THE RISE OF EUROPE AND ATLANTIC TRADE: DID NATIONAL INSTITUTIONS DO IT?[1]

Guillaume Daudin, Université Lille-I (EQUIPPE) / Sciences Po (OFCE)

gdaudin@mac.com

February 2010 -- **Early draft: please do not quote**

Abstract

This paper challenges the idea that Atlantic trade had a role on growth in Early Modern Europe through constitutional, nation-level institutional change *à la* Acemoglu, Johnson and Robinson (2005). In a first part, it presents some plausible arguments which could explain a positive link between Atlantic trade in Early Modern Europe and growth. It underlines that there are some difficulties associated with the constitutional argument. In a second part, it studies the individual experience of 193 cities to show that, once externalities of cities on each other are taken into account, the positive national effect of Atlantic trade conditional on starting institutions exists alongside a positive local effect of Atlantic trade, unconditional on starting institutions. In a third part, it uses a new database of regional urban population to show the same thing based on the experience of 684 European cities. Atlantic trade also had local effects. As constitutional institutions are by definition national, it makes it unlikely that they were the only channels of its influence on European growth.

Keywords: Early Modern Europe, Intercontinental trade, Growth, Economic Geography, Cities

JEL Codes: F43, N13, N73, O18

---

[1] I thank Jacob Weisdorf, Leandro Prados de la Escosura, participants to the 2009 Fresh Alps meeting and the economic history seminar in the University Carlos III. All errors remain mine.

Introduction

Recent empirical work has shown that intercontinental trade was positively correlated with economic growth before the Industrial Revolution. The economic rise of the Netherlands and the United Kingdom was simultaneous to the increase of their Atlantic trade (Allen (2003), Acemoglu, Johnson, and Robinson (2005)). This paper empirically explores the channels that can explain this relation, and specifically discusses the idea that Atlantic trade had a role on growth in Early Modern Europe only through constitutional, nation-level institutional change *à la* Acemoglu, Johnson and Robinson (2005)

The paper is organized as follows. In the following section, it presents the constitutional argument, its issues and some other plausible arguments for the link between Altantic trade and growth. In the second section, it uses Bairoch's database of city size to show that, once externalities of cities on each other are taken into account, the positive national effect of Atlantic trade, conditional on good starting institutions, is completed by an unconditional local positive effect. This analysis uses a balanced panel of 193 cities. In a third section, it uses a new database of regional urban population to summarize the experience of 684 cities to show the same thing. The main effect of Atlantic trade was local. As constitutional institutions are by definition national, it makes it unlikely that they were the main channels of its influence on European growth.

1. Atlantic trade, traders and constitutional changes

Theoretical works on unified growth theories has already explored the role of international trade in the divergence between industrial economies and non-industrial

economies in the 19th century[2]. But they cannot explain the role of intercontinental trade before the Industrial Revolution, as the volume of trade was too small to have a sizeable effect on prices and on the reallocation of productive resources in Europe[3], all the more so as a sizeable part of intercontinental trade was in goods neither produced nor consumed in the European trading economies.

1.1. Atlantic trade benefited traders

However, the development of Atlantic trade was large enough to improve the economic and political position of specific groups, especially traders. Of course, this did not happen in every European countries. Spain and Portugal tried to capture the benefits from intercontinental trade directly by setting up state monopolies rather than supporting the activity of their domestic traders. Domestic traders never gained there the political support of the state in the same way as in England, the Netherlands or even France. Furthermore, the Spanish and Portuguese states were unsuccessful in checking the rising trade activity of their competitors. In contrast, England, the Netherlands, and France implemented international policies partly devoted to supporting the activity of domestic traders (Mielants (2007), Arrighi (1994)). In a specific mercantilist European tradition started by Venice, theses policies ranged from direct subsidies to military action against competitors (Curtin (1984), p. 116).

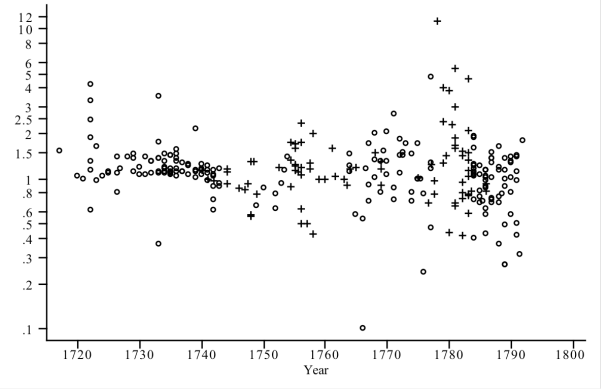
These policies lead domestic traders to enjoy a higher rate of profits in intercontinental trade than in domestic activities. This is illustrated by Figure 1, which gives all the known the observation of profits in French slave and Atlantic trade in the 18th century.[4] If the data are not truncated, there is positive time trend. If it is truncated at 250%, 200% or 150%, there is a negative time trend. Neither one nor the other is statistically significant.)

---

[2] Galor (2005), Galor and Mountford (2003)
[3] O'Rourke and Williamson (2002), Acemoglu, Johnson, and Robinson (2005), p. 562
[4] See Daudin (2004).

