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Abstract

Following Tulio Halperín Donghi's pioneering work, historians have tried to explain why Argentina experienced a dramatic export-led expansion in the first half of the nineteenth century despite a lack of price incentives. This paradox is resolved by a new estimate of Argentina's terms of trade. It suggests that they probably improved by at least 2,000 per cent from the 1780s to the first decade of the twentieth century, so there were considerable price incentives for export-led growth. Labour and capital moved into the export sector, bringing the country's Pampean land – a previously under-utilised resource – into production. This suggests that Argentina's expansion in the long nineteenth century was less a result of internal factors than a response to globalisation.

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Joseph A. Francis

This paper explains why Argentina experienced rapid growth during the long nineteenth century. It argues that the expansion was a response to a massive improvement in the country's terms of trade from independence up to the First World War. By demonstrating the existence of this long terms-of-trade boom, the paper corrects a methodological error in the existing literature. Historians of Argentina have previously tended to look at the *absolute*, rather than *relative*, prices of the country's exports, often taking them, moreover, from sources from the core countries, rather than from Argentina itself.[1] This methodological error is at the heart of the apparent paradox, first observed by Tulio Halperín Donghi, that Argentina's export-led expansion began after independence despite a lack of price incentives for such growth. Here it is demonstrated that once Argentina's terms of trade – that is, the relative prices of its exports and imports – are correctly measured, significant price incentives can be clearly seen, so the paradox is resolved. The main implication of this finding is that Argentina's expansion throughout the long nineteenth century was less a result of internal factors than a response to globalisation.

Halperín Donghi first noted the paradox in two highly influential essays on Argentina's pastoral expansion in the first half of the nineteenth century.[2] Examining the nominal prices of River Plate hides and tallow in Britain, he found that they rose somewhat after independence in 1810, but then experienced a 'slow but very prolonged fall' from the mid-1830s onwards.[3] Crucially, this fall in prices occurred at the same time as there was a notable expansion in imports of Argentine hides and tallow into Britain. Halperín Donghi therefore

1. For example, T. Halperín Donghi, 'La expansión ganadera en la campaña de Buenos Aires (1810-1852)', *Desarrollo Económico*, 3:1/2, 1963, pp. 61-65; J.C. Chiaramonte, 'Mercado de mercancías, mercado monetario y mercado de capitales en el Litoral Argentino de la primera mitad del XIX: el caso de Corrientes', *Siglo XIX: Revista de Historia*, 2:4, 1987, pp. 91, 93; H. Sabato, *Agrarian Capitalism and the World Market: Buenos Aires in the Pastoral Age, 1840-1890*, Albuquerque, 1990, pp. 204-08; S. Amaral, *The Rise of Capitalism on the Pampas: The Estancias of Buenos Aires, 1785-1870*, Cambridge, 1998, pp. 232-41; and J.C. Garavaglia, 'La economía rural de la campaña de Buenos Aires vista a través de sus precios: 1756-1852', in R.O. Fradkin and J.C. Garavaglia, eds., *En busca de un tiempo perdido: la economía de Buenos Aires en el país de la abundancia, 1750-1865*, Buenos Aires, 2004, pp. 107-58.
2. Halperín Donghi, 'Expansión ganadera'; and 'La expansión de la frontera de Buenos Aires (1810-1852)', in A. Jara, ed., *Tierras nuevas: expansión territorial y ocupación del suelo en América (siglos xvi-xix)*, México, DF, 1969.
3. Halperín Donghi, 'Expansión de la frontera', p. 82, author's translation.

concluded that the pastoral expansion was *not* due to improved price incentives: as he put it, his numbers 'perfectly demonstrate[d] the economic climate in which pastoral production occurred in the whole River Plate area (and, for that reason, also in the countryside of Buenos Aires); [it was] a production that did not receive its stimulus, nor see its momentum hampered, by movements in prices'.[4]

Following Halperín Donghi, historians have attempted to explain why Argentina's expansion occurred *despite* falling prices.[5] As there appeared to be no price incentives coming from the world market, the focus has been on internal factors. Hence, Halperín Donghi himself appealed towards the country's land abundance. He argued that Argentine capitalists were pushed out of commerce following the arrival of British merchants after independence, so they instead invested in rural activities, thereby taking advantage of the abundant quantities of Pampean land, which meant that entry costs were minimal and large profits could be made.[6] The problem with this explanation is that there was no British monopoly of commerce, as both creole and Spanish merchants remained heavily involved in Buenos Aires' trade.[7] The question therefore remains why Argentines only began to exploit their abundant land after independence and not before, when it was even cheaper.[8] Samuel Amaral suggested that it was due to institutional change, as the liberalisation that followed independence freed entrepreneurs from the restrictions placed on them by the colonial state, so they were able to establish more estancias, which were a particularly efficient way of organising pastoral production.[9] Maria Alejandra Irigoin then suggested that the expansion also occurred because merchants

4. Halperín Donghi, 'Expansión ganadera', p. 61, my translation.
5. For summaries of the literature, see R. Schmit, 'Conceptos, herramientas y resultados recientes sobre la historia económica rioplatense de la primera mitad del siglo XIX', in B. Bragoni and M.I. Barbero, eds., *Microanálisis: ensayos de historiografía argentina*, Buenos Aires, 2004; and R.O. Fradkin, 'Caminos abiertos en la pampa: dos décadas de renovación de la historia rural rioplatense desde mediados del siglo XVIII a mediados del XIX', in J.Gelman, ed., *La historia económica argentina en la encrucijada*, Buenos Aires, 2006.
6. See Halperín Donghi, 'Expansión ganadera', pp. 72-3; and 'The Buenos Aires Landed Class and the Shape of Argentine Politics (1820-1930)', in E. Huber and F. Safford, eds., *Agrarian Structure & Political Power: Landlord & Peasant in the Making of Latin America*, Pittsburgh, 1995, p. 42.
7. K. Robinson, 'The Merchants of Post-Independence Buenos Aires', in M.L. Moorhead and W.S. Coker, eds., *Hispanic-American Essays in Honor of Max Leon Moorhead*, Pensacola, 1979, p. 116, Table 2.
8. Land sold in the Buenos Aires countryside for around 8 British pennies per hectare in the 1780s, but it had risen to roughly £6 (that is, 1,440 pennies) by the 1900s. Land prices from R. Cortés Conde, *El progreso argentino: 1880-1914*, Buenos Aires, 1979, pp. 164, 166, Cuadros 3.8 and 3.10; and J. Gelman and D. Santilli, 'Salarios y precios de los factores en Buenos Aires, 1770-1880: una aproximación a la distribución funcional del ingreso en el largo plazo', *Revista de Historia Económica*, 33:1, 2015, pp. 179-80, Cuadro A-1. For the exchange rates, see the Appendix.
9. Amaral, *Rise of Capitalism*, esp. ch. 1.

began to invest in land as a hedge against the civil war-induced inflation that afflicted the country in the first half of the nineteenth century.[10]

These alternative explanations of the pastoral expansion become unnecessary, however, once the terms of trade are correctly taken into account. To be clear, what are being referred to are technically known as the 'net barter terms of trade' (NBTT), which are the ratio of a country's export prices (Px) to its import prices (Pm). They are calculated as:

$$NBTT = \frac{Px}{Pm}$$

When this ratio goes up, the terms of trade are improving; when it goes down, they are deteriorating. Traditionally, concern has revolved around questions of which countries have gained or lost out from changes in the terms of trade.[11] More recently, however, the focus has shifted towards the issue of how they impact on price incentives within a country, leading to shifts in the allocation of resources between sectors, which can have harmful or beneficial effects on growth.[12] This paper follows this trend. It demonstrates that Argentina underwent a massive terms-of-trade boom during the nineteenth century, which provided price incentives for capital and labour to move into export-oriented agriculture, leading to the rapid expansion of ranching and, later, farming.

