottoman Empire by only seven months.
\end{itemize}
to reverse the ill effects of Muhammad Ali’s poorly-run industrialization experiment also failed. Moreover, throughout the nineteenth century Egypt’s economy became more dependent on cotton exports, and the gains from these exports, which were considerable during the American Civil War, were not reinvested in developing other sectors of the economy.

The rate of urbanization was also slow in nineteenth-century Egypt, increasing at nowhere near the rate of European cities. Urban dwellers made up 9.5 percent of the population in 1821—in 1800, this figure had been 10 percent, so urbanization had been at best stagnant since then—and increased to only 12.8 percent by 1882, was 15 percent in 1897, fell to 14.3 percent in 1907, and then increased to 15.6 percent by 1917. It was not until the 1920s that the Egyptian urban population began to increase at a rapid rate. This slow urbanization, coupled with industrial inefficiency, poor economic performance, and the lack of sectoral diversification, indicates that it is very unlikely that the division of Egyptian labor was advanced at the same time that Muhammad Ali was reforming his armies, let alone before.

6.3 Egypt after 1967: Labor Division Sets the Stage, Humiliation Sets the Ball Rolling

Even after the Free Officers took power in July, 1952, professionalism in the Egyptian military continued to languish. Kenneth Pollack observes that by 1967 the Free

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332 Owen 1981, 150.
333 Issawi 1966b, 365.
334 Issawi 1979, 102, 109, 111–2; Owen 1981, 24, 217.
Officers had “turned the Egyptian armed forces into their private fiefdom, systematically replacing all of the top military leaders with men loyal to themselves.”\textsuperscript{335} After coming to power in 1952, in fact, the Free Officers dismissed 400 of the army’s highest ranking officers, replacing them with politically loyal candidates.\textsuperscript{336} Not only was investment in the military limited in the early years of Nasser’s regime,\textsuperscript{337} but the Revolutionary Command Council also maintained the old class-based conscription system from the Farouq era, a system that denied to the military higher-quality, college-educated recruits.\textsuperscript{338}

\textbf{6.3.1 Post-1967 Military Reforms: Preparing to Cross the Canal}

This changed with the disastrous 1967 defeat and loss of the Sinai Peninsula. The government began conscripting college graduates for the officer corps in 1968. The effect was that “the armed forces increased from 800,000 in 1971 to 1.2 million in 1973, largely a result of conscripting educated groups.”\textsuperscript{339} In addition, Egypt increased the length of service to “an indefinite period of time, or until the Sinai was recaptured,”\textsuperscript{340} suggesting a greater emphasis on education and training. Historian John Lynn notes this change in the Egyptian approach: “The Egyptians . . . moved

\textsuperscript{335}Pollack 2002, 58.

\textsuperscript{336}Be'eri 1969, 106.

\textsuperscript{337}Barnett 1992, 130. Capital investment increased markedly after the 1967 Six Day War, however—Egypt spent only $2.2 billion on arms from 1955 to 1975, compared to $6.6 billion from 1976 to 1981.

\textsuperscript{338}Barnett 1992, 92.

\textsuperscript{339}Barnett 1992, 124–5.

\textsuperscript{340}Barnett 1992, 125. See also pp. 126–8, 219.
away from politicized patterns as a reaction to . . . humiliation in 1967.” Training improved significantly; some Egyptian army units practiced the Suez Canal crossing literally hundreds of times in preparation for the 1973 October War. Pollack also notes that the ability of soldiers to benefit from military training, as well as the direction of and attention to training itself, improved markedly after Egypt’s 1967 defeat. Furthermore, Egyptian military expenditures per soldier increased sharply after 1967, as did the publication of military periodicals (see Figure 6.1 on the next page). In short, the humiliation of Egypt’s armed forces in 1967 spurred the government to launch serious military professionalizing reforms.

6.3.2 War with Israel and the Humiliation of 1967

The 1967 Six Day War was dire, as far as Egyptian military defeats go. Egypt’s armed forces met with battlefield defeat against Israel in 1948 and 1956 and acquitted themselves poorly against Yemeni Royalists from 1962–67, but it was not until 1967 that an Egyptian military defeat resulted in professionalizing military reforms. This defeat was different not only because it demonstrated the ineffectiveness of the Egyptian military—the previous defeats had done that well enough—but also because

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341 Lynn 2003, 313.
342 Lynn 2003, Chapter 8.
343 Pollack 1996, 266.
344 For a discussion of Egypt’s military performance from 1948 to 1967, see Pollack 2002; Pollack 1996.
Figure 6.1: Indicators of Military Professionalization in Egypt

Sources: Correlates of War Project 2005a; FirstSearch 2005; Ulrich’s Periodicals Directory 2005.
it can only be considered a dire defeat: casualties were especially high,\textsuperscript{346} and it resulted in the loss of the entire Sinai Peninsula. Thus, not even intense international competition, or even ordinary defeat in war, was enough to spur Egyptian professionalization before 1967. Only a particular kind of defeat did that: the humiliation associated with military incompetence, extremely high casualty rates, and the loss of national territory.

\subsection{The Egyptian Division of Labor}

It is clear that significant advances in the division of labor did not occur in Egypt before the twentieth century. For example, notes one historian, “Muhammad Ali’s monopoly system . . . killed whatever spirit of enterprise had existed among craftsmen,” and the stance of the British towards Egyptian industrialization—the British occupied Egypt until 1937—was positively hostile.\textsuperscript{347} As a result, the number of those employed in manufacturing remained small: by 1916 there were only 30–35,000—out of a population of more than 12 million—employed in the few active manufacturing enterprises in Egypt.\textsuperscript{348}

Around the middle of the twentieth century, however, Egyptian labor began to divide in earnest. Even during the period of Arab socialism from 1956 to 1967, Egypt’s labor market experienced substantial sectoral dispersion—where Egypt’s economy was heavily dependent on agriculture (especially cotton exports) at the beginning of Nasser’s rule, from 1955 to 1967 agricultural production as a percentage of national

\textsuperscript{346}The Egyptian military lost an average of over 1666 battlefield casualties per day over the course of the conflict, a figure higher than for any state in any wartime defeat since 1816. See Correlates of War Project 2005a.