Figure 1: Evolution of slave and Atlantic profit in France in the 18th century

209 observations, log scale. The vertical axis gives the sum of returns over the value of outlays. Crosses are war observations and circles are peace observations



As discussed in Daudin (2004), these high profits were not a remuneration for risk or illiquidity: long distance trade was still a good investment even taking these into account, as long as diversification was possible, which was possible conditional on wealth. However, the mass of these profits was not very high[5].

Intercontinental trade profits could be maintained at a high level for traders as a whole for many reasons. First, because traders privately benefited from mercantilist policies which burden was shared by the society as a whole. Second, because the extension of the trade of individual countries was often done at the expense of other countries. Finally, because European-controlled trade represented only a small part of world trade. For example, intra-Asian trade was still a frontier for European mercantile expansion in the late 18th century. French traders and capitalists during the 18th century first exploited trade with the West Indies, then slave trade, and finally were starting to expand in Asian trade at the end of the century.

Trading profits were not reduced to market level because investing into slave and Atlantic trade was restricted. Trade entrepreneurs did not accept everyone's capital. Most passive investors were either former trade entrepreneurs, or part of the family and friends of trade

[5] Daudin (2006)

entrepreneurs. There does not seem the have been a demand for external capital. In Nantes, 'The study of ship shares leads us to believe that capital circulated in a close circuit'.[6] In Marseilles, the town used mainly its own capital to finance its trade. Most of what seems to be external capital was actually former trading capital coming back to the sector (Carrière (1973), p. 944). In La Rochelle, a relatively small port, only 20% of the capital invested in international trade came from other places at the end of the 1780s, and much of that came from Nantes and Bordeaux (Clark (1981), p. 221-24). In Bordeaux, traders 'were keen to deal within a circle of close friends, preferably parents, and were reluctant to deal with speculators from different towns'.[7] The entry ticket for would-be investors seems to have been to become traders, or get a trader in their close circle. Solier is an example of how a Swiss protestant group tried to get into trade in Marseilles[8]: The early career of Benoît Lacombe is another example of a successful trading family from the interior trying unsuccessfully to get into Atlantic trade, this time in Bordeaux.[9]

1.2. What did traders do with their improved position?

According to Acemoglu, Johnson and Robinson, the improved economic and political position of traders was crucial for European development because traders were a progressive political force able to coerce national governments into setting up institutions restricting the power of monarchy and securing broad-based property rights. They defend their preferred link between Atlantic trade, institutions, and growth using numerous empirical tests supported by convincing robustness checks (Acemoglu, Johnson, and Robinson (2005)). This gives an explanation of the emergence of improved institutions in Northwestern Europe (North and

[6] Meyer (1969), p. 213
[7] Butel (1974), p. 205
[8] Dermigny (1960), pp. 171-81, Carrière (1961) and Carrière (1973), p. 939.
[9] Cornette (1986).

Thomas (1973)). More generally, the link between the rise of traders and merchant capitalism and growth is a recurring theme in the historical literature (e. g. Braudel (1979)).

However, it is not clear why these would be the objectives of traders (this difficulty is actually presented in Acemoglu, Johnson, and Robinson (2002), p. 27). They mainly clamoured for public protection and support to their own economic activities (e.g. Hirsch (1991), Lindberg (2009)). The improvement in the political position of traders had as its most direct consequence the improvement of their own prospects of wealth accumulation.

Maybe this wealth accumulation in itself had a positive role on European economies? One traditional view is that traders' profits had an important role in early modern accumulation of capital. The strongest form of this idea suggests this was at the root of the Industrial Revolution.[10] It is now discredited. A weaker form of this idea is that slave trade and plantation colonies played an important role in accumulation before the Industrial Revolution. This is still debated. Many economic historians would agree with O'Brien's view that profits from the "periphery," or, approximately, the non-European world, were simply too small to have played a major role in European growth before the Industrial Revolution (O'Brien (1982), Eltis and Engerman (2000), Daudin (2006)). This is illustrated by Table 1, which gives guess-estimates of the role of intercontinental trade in the French economy. Furthermore, economic logic does not support the view that investors would massively remove capital from a high-profit sector to invest it in the rest of the economy, even if diversification might have been an incentive.

[10] Williams (1944 (1966)), Wallerstein (1989).

Table 1: Static effects of the existence of intercontinental trade for France c.1790

	Total Income	Capital Income	Land Income	Labour Income	Effect on growth	British situation
Relative size of the intercontinental sector	4 % – 4.75 % of GDP 9.5 % – 15 % of industrial production	13 % – 15.5 %	0 %	2.5 % – 3 %		7 % – 8 % of GDP 23 % – 26 % of the industrial production
Net effects of the existence of the intercontinental sector	1.5 % – 2 %	6.5 % – 8 %	-3 % – -2.5 %	0 % – 0.5 %	+6-7.5% (0.035-0.045 percentage points) Cumulative effect over the 18th century : +2-3% GDP	

1.3. Other links between Atlantic trade and European economies

Historians have long suggested that early modern economies were able to grow through Smithian mechanisms of deepening market integration (e.g. Jones (1998) and Mokyr (1990), p. 5). One version of this idea is the notion of "industrious revolution". This revolution did not explain the Industrial revolution, but was an important mechanism in explaining some Early modern growth episodes. The germ of this idea can be found in Smith's "vent for surplus" theory of international trade (Oulton (1993)). It suggests that the integration of households in the domestic market economy through proto-industry and market agriculture may have been an important growth mechanism (de Vries (1994), de Vries (2008)). It manifested, for example, through the increase in the number of hours worked (Voth (2001)).