Up to now, even those who have looked closely at Argentina's nineteenth-century terms of trade have failed to recognise the magnitude of the boom. Carlos Newland, most notably, used mainly European prices to estimate Argentina's 'international' terms of trade and found a roughly 100 per cent improvement from the first half of the 1810s to the second half of the 1830s, but then stagnation until the end of the 1860s.[13] At the same time, he noted that 'the domestic terms of trade improved much more dramatically than the interna-

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10. M.A. Irigoin, 'Inconvertible Paper Money, Inflation and Economic Performance in Early Nineteenth Century Argentina', *Journal of Latin American Studies*, 32:2, 2000.
11. Beginning, of course, with H.W. Singer, 'The Distribution of Gains between Investing and Borrowing Countries', *American Economic Review*, 40:2, 1950; and R. Prebisch, 'The Economic Development of Latin America and Its Principal Problems', *Economic Bulletin for Latin America*, 7:1, 1962. For overviews of the debate, see J. Spraos, *Inequalising Trade? A Study of Traditional North/South Specialisation in the Context of Terms of Trade Concepts*, Oxford, 1983, ch. 3; D. Diakosavvas and P.L. Scandizzo, 'Trends in the Terms of Trade of Primary Commodities, 1900-1982: The Controversy and Its Origins', *Economic Development and Cultural Change*, 39:2, 1991; and J.A. Ocampo and M.A. Parra, 'The Continuing Relevance of the Terms of Trade and Industrialization Debates', in E. Peréz Caldentey and M. Vernengo, eds., *Ideas, Policies and Economic Development in the Americas* (London: Routledge, 2007), pp. 163-66.
12. See J.G. Williamson, *Trade and Poverty: When the Third World Fell Behind*, Cambridge, MA, 2011, esp. ch. 4.
13. Calculated from C. Newland, 'Exports and Terms of Trade in Argentina, 1811-1870', *Bulletin of Latin American Research*, 17:3, 1998, p. 412, Table 2.

tional terms of trade',[14] with a rough estimate suggesting an almost 400 per cent improvement from 1810 to 1825.[15] Nevertheless, for Newland, the subsequent stagnation in the international terms of trade meant that the paradox identified by Halperín Donghi persisted, as the pastoral expansion began during a period when price incentives were few. As he and Ricardo Salvatore put it:

> The combined effect of declining prices of textiles and rising prices of livestock produced dramatic improvements in the terms of trade, which rose 377 percent between 1810 and 1825 (in local prices). The convergence between local prices and international prices (due to a sharp fall in transport and other transaction costs) stimulated the production of tradable goods, while at the same time lowering the cost of imported food and cloth. However, after 1830 and except for a short recovery during the Crimean war, the prices of Argentine exports were in decline. Hides, in particular, lost 40 percent of their value between 1830 and 1850. Yet, as import prices continued to fall at [a] declining rate, commodity terms of trade remained basically unchanged between 1830 and 1860.
>
> During the first sixty years after independence exports of livestock products grew significantly. [...] This rapid growth in the leading sector of the economy was achieved mostly through the extension of the frontier and also through greater efficiency in livestock production. Of course, *purely extensive growth (expansion in the use of resources) cannot explain the paradox posited by Halperin Donghi more than thirty years ago: the great boom in the ranching economy was achieved during a time (1830-50) of declining export prices*.[16]

Hence, according to Newland and Salvatore, Halperín's paradox persists, as the origins of Argentina's pastoral expansion remain unexplained.

This paper shows that during the long nineteenth century Argentina's terms of trade improved far more than is usually supposed. Historians have previously failed to appreciate the magnitude of the boom because they have used prices from the core countries as proxies for prices in Argentina itself. This expediency is justified by the claim that these were 'external' terms of trade calculated using 'international' prices. Yet, there was no such thing as 'international' prices for most of the long nineteenth century. Only as trade costs between national markets fell could an integrated world market form.[17] Using European prices as if they represented international prices is consequently an anachronism that can lead to misleading results. For the nineteenth century, it introduces a major downward bias into the trend of Argentina's terms of trade,[18]

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14. Ibid., p. 412.
15. C. Newland and J. Ortíz, 'The Economic Consequences of Argentine Independence', *Cuadernos de Economía*, 38:115, 2001, p. 279, Table 1.
16. R.D. Salvatore and C. Newland, 'Between Independence and the Golden Age: The Early Argentine Economy', in G. della Paolera and A.M. Taylor, eds., *A New Economic History of Argentina*, Cambridge, 2003, pp. 21-22.
17. For an overview, see G. Federico, 'How Much Do We Know About Market Integration in Europe?', *Economic History Review*, 65:2, 2012 .
18. On this problem for the periphery's terms of trade in general, see J.A. Francis, 'The Periphery's Terms of Trade in the Nineteenth Century: A Methodological Problem Revisited',

which is partially corrected here by using Argentine prices for exports. The result can be called 'part-proxy' estimates of the terms of trade, in that they still rely on other countries' prices for imports. With some crude adjustments made for price convergence on the import side, they suggest an improvement of at least 2,000 per cent from the 1780s through to the first decade of the twentieth century. There were, then, massive price incentives for export-led growth.

To begin, the paper explains why the terms of trade were depressed in the late colonial period and why they improved following independence. Initially, it is argued, the boom began due to the end of the Spanish trade monopoly, then it continued thanks to technological change, both in the core's industry and in shipping. The paper then provides an indication of how much Argentina's terms of trade improved up to the First World War. The paper concludes by discussing the implications of this finding for Argentina's historiography. It argues that the extent of the terms-of-trade boom means that less weight should be given to internal factors than to the impact of globalisation when explaining the origins of Argentina's export-led growth. Improved terms of trade led to labour and capital moving into the export sector, allowing the previously under-utilised Pampean land to be brought into production. Notably, Halperín Donghi himself arrived at a similar conclusion in his later work, when he returned to one of the original metanarratives of Argentina's historiography, in which the country's expansion is seen as a result of the trade liberalisation that accompanied independence.[19] Indeed, Halperín Donghi explicitly identified improved terms of trade as causing the pastoral expansion on the Pampas.[20] Nevertheless, it is his earlier work, in which there were no price incentives for the expansion, that continues to feature prominently in the historiography,[21] which is why this paper is necessary.

The Long Boom

In the colonial era the River Plate's terms of trade were depressed by the Spanish monopoly of trade with its American colonies, which was intended to channel resources from the Americas to Spain. In simplified terms, the basic pattern was that Spanish merchants sold imported goods at highly inflated prices in the Americas, then remitted their profits back to the metropole. This, rather than direct fiscal transfers, became the principal means by which

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Historical Methods: A Journal of Quantitative and Interdisciplinary History, 48:1, 2015.

19. T. Halperín Donghi, 'La apertura mercantil en el Río de la Plata: impacto global y desigualdades regionales, 1800-1850', in R. Liehr, ed., *América Latina en la época de Simón Bolivar: la formación de las economías nacionales y los intereses económicos europeos 1800-1850*, Berlin, 1989. A version of this metanarrative can already be found in B. Mitre, *Historia de Belgrano y la independencia argentina*, I, 4th ed., Buenos Aires, 1887, ch. 1.
20. Halperín Donghi, 'Apertura mercantil', p. 122.
21. See, for example, Schmit, 'Conceptos, herramientas', pp. 74-78; and Fradkin, 'Caminos abiertos', pp. 198-99.

resources were extracted: in the second half of the eighteenth century merchants' private remittances of gold and silver were around six times greater than remittances on crown account.[22] The crown nonetheless benefitted from the trade monopoly by taxing the flow of goods and precious metals, as much of its revenues came from levies on American exports and imports, both in Spain and the Americas,[23] while the merchants who grew wealthy from the trade also provided the crown with credit.[24] The monopoly thus played a central role in the crown's extraction of resources from its American colonies.[25]