\textsuperscript{347}Issawi 1966a, 452–3.

\textsuperscript{348}Issawi 1966a, 373, 452–3. There were only 15 such enterprises in 1916.
output decreased from 32.3 percent to 27.5 percent, while industrial production increased from 17.6 percent to 28 percent of national output. From 1965 to 1980, furthermore, Egypt’s industrial sector grew by 7 percent annually and the service sector by 9.5 percent, while the agricultural sector grew by only 2.8 percent. The percentage of Egyptian workers employed in agriculture decreased from 60 to 54 from 1950 to 1970, while in the same period the proportion of industrial workers increased from 12 to 19 percent.

Government policies after 1952 also favored the division of labor. Although Nasser nationalized many foreign capital interests in 1956 and domestic ones in 1961, he began reversing this trend after 1967. Nasser also reduced taxes for domestic and foreign capital interests, further fomenting industrial growth. Middle East economic historian Charles Issawi noted in 1966 that, since 1952, improvements in the transport system and reforms in land, monetary/fiscal, and tax policies have had a decidedly beneficial effect on the Egyptian economy.

There is other evidence of labor division at this time, as well. The middle class grew significantly from the 1920s on. One historian notes that “it was not until the 1920s and 1930s that an Egyptian business and professional class even began to emerge, not till the 1950s that it became dominant.” Other evidence of labor

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349 Barnett 1992, 85–6, 97, note 65. See also Issawi 1966a, 452–3; Issawi 1982, 231; Richards and Waterbury 1990, 69, 152. This shift came in spite of land reforms that reduced the legal limit of landholdings from 200 feddans in 1952 to 50 in 1969.

350 Richards and Waterbury 1990, 71.

351 Richards and Waterbury 1990, 74.


354 Issawi 1966b, 369.

355 Issawi 1966b, 366.
division is the growth in the number of manufacturing plants employing 10 or more persons: in 1927 this number stood at 95,000, but in 1954 it was 265,000, an increase of over 180 percent. Furthermore, industrial production had probably increased even faster in the same time span.\textsuperscript{356} Taken together, there is ample evidence that Egyptian labor was experiencing significant specialization before the government launched enduring professional military reforms after 1967.

6.4 The Importance of Dire Military Defeats and an Advanced Division of Labor

The case of Egypt illustrates the role of both an advanced division of labor and dire military defeats in engendering enduring professional military institutions. With respect to dire military defeats, it may be that not just any war will do. Rather, it seems that only a military defeat of a particularly rueful sort will impel states to reform in a fundamental way, defeats that involve not only obvious military ineffectiveness but also the occupation of national territory. Egypt’s military experienced withering military defeats for twenty years beginning in 1948, but it was not until after the dire defeat of 1967 that Egypt launched a program of professional military reform. Clearly, the 1967 Six Day War was not alone among Egypt’s wars in revealing Egyptian military ineffectiveness—the salient differences in 1967 were the loss of national territory to an occupying force and the tremendously high number of casualties, both markers of a dire military defeat. Thus, only a dire military defeat was sufficient to stimulate a program of military professionalization.

\textsuperscript{356}Issawi 1966b, 369.
In order for these reforms to develop into a long-term pattern of military professionalism, however, the Egyptian case suggests that an advanced division of labor is crucial. The Muhammad Ali episode of military professionalization indicates that without an advanced division of labor, the development of a modern, professional military is unlikely to occur. Given, an ambitious leader like Muhammad Ali may be able to generate some degree of professionalism in the military in the absence of an advanced division of labor, but—as in Egypt—the reforms thus engineered may turn out to be neither complete nor lasting. Moreover, in the latter episode of Egyptian military professionalization, the presence of an advanced division of labor laid the groundwork for long-term Egyptian military professionalism. In sum, the case of Egypt suggests that suffering a dire military defeat—but not necessarily suffering defeats of a slightly less severe nature—is sufficient to trigger a lasting program of professionalizing military reform, but only in the presence of an advanced division of labor.
CHAPTER 7

DOES WAR REALLY MAKE STATES?
7.1 Examining the Link between War Making and State Making

From this study, two lessons emerge regarding how states develop in response to war. By itself, war does not seem to result in military professionalization. At the same time, an advancing division of labor seems to set the stage for long-term, thorough professionalizing military reform, something that war alone does not seem to accomplish. That said, this study is hardly the final word on the subject—history may teach slightly different lessons if scholars transfer this study’s arguments to regions beyond the Middle East and Europe or to other facets of military institutional change or state development.

By no means is all lost for the link between war and the rise of the state. This study does not say that war never makes professional militaries, but that war merely can make professional militaries, a result that is more and more likely as the division of labor becomes increasingly advanced and war outcomes approach dire defeat status. In short, this study questions the breadth of the link between war making and state making, not the existence of the link itself.

7.2 A Summary of the Evidence

The evidence supporting this claim draws from both the large-\(n\) analysis and the case studies. In examining all states from 1820 to 2001, the large-\(n\) analysis indicates that simply being involved in a war does not appreciably increase a state’s chances of developing a professional military. In particular, states do not seem to professionalize the military in the five years after wars, neither do losing wars or having high casualty rates (irrespective of war outcomes) demonstrate a robust relationship with states’
propensity to professionalize. In short, over 182 years of human history, simply being involved in an interstate war has not appreciably increased the probability that a state will professionalize the military.

7.2.1 Dire Military Defeat

Still, both intuition and history suggest that at least some wars—for instance, the Franco-Prussian War and World War II—have played a huge role in determining the post-war shape of countries’ militaries. The question then becomes, what was so special about these wars? Why did they affect state decisions to professionalize the military, where other wars did not?