Slave and Atlantic trade offered new, exotic, consumption goods which encouraged market participation of willing consumers. Recent work by Hersh and Voth have suggested that the availability of tea, sugar and coffee at affordable prices improved English welfare by around 15%. However, exotic goods these were not the only, nor the main, goods which consumption increased throughout society.[11]

[11] Roche (1997).

In this setting of deepening market integration and "industrious revolution", domestic traders played two roles. First, they offered new consumption goods, which diffusion can be seen in probate inventories (Baulant (1989), Roche (1997)). Second, they had an active role in the organization of production and in distribution, as suggested by the literature on proto-industry (Mendels (1972)). As we have seen before, getting into Atlantic trade was an important, and difficult, step in the enrichment of traders. Increased Atlantic trade profits might have encouraged them to do even more effort to access the sector. As not every trader succeeded, this increased effort might have lead to more domestic trading activity in the same way than the possibility of brain drain increases education formation in developing countries and, if the "success rate" is not too high, actually paradoxically increases the stock of human capital in some countries.[12]

2. Atlantic trade and city growth

Many theoretical links can be imagined between Atlantic trade and European growth. Acemoglu, Johnson and Robinson, in their 2005 paper, where among the first the show that some actually existed. They use urbanization as their main proxy for development, and they emphasises the link formed by institutions. One aim of this paper is to show that this cannot be the whole story.

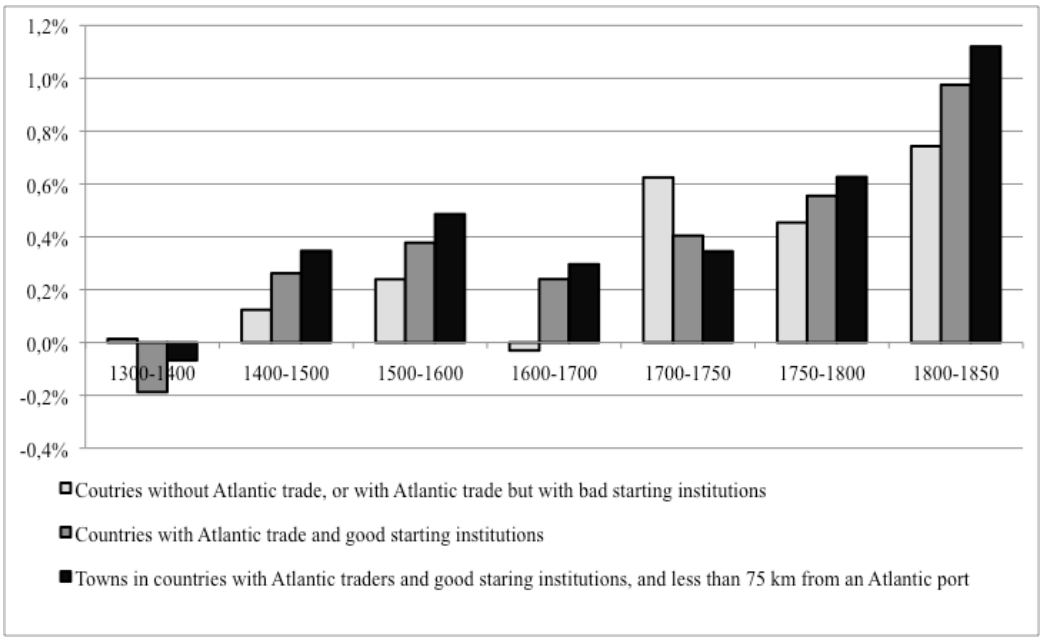
Acemoglu, Johnson and Robinson very much emphasize a national story, with Atlantic trade having an effect at the national level. Countries might not be the proper unit of analysis to think about growth, especially before the 19th century. This paper shows that, beside national effects, trade also had local effects. Towns and regions nearby trading cities benefited from Atlantic trade more than interior cities. Because constitutional institutions are

[12] Beine, Docquier, and Rapoport (2001).

national, these local effects must have been transmitted through another channel. Many explanations are obviously available, as the preceding section discussed.

One first way to look at that is to contrast the growth rates of cities close to Atlantic ports in country with reasonable starting institutions in the 16th century (see Figure 2). As predicted by Acemoglu, Johnson and Robinson, towns in countries participating to slave and Atlantic trade and with good starting institutions grew faster than other European towns (except in the early 18th century). But it is striking that, inside these countries, towns nearer to Atlantic ports also grew faster by a similar order of magnitude.