In the River Plate the trade monopoly sought to promote the flow of silver from Upper Peru's mines back to Spain. For most of the colonial era, all goods legally imported from Europe had to be shipped from Seville (or, later, Cádiz) to the Isthmus of Panama, carried across land to the Pacific, shipped to Callao, Lima's Pacific port, then taken 4,000 kilometres overland by mule trains to the River Plate. Such a lengthy journey brought high trade costs, which inflated the prices of imports, thereby providing a considerable degree of protection for the cottage industries of the Interior's peasant societies. In the Littoral, meanwhile, Buenos Aires developed as an entrepôt for a flourishing contraband trade, with imports of African slaves, European manufactures, and tropical goods from Brazil illicitly exchanged for silver from Upper Peru.[26] This entrepôt role became increasingly formalised during the Bourbon reforms in the second half of the eighteenth century. By making Buenos Aires the capital of the new Viceroyalty of the River Plate in 1776, the Spanish authorities sought to undermine the position of the Lima merchants, who had become too proficient at provi-

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22. J. Cuenca-Esteban, 'Statistics of Spain's Colonial Trade, 1747–1820: New Estimates and Comparisons with Great Britain', *Revista de Historia Económica*, 26:3, 2008, p. 328, Figure 3.
23. J.A. Barbier and H.S. Klein, 'Revolutionary Wars and Public Finance: The Madrid Treasury, 1784-1807', *Journal of Economic History*, 41:2, 1981, pp. 327-30; C. Marichal, 'Beneficios y costes fiscales del colonialismo: las remesas americanas a España, 1760-1814', *Revista de Historia Económica*, 15:3, 1997, p. 480; and J. Cuenca-Esteban, 'Was Spain a Viable Fiscal-Military State on the Eve of the French Wars?', in S. Conway and R. Torres Sánchez, eds., *The Spending of States: Military Expenditure During the Long Eighteenth Century: Patterns, Organisation, and Consequences, 1650-1815*, Saarbrücken, 2011, pp. 247-56.
24. For a late eighteenth-century example, see the case of the *vales reales*. P. Tedde de Lorca, *El Banco de San Carlos (1782-1829*, Madrid, 1988, chap. 2.
25. Hence, Grafe and Irigoin find that the Spanish authorities in the Americas directed treasury funds to ports. R. Grafe and M.A. Irigoin, 'The Spanish Empire and Its Legacy: Fiscal Redistribution and Political Conflict in Colonial and Post-Colonial Spanish America', *Journal of Global History*, 1:2, 2006, p. 256. Their interpretation of this finding – that fiscal transfers sought to promote development in poorer regions – is, however, erroneous because they ignore the way in which the trade monopoly extracted resources from the Americas. By channelling funds to the port, the authorities made it easier for Spanish merchants to access them and remit them to Spain.
26. On the geography of the colonial River Plate, see T. Halperín Donghi, *Politics, Economics and Society in Argentina in the Revolutionary Period*, Cambridge, 1975, pp. 6-16; and E. Tandeter, 'El eje Potosí-Buenos Aires en el imperio español', in M. Ganci and R. Romano, eds., *Governare il mondo: l'imperio spagnolo dal XV al XIX secolo*, Palermo, 1991.

sioning the South American market with goods produced in the Americas.[27] Crucially, the creation of the new viceroyalty placed Potosí, the mining centre of Upper Peru, within Buenos Aires' jurisdiction, so the flow of silver was redirected from Lima towards the River Plate. In 1778 so-called 'free trade' was implemented, as Spanish merchants were allowed to trade directly between Buenos Aires and any Spanish port. The city then became an important southern node in a reinvigorated trade monopoly, as the metropole was substantially able to reestablish its commercial hegemony over its South American colonies by restricting the role of Lima's creole merchants.[28]

The trade monopoly depressed the terms of trade for the River Plate's pastoral producers due to the high trade costs that it entailed, which generated large price differentials between Europe and the Americas.[29] Competition among Spanish merchants in Buenos Aires was minimal, so their markups remained high – one study has suggested that 70 per cent was considered an 'acceptable markup'.[30] A lack of competition meant, moreover, that they had few incentives to use more efficient shipping, so their freight rates were excessive. Pushing costs up further, their goods were heavily taxed by the Spanish authorities. Indeed, most of the legal imports into Buenos Aires were re-exports of other countries' merchandise from Spain, so they had been taxed when they entered that country, taxed again when they were re-exported, then taxed again on arrival in Buenos Aires. The River Plate's exports would pay similar taxes in reverse order.[31] The same merchants moreover tended to be involved in both legal and illegal trade, so they had few incentives to effectively undercut themselves by offering contraband goods at better prices.[32] Consequently, export prices were depressed and import prices inflated. Thus, in the first half of the 1790s cattle hides sold in Buenos Aires for perhaps as little as 20 per cent of their wholesale price in Cádiz.[33] Ranchers accordingly tended to be impoverished, with most illiterate and many lacking basic goods, such as shoes and socks.[34]

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27. P.H. Marks, 'Confronting a Mercantile Elite: Bourbon Reformers and the Merchants of Lima, 1765-1796', *The Americas*, 60:4, 2004, pp. 519-26; and *Deconstructing Legitimacy: Viceroys, Merchants, and the Military in Late Colonial Peru*, University Park, 2007, pp. 55-61.
28. Z. Moutoukias, 'El crecimiento en una economía colonial de antiguo regimen: reformismo y sector externo en el Río de la Plata', *Arquivos do Centro Cultural Calouste Gulbenkian*, 34, 1995; 'Comercio y producción', in Academia Nacional de Historia, ed., *Nueva historia de la Nación Argentina*, III, Buenos Aires, 2000, pp. 72-81; Marks, 'Confronting a Mercantile Elite', pp. 535-58; and *Deconstructing Legitimacy*, pp. 75-105.
29. For a useful summary, see Newland and Ortíz, 'Economic Consequences', pp. 276-78.
30. S.M. Socolow, *The Merchants of Buenos Aires, 1778-1810*, Cambridge, 1978, p. 60.
31. E.R. Saguier, 'El mercado del cuero y su rol como fuente alternativa de empleo: el caso del trabajo a destajo en las vaquerias de la Banda Oriental durante el siglo XVIII', *Revista de Historia Económica*, 9:1, 1991, pp. 111-12; and Amaral, *Rise of Capitalism*, pp. 241-42.
32. Socolow, *Merchants of Buenos Aires*, pp. 58-60.
33. Amaral, *Rise of Capitalism*, p. 234, Table 11.1.
34. C.A. Mayo, 'Landed but not Powerful: The Colonial Estancieros of Buenos Aires (1750-1810)', *Hispanic American Historical Review*, 71:4, 1991, pp. 769-70; and *Estancia y*

Their influence was largely confined to the marginal frontier regions, whereas merchants dominated Buenos Aires and the Interior cities, where they engaged in commercial activities oriented towards exchanging both imported and locally-made goods for silver from Potosí.[35] Through these activities merchants accumulated fortunes that dwarfed those of the ranchers; hence, whereas almost 30 Buenos Aires merchants had fortunes of over 50,000 pesos around the time of independence,[36] there was perhaps only one rancher worth that amount.[37]

The merchant-dominated colonial order began to disintegrate following the British invasions in 1806 and 1807 during the Napoleonic Wars. Even though the British forces were repelled from Buenos Aires on both occasions, the province's ranchers soon heard of the greatly improved terms of trade that the British merchants were offering in Montevideo, the city across the River Plate estuary that had been successfully occupied. The ranchers therefore lobbied the Spanish authorities to liberalise trade. Mariano Moreno, a prominent young lawyer, famously appealed to the Spanish viceroy on the ranchers' behalf.[38] He noted that in Montevideo '[s]ales were made at advantageous prices, goods were bought at minimal values, and the rural world wore fabrics that it had never known before, having sold at high values hides that its grandparents had thrown away as useless'.[39] The ranchers and their sympathisers recognised, then, that across the River Plate the terms of trade had improved dramatically under the British, so they sought an end to the Spanish trade monopoly. Their goal was trade liberalisation so that they could exploit their country's land resources.[40] Officials in Spain could not countenance losing the monopoly, however, because they believed, correctly, that it played a fundamental role in their public finances.[41] Faced with this impasse, independence

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sociedad en la Pampa 1740-1820, Buenos Aires, 1995, pp. 60-61.