Again, evidence from the large-n analysis and the case studies suggests that especially dire military defeats may be what it takes to get states to launch professionalizing military reforms. The casualty rates of military losses—as opposed to those of any war—are positively correlated with the probability that a state will spend more on the military, per soldier, than the mean level of expenditures in a given year. This effect manifests itself, furthermore, while controlling for simple participation in a war (the war recent variable), as well as a number of other potentially important factors (e.g., having a great power as ally, the time since independence, being a great power, economic wealth, and regime type).\(^{357}\)

The case studies more clearly support the link between dire military defeats and military professionalization. In Europe, Prussia’s 1806 defeat at Jena and Auerstadt

\(^{357}\)That said, this effect is not consistent. Losing territory in a military conflict does not seem to affect the propensity to professionalize, and the rate of casualties suffered in wartime losses does not have a consistently positive and statistically significant impact on the other two indicators of military professionalization: publishing more than the mean number of military periodicals and having a military academy.
resulted in the French occupation of most of Prussia and revealed severe deficiencies in the command and training of the Prussian army. A long-term program of military professionalization followed, resulting in an army that returned the favor to France nearly seven decades later. In the 1870–71 Franco-Prussian War, France suffered the occupation of significant portions of the country, an outcome attributed mainly to gross incompetence in the command and training of the French army. Drastic professionalizing military reforms ensued in the decades following this dire French defeat.

The Middle East case studies also suggest a relationship between dire military defeats and the professionalization of the military. Egypt suffered quite severe military defeats at the hands of the Israelis in both 1948 and 1956, but did not embark on long-lasting military reform until after its defeat in the 1967 Six Day War. Interestingly enough, three characteristics distinguish the latter war from the former two: it resulted in the loss of the Sinai Peninsula (Egypt did not lose national territory after the other two wars), a tremendously high casualty rate, and the vilification of the army for incompetence (military failure in 1948 was attributed to shoddy equipment and in 1956 to the French and British invasion). Turkey, to examine the other side of the same coin, never suffered a wartime defeat that resulted in the loss of Turkish national territory, even though the incompetence of the armed forces was made plain over and over. Perhaps partly because they were not motivated by the loss of national territory, repeated Ottoman efforts at military reform never seem to have resulted in a truly professional military.
7.2.2 An Advanced Division of Labor

The absence of \textit{bona fide} Ottoman military reform may also have something to do with the division of labor. Turkish labor markets only began to diversify significantly just before World War I, and it was not until after this conflict that other evidence of Turkish labor division began to surface: rapid increases in the level of urbanization, in the proportion of students enrolled in schools, in new business enterprises created, and in the productivity of the Turkish economy. Not surprisingly, by the middle of the twentieth century Turkey was well on the way to developing a modern, professional military, whereas every Ottoman military reform effort in the two centuries previous had failed to produce long-term professionalization.

The division of labor also helps explain the timing of military professionalization in the other cases. In both France and Egypt, episodes of significant labor division clearly preceded moments of thorough military professionalization. The two decades from 1850 to 1870 in France saw tremendous growth in the levels of productivity and urbanization, as well as notable shifts away from agriculture and towards diversity in the manufacturing and service sectors. The French middle class also grew impressively in this period, not only in terms of economic influence, but also of political awareness. Labor markets in Egypt, on the other hand, were essentially stagnant until well into the twentieth century. Egyptian urbanization began to pick up in the 1920s, but did not explode until about the time that the Free Officers came to power, in 1952. In fact, it was not until after the Free Officers’ takeover that a noticeable shift from agricultural production to manufacturing began, as well as a substantial growth in national income (with an attendant increase in the resources devoted to
the military). In sum, before the principal episodes of military professionalization
in both countries—in Egypt after 1967 and in France after 1870—labor markets had
been experiencing specialization for at least a decade.

In Prussia, on the contrary, the devastating defeat at Jena and Auerstadt seems to
have been enough to stimulate professionalizing military reform, but it is unclear that
these reforms would have had the permanence that they did without a simultaneous
advancement in the division of Prussian labor. Significant Prussian labor division be-
gan, approximately, in the 1820s—after military reforms were under way—but by the
time the Prussians again did battle with the French (in 1870) the army had achieved
a level of professionalism that was, quite simply, ahead of its time. Expanding from
one of the most backward European economies in the early 1800s to one of the most
diverse by the 1870s, the division of labor itself could very well have played a role in
fomenting Prussian military professionalism.

That said, the reverse could also be argued: Prussian military professionalization
may have fomented the division of labor itself. This is unlikely, however, for two
reasons. First, both processes proceeded in tandem, so it is nearly impossible to say
which came first. I am not arguing that having an advanced division of labor is nec-
essary for the launching of military reforms, but that it is necessary to make them
endure, so it is impossible to say on the basis of the Prussian case that my argument
is incorrect. Second, the other case studies suggest that achieving a critical level of
the division of labor tends to precede military professionalization, not the other way
around. In France after 1870, Egypt after 1967, and in Republican Turkey, signifi-
cant advancements in the division of labor clearly preceded professionalizing reform
programs. What is more, in three cases of limited, short-term reform—Napoleonic

166
France, Ottoman Turkey, and Muhammad Ali’s Egypt—military reforms seem to have died out, and the level of military professionalism stagnated, well before significant labor division ensued. If professionalizing military reform necessarily explains the achievement of an advanced division of labor, then these military reforms would have endured through the rise of labor division in these three cases.

Lifting our gaze to the population of states over a longer period of time, the large-n analysis suggests a fairly consistent relationship between an advanced division of labor and a professional military. All three variables used as indicators of the division of labor—labor dispersion, urbanization, and the non-agricultural workers—exhibit positive correlations with two of the three indicators of military professionalism.\textsuperscript{358} What is more, these correlations seem to be robust—despite the inclusion or exclusion of other variables, the pattern of positive correlation between the division of labor and military professionalism holds for the number of military periodicals and military expenditures per soldier. In sum, evidence from both the large-n analysis and the case studies suggests that an advanced division of labor enables, and dire military defeats spark, long-term, thorough military professionalization. This further reiterates the main point of this study: war may make states, but it does not necessarily make professional militaries.

### 7.2.3 The Alternative Pathways

What of the other pathways to military professionalism, discussed in Chapter One? Based on the evidence given here, is it likely that international competition, leaders’ personality, international patronage, and technology appreciably influence

\textsuperscript{358}In the fully-specified model of having a military academy, Model 10 on page 65, none of the three division of labor variables is positive and significant.
the process of military professionalization? The answer is that these factors may have an effect—the tests developed in this study are not thorough tests of these alternatives—but the evidence is far from decisive.