Figure 2: Urban growth in Europe



More formally, Table 2 uses a panel regression to show that this difference is indeed significant. This econometric exercise expands from Acemoglu, Johnson and Robinson and Bosker, Buringh and Luiten van Zanden.[13]

Regression (1) tests AJR's hypothesis on the 193 which population is known from 1300 to 1850. Atlantic ports in good institution countries are larger than other cities. All cities in countries with both good institutions and Atlantic trade are larger than other cities, confirming

[13] Bosker, Buringh, and Luiten van Zanden (2008).

the hypothesis that Atlantic trade and good starting institutions, together, favour development at the national level, maybe because of their positive effect on national institutions. On the other hand, cities in countries which participated in Atlantic trade[14] are on the whole smaller than other cities: good institution were indeed crucial to benefit from Atlantic trade.

Regression (2) however shows that this result is weakened by the introduction of the urban potential variable suggested by Bosker, Buringh and Luiten van Zanden. This variable takes into account the positive externalities of cities on one another in Europe.

$$\text{Urban potential of city } i = \sum_{j \neq i} \frac{\text{Population of city } j}{\text{Distance between } i \text{ and } j}$$

Regression (3) goes further to check if Atlantic ports, in good institution settings, have more of a positive effect around them than other cities. It introduces a "domestic Atlantic port" specific variable. This variable is constructed like the urban potential variable, except that only domestic Atlantic ports are taken into account. This variable has a non-significant negative effect. Its product with starting institutions has a small, barely statistically significant negative effect.

$$\text{Atlantic port potential of city } i = \sum_{k \neq i} \frac{\text{Population of Atlantic port } k}{\text{Distance between } i \text{ and } k}$$

Using all the information available on all cities does not change significantly the results. The hypothesis by Acemoglu, Johnson and Robinson is indeed vindicated. Countries which participated in Atlantic trade did not have larger cities. Countries which participated in Atlantic trade and had good starting institutions did.

[14] Only five countries are considered as having participated to Atlantic trade in the Acemoglu, Johnson and Robinson's dataset: France, the Netherlands, Portugal, Spain and the United Kingdom. 1988 borders are used throughout.

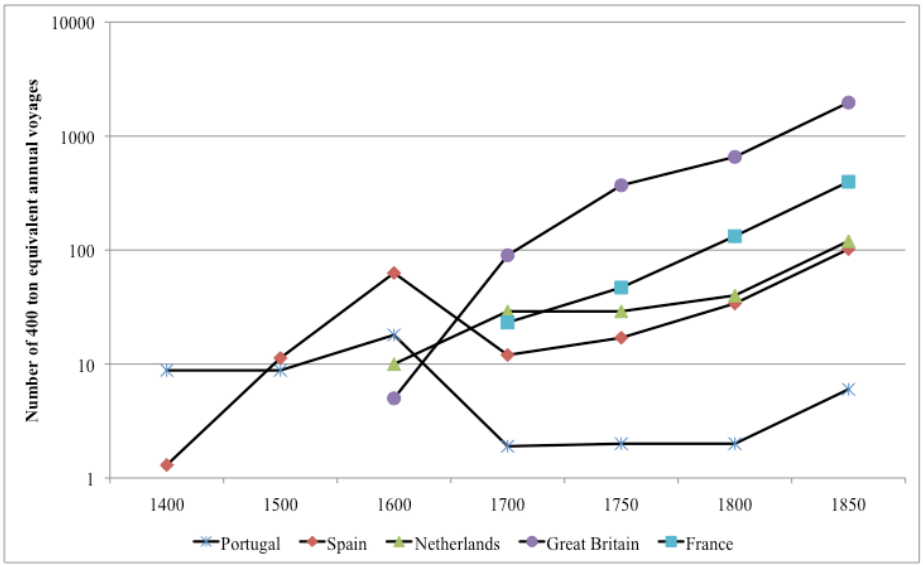
Table 2: Explaining city size, 1300-1850

	Balanced panel	Balanced panel	Balanced panel	Summary statistics	Non-balanced panel	Standard deviation
HRS: ln(city population) City dummies everywhere Western Europe dummies everywhere Weighted by city populations Year dummies everywhere	(1) AJR main hypothesis for cities	(2) AJR main hypothesis + BBZ	(3) AJR + BBZ + This paper	Mean: 2.8 S.d.: 1.15	(4)	2.0 (0.9)
Log(European volume of Atlantic trade) x being an Atlantic port	0.03	0.03	0.03	0.3 (1.3)	0.03	0.2 (1.1)
Log(European volume of Atlantic trade) x being an Atlantic port x starting institutions	0.10***	0.07***	0.08**	0.4 (1.8)	0.06***	0.2 (1.4)
Log(European volume of Atlantic trade) x being part of a country participating to Atlantic trade	-0.11***	-0.11***	-0.19***	1.8 (2.6)	-0.11***	2.3 (3.1)
Log(European volume of Atlantic trade) x being part of a country participating to Atlantic trade x starting institutions	0.14***	0.09***	0.18***	2.0 (3.4)	0.10**	2.3 (3.5)
Log(Urban potential)		1.38***	1.48***	2.8 (0.8)	1.55***	3.1 (0.7)
Log(European volume of Atlantic trade) xLog(1+ Atlantic port potential)			-0.04***	5.6 (5.6)	-0.03***	7.8 (5.8)
Log(European volume of Atlantic trade) xLog(1+ Atlantic port potential) x starting institutions			-0.015***	6.7 (9.3)	-0.003**	8.1 (9.9)
Adjusted R-squared	0.92	0.93	0.94		0.95	
Number of observations	1,544 (193 cities)	1,544 (193 cities)	1,544 (193 cities)		9,043 (2,203 cities)	

The same exercise can be conducted with estimation of country-specific Atlantic trade, using the database provided by Acemoglu, Johnson and Robinson. This database measures Atlantic trade in terms of annual voyages by 400-ton equivalent ships. Figure 3 gives their estimates for the five trading countries.[15]

[15] This estimation could be improved on. E.g. it does not take into account Portuguese and Dutch trade with the Western Hemisphere.