35. The formation of this dominant class is described in Z. Moutoukias, 'Power, Corruption, and Commerce: The Making of the Local Administrative Structure in Seventeenth-Century Buenos Aires', *Hispanic American Historical Review*, 68:4, 1988. On the merchants' commercial networks, see J.C. Garavaglia, *Mercado interno y economía colonial*, México, DF, 1983, pp. 457-81; J.D. Gelman, 'Venta al contado, venta a crédito y crédito monetario en América colonial: acerca de un gran comerciante del virreinato del Río de la Plata', *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas*, 27 (1990), pp. 101-26; and Tandeter, 'Eje Potosí-Buenos Aires'.
36. J. Gelman and D. Santilli, *De Rivadavia a Rosas: desigualdad y crecimiento económico* (Buenos Aires: Siglo Veintiuno Editores, 2006), p. 152, Cuadro 7.
37. J.C. Garavaglia, *Pastores y labradores de Buenos Aires: una historia agraria de la campaña bonaerense 1700-1830*, Buenos Aires, 1999, p. 150, fn. 29.
38. J. Lynch, *The Spanish American Revolutions, 1808-1826*, 2nd ed., London, 1986, pp. 49-50.
39. D.M. Moreno, *Representación que el apoderado de los hacendados de las campañas del Río de la Plata*, Buenos Aires, 1874, p. 29, author's translation.
40. J. Adelman, *Republic of Capital: Buenos Aires and the Legal Transformation of the Atlantic World*, Stanford, 1999, ch. 3; also, for Latin America as a whole, see *Sovereignty and Revolution in the Iberian Atlantic*, Princeton, 2006, ch. 4.

became inevitable.

The disintegration of the Spanish Empire brought the trade monopoly to an end. Already in November 1809 the Spanish viceroy had been persuaded to allow two British merchants to disembark and sell their cargoes.[42] Then, three days after an independent government was declared in late May 1810, the remaining restrictions on trade with foreigners were removed.[43] Subsequently, the number of merchants arriving rose: whereas 50 ships had docked annually at Buenos Aires in the mid-1790s,[44] there were over 250 foreign merchant vessels entering by the early 1820s.[45] Crucially, this dramatic increase in overseas trade became the new basis for state finance, as import taxes replaced fiscal transfers from Upper Peru as the main source of government revenues in Buenos Aires. This ensured that post-independence governments would be committed to promoting trade.[46]

This trade liberalisation was the initial cause of the long terms-of-trade boom.[47] Increased competition among merchants turned Buenos Aires into more of a sellers' market for pastoral producers and a buyer's market for consumers of imported goods. Greater competition squeezed profit margins, so merchants sought to reduce costs by making their operations more efficient. They greatly improved, for instance, the packing of their goods as they crossed the Atlantic, thereby reducing spoilage, which led to lower insurance rates.[48] To facilitate their trade, taxes were also reduced considerably. Within two weeks of independence, export taxes were lowered,[49] and they would then be further eroded by inflation, falling to just four per cent on dry ox hides by the end of the 1820s.[50] British and other foreign shipping was also more efficient than

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41. M.P. Costeloe, 'Spain and the Latin American Wars of Independence: The Free Trade Controversy, 1810-1820', *Hispanic American Historical Review*, 61:2, 1981.
42. Lynch, *Spanish American Revolutions*, pp. 49-50.
43. H.S. Ferns, *Britain and Argentina in the Nineteenth Century*, Oxford, 1960, p. 65.
44. Moutoukias, 'Crecimiento en una economía', p. 803, Cuadro 2.
45. M. Llorca-Jaña, *The British Textile Trade in South America in the Nineteenth Century*, Cambridge, 2012, p. 341.
46. Halperín Donghi, 'Buenos Aires Landed Class', pp. 44-45.
47. Newland and Ortíz, 'Economic Consequences'; also see E. Míguez, 'Reforma y primitivismo: tierra y fiscalidad en El Río de la Plata, de la colonia a la independencia', in M. Bertrand and Z. Moutoukias, eds., *Changement institutionnel et fiscalité dans le monde hispanique*, forthcoming.
48. M. Llorca-Jaña, 'To Be Waterproof or to Be Soaked: Importance of Packing in British Textile Exports to Distant Markets: The Cases of Chile and the River Plate, c.1810-1859', *Revista de Historia Económica*, 29:1, 2011, pp. 11-37.
49. Buenos Ayres, *Gazeta*, 1, 1810, p. 6.
50. Calculated from J. Broide, 'La evolución de los precios pecuarios argentinos en el periodo 1830-1850', mimeo, 1951, p. 41, Cuadro 16; also published in *Revista de la Facultad de Ciencias Económicas*, 4:32, 1951; and M.A. Irigoin, 'Finance, Politics and Economics in Buenos Aires, 1820s-1860s: The Political Economy of Currency Stabilisation', PhD diss., University of London, 2000, p. 126, Table II.1.6. Export taxes were eroded by inflation because they were in fixed paper money amounts that were only sporadically adjusted for rising prices. See

Spanish vessels, and merchants could ship their goods directly, which eliminated the costs associated with shipping goods via Spain. As trade costs fell, there was rapid price convergence: thus, in the first half of the 1790s hides had sold in Buenos Aires for around 20 per cent of their in bond price in Britain, but they were selling for 80-90 per cent by the 1820s.[51] Prices are not available for imports, but qualitative evidence suggests that a similar convergence took place. In the early 1820s, for instance, a resident British merchant complained that he had 'bought English stockings cheaper than I could buy them in London', and that it was 'cheaper to purchase a stock of linen [in Buenos Aires] than at home'.[52] Prices in Buenos Aires and London appear to have diverged again in the 1830s, presumably as the numbers of merchant vessels arriving at Buenos Aires stagnated following the initial post-independence influx,[53] which must have allowed commercial margins to recover somewhat. Nonetheless, price convergence would resume in the second half of the nineteenth century, this time primarily due to the mechanisation of ocean shipping. As metal hulls replaced wooden hulls and steam engines went on to replace sails, freight rates fell across the world.[54] At the end of the 1860s it had cost 32-35 shillings to ship a ton of coal from Wales to Buenos Aires, but by 1913 it had fallen to 12-21 shillings.[55] Falling transportation costs then tended to push up Argentina's export prices while lowering its import prices, helping to drive the continuing terms-of-trade boom.

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ibid., pp. 129-30.

51. In bond prices are those prior to the payment of any applicable import taxes. For hide prices in Buenos Aires, see Anon., 'Report on the Trade of the River Plate', reproduced in R.A. Humphreys, *British Consular Reports on the Trade and Politics of Latin America 1824-26*, London, 1940, p. 33; Anon., 'Precios corrientes de productos en Buenos Aires en los años 1821, 1822 y 1823', in E.M. Barba, ed., *Informes sobre el comercio exterior de Buenos Aires durante el gobierno de Martín Rodríguez*, Buenos Aires, 1978, p. 60; Broide, 'Evolución de los precios', pp. 41, Cuadro 16; and Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3. For Buenos Aires hide prices in London, see A.D. Gayer, W.W. Rostow, and A.J. Schwartz, microfilmed supplement to *The Growth and Fluctuation of the British Economy 1790-1850*, Oxford, 1953; as compiled by D.S. Jacks, K.H. O'Rourke, and J.G. Williamson, 'Commodity Price Volatility and World Market Integration since 1700', *Review of Economics and Statistics*, 93:3, 2011; with the database available online at http://www.sfu.ca/~djacks/data/publications/Britain,%20Commodity%20Prices,%201790-1850,%20monthly.xlsx (accessed 3 May 2013); and Halperín Donghi, 'Expansión ganadera', p. 65. The differential varies according to which series of hide prices in Britain is used.
52. An Englishman, *A Five Years Residence in Buenos Ayres During the Years 1820 to 1825*, 2nd ed., London, 1827, p. 93.
53. Llorca-Jaña, *British Textile Trade*, p. 341.
54. C.K. Harley, 'Ocean Freight Rates and Productivity, 1740–1913: The Primacy of Mechanical Invention Reaffirmed', *Journal of Economic History*, 48:4, 1988; and S.I. Shah Mohammed and J.G. Williamson, 'Freight Rates and Productivity Gains in British Tramp Shipping 1869–1950', *Explorations in Economic History*, 41:2, 2004.
55. E.A.V. Angier, *Fifty Years' Freights: 1869-1919*, London, 1920, pp. 6, 140. Also see J.E. Oribe Stemmer, 'Freight Rates in the Trade between Europe and South America, 1840-1914', *Journal of Latin American Studies*, 21:1, 1989; and Llorca-Jaña, *British Textile Trade*, pp. 219-20.

