

Essay competition winner: Ashok Manandhar

Summary of Morgan Kelly and Cormac Ó Gráda's
2018 CAGE working paper: Gravity and migration
before railways: Evidence from Parisian prostitutes
and revolutionaries.





URBAN CENTRES OFFER opportunities for work, social advancement, and higher living standards for both the most ambitious and the neediest. This force of attraction was pivotal for the development of Paris between the sixteenth and nineteenth centuries, given that the death rate in France's capital and most populous city exceeded the birth rate. Instead, it was mainly internal rural-urban migration that drove population growth and urbanisation during this period, meaning by the 1790s as low as 30 percent of Parisians were native-born.

However, precious little is known about the dynamics of this internal migration in the era before mass transit, partly due to a lack of reliable censuses. What is clear is that these patterns differed for men and women, with Paris housing twice as many bachelors as unmarried women in 1851. The introduction of the railways made moving to the French capital, or any other urban centre, much easier and transformed this picture.

To shine a light on the railways' impact on migration, Kelly and Ó Gráda analyse the influence of both distance and living standards in working-class female and male migration to Paris before, during and after the rollout of the railways. Drawing on a variety of novel data sources, they employ a simple "gravity model", and find that levels of migration were strongly determined by both distance and living standards. For both men and women, those coming from areas with higher living standards were more likely to make the move. However, the arrival of the railways led to a larger increase in the mobility of women than men, although this is unsurprising since distance

was less of an impediment for men to begin with.

The authors take advantage of two quirks of history to provide data on the composition of the Parisian population. The first stemmed from the move towards regulation and documentation of prostitution in the mid-eighteenth century. Later, in 1836 Alexandre Parent-Duchâtelet published *De la Prostitution dans la Ville de Paris* which systematically collated data on Parisian prostitutes for 1834, with a revision in 1857 containing new data for 1854. These prostitutes had to register with the

The introduction of the railways made moving to Paris, or any other urban centre, much easier and was pivotal to the development of the French capital.

police and undergo health checks, but also give personal information including where they came from. Nearly all were young working-class women aged between 16-25 and were typically illiterate.

A large worry is that this subsection is not representative of the overall female population. However, by comparing the origins of the prostitutes to the birth places of women buried in Paris in 1833 – most of whom would have arrived around 1800 – the authors found them

to match considerably. This is then supplemented by a separate source providing information on prostitutes arrested in the 1760s, giving data on female migrants to Paris at three points in time.

The second major source involves the identity cards that men were required to carry during the Revolutionary period. In late 1872 all men in Paris had to register for a *carte de civisme* detailing, among other things, their place of birth and date of arrival in Paris. Records from three of the most working-class, radicalised neighbourhoods and a 10 percent sample from the rest of the city are taken, and similarly checked against the birthplaces of men buried in 1833 to ensure that the sample is representative. An important aside is that these documents were issued before "The Terror", making their contents more reliable since accurately recording personal details was not, by that stage, dangerous. This information was also supplemented by data of immigrants who were recruited into Napoleon's armies between 1802 and 1814.

Over this period, transport speeds rose quickly, with travel times halving between 1765 and 1780. The first railways began to radiate from the capital during the 1840s, with the network growing from 3,500 km to 8,700 km in length in the 1850s, and by 1871, 17,400 km of track had been laid. However, since better roads, and later rail tracks, followed older routes, the relative journey times from elsewhere in France to Paris stayed roughly constant. Therefore, the authors can use the number of days travel to Paris in 1790 as their measure of distance for each cohort and still be able to compare results across time periods.

Since France is split into administrative regions called *départements*, each individual, be they prostitute or *carte de civisme* holder, is grouped with others from their region of origin. It is these *départements* that are the unit of analysis, with their number expanding from 79 to

84 over the period in question. The number of migrants per million from each region is then modelled using a gravity equation which scales living standards in the sending region by its population, and then divides this by the distance between it and Paris. As such, we would expect the amount of migration to be positively related to living standards in the sending region, since adequate finances are needed to make the journey, and negatively related to distance, since it makes the journey more costly.

Unfortunately, while the measure of living standards are typically based on average wages, this data is not available before 1840. Instead, the authors utilise the literacy rates of army conscripts from each *département* as a proxy for its affluence – however this is not a perfect substitute. For men, a further control had to be included for two regions which had a long history of sending temporary workers to Paris which persisted into this period meaning their levels of migration were disproportionally high.

Nevertheless, across the board women were less mobile than men, with a 1 percent increase in distance reducing the number of female migrants per million by between

Using a variety of novel data sources the authors piece together a picture of working-class migration to Paris, and the changes wrought to this pattern by the expansion of the railways.

The first railways began to radiate from the capital during the 1840s, with the network growing from 3,500 km to 8,700 km in length in the 1850s, and by 1871, 17,400 km of track had been laid.

2.4 percent to 3 percent before the railways, whereas for men this was only between a 1.25 percent to 1.75 percent reduction. By the 1850s as more track was laid, this fell to around 2 percent for women, and by the 1891 census, it had fallen further to around 1.25 percent for all Parisians (both men and women) which is on a par with modern Europe. Although data on Parisian prostitutes does not extend this far, the authors switch to analysing prostitutes in Marseille in 1882 and find that the impediment of distance for them is only slightly higher than that for the general population of Marseille, according to the 1891 census. This finding is itself supported by other evidence from the origins of brides and grooms in the city: As travel became easier, a larger share of brides came from outside the city, eventually roughly matching the share of non-native grooms.

For living standards, since the majority of the prostitutes were illiterate, the authors suggest that the positive effect of living standards is probably driven by their ability to afford fares rather than their education. Although still positive, the lower magnitude of its effects on male

migration indicates that the cost of migration was less of an impediment for men.

Since the groups are broadly similar, the authors then pool them together allowing them to increase the precision of their analysis. This further underlines how the impediment of distance fell for prostitutes between 1834 and 1854 and reiterates the relatively constant impact of living standards for male migration over this time.

Having neatly drawn from a number of data sources, the authors piece together a picture of working-class male and female migration to Paris, and the changes wrought to this pattern by the expansion of the railways. The results indicate that women were notably less mobile than men at the start of the 1800s, but nearer the end of the century, they were about as negatively impacted by distance as their male counterparts. The authors speculate that the original differences reflect the differing labour market opportunities of the two groups, since jobs as servants and seamstresses were more limited compared with the heavy demand for men in industry and construction. ◀