Figure 3: National Atlantic trade, 1400-1850



We replace the "Domestic Atlantic port potential" by a "Domestic Atlantic trade potential" where the share of Atlantic trade of each port in a country is assumed to be proportional to its population.

$$\text{Atlantic trade potential of city } i = \sum_{k \neq i} \frac{\text{Atlantic trade by Atlantic port } k}{\text{Distance between } i \text{ and } k}$$

Table 3 gives the results of the regressions. They are similar to the results of preceding regressions and, again, vindicate the Acemoglu, Johnson and Robinson's hypothesis.

Table 3: Explaining city size (2)

	Balanced panel 1300-1850	Balanced panel 1300-1850	Balanced panel 1300-1850	Standard deviation	Non-balanced panel 1300-1850	Standard deviation
HRS: ln(city population) City dummies everywhere Western Europe dummies everywhere Weighted by city populations	(1) AJR main hypothesis for cities	(2) AJR main hypothesis + BBZ	(3) AJR + BBZ + This paper	Mean: 2.8 S.d.: 1.15	(4)	2.0 (0.9)
Log(country-specific volume of Atlantic trade)	-0.12***	-0.12***	-0.22***	1.0 (1.9)	-0.16***	1.5 (2.2)
Log(country-specific volume of Atlantic trade) x being an Atlantic port	-0.11*	-0.10*	-0.10	0.2 (0.9)	-0.08**	0.1 (0.8)
Log(country-specific volume of Atlantic trade) x being an Atlantic port x starting institutions	0.18***	0.16***	0.16***	0.2 (1.2)	0.13***	0.2 (1.0)
Log(country-specific volume of Atlantic trade) x starting institutions	0.16***	0.11***	0.20***	1.1 (2.5)	0.15***	1.5 (2.8)
Log(Urban potential)		1.25***	1.43***	2.9 (0.8)	1.55***	3.2 (0.7)
Log(1+"Atlantic trade potential")			-0.08	0.4 (0.6)	-0.16***	0.6 (0.6)
Log(1+"Atlantic trade potential") x starting institutions			-0.17***	0.5 (0.9)	-0.05***	0.6 (1.0)
Adjusted R-squared	0.93	0.94	0.94		0.95	
Number of observations	1,544 (193 cities)	1,544 (193 cities)	1,544 (193 cities)		9,043 (2,203 cities)	

However, spatial autocorrelation might be an issue with these results. A city has an influence on the urban potential of neighbouring cities. This increases their size. This, in return, is link to a larger size for the initial city. Sorting these relationships out would require proper spatial econometrics. Furthermore, the link between national Atlantic trade and city size might be endogenous, as one suspect that larger cities would attract more trade. One solution is to look at the growth rate of cities rather than at their size. This reduces the number of observation, but solves both the endogeneity and the special correlation issues.

Table 4 conducts the same regressions, but uses city growth rate as the right hand side variable. The city size has been introduced as an explanatory variable to take into account the fact that larger cities have a priori less growth potential because of the increased issues of pollution, supply, etc. This variable has the expected negative sign.

The coefficients of our main variable of interest are strikingly different, especially with regression 3. In the balanced panel, a city in a country which took part to Atlantic trade, whether an Atlantic port or not, does not seem to grow any faster than any other city. It seems to grow a little slower in equation 1 and 2. The crucial variable becomes the "domestic Atlantic trade potential". If one believes regression (3), the positive effect of Atlantic trade on the growth of city is only local, and is not dependent on the quality of institutions. It might even be stronger when starting institutions are bad.

Regression (4) uses the full dataset. Its results are less surprising. Cities in countries involved in Atlantic trade grow slower than other cities, except when the institutions are good enough. Cities nearby Atlantic port grow as well even faster if institutions are good enough, but there were still some local, non-institutional based, positive effects.

Table 4: Explaining city growth (1300-1800)