Adding to the effects of price convergence, the terms of trade also improved due to the ever cheaper goods being produced by the industrial revolution. British cotton textiles, most notably, became far cheaper with the adoption of the power loom, spinning mule, and steam engine by small, highly competitive firms that were unable to set prices.[56] The price of cotton fabrics fell by roughly 90 per cent from the 1770s to the 1850s.[57] Mechanised production led to less dramatic but still significant falls in the prices of other manufactures, allowing the working classes in Argentina's Littoral provinces to become avid consumers of European, and specifically British, goods. As Woodbine Parish, the British consul to Buenos Aires during the 1820s and '30s, put it, '[t]he gaucho is everywhere clothed in [British goods]. [...] If his wife has a gown, ten to one it is from Manchester. The camp-kettle in which he cooks his food – the common earthenware he eats from – his knife, spurs, bit, and the poncho which covers him – all are imported from England'.[58] Further into the Interior, high costs of internal transportation prevented such a dense penetration of imports.[59] Yet, this barrier too was overcome following the arrival of the railways from the 1870s onwards. At this point, the terms-of-trade boom became nationwide.

Argentina's terms of trade had been depressed, then, by the colonial order, but they improved dramatically following independence. Initially, this was mainly due to the abolition of the Spanish trade monopoly, which increased competition among merchants, leading to lower trade costs. Subsequently, the boom was driven by the industrial and transportation revolutions, as mechanisation in the North Atlantic core, combined with the competitive organisation of its industry, lowered the prices of the manufactured goods that Argentina imported, while more efficient shipping reduced freight rates, raising export prices and lowering import prices across the periphery.

Measuring the Boom

Historians have not realised the magnitude of Argentina's nineteenth-century terms-of-trade boom due to two methodological errors. Firstly, they have often not looked at Argentina's terms of trade at all, preferring instead to simply examine the nominal prices of its exports.[60] Secondly, given the work entailed in piecing together Argentina's fragmentary price record, even those who have

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56. C.K. Harley, 'Prices and Profits in Cotton Textiles During the Industrial Revolution', Discussion Paper in Economic and Social History 81, Oxford University, 2010.
57. Estimated from L.G. Sandberg, 'Movements in the Quality of British Cotton Textile Exports, 1815–1913', *Journal of Economic History*, 28:1, 1968, pp. 8, 10, Tables 1 and 2; J. Cuenca Esteban, 'British Textile Prices, 1770-1831: Are British Growth Rates Worth Revising Once Again?', *Economic History Review*, 47:1, 1994, pp. 101-02, Table A3; and C.K. Harley, 'Cotton Textile Prices and the Industrial Revolution', *Economic History Review*, 51:1, 1998, p. 78, Table A2.1.
58. W. Parish, *Buenos Ayres and the Provinces of the Rio de la Plata*, 2nd ed., London, 1852, p. 362.
59. Llorca-Jaña, *British Textile Trade*, App. L.
60. See footnote 2.

looked at the terms of trade have relied upon prices from core countries as proxies for prices in Argentina itself.[61] While commonly used by historians of peripheral countries, such 'proxy' estimates are liable to have a major downward bias in the trend due to the considerable price convergence that took place between the North Atlantic core and the periphery during the nineteenth century.[62] For Argentina, proxy estimates have suggested an improvement in the terms of trade of around 150 per cent from 1810 to 1913,[63] but this does not take into account the effects of price convergence. A careful reconstruction of the existing price record indicates that this error results in a major underestimate of the boom.

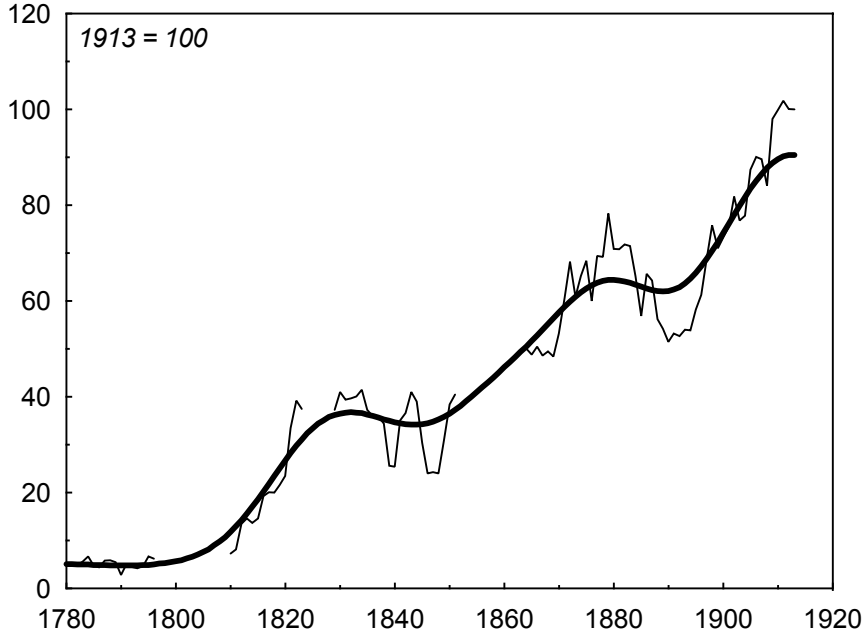
The most important raw data used in the new estimate of Argentina's nineteenth-century terms of trade are the domestic wholesale prices of the country's exports. From 1780 until 1822 the only export price series available is for dried hides, but then the number of series steadily begins to multiply. On the import side, a crude proxy price index constructed from export price indices of six of Argentina's major trade partners is used. The result is 'part-proxy' terms of trade, in that it uses Argentina's own prices for exports but depends upon prices from its trade partners as proxies for import prices. As such, the new estimate is still likely to have a downward bias in the trend due to the price convergence that took place during the nineteenth century.[64] Nonetheless, it suggests a far greater terms-of-trade boom than is normally supposed.

The new estimate, shown in Figure 1, shows an improvement of around 1,500 per cent in Argentina's terms of trade from the 1780s to the 1900s. Even this, however, is likely understate the boom because the proxy import price index does not take into account the price convergence that took place on the import side. If adjustments are made for the effects of falling trade costs on import prices, it seems likely that the improvement would be more than 2,000 per cent over the same period. Assuming, for instance, that the difference between import prices in Argentina and export prices in the core fell from 100 per cent in the 1780s to 30 per cent in the 1900s, which is plausible, the terms of trade would have improved by 2,300 per cent.[65] What is more, the terms of trade

61. See Newland, 'Exports and Terms of Trade'; also Llorca-Jaña, *British Textile Trade*, p. 195, Figure 7.4.
62. Francis, 'Periphery's Terms of Trade', esp. pp. 53-56.
63. O.J. Ferreres, *Dos siglos de economía argentina, 1810-2004: historia argentina en cifras*, Buenos Aires, 2005, Table 8.1.7.
64. On this problem in such 'part-proxy' estimates of peripheral countries' terms of trade, see Francis, 'Periphery's Terms of Trade', esp. pp. 57-58.
65. In the 1780s paper – the only imported good for which there is currently sufficient data – sold for around 100 per cent more in Buenos Aires than in Spain. E.M. Cuesta, *Precios, población, impuestos y producción: la economía de Buenos Aires en el siglo XVIII*, Buenos Aires, 2008, Anexo 2. A price difference of 30 per cent in 1913 seems reasonable, given that the price gap for exports was around 10 per cent but imports paid, on average, a tariff rate of around 18-20 per cent before the First World War. The latter figure is from Dirección General de Estadística, *Sintesis Estadística Mensual de la República Argentina*, 1:2, 1947, p. 3.

