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Philip T. Hoffman, *Why Did Europe Conquer the World?*, Princeton University Press, Princeton & Oxford, 2015, 272

At the very beginning of his book Hoffman offers some advice: if you imagine a time machine travel that could carry you back to the year 900, avoid western Europe at all costs, because at that time, it was “poor, violent, politically chaotic, and by almost any yardstick, hopelessly backward” (p. 1). Something like Afghanistan is today, he adds. However, a thousand years later, in 1914, the once pitiful Europeans had taken over the world. They had gained, directly and indirectly, control of 84 percent of the globe. The question “why” is the topic of the book – not only in the title. Almost every sentence in the book is written with the aim of answering to this simple question, to provide an explanation of why it happened. Unquestionably a book that is very focused – a quality that is not so widespread these days.

For military historians, the answer is clear and simple: the Europeans simply had superior technology. But then the question remains: why did the Europeans achieve superior military technology, the one that embraced everything that made military victory more likely, from weapons to training and administration? The explanation of this technological superiority, embodied in gunpowder technology, is provided within the framework of economic history, applying the new methodological accomplishments of economic theory – the tournament model. For economists, a tournament is a sort of competition that, under the right conditions, can drive contestants to exert enormous effort in hope of winning the prize. It describes and explains incentives and behaviour in “winner takes all” situations.

Hoffman’s model is based on several assumptions, all of them fit well with medieval and early modern Europe. First, rulers go to war when the prize of the victory in the war is greater than the cost of losing the war, plus the fixed and variable costs of waging the war. The fixed costs

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are costs of setting armed forces and setting the fiscal system needed for funding the military operations. The variable costs are all the costs of mobilising resources for waging the war, i.e. military expenditures, including the political costs for the ruler generated by the conscripts and taxpayers. The greater the difference between the prize and the total costs, the more frequently wars can be expected. Second, a specific military technology is improved only through war, and that is achieved only through learning by doing. There is no research and development, and technological progress depends on the frequency of wars and the size of the total resources allocated, not overall, but those spent on specific military technology, e.g. gunpowder technology. More wars and more resources produce more technological progress. Third, there is a path dependency: improvements accomplished by the rulers in the previous round will make their militaries more effective in the future. Fourth, there are spill-over effects between the rulers, i.e. technological progress achieved by one ruler can be transferred to the other, his adversary, in the process of technology transfer, although with some barriers to that transfer from various sources. Finally, the implicit assumption is that there are no spill-over effects between civilian and military technologies, and only military technological progress is observed in the model.

Based on the tournament model and its predictions (both formalised in the appendices of the book, for mathematics-loving economists), four necessary conditions for advancing gunpowder technology are specified: (1) There must be frequent war, but war is not enough; (2) Rulers' expenditures on war must be lavish; (3) Rulers must use gunpowder heavily, and not older military technologies; (4) Rulers must face few obstacles to adopting military technology innovations, even from adversaries.

Only the simultaneously satisfying of all these conditions together will produce sustainable technological progress in gunpowder technology, it being the cutting-edge military technology in the early modern period of history. Hoffman vividly demonstrates that early modern western Europe satisfied all these conditions. First, wars were a trademark of Europe during that period. The main reason was that the continent was fragmented into many small states, with no hegemon whatsoever. Not only were these states small, but they were also symmetrical. Hence, both prizes and costs of the rulers were symmetrical. The prize for victory was glory – very high on the preferences ladder for the rules of that time – and triumph over enemies of the faith, whatever that means exactly. The costs for the rulers in the case defeat were not great, due to, among other things, kinship among rulers. The victorious rulers did not dethrone, let alone decapitate their defeated cousins. Fixed costs of armed forces were already covered, due to the specific European post-Roman history, where barbarians and nomadic tribes plundered the continent, and variable costs

were reasonable due to good taxation systems, division of power between rulers and gentry (who provided the human resources for the war), and early financial innovations enabling rulers to borrow. Accordingly, second condition was also met, as the rulers not only frequently led their armed forces to war, but also, due to the reasonable variable costs, lavishly funded campaigns. As to the third condition, an important feature of gunpowder technology in early modern times was that it was not efficient against nomads and their agility. However, western European rulers of the time were separated from nomads, with eastern Europe providing the buffer, hence they only fought each other, relying heavily on gunpowder technology. Finally, there were very few obstacles for military technology transfer in western Europe, i.e. for a ruler to adopt innovations from the others, including adversaries. Distances in territorially small Europe were reasonable and there was the similar cultural pattern, based on Christendom that enabled easier communication, which was necessary for technology transfer.

On the other hand, the four conditions were not met in other parts of Eurasia. First, these regions were dominated by large countries, hegemonies, such as the Chinese, Ottoman, Russian, and Mughal empires. Their sheer size and capability to muster enormous resources for the war proved to be a deterrent for other states and their rules to consider waging war; no one would have dared to challenge the hegemon. As Hoffman put it “with a hegemon, Europe would then have lived in peace, but the military innovation would have halted” (p. 66). Furthermore, crashing victory of one side in the civil war, like Tokugawa’s triumph in Japan, provided a domestic hegemon that no one dared to challenge, hence the domestic equilibrium was peace. Second, these large states featured rather ineffective fiscal systems, so the variable costs were high, without the possibility of huge war expenditures, hence there was no room for innovation in military technology through learning by doing. Thirds, although these large countries were safe in regard to possible invasion by other states, they were all exposed to the threat of nomads and their raids. The Great Wall of China is a vivid testament to that threat. Considering that in the time gunpowder technology was not effective against nomads, as opposed to traditional weapons, there was no incentive for Asian rulers to use that technology, at least not heavily, removing the foundation for its improvement based on learning by doing. Finally, obstacles for gunpowder technology transfer in Asia were substantial, not only due to great distances, but also due to the cultural barriers, which did not exist in Europe. Perhaps China is the most convincing case for the findings of this model, since the “Chinese had a huge head start in using the gunpowder technology, but eventual the western Europeans caught up and surpass them” (p. 79). Although the technology state of the art of the civilian sector, i.e. how close the civilian industries were to the technology possibility fron-