There is little clear evidence in the large-\(n\) analysis to suggest that these factors have a consistent effect on military professionalization. Being involved in a war (a form of international competition short of dire defeat), having a great power as an ally (which could indicate that a patron is paying for military modernization), and the cold war (which points to the possibility of both great power patronage and sub-dire defeat international competition) do not demonstrate a consistent relationship with the level of military professionalism. What is more, the statistical models control for time using year fixed effects, and a perusal of the changes in significance and direction of the coefficients for these variables, considered across many different regression models, reveals that, over time states become more likely to professionalize, an effect also captured by the time since independence variable. This, in turn, indicates that technological change may have a gradual, over-time effect on processes of military professionalization, but there is no obvious temporal break in the year dummy coefficients that would suggest that the technologies developed just before World War I were driving the process.

The case studies also do not reveal evidence thoroughly supporting the alternative explanations. Turkey, which experienced military defeat after military defeat for nearly 150 years, professionalized the military after none of them, which tends to not support the basic international threat argument. Moreover, there is one case—Egypt before 1839—of a military professionalization program that seems tied to the personal traits of a leader—in this case, the inexorable ambition of Muhammad Ali Pasha.
However, the reforms he enacted barely outlived him, casting doubt on personality as an explanation for long-term military professionalism. The case studies also cast doubt on the role of technological change in military professionalization. Of the four cases, two (Prussia after 1806 and France after 1870) come well before the “storm of steel” dominated the battlefield—World War I is usually considered the watershed here—and two (Turkey around 1950 and Egypt after 1967) come well after. Military professionalization in these two sets of cases does not seem to have been affected markedly by this technological change. In sum, while the evidence presented here is not the result of systematic tests of these alternative pathways to military professionalism, there does not seem to be overwhelming support for any of them.

7.3 Prospects for Future Study

There are areas of political inquiry that this study does not address but which could yield fruit in future research. These fall into three general categories: expanding the findings of this study to other world regions, expanding the theory to include other areas of state development, and expanding the theory to include other areas of military institutional change.

Still, this Egyptian case may point to an important way in which states launch reforms. In other words, leaders’ personal characteristics may be a sufficient condition for the beginnings of short-term professionalization, as are dire military defeats. Unfortunately, this study does not relate a case of an ambitious leader attempting military professionalization in the presence of an advanced division of labor, so it is difficult to say with certainty that personality is truly a sufficient condition.

This, then, could be a fruitful vein for further study, in addition to the ones I mention below.
7.3.1 Studying Other Regions

Investigating other regions of the world using the framework provided here could result in different conclusions about the effects of war and the division of labor on military professionalization. In South America, for instance, war has had a decidedly different flavor than in the rest of the world. Since the Paraguayan War, which ended in 1870, there have been only two interstate wars fought between South American combatants: the War of the Pacific, which ended in 1883, and the 1932–35 Chaco War, fought between Paraguay and Bolivia, two South American minnows.\(^{361}\) Most concentrated military professionalization efforts in South America, furthermore, seem to have occurred since the end of the Paraguayan War (and, in some cases, decades after). That said, some South American militaries professionalized much earlier than others, with Uruguay and Chile, for example, professionalizing earlier and more rapidly than Brazil and Bolivia.\(^{362}\) This could have something to do with varying rates of labor division, as well—Uruguayan and Chilean labor markets began specializing earlier than did labor markets in Brazil and Bolivia. So, keeping in mind that they may be quite unique, South American case studies could further uncover how the timing and extent of labor division—indeed, of participation in interstate war—affect the propensity of states to professionalize the military.

\(^{361}\) Correlates of War Project 2005a. There have been other wars fought in Latin America during this time, but none of these occurred in South America. Also, the Falkland/Malvinas War was fought in South America, but this was between Argentina and the United Kingdom, a European state.

\(^{362}\) On South American military professionalization, see Beattie 2001; Fitch 1998; Nunn 1983, 2001; Resende-Santos 1996; Rouquié 1987; Silva 2001.
Another potentially fruitful case comparison is in Asia: that between China and Japan.\textsuperscript{363} The Meiji Restoration—which began after Cook steamed into Tokyo Harbor in 1860—marked the beginning of Japanese military professionalization. Though apparently slow at first, the rate of professionalization seems to have increased dramatically in the interwar years, creating the military juggernaut that challenged the United States for Pacific supremacy in World War II. By contrast, the mainland Chinese military remained in a fairly primitive state until well after the founding of the People’s Republic. In fact, it is only in recent decades—perhaps even after the market reforms begun in the late 1970s—that the People’s Army appears to have taken appreciable strides towards becoming a modern, professional military. The fact that decades separated the military professionalizing projects of both countries itself suggests divergent trends of state development. Moreover, in neither country did a military defeat—let alone a dire one—precede the launching of professionalizing military reforms. So, it may be that in Asia, as in South America, subtly different dynamics of military professionalization obtain. Taken to other regions of the world, then, this study’s conclusions could well meet with emendation.

### 7.3.2 Studying Other Facets of State Development

This study also does not touch on whether war involvement and the division of labor affect other areas of state development, such as the growth of democratic institutions, increases in political legitimacy, the expansion of state bureaucracies, or the ability of the state to control non-military security forces. Expanding research into these areas is an obvious next step. After all, if, as Tilly and others contend,

\textsuperscript{363} On Chinese and Japanese modernizing military reforms, see Rees 2001; Upton 1878.
war really does make states—not a counter-intuitive claim, to say the least—then one would expect to find, for example, that state bureaucracies expand during or on the heels of war involvement. The claims of this study would be further supported, on the other hand, if one found bureaucratic expansion after dire military defeats and in the presence of an advancing division of labor, as compared to other war outcomes. In a related vein, it may be that democratic institutions are more likely to grow when war outcomes approach dire defeat status and when labor markets have been specializing markedly, as opposed to such institutions being more likely to grow after simple war involvement (a connection that is, admittedly, not often made). In short, it might be worthwhile to examine the theory presented here in light of other facets of state development.