	Balanced panel	Balanced panel	Balanced panel	Standard deviation	Non-balanced panel	Standard deviation
HRS: annual growth rate *100 Western Europe and year dummies everywhere City dummies Weighted by city populations	(1)	(2)	(3)	0.3 (0.7)	(4)	0.5 (0.9)
Log(city population)	-0.47***	-0.47***	-0.48***	2.7 (1.1)	-0.64***	2.0 (0.9)
Log(country-specific volume of Atlantic trade)	-0.08*	-0.08*	-0.15***	1.0 (1.9)	-0.23***	1.3 (2.0)
Log(country-specific volume of Atlantic trade) x being an Atlantic port	0.04	0.04	0.05	0.2 (0.9)	0.08	0.1 (0.7)
Log(country-specific volume of Atlantic trade) x being an Atlantic port x starting institutions	0.02	0.02	0.03	0.2 (1.2)	-0.01	0.1 (0.9)
Log(country-specific volume of Atlantic trade) x starting institutions	0.12***	0.12***	0.15***	1.1 (2.5)	0.28***	1.3 (2.4)
Log(Urban potential)		0.00	-0.12	2.8 (0.8)	0.18****	2.9 (0.6)
Log(1+"domestic Atlantic trade potential")			0.80***	0.2 (0.3)	0.61***	0.4 (0.4)
Log(1+"domestic Atlantic trade potential") x starting institutions			-0.37***	0.3 (0.5)	-0.25***	0.4 (0.7)
Adjusted R-squared	0.55	0.55	0.56		0.65	
Number of observations	1,351 (193 cities)	1,351 (193 cities)	1,351 (193 cities)		6,004 (2,050 cities)	

3. Explaining regional urban growth

They are two reasons to go further than Table 4.

The first one is that the panel setting poses a dilemma. Using a balanced panel is more consistent, but it restricts the sample to 10% of 19th century European cities. Still, something could be happening with new cities. There is no reason to believe that the local and the national effect of Atlantic trade are the same. It might be the case that Atlantic trade stifles the growth of established cities but encourages the growth of villages such that some become market town. In that case, the balanced panel will suggest a negative role of Atlantic trade on city growth, whether the non-balanced panel will show that Atlantic trade encourages the growth of small towns. In order to both take into account new cities and keep a balanced dataset, it would be useful to continue the analysis at the regional level.

The second one is that Acemoglu, Johnons and Robinson do not conclude their economic analysis with the analysis of city growth. On the contrary, their final regressions are at the city level. They use Bairoch's database and total population figures to compute the urbanization rate of European countries, and use this as their main proxy of economic growth. However, if we were to move the analysis to the national level, we would, by definition, be incapable of measuring any the local effects: they would become invisible and be "absorbed" in the national effect. Hence again, we would like to find an intermediary scale of spatial analysis.

There are two difficulties. The first one is that there is no consistent dataset of regional population from 1300 to 1850: hence, it is not possible to compute regional urbanization rates. As a proxy, we will use regional urban population. The second difficulty is that regions are not easily comparable between European nations in terms of size and history. To solve these difficulties, we use a Geographical Information System (GIS) software to divide Europe into arbitrary regions.

These regions are squares seventy-five kilometre wide. When a square includes two or more countries, we divide into one region per country. We then compute the urban population in each region at each point of time. These regions will be our unit of analysis. Figure 4 contrasts this new view with the city-based.