Figure 1

Part-Proxy Terms of Trade for Argentina, 1780-1913



Note: The thin line is a chained, geometric Laspeyres index. On the export side, it includes dried hides (1780+), salted hides (1822+), jerked beef (1829+), wool (1829+), tallow and fat (1833+), cattle and beef (1864+), sheep skins (1864+), wheat (1876+), maize (1877+), flour (1880+), linseed (1887+), goat skins (1893+), and numerous other minor exports from 1910 onward. On the import side, it uses the export price indices of Britain (from 1780), the United States (from 1790), France (from 1809), Brazil (from 1821), Italy (from 1862), and Germany (from 1880). The thick trend line was calculated by interpolating the gaps in the thin line then applying a Hodrick-Prescott Filter, with the smoothing parameter set at 1,000.

Sources: See the Appendix.

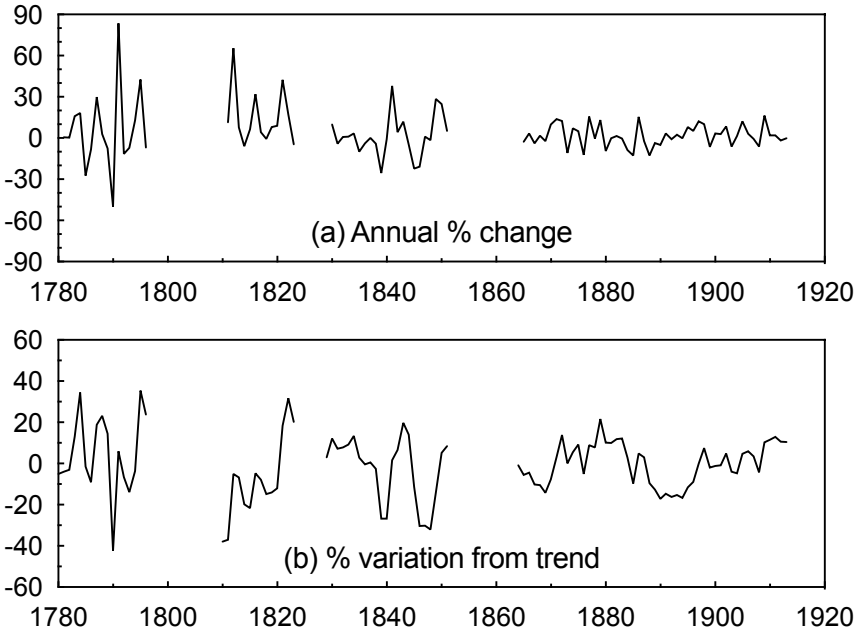
also appear to have become increasingly stable, primarily due to the winding down of the conflicts over Uruguay, which had seen several naval blockades imposed on Buenos Aires. In Figure 2 this is illustrated by two measures of volatility. Panel (a) simply shows the annual percentage change in the series, while Panel (b) shows the cyclical component in the series as a percentage of its trend component. Both suggest decreasing volatility.[66] The terms of trade thus appear to have persistently improved for over a century, while also becoming less volatile.

Future research could greatly improve the terms-of-trade series that have been presented here. The local prices of imported goods, particularly textiles, need to be gathered, and the export price series that have been used could be improved considerably, given that there are gaps in the series and changes in

66. Caution should be exercised in interpreting the volatility during the 1810s because hide prices for this decade are reported as several-year averages. Nonetheless, even if the 1810s are excluded from the picture, the impression of declining volatility remains.

Figure 2

Part-Proxy Terms of Trade for Argentina, 1780-1913



* Percentage variation from the trend line shown in Figure 1.

Sources: Calculated from the series in Figure 1.

quality are not always taken into account, especially for hides.[67] Furthermore, the prices used here are from Buenos Aires, so are unlikely to be representative of much of the country. Were prices collated for, say, Tucumán, it is highly probable that its provincial terms-of-trade boom would appear even greater due to falling internal transportation costs once the railways arrived in the 1870s.[68] It seems logical to conclude, then, that collecting prices for other provinces would reinforce the impression that Argentina as a whole experienced a dramatic terms-of-trade boom, even if its timing and degree must have varied across the country.[69] As will be seen, this means that there were major price incentives for Argentina's nineteenth-century expansion.

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67. Hence, in the 1810s prices were given for three grades of River Plate dry hides in London, whereas only one generic price is given in the source for Buenos Aires. See Anon., 'Report on the Trade', p. 33; and F.E. Barba, *Frontera ganadera y guerra con el indio: la frontera y la ocupación ganadera en Buenos Aires entre los siglos XVIII y XIX*, Buenos Aires, 1997, p. 119.
68. The parallel would be the much greater terms-of-trade boom experienced in the western United States than on its eastern seaboard. See D.C. North, *The Economic Growth of the United States 1790-1860*, Englewood Cliffs, 1961, pp. 255, 280, Tables 1-9 and 1.
69. Even within the Province of Buenos Aires there would have been considerable variations. When measured in the capital city, the terms of trade for wheat, for example, deteriorated in the late nineteenth century, which initially seems surprising, given the rapid growth in wheat exports during this period. Were the terms of trade measured in the wheat producing regions, by contrast, an improvement would be seen due to the reduction of internal transportation costs following the arrival of the railways.

Argentina's Globalisation

Whereas much of the historiography has looked at *how* post-independence Argentina grew by exploiting its abundant land to produce for export, the focus here is on *why* this expansion began when it did. As was discussed in the introduction, this question has previously been neglected due to the lasting influence of Tulio Halperín Donghi's brilliant, but methodologically flawed, essays on the post-independence pastoral expansion on the Pampas.[70] His error was to look at the nominal prices of Argentina's exports, rather than their relative prices – an error that has been repeated by historians such as José Carlos Chiaramonte,[71] Hilda Sabato,[72] Samuel Amaral,[73] and Juan Carlos Garavaglia.[74] Even those authors who have looked at Argentina's terms of trade – Carlos Newland, most notably[75] – have tended to calculate them using prices from European countries, thereby introducing a major downward bias into the trend of their estimates. Here it has been demonstrated that the terms-of-trade boom was far greater than they have supposed, even when the methodological error is only partly corrected, as it has been here, by using Argentina's own prices for exports. The result suggests that export-led growth after independence was a response to the massive price incentives that came from Argentina's integration into an emerging world market – it was, in other words, a result of Argentina's globalisation.

The terms-of-trade boom was driven by distinct processes of globalisation in different periods. It began when the Spanish trade monopoly was abolished following independence in 1810. Immediately, there was rapid price convergence as greater competition among the increased numbers of foreign merchants, together with lower taxation, reduced trade costs. The merchants brought with them, moreover, the cheaper manufactures, especially cotton fabrics, being produced by Britain's industrial revolution. These developments drove the dramatic improvement in the terms of trade during the 1810s and '20s. The boom then appears to have stalled due to stagnation in the numbers of merchants arriving. It began again in the 1850s, this time driven by the continuing falls in the prices of manufactured goods, as well as technological progress in shipping, which reduced transportation costs. Only in the 1890s was there a brief slump in the terms of trade, this time due to a reduction in demand following a downturn in the North Atlantic core. Nonetheless, the secular trend was dramatic improvement from independence to the First World War.