7.3.3 Studying Other Aspects of Military Change

Military institutional change is related to state development, but it is also related to other areas of research important to both comparative and international politics. This study speaks to only one facet of it—military professionalization—but the research I report here could help us understand how other military institutions develop. Military effectiveness, the rise of the mass national army, changes in military tactics and doctrine, and the shape of military manpower systems, for example, have sparked considerable literatures in political science. That the evidence presented in this study is insufficient to make inferences regarding these areas of military development goes without saying. This study does, however, raise a potentially important point: What if the division of labor and dire military defeats play a critical role in these other areas of military institutional change, too?
7.4 War Does Not Make Professional Militaries

This concluding chapter is meant to summarize the main findings of the study and to note potential areas for expanding or improving upon it, but it is also meant to reiterate why these findings and areas for future research are meaningful. By itself, military professionalization may have a number of positive externalities—for instance, economic growth because the means of state control become more predictable, democratization if it involves the subjugation of the military to civilian authority, greater security inasmuch as it makes the state’s coercive means more effective, and modernization insofar as the institutions to support a professional military percolate throughout society. For these reasons, its origins constitute a worthwhile field of study.

The motivation for this study goes slightly beyond this, however. I set out originally to understand what makes states, simply put, more stately. The notion that war makes states, furthermore, is hegemonic in international relations scholarship, and so warranted a closer look. I do not conclude that the “war makes states” view is wrong, but that it is incomplete when it comes to military professionalization. Throughout modern history, involvement in interstate war has not had a systematic effect on a state’s chances of developing professional military institutions. Granted, by itself war may have an impact on other areas of state development—this is an area for future study—but states appear most likely to develop professional militaries after dire military defeats, and when those states have already been experiencing significant labor division. The reasoning is as follows: dire military defeats, with their loss of national territory, withering casualty rates, and revelation of military incompetence, are what it takes to jolt sluggish political systems into action; and the division of labor gives
the state unique tools—a well-educated population concentrated in urban areas and a society that produces significant wealth—to make military professionalization even more likely. In sum, it is not that war does not make states—for it may in some respects—but that war does not make professional militaries.
APPENDIX A

MILITARY PROFESSIONALISM (MILPRO) PROJECT
CODEBOOK
A.1 Introduction

In order to ensure the replicability of this study, this codebook will (1) define the study’s variables conceptually and operationally, (2) designate a strategy for collecting the data, and (3) provide a guide for negotiating the data sets that result from this effort. This project incorporates the following main concepts: the division of labor, dire military defeat, and military professionalism. Military professionalism is measured using three indicators in the large-\( n \), quantitative analysis—military expenditures per soldier, number of military periodicals, and the presence of a military academy—but many others in the small-\( n \), qualitative analysis. This codebook, then, clarifies the recognition, collection, and storage of information for both the quantitative and qualitative portions of the study.

A.2 Conceptual Definitions

A.2.1 Military Professionalism

Military professionalism is the state’s ability to manage the use of military violence. Samuel Huntington, in one of the seminal works on military professionalism, identifies three major characteristics of a professional military, or, more specifically, of a professional officer corps: military expertise, social responsibility, and corporate spirit. “The peculiar skill of the officer,” he notes in reference to military expertise, “is the management of violence.”364 With respect to responsibility, “the motivations of the officer are a technical love for his craft and the sense of social obligation to utilize

364Huntington 1957, 13.
this craft for the benefit of society.”365 Finally, as “a public bureaucratized profession,” professional officers have a sense of corporateness.366 A professional military, then, is an institution that has a corporate officer corps, that cultivates a specifically military expertise, and that employs this expertise for the good of society.

A.2.2 An Advanced Division of Labor

The division of labor is the diversification of tasks among an economically active population. This definition follows that of Adam Smith in Wealth of Nations.367 Building on Smith, sociologists Jack Gibbs and Dudley Poston write that the division of labor refers to “differences among members of a population in their sustenance activities and the related functional interdependence.”368 David Smith and Robert Snow, writing two hundred years after Adam Smith, note that the division of labor has four important elements: specialization, functional interdependence, diversification, and complexity.369 Moreover, the division of labor is not an event but a process, and so it varies by degrees in different places and times.

Despite the fact that the division of labor is a process, this study relies on establishing a clear point after which a state’s division of labor can be considered “advanced”. To this end, the operational definition of an advanced division of labor—specified below—establishes “critical thresholds”. For the conceptual definition, however, a

365 Huntington 1957, 15.
366 Huntington 1957, 16.
367 Smith 1776, Book I, especially chapters I–III.
368 Gibbs and Poston 1975, 469.
369 Smith and Snow 1976, 521.
state’s division of labor is advanced if its labor economy is substantially more dispersed than that of other states. States with an advanced division of labor usually enjoy a productive work force, high levels of human capital, and the ability to generate significant material wealth.

A.2.3 Dire Military Defeat

Dire military defeats are particularly severe wartime losses. They usually result in the loss or occupation of national territory, the recognition of military incompetence, and a particularly high number of casualties. Furthermore, in the aftermath of dire military defeats, the discourse of defeat usually involves striving to regain lost territory and/or advocating significant changes to military (or even societal) institutions.

A.3 Operational Definitions

A.3.1 Military Professionalism

Any reasonable measure of military professionalism needs to capture—to a significant degree, at least—Huntington’s characteristics of expertise, responsibility, and corporateness. The purpose of this study is to explain the timing of military professionalization and the maintenance of military professionalism thereafter, which necessitates measuring military professionalism for individual countries over time.\(^{370}\)

Large-\(n\) Statistical Analysis

For the purposes of the large-\(n\) statistical analysis, this study examines three indicators of military professionalism: military expenditures per soldier, number of

\(^{370}\)More technically, the country-year is the unit of analysis for the large-\(n\) statistical analysis.
military periodicals, and number of military academies. Below, I describe how each component relates to the three Huntingtonian characteristics of professionalism. Following that, I describe the coding rules for each component, after which I describe ways to observe military professionalism for the purposes of the qualitative analysis.