Figure 4: Two views of European urbanization in 1300

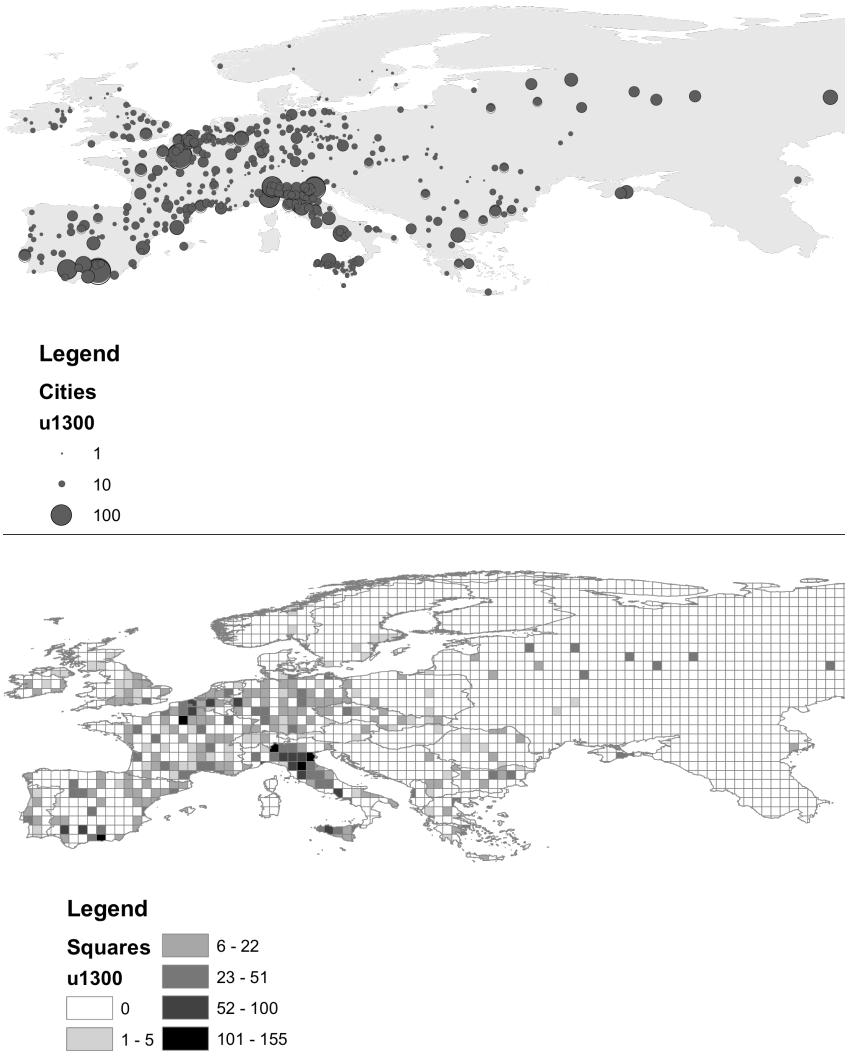


Table 5 shows the results of the region-based analysis. The balanced panel includes only 113 regions (against 193 cities), but these 113 regions themselves include 684 cities in 1850. Only the country-specific volume of Atlantic trade is statistically significant in the non-balanced regression: it is not reported. In the balanced regressions, we have increased the sample from 10% of the total population of 19th century cities to nearly one third. Including

an Atlantic port does not increase the rate of urban growth in a region. Atlantic trade in itself decreases urban growth, but with good institutions it is positive: again, the Acemoglu, Johnson and Robison hypothesis is confirmed. Being near domestic Atlantic ports also increases urban growth, unconditional on starting institutions.

Table 5: Explaining regional urban growth (1300-1800)

	Balanced panel	Balanced panel	Balanced panel	Summary statistics	Unbalanced panel	
HRS: annual growth rate *100 Western Europe and year dummies everywhere Region dummies Weighted by regional urban populations	(1)	(2)	(3)	0.4 (0.7)	(4)	0.6 (1.0)
Log(regional urban population)	-0.51***	-0.51***	-0.51***	3.2 (1.2)	-0.67***	2.6 (1.1)
Log(country-specific volume of Atlantic trade)	-0.15***	-0.15***	-0.19***	0.8 (1.7)	-0.28***	1.0 (1.8)
Log(country-specific volume of Atlantic trade) x including an Atlantic port	0.17*	0.17*	0.16*	0.2 (0.9)	0.18*	0.2 (0.9)
Log(country-specific volume of Atlantic trade) x including an Atlantic port x starting institutions	-0.12*	-0.12*	-0.10	0.3 (1.3)	-0.12*	0.3 (1.2)
Log(country-specific volume of Atlantic trade) x starting institutions	0.19***	0.19***	0.20***	0.9 (2.1)	0.28***	1.0 (2.0)
Log(Urban potential)		0.05	-0.03	2.6 (0.6)	0.39**	2.7 (0.6)
Log(1+"Atlantic trade potential")			0.63***	0.2 (0.3)	0.67***	0.3 (0.3)
Log(1+"Atlantic trade potential") x starting institutions			-0.26***	0.3 (0.5)	-0.23***	0.3 (0.5)
Adjusted R-squared	0.53	0.53	0.53		0.60	
Number of observations	1,113 113 regions 684 cities	1,113 113 regions 684 cities	1,113 113 regions 684 cities		3,050 821 regions 2,050 cities	

Considering the number of interactive variables in this regression, the computation of marginal effect helps understanding the role of each individual variable. Table 6 suggests that, on the whole, the effect of starting institutions is not very precisely measured and is smaller than the effect of the Atlantic trade potential. One standard deviation change in starting institutions increases the annual growth rate of the regional urban population by 5.5 per cent of its standard deviation. One standard deviation change in the log of (1+Atlantic trade

potential) increases the annual growth rate of the regional urban population by 17 per cent of its standard deviation[16].

Table 6: Marginal effects in equations (3)

	Balanced panel	Summary statistics
HRS: annual growth rate *100 Western Europe and year dummies everywhere Region dummies Weighted by regional urban populations	(3)	0.4 (0.71)
Log(regional urban population)	-0.51***	3.2 (1.19)
Log(country-specific volume of Atlantic trade)	-0.07	0.8 (1.65)
Including an Atlantic port	0.28*	0.1 (0.31)
Starting institutions	0.05	1.0 (0.76)
Log(Urban potential)	-0.03	2.6 (0.64)
Log(1+"Atlantic trade potential")	0.36***	0.2 (0.33)

4. Conclusion

After presenting some possible justifications for the positive effect of Atlantic trade on early modern European growth, this paper has shown through the study of city size, city growth and regional urban growth that, even if the mechanism suggested by Acemoglu, Johnson and Robison is indeed important, it is not the only one. The evolution of national institutions was not the only channel through which Atlantic trade had a positive effect on European growth. Local effects also existed. Our preferred specification even suggests that these effects were much larger than the ones going through individual institutions.

5. Bibliography

Acemoglu, Daron, Simon Johnson, and James Robinson. 2002. "The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth." *NBER Working Paper*:9378.