The long boom generated price incentives for Argentina's export expan-

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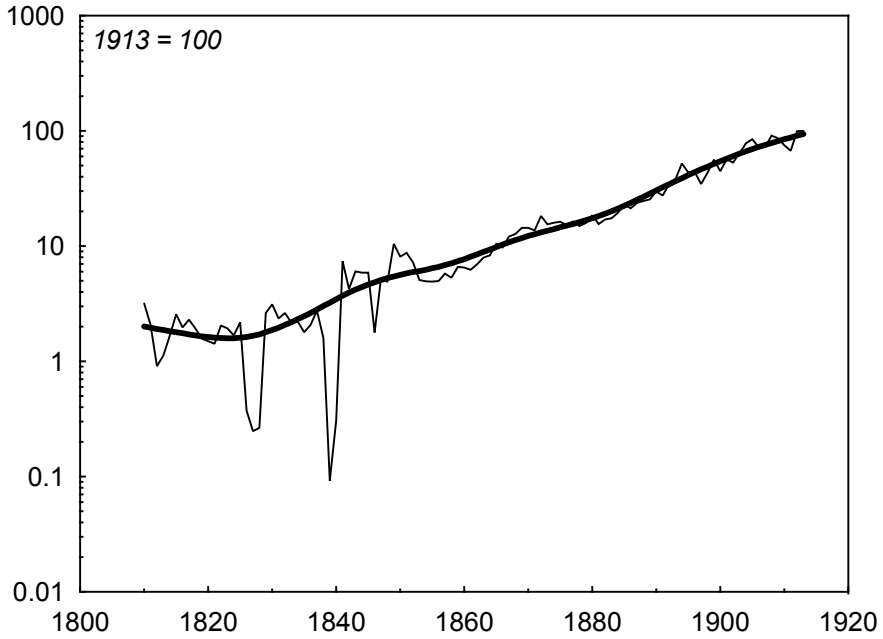
70. Halperín Donghi, 'Expansión ganadera'; and 'Expansión de la frontera'.
71. Chiaramonte, 'Mercado de mercancías', pp. 91, 93.
72. Sabato, *Agrarian Capitalism*, pp. 204-08.
73. Amaral, *Rise of Capitalism*, pp. 232-41.
74. Garavaglia, 'Economía rural'.
75. Newland, 'Exports and Terms of Trade'; also see Newland and Ortíz, 'Economic Consequences'.

Figure 3

Argentina's Export Volume, 1810-1913



Note: The series splices two separate indices. The first covers 1810-70 and includes exports of cattle hides, horse hides, tallow, wool, and jerked beef from Buenos Aires, valued at 1822 prices. The second covers 1864-1913 and includes a wide range of exports, valued at 1884-86 prices for 1864-99 and 1924-26 prices for 1900-13. The thick trend line was calculated using a Hodrick-Prescott Filter, with the smoothing parameter set at 1,000.

Sources: 1810-70 series: Calculated from Parish, *Buenos Ayres*, p. 353, Table 1; Roberto Schmit and Miguel Rosal, 'Política comercial, flujos mercantiles y negocios: Buenos Aires y Montevideo frente al comercio exterior rioplatense en el siglo XIX', *Revista de Indias*, 59: 215 (1999), pp. 115-21, Cuadros 1-4; Miguel Rosal and Roberto Schmit, 'Del reformismo colonial borbónico al librecomercio: las exportaciones pecuarias del Río de la Plata, 1768-1854', *Boletín de Historia Argentina y América Dr. E. Ravignani*, 20 (1999), pp. 80-81, Cuadro 2; and Amaral, *Rise of Capitalism*, pp. 318-19, Table C.1. 1864-1913 series: Hector Diéguez, 'Crecimiento e inestablidad del valor y el volumen físico de las exportaciones argentinas en el periodo, 1864-1963', *Desarrollo Económico*, 12: 46 (1972), pp. 349, Cuadro 18.

sion because it increased the rewards from producing exportables relative to producing import-competing goods. For instance, a 2,000 per cent improvement in the terms of trade from 1810 to 1913 implies a 3 per cent annual growth in the purchasing power of a unit of exports in terms of imports, without any need for productivity increases. Inversely, it implies an annual 3 per cent *fall* in the purchasing power of a unit of imports. In response, both labour and capital moved into the export sector, which meant agriculture in the land-abundant Pampean region. The result was the rapid growth of exports. The available data, compiled in Figure 3, suggest that, once the chaos of the wars of independence subsided, there was a 5 per cent annual growth in the volume of exports from the

mid-1820s until the First World War, although with considerably more volatility in the first half of the nineteenth century, primarily due to the blockades that were periodically imposed on Buenos Aires. What happened to import-competing activities is harder to evaluate. In the case of textiles, the import-competing activity par excellence, there has been an interminable debate about what happened after independence.[76] What is clear is that handicraft textiles persisted in the Interior until at least the 1870s, when the newly-constructed railways began to extend the terms-of-trade boom further inland from the Littoral. Thereafter, the Interior's peasantries substantially ceased to produce textiles: the 1869 national census found 94,882 people who declared their occupations to be related to textiles,[77] but by 1914 the number had fallen to just 30,980.[78]

This response to the long boom transformed Argentina from a country predominantly involved in subsistence agriculture and import-competing handicrafts to one focused on agricultural production – initially, cattle ranching for hides, then sheep for wool, and finally cereals and beef – for export. For the mass of the population, this entailed a long process of proletarianisation, as self-sufficient peasants were turned into wage earners. The rural poor, who made up the bulk of the population, gradually ceased to engage in import-competing handicraft activities, particularly textiles, and instead sought employment linked to the export sector. This process of proletarianisation took place – unevenly – across the country over the course of the long nineteenth century. In the Littoral it was already underway in the late colonial era and intensified after independence, although it remained a drawn-out process.[79] In the Interior it began in earnest in the first half of the nineteenth century, but then accelerated once the arrival of the railways undermined handicraft industries in the 1870s and '80s.[80] Such proletarianisation, augmented by immigration from abroad,

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76. For a useful summary, see Llorca-Jaña, *British Textile Trade*, pp. 257-67.
77. Including the following occupations: *blanqueadores*; *cordeleros, hiladores é hiladoras*; *tejedores y tejedoras*; *pelloneros*; *tintoreros*; *torcedores de lana, seda, etc*. Calculated from República Argentina, *Primer censo de la República Argentina*, Buenos Aires, 1872, pp. 642-69.
78. Including the following occupations: *cardadores de lana*; *cordeleros*; *fabricantes de tejidos*; *hiladores, tejedores, tellaristas*; *tintoreros*. Calculated from República Argentina, *Tercer censo nacional*, IV, *Población*, Buenos Aires, 1916, pp. 201-329.
79. R.D. Salvatore and J.C. Brown, 'Trade and Proletarianization in Late Colonial Banda Oriental: Evidence from the Estancia de las Vacas, 1791-1805', *Hispanic American Historical Review*, 67:3, 1987; R.W. Slatta, *Gauchos and the Vanishing Frontier*, Lincoln, NE, 1983; R.D. Salvatore, 'Reclutamiento militar, disciplinamiento y proletarianización en la era de Rosas', *Boletín del Instituto de Historia Argentina y Americana 'Dr Emilio Ravignani'*, 3:5, 1992; *Wandering Paysanos: State Order and Subaltern Experience in Buenos Aires During the Rosas Era*, Durham, NC, 2003; and D. Santilli, 'De proletarización, clientelismo y negociación: la perseverancia de los campesinos de la campaña de Buenos Aires (1780-1840)', in M. Alabart, M.A. Fernández, and M.A. Pérez, eds., *Buenos Aires: una sociedad que se transforma: entre la colonia y la Revolución de Mayo*, Buenos Aires, 2011.
80. D.J. Guy, 'Women, Peonage, and Industrialization: Argentina, 1810-1914', *Latin American Research Review*, 16:3, 1981; R.D. Salvatore, 'Labor Control and Discrimination: The Con-

improved the profitability of agriculture by increasing the labour supply, at the same time as greater competition among merchants squeezed commercial margins. Capitalists therefore reoriented their investments away from commerce in imported and import-competing goods towards landownership – a trajectory that was common among wealthy families during the long nineteenth century, as Argentina's dominant class became a predominantly landowning class.[81] Improving terms of trade in this way drew both labour and capital into the export sector, leading to rapid export growth, as it allowed millions of hectares of Pampean grasslands to be profitably brought into production for export onto the world market.