- **Military expenditures per soldier**: The more resources a state devotes per soldier, the more likely it is that soldiers will be well trained. This in turn ensures a pool of quality soldiers for eventual selection into the officer corps. Thus, the higher the military expenditures per soldier, the higher the level of officer expertise. In addition, one would anticipate that—to some extent—militaries with higher per soldier expenditures would exhibit greater corporateness in the officer corps, since a military would have the luxury of more selective officer recruitment as the overall quality of soldiers increases; more selectivity might imply a greater sense of belonging and uniqueness, both important elements of corporateness. Thus, military expenditures per soldier captures Huntington’s element of expertise, and partially captures his element of corporateness.

- **Number of military periodicals**: Military periodicals are an important venue for the production and dissemination of military knowledge, and thus constitute a valuable indicator of both expertise and corporateness. The greater the number of periodicals dedicated to military affairs that are published in a country, the

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371Stephen Biddle disputes this logic, arguing that military expenditures per soldier as a measure of troop quality “conflates technology with training, pay, and quality-of-life accounts. It also biases the measure in favor of air and naval powers (whose militaries are more capital-intensive regardless of their relative technological sophistication), and against land powers (whose militaries are more labor intensive).” See Biddle 2004, 24, note 50. The point remains, however, that using military expenditures per soldier to measure troop quality is nearly conventional in the field. In addition, militaries that employ complex naval and air force machinery tend to be more specialized, which lends itself to military professionalism. It is, moreover, an (unsettled) empirical matter whether militaries spend more of their resources on personnel or on technology.
more likely is that country’s officer corps to exhibit expertise, since the production of military knowledge also makes it more likely to innovate and apply the knowledge gained in this setting. In addition, officer corps in countries with a higher number of military periodicals are likely to have a greater sense of corporateness inasmuch as the dissemination of military knowledge (via periodicals) also defines the knowledge that is necessary to be a part of the group. Hence, military expertise and corporateness are more likely to exist in a society’s officer corps if that society also produces a greater number of military periodicals.

- *Presence of a military academy*: Since academies perpetuate a distinct body of military knowledge and instill a unique culture of duty and service in their pupils, they are likely to be associated with greater corporateness and social responsibility in the officer corps. The distinctiveness of military knowledge lends itself to corporateness, since, as with military periodicals, it defines the knowledge required for officership. The culture of duty and service that academies promote—this may even be one of the primary missions of military academies—serves to instill loyalty and dedication in the officer corps. Since military academies are directed specifically at the officer corps, this is an especially valuable indicator of military corporateness and social responsibility.

Taken individually, these indicators measure subtly different aspects of military professionalism, but taken together the strengths of some complement the weaknesses of others. Whereas military expenditures per soldier is a weak indicator of social responsibility in the officer corps, for example, the inclusion here of the presence of a military academy balances it out.
Coding Rules

When it comes to deciding whether evidence in the empirical record constitutes evidence of these four indicators, the following guidelines apply:

- *Military expenditures per soldier:* Military expenditures refer to the resources that states allocate each year for defense. These expenditure figures are standardized for currency but not inflation. Before World War I they are in British pounds sterling, and during and after World War I they are in U.S. dollars. The number of soldiers refers to all active-duty personnel (not reserves) in land, sea, and air units. Data for these two variables (military expenditures and active military personnel) come from the Correlates of War 2 Project’s National Material Capabilities Data Set, version 3.02.\textsuperscript{372} In theory, this variable could vary from 0 to infinity.

- *Number of military periodicals:* A publication is considered a military periodical if (1) at least the majority of its content is of a military nature or focus and (2) it is published on a consistent and predictable basis (such that it constitutes a series).\textsuperscript{373} Ulrich’s On-line and WorldCat (formerly UnionLists/OCLC) have already made these determinations for most twentieth century publications (and some earlier), and many historical sources refer to nineteenth century military periodicals (though not on a systematic basis, as far as I can tell). A country is considered to be the country of publication if the periodical’s main office and printing press are within the borders of that country. If a periodical’s main

\textsuperscript{372}Correlates of War Project 2005e; Singer 1987; Singer et al. 1972.

\textsuperscript{373}This includes newspapers, magazines, and even pamphlets, as long as they are published consistently and predictably (i.e., one could anticipate, at some point, that there was going to be a “next issue”) and they deal mostly with items of interest to military personnel.
office and printing press are in two different countries in a given year, then the location of the office is considered to represent the country of publication for that periodical. A country-year observation for this indicator is the sum of all the military periodicals published in that country in that year. This variable varies, in theory, from 0 to infinity.

- **Presence of a military academy:** An educational institution is considered a military academy if (1) its activities are principally funded by the government of a country and (2) it graduates its students to officers’ commissions in the armed forces of that country. Thus, the U.S. Naval Academy qualifies as a military academy but the Naval War College does not. The School of the Americas, moreover, does not qualify as a military academy for the purposes of this study since it was funded principally by the United States and, to my knowledge, did not grant commissions in Latin American states’ militaries. The principles of indigenous support and control are thus important distinguishing features of military academies in this study. This is a dummy variable that equals 1 if a country has a military academy in a given year, and 0 otherwise.

### Small-\(n\) Qualitative Analysis

The number of potential indicators of military professionalism is actually much larger than those I employ for the large-\(n\) statistical analysis.\(^3\) Historian David J. B. Trim discusses some of these other indicators, though some of them may not be appropriate for the time period of this study. Trim uses these markers to observe military professionalism in the late middle ages and early modern Europe, whereas I am

\(^3\)An expanded data set would include many of these other indicators.
interested in observing professionalism after the Napoleonic wars. As a result, some of Trim’s markers would not provide meaningful variation between cases in a study of nineteenth- and twentieth-century militaries. Nonetheless, they are indicative of the possibilities, and thus serve as a useful guide for small-n qualitative analysis. Trim’s seven markers of a professional military, furthermore, are reminiscent of Huntington’s expertise, responsibility, and corporateness:

1. “a discrete occupational identity;
2. formal hierarchy;
3. permanence;
4. a formal pay system;
5. a distinctive expertise and means of education therein;
6. efficiency in execution of expertise;
7. a distinctive self-conceptualisation.”