tier, is not mentioned as a segment of the model (the implicit assumption is that there is no spill-over between the military and the civilian sector), Hoffman sometimes, such as in the case of Russia, uses exactly the civilian sector backwardness argument. This is not surprising, since Peter the Great understood this obstacle very well.

Although the lack of a formal model of relations between the progress of civilian and military technology is perhaps the only shortcoming of the book, it is evident that in early modern Europe technological progress in the military sector was much more intensive than in civilian sector, and for Hoffman it is evident that Europe was at the forefront of military gunpowder technology, well before the Industrial Revolution. In one of the very few cases when data was available (the first firearms production in Frankfurt in the early 15th century), it was demonstrated that during a 30-year period total factor productivity (TFP) growth was 3.0 percent a year – astounding not only by the standards of the late Middle Ages (with rather a stagnant TFP), but also by modern standards.

The core segment of the book focuses on the ultimate causes of why Europe satisfied the conditions for military technology progress, as formulated by the tournament model. According to Hoffman, Europe was fragmented not because of its geography, or because of the kinship ties between the rulers, but because of its political history and three major segments: cultural evolution, Christendom, and political learning. As to the cultural evolution, its pattern was decided by the collapse of the Roman Empire and political chaos with prevalent plundering by nomadic hordes. This provided strong incentive for militaristic values to be elevated to the top of the social values scale. It was the warriors of the late antiquity that metamorphosed into medieval knights, and the threat of the barbarian tribes created strong incentives for effective collective action, which solved the free rider problem. For the societies of early Europe, war was a priority. Western Christianity was a bond that held western Europeans together, but the church was independent from political authorities and the popes did not like competition in profane matters – they “took advantage of Europe’s fragmentation and then accentuated it” (p. 132). Obviously, the popes’ fear from another and lasting Charlemagne and the Carolingian Empire was fervent. Finally, European rulers innovated ways to decrease the costs of mobilising the resources for war – political learning. Financial innovations amplified the results of political learning and further decreased the variable costs of waging the war. Nonetheless, political learning did not come out from a blue, nor were European rulers wiser than others. It was the incentives they were exposed in times of war that caused them to be learning and innovating.

After answering the main questions on the origin of Europe’s military superiority, Hoffman focuses to two specific issues. One is the char-

acter of Europe's conquest of the World, based on private expeditions, i.e. public-private partnerships, to use modern wording. The advent of limited liability and joint stock companies proved to be beneficial to these, essentially the efforts of private entrepreneurs that resulted in the European colonial empires. At the end of the day, it was appropriate risk dispersion that made these empires possible.

The second question is more interesting: it is about the change of the tournament model in the early 19th century, roughly coinciding with the end of the Napoleonic Wars. The model was turned upside down: glory was no longer important in Europe, let alone religion or other indivisible prizes. On the other hand, rulers faced huge costs if they lost the war – Napoleon's exile to St. Helena was a credible signal. Accordingly, it became much easier to negotiate peaceful settlement of disputes between states, especially considering that at that time the decision-making process already included much broader interests, not only the interest of the ruler. Furthermore, with the development of efficient fiscal institutions and the advent of universal conscription, the variable costs of military expenditures decreased, hence these expenditures soared, both in absolute terms, and measured as a percentage of the national GDP. The last and perhaps the most important change was that military technological progress became based on research and development of new technologies in peacetime, not based on learning by doing in wartime. Hence, lavish military expenditures were recorded in peacetime – this was armed peace. Hoffman rightfully points out that this constellation created the 19th century cold war. Ultimately, the early recommendation *Si vis pacem, para bellum* was fully implemented.

The subtitle of the conclusion of the book (“The Price of Conquest”) is enticing, promising to open quite a new area of consideration of Europe's now fully explained military superiority, but provides only a minor reminder to some old debates in economic history, such as the one on the origins of the Industrial Revolution. The subtitle does not correspond to the content of the conclusion of the book.

Hoffman's book is an excellent example of the massive explanatory power of contemporary economic historiography. The considerations in the book are based on the formal model and the model is based on clear assumptions. Contrary to economic theory, both the assumptions and the predictions of the model are submitted to the reality check. And this methodological approach successfully explained why Europe conquered the World. The counterfactual narrative, indispensable in modern economic historiography, supports the main findings. The model could possibly be improved if explicit modelling of the relations between civilian and military sector were to be included in the late medieval and early modern times, as they have been introduced in the explanation of 19th-century developments.

The book *Why Did Europe Conquer the World?* provides a clear and consistent answer to the question from its title, in an outstanding manner, exemplary for the future work of economic historians. Was that outcome worthwhile? For Europe and for the World? Well, these should be topics for future books.