[16] Remember these effects exclude the regional dummies. These would certainly increase the effect of both variables.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2005. "The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth." *American Economic Review*, 95:3, pp. 546-579.
Allen, Robert C. 2003. "Progress and Poverty in Early Modern Europe." *Economic History Review*, 56 3, pp. 403-43.
Arrighi, Giovanni. 1994. *The long twentieth century : money, power, and the origins of our times*. London ; New York: Verso.
Baulant, Micheline. 1989. "L'Appréciation du niveau de vie. Un problème, une solution." *Histoire et Mesure*, IV:3-4, pp. 267-302.
Beine, Michel, Frédéric Docquier, and Hillel Rapoport. 2001. "Brain drain and economic growth: theory and evidence." *Journal of Development Economics*, 64, pp. 275-289.
Bosker, Marteen, Eltjo Buringh, and Jan Luiten van Zanden. 2008. "From Baghdad to London: The Dynamics of Urban Growth in Europe and the Arab World, 800-1800." *CEPR Working Paper*:6833.
Braudel, Fernand. 1979. *Civilisation matérielle, économie et capitalisme XVe-XVIIIe*. Paris: A. Colin.
Butel, Paul. 1974. *Les Négociants bordelais, l'Europe et les îles au XVIIIe siècle*. Paris: Aubier.
Carrière, Charles. 1961. "Le Commerce des Indes, ses profits - dans Comptes Rendus : Ports et Trafics." *Annales E.S.C.*, 16:5, pp. 1035-38.
Carrière, Charles. 1973. *Négociants marseillais au XVIIIe siècle*. Marseille: Institut historique de Provence.
Clark, John G. 1981. *La Rochelle and the Atlantic Economy During the 18th century*. Baltimore: John Hopkins University Press.
Cornette, Joëlle. 1986. *Un Révolutionnaire ordinaire : B. Lacoube, négociant 1750-1819*. Seyselle: Champ Vallon.
Curtin, Philip D. . 1984. *Cross-Cultural Trade in World History*. Cambridge: Cambridge University Press.
Daudin, Guillaume. 2004. "Profitability of Slave and Long Distance Trading in Context: The Case of 18th Century France." *Journal of Economic History*, 64:1, pp. 144-171.
Daudin, Guillaume. 2006. "Do Frontiers Give or do Frontiers take? The Case of Intercontinental Trade in France at the End of the Ancien Régime," in Olivier Pétré-Grenouilleau, Pieter Emmer and Jessica Roitman (eds.), *A Deus Ex Machina Revisited. Atlantic Colonial Activities and European Economic Development.* Leiden: Brill.
de Vries, Jan. 1994. "The Industrial Revolution and the Industrious Revolution." *Journal of Economic History*, 54:2, pp. 249-270.
de Vries, Jan. 2008. *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present*. Cambridge: Cambridge University Press.
Dermigny, Louis. 1960. *Cargaisons indiennes. Solier & Cie. 1781-1793*. Paris: SEVPEN.
Eltis, David and Stanley L. Engerman. 2000. "The Importance of Slavery and the Slave Trade in Industrializing Britain." *Journal of Economic History*, 60:1, pp. 123-144.
Galor, Oded. 2005. "From Stagnation to Growth: Unified Growth Theory," in Philippe Aghion and Steven N. Durlauf (eds.), *Handbook of Economic Growth*.
Galor, Oded and Andrew Mountford. 2003. "Trading Population for Productivity." *Working Papers of Brown University, Department of Economics*:2004-16.
Hirsch, Jean-Pierre. 1991. *Les Deux rêves du commerce : entreprise et institution dans la région lilloise : 1780-1860*. Paris: EHESS.
Jones, Eric L. 1998. *Growth Recurring: Economic Change in World History*. Oxford: Oxford University Press.
Lindberg, E. 2009. "Club goods and inefficient institutions: why Danzig and Lubeck failed in the early modern period." *The Economic History Review*, 62:3, pp. 604.
Mendels, Franklin F. 1972. "Proto-Industrialisation : the First Phase of the Industrialisation Process." *Journal of Economic History*, XXXII:1.
Meyer, Jean. 1969. *L'Armement nantais dans la deuxième moitié du XVIIIe siècle*. Paris: Sixième section de l'Ecole Pratique des Hautes Études/Centre de recherches historiques et SEVPEN.
Mielants, Eric. 2007. *The origins of capitalism and the "rise of the West"*. Philadelphia: Temple University Press.

Mokyr, Joel. 1990. *The Lever of Riches*. Oxford: Oxford University Press.
North, Douglass C. and Robert Paul Thomas. 1973. *The Rise of the Western World: A New Economic History*. Cambridge: Cambridge University Press.
O'Rourke, Kevin H. and Jeffrey G. Williamson. 2002. "When did globalisation begin?" *European Review of Economic History*, 6:01, pp. 23-50.
O'Brien, Patrick. 1982. "European Economic Development : The Contribution of the Periphery." *Economic History Review*, XXXV:1, pp. 1-18.
Oulton, Nicholas. 1993. "Widening the Human Stomach: The Effect of New Consumer Goods on Economic Growth and Leisure." *Oxford Economic Papers*, 45 3, pp. 364-86.
Roche, Daniel. 1997. *Histoire des choses banales : Naissance de la consommation, XVIIe-XVIIIe siècle*. Paris: Fayard.
Voth, Hans-Joachim. 2001. *Time and Work in England, 1750-1830*. Oxford: Oxford University Press.
Wallerstein, Immanuel. 1989. *The modern World system III : The Second Era of Great Expansion of the Capitalist World-Economy, 1730s-1840s*. San Diego: Academic Press.
Williams, Eric Wilson. 1944 (1966). *Capitalism and Slavery*. New-York: Capricorn.