Based on Trim’s discussion, one might observe the following in the empirical record with respect to each of the aforementioned markers of military professionalism:

1. standardized uniforms, a written registry, and clear procedures for recruitment and training;
2. “recognized career paths,” which might also include written orders and clear procedures for making assignments;
3. a standing army;
4. a systematized salary structure;
5. a “distinctive body of knowledge,” which might include the publication of field manuals, the institution of military regulations, or the founding of a specialized military school or academy;
6. maintenance of an “adequate level of effectiveness,” usually through consistent drilling or training (possibly even war games);
7. a military culture that informs the way soldiers approach their profession.

Trim 2003, 6–7.
Trim 2003, 7–11.
Trim 2003, 7.
Trim 2003, 9.
Trim 2003, 10.
A.3.2 Division of Labor

I observe the division of labor using three indicators: the dispersion of workers per sector of an economy, the percentage of non-agricultural workers in an economy, and the percentage of a state’s total population that is urban. Data for the first two indicators can be found in Brian R. Mitchell’s *International Historical Abstracts*, which uses the International Labour Organisation’s sectoral classifications.\(^{380}\) Data for the urbanization measure come from the Correlates of War Project’s National Material Capabilities data set, version 3.02.\(^{381}\)

Dispersion of Workers

Employing a formula suggested by sociologists David Smith and Robert Snow, I capture the relative variation in diversification between different country-year observations: \(^{382}\)

\[
\text{Dispersion of Workers} = \frac{\left[ \sum_{i=1}^{n} \frac{|X_i - \overline{X}|}{n} \right]}{2 \left[ 1 - \frac{1}{n} \right]},
\]

where \(n\) is the number of occupational categories (or sectors) in a state’s economy and \(X\) is the number of workers in each of these categories. Following on Smith and Snow, this variable varies between 0 and 1.\(^{383}\) Values closer to 0 imply a greater division of labor, whereas values closer to 1 imply a more unitary division of labor.

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\(^{380}\)Mitchell 2003a,b,c.

\(^{381}\)Correlates of War Project 2005e; Singer 1987; Singer et al. 1972.

\(^{382}\)Smith and Snow 1976, 520–8.

\(^{383}\)Smith and Snow 1976, 522.
In order to make interpretation of this variable more intuitive, I subtract values of this variable from 1, such that values closer to 1 indicate a more advanced division of labor, and those closer to 0 a less advanced division of labor.

**Non-agricultural Workers**

This indicator is simply the ratio of agricultural workers to total workers, subtracted from 1. Since an economy with fewer agricultural workers also tends to have a more advanced division of labor, values closer to 1 indicate that the division of labor is more advanced, and those closer to 0 indicate that it is less so.

**Urban Population**

This indicator is simply the ratio of those dwelling in urban areas to those dwelling in non-urban areas. Since an economy with a higher level of urbanization also tends to have a more advanced division of labor, values closer to 1 indicate that the division of labor is more advanced, and those closer to 0 indicate that it is less so.

**A.3.3 Dire Military Defeat**

Two indicators are intended to capture the notion of a dire military defeat: the average casualties per day of a wartime loss, and the loss of homeland territory in a military conflict.
Casualties per day per loss

This indicator equals 0 if a state has not lost any war in the previous five years, but is the average number of battlefield deaths per day of conflict if a state has suffered a wartime loss in the last five years.\(^{384}\)

Loss of homeland territory in war

This indicator equals 1 if a state has lost homeland territory as a result of military conflict in the last five years, according to the Correlates of War Project’s Territorial Change data set. Otherwise, it equals 0.\(^{385}\)

A.4 Guide to the Data Sets

This project implies the creation or expansion of three data sets: a military periodicals data set, a military academies data set, and a division of labor data set. Information for the dire defeat and military expenditures per soldier variables are

\(^{384}\)Only casualties from losing wars are included.

\(^{385}\)A warning: from the documentation accompanying the Territorial Change data set, it is unclear that military conflict is the same thing as an interstate war described in the Correlates of War Project’s Inter-State War data set. The Territorial Change Coding Manual notes only that “a major focus of interest in these data is the comparison between those cases that involved violence. This is coded if there was military conflict between organized forces of both sides” (p. 4). This is a seemingly lower bar than the Inter-State War data set’s 1,000 battlefield deaths per year inclusion rule. Perhaps more important than the military conflict/war distinction, it is also unclear what constitutes homeland territory. The Territorial Change Coding Manual refers only to “dependent” and “homeland” territory; the lack of other options may result in some dubious coding choices. Two examples with which I am familiar come to mind. First, Israel is coded as having lost homeland territory in 1949, but the poor definition of Israel’s state borders before this point—they had been a bone of military contention from May 15, 1948, on—makes this coding odd. Besides, it is unclear from the data set exactly what territory Israel lost at all during its War for Independence. Second, the data set codes Ottoman Turkey as having lost territory throughout the nineteenth century and up to the Balkan Wars, but it seems ahistorical to describe the territory thus lost as homeland (i.e., Turkish), as opposed to dependent (or some other type of) territory. In short, this variable should be taken with a grain of salt—I include it here in the absence of a better rough-and-ready measure of wartime territorial loss.
present in existing data sets, so I do not discuss them here. In Table A.1 on page 189, Table A.2 on page 190, and Table A.3 on page 191, I give variable names and descriptions for the variables in the new data sets.

Since the information for the Division of Labor Data Set comes from Brian R. Mitchell’s *International Historical Statistics*, and since this work is copyrighted and not available electronically, I do not reproduce his figures in their entirety in the public version of the data set. Instead, I here identify the variable names in the data set and explain how I arrive at the division of labor and non-agricultural workers variables. This data set contains six variables: *ccode, cabbr, cname, year, divlabor,* and *perag.* The two variables of main interest, *divlabor* and *perag,* are derived from time series of the number of workers in eight sectoral categories, or economic sectors (see Table A.3 on page 191).

In the undisclosed portion of this data set, I assign one-letter variable names to each of Mitchell’s eight sectoral categories (which are also used by the ILO), in the following manner: Agriculture, Forestry, and Fishing (*a*); Extractive Industry (*e*); Manufacturing Industry (*m*); Construction (*c*); Commerce, Finance, etc. (*f*); Transport and Communications (*t*); Services (*s*); and Others Occupied (*o*). Thus, for each observation the variable corresponds to the economic sector in which laborers were employed.

