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'British-French technology transfer from the Revolution to Louis Philippe, 1791-1844: Evidence from patent data'

The contours and dynamics of French industrialization have been the subject of a long-standing debate among economic historians (O'Brien and Keyder 1978, Crouzet 1996). Recently, some contributions have reignited the interest on the French case, highlighting the relevance, among other factors, of elite human capital formation (Squicciarini and Voigtlander 2015), protectionism (Juhasz 2018) and, more broadly, industrial policies (Horn 2006).

We contribute to this research stream by means of a detailed quantitative assessment of the emergence and consolidation of technological capabilities in France. In particular, we focus the limelight on a period that stretches from the First Republic to the Reign of Louis Philippe, through the Napoleonic Era – precisely, 1791-1844. The core of this paper revolves around an underexplored dataset that covers the universe of all the patents granted in France at that time – a rough grand total of about 12,500 observations (Galvez-Behar 2019, Khan 2020). Crucially, we are able to disentangle whether or not patentees were French nationals and where exactly in France these patents were filed.

The objective of the work is threefold. First, we provide quantitative evidence on the geographical, sectoral and occupational distribution of patenting activities across French departments. Second, following Nuvolari and Vasta (2015), we use a measure of patent quality by exploiting the fee structure of the French system – the longer the duration of the patent, the more it cost. Weighting patents according to their monetary value allows us to identify both radical breakthroughs and minor inventions. Third, we pinpoint the relevance of (mostly) British technology transfers by signaling out foreign inventors in our data. Our econometric analysis suggests that patents of British inventors and those of French inventors with direct contacts with British inventors were of relatively higher quality. In terms of magnitude, this effect outweighs subscriptions to encyclopedias – a measure recently used to quantify the role of enlightenment culture as a driver of industrialization. In this perspective, our findings resonate with the literature which has highlighted the direct contacts, rather than simple information flows, for international technological transfer. Furthermore, we also find that the French inventors with contacts with British inventors played a crucial role in the adaptation of new technologies to the French economic context.

References

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