As Mitchell’s figures are sometimes given for males and females separately, I create new variables with the prefixes *b* (for “boy”) and *g* (for “girl”), in order to represent the figures that refer exclusively to either gender. When no prefix is present, the variable refers to all laborers in that occupational sector, regardless of gender.
For instances in which the Mitchell figures combine occupational sectors, I create a new variable whose name is simply all of the letters corresponding to the relevant categories (for example, if a Mitchell observation combines the Manufacturing and Construction sectors, then the new variable to reflect that combination would be $mc$). In these cases, the corresponding single-letter variables are left blank (to continue the example, the variables $m$ and $c$ would simply be missing data). I then use the data from these new variables to calculate Smith and Snow’s measure of the division of labor, although I alter the number of occupational sectors ($n$ in the formula) to reflect only the number of variables (for that observation) for which data are non-missing.
<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable Description</th>
<th>Variable Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>pername</td>
<td>Periodical Name: The periodical’s most recent name</td>
<td>string</td>
</tr>
<tr>
<td>trnsname</td>
<td>Transliterated/Translated Name: The periodical’s most recent name (translated into English where possible, transliterated using English characters if available)</td>
<td>string</td>
</tr>
<tr>
<td>ccode</td>
<td>Country Code, for the COW Project</td>
<td>numeric</td>
</tr>
<tr>
<td>cabbr</td>
<td>Country Abbreviation: COW abbreviated country name (if available) for the country of publication (or the location of the publisher’s office, if different from the country of publication)</td>
<td>numeric</td>
</tr>
<tr>
<td>startpub</td>
<td>Start Publication: First year of the periodical’s publication</td>
<td>numeric</td>
</tr>
<tr>
<td>endpub</td>
<td>End Publication: Most recent year of the periodical’s publication</td>
<td>numeric</td>
</tr>
<tr>
<td>nopubyrs</td>
<td>No Publication Years: The range(s) of years in which the periodical was not published at all</td>
<td>string</td>
</tr>
<tr>
<td>othnam1</td>
<td>Other Name 1: Other periodical name 1 (if applicable)</td>
<td>string</td>
</tr>
<tr>
<td>othnam2</td>
<td>Other Name 2: Other periodical name 2 (if applicable)</td>
<td>string</td>
</tr>
<tr>
<td>othnam3</td>
<td>Other Name 3: Other periodical name 3 (if applicable)</td>
<td>string</td>
</tr>
<tr>
<td>othernms</td>
<td>Other Names: Other periodical names used, listed from oldest to most recent, if possible (names separated by semi-colons)</td>
<td>string</td>
</tr>
</tbody>
</table>

Table A.1: Variables in the Military Periodicals Data Set
<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable Description</th>
<th>Variable Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>acadname</td>
<td>Academy Name: The academy’s most recent name. A “see note” entry refers users to the notes variable for more information</td>
<td>string</td>
</tr>
<tr>
<td>trnsname</td>
<td>Transliterated/Translated Name: The academy’s most recent name (translated where possible, transliterated if available)</td>
<td>string</td>
</tr>
<tr>
<td>ccode</td>
<td>Country Code: COW country code for the country in which the academy is located</td>
<td>numeric</td>
</tr>
<tr>
<td>acadopen</td>
<td>Academy Open: First year in which the academy was open</td>
<td>numeric</td>
</tr>
<tr>
<td>acadclsd</td>
<td>Academy Closed: Most recent year in which the academy was open (equals 2005 if still open)</td>
<td>numeric</td>
</tr>
<tr>
<td>notes</td>
<td>Notes: Any notes relevant to the academy entry</td>
<td>string</td>
</tr>
<tr>
<td>commis</td>
<td>Commissioning: A dummy variable that equals 1 if the academy graduated cadets to their first regular commission, and 0 otherwise. If cadets are commissioned and then sent to a more specialized academy, an observation is coded 0</td>
<td>numeric</td>
</tr>
<tr>
<td>control</td>
<td>Control: A dummy variable that equals 1 if the state provides funding for the academy and controls matriculation and curriculum, and 0 otherwise</td>
<td>numeric</td>
</tr>
<tr>
<td>source1</td>
<td>Source 1: The first source for the entry; additional sources are listed in separate variables, e.g., source2</td>
<td>string</td>
</tr>
<tr>
<td>closdyrs</td>
<td>Closed Years: The range(s) of years for which the academy was not open</td>
<td>string</td>
</tr>
<tr>
<td>othnams</td>
<td>Other Names: Any other names by which the academy has been known</td>
<td>string</td>
</tr>
</tbody>
</table>

Table A.2: Variables in the Military Academies Data Set
<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable Description</th>
<th>Variable Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ccode</td>
<td>Country Code: COW country code for the country of observation</td>
<td>numeric</td>
</tr>
<tr>
<td>cabbr</td>
<td>Country Abbreviation: COW abbreviated country name</td>
<td>string</td>
</tr>
<tr>
<td>cname</td>
<td>Country Name: COW country name (or the name used by Mitchell if the country does not appear in the COW2 data set)</td>
<td>string</td>
</tr>
<tr>
<td>year</td>
<td>Year: The year of observation</td>
<td>numeric</td>
</tr>
<tr>
<td>divlabor</td>
<td>Division of Labor: Measure of the division of labor, obtained using Smith and Snow’s 1976 formula (see above) and Mitchell’s figures (described in general below)</td>
<td>numeric</td>
</tr>
<tr>
<td>perag</td>
<td>Percentage of Agricultural Workers: The percentage of the economically active population that is employed primarily in agriculture, forestry, and fishing, based on Mitchell’s figures (described in general below)</td>
<td>numeric</td>
</tr>
</tbody>
</table>

Table A.3: Variables in the Division of Labor Data Set


203


Upton, E. (1968 [1878]). *Armies of Asia and Europe: Embracing official reports on the armies of Japan, China, India, Persia, Italy, Russia, Austria, Germany, France, and England.* New York, NY: Greenwood Press.