Looking beyond Argentina, this account of the country's nineteenth-century growth could also have implications for the broader historiography of Latin America. Historians have routinely used European prices to estimate the terms of trade of other Latin American countries as well.[82] As such, they must have under-appreciated how much the terms of trade improved after independence. This paper has argued that in Argentina the result of the terms-of-trade boom – once the indigenous populations beyond the frontier were pacified and displaced – was a century of expansion on the Pampas, which has been much celebrated in the historiography. Yet, a reasonable hypothesis would be that other Latin American countries' experience more closely resembled that of the Interior, which tended to stagnate, at least in relative terms, after independence.

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tratista System in Mendoza, Argentina, 1880-1920', *Agricultural History*, 60: 3 (1986), pp. 52-80; D.Campi, 'Captación y retención de la mano de obra por endeudamiento: El caso de Tucumán en la segunda mitad del siglo XIX', in idem, ed., *Estudios sobre la historia de la industria azucarera argentina*, I, San Salvador de Jujuy, 1991; 'Notas sobre la gestación del mercado de trabajo en Tucumán (1800-1870)', *Población y Sociedad*, 5, 1998; and S. Tell, *Córdoba rural, una sociedad campesina (1750-1850)*, Buenos Aires, 2008, pp. 418-25.

81. R. Hora, 'Landowning Bourgeoisie or Business Bourgeoisie? On the Peculiarities of the Argentine Economic Elite, 1880-1945', *Journal of Latin American Studies*, 34:3, 2002; and 'El perfil económico de la elite de Buenos Aires en las décadas centrales del siglo XIX', *Revista de Historia Económica*, 24:2, 2006. Important case studies are found in idem, 'The Making and Evolution of the Buenos Aires Economic Elite in the Nineteenth Century: The Example of the Senillosa', *Hispanic American Historical Review*, 83:3, 2003; 'Del comercio a la tierra y más alla: los negocios de Juan José y Nicolás de Anchorena (1810-1856)', *Desarrollo Económico*, 44:176, 2005; and 'Los Anchorena: patrones de inversión, fortuna y negocios (1760-1950)', *América Latina en la Historia Económica*, 19:1, 2012.

82. This largely applies to the estimates used, for instance, by L. Prados de la Escosura, 'The Economic Consequences of Independence in Latin America', in V. Bulmer-Thomas, J.H. Coatsworth, and R. Cortés Conde, eds., *The Economic History of Latin America*, I, *The Colonial Era and the Short Nineteenth Century*, New York, 2006, p. 495, Table 13.8; 'Lost Decades? Economic Performance in Post-Independence Latin America', *Journal of Latin American Studies*, 41:2, 2009, p. 289, Table 1; L. Bértola and J. Antonio Ocampo, *The Economic Development of Latin America since Independence*, Oxford, 2012, pp. 92-93; and V. Bulmer-Thomas, *The Economic History of Latin America since Independence*, 3rd ed., New York, 2014, App. 2. For the origins of the main estimates used by these authors, see Francis, 'Periphery's Terms of Trade', pp. 63-65.

The crucial difference between the Interior and the Pampean region was the availability of land. Where land was abundant, improving terms of trade allowed frontiers to expand into the scarcely-populated plains, as labour and capital shifted into the export sector. Where land was scarce, improving terms of trade tended, however, to have less beneficial effects, as import-competing activities went into decline and competition for the limited supply of land increased. Typically, this resulted in peasantries being turned into landless rural proletariats, as their communal lands were expropriated and their handicraft industries undermined by cheaper imports. During the long nineteenth century, similar processes can be seen in Argentina's Andean regions,[83] the highlands of Bolivia and Peru,[84] and beyond to Mexico.[85] A working hypothesis for future research would be that Latin America's globalisation in this way produced what used to be called the 'development of underdevelopment',[86] as integration into the world market led to dramatically improved terms of trade, which brought progress to some places but stagnation and decline to others.

Appendix: Argentina's Terms of Trade, 1780-1913

This appendix describes how the new 'part-proxy' estimate of Argentina's 'net barter terms of trade' (NBTT) was calculated.[87] To begin with, some of the terminology will be clarified, then the sources and methods used for the new estimate will be discussed.

Ideally, a country's terms of trade should be calculated using its own prices for both the export price index (Px) and the import price index (Pm). This can be done using wholesale prices from within the country, as follows:

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83. For case studies of the privatisation of communal lands, see M. Christina Boixados, 'Expropiación de tierras comunales indígenas en la provincia de Córdoba a fines del siglo XIX: el caso del pueblo de La Toma', *Cuadernos de Historia: Serie Economía y Sociedad*, 2, 1999; and G.L. Paz, 'Encomienda, hacienda y orden rural en el norte argentino: Jujuy 1850-1900', *Anuario de Estudios Americanos*, 61:2, 2004. For the debate about deindustrialisation in the Interior, again see Llorca-Jaña, *British Textile Trade*, pp. 257-67.
84. See, for example, P.F. Klarén, 'The Origins of Modern Peru, 1880-1930', in L. Bethell, ed., *The Cambridge History of Latin America*, V, *c. 1870-1930*, Cambridge, 1986, pp. 616-26; and H.S. Klein, 'Bolivia from the War of the Pacific to the Chaco War, 1880-1932', in Bethell, ed., *Cambridge History*, V, pp. 554-59.
85. See F. Katz, 'Mexico: Restored Republic and Porfiriato, 1867-1910', in Bethell, ed., *Cambridge History*, V, pp. 48-53. On the decline of the handicraft textiles industry, see R.J. Salvucci, *Textiles and Capitalism in Mexico: An Economic History of the Obrajes, 1539-1840*, Princeton, 1987, ch. 5.
86. A. Gunder Frank, *Latin America: Underdevelopment or Revolution*, New York, 1969, ch. 1.
87. The accompanying workbook is available online at http://www.joefrancis.info/data/Francis_Arg_tots.xlsx. For a longer account of its contents, see J.A. Francis, 'The Terms of Trade and the Rise of Argentina in the Long Nineteenth Century', PhD diss., London School of Economics, 2013, pp. 174-92; and a more detailed analysis of the methodological issues discussed here can be found in Francis, 'Periphery's Terms of Trade'.

$$Wholesale\ NBTT = \frac{Domestic\ wholesale\ Px}{Domestic\ wholesale\ Pm}$$

Alternatively, at-the-port prices can be used, which include wholesale markups and excise duties for export prices, but exclude customs taxes and wholesale markups for imports. Technically, these are known as 'cost, insurance, and freight' (CIF) import prices and 'free on board' (FOB) export prices. The at-the-port terms of trade are calculated in this way:

$$At\text{-}the\text{-}port\ NBTT = \frac{FOB\ Px}{CIF\ Pm}$$

Which are preferred – wholesale or at-the-port terms of trade – will depend upon the question being asked. If, following the lead of Raúl Prebisch and Hans Singer,[88] the concern is with the distribution of gains from international trade, at-the-port estimates will arguably be of more interest, as they exclude the effects of the domestic political economy on prices. On the other hand, if the focus is on price incentives, as in this paper, wholesale estimates will be more appropriate, as they reflect the prices actually paid and received by people in the country (or some part of the country, depending upon on how well integrated the internal market is). Either way, prices from the country itself should be used.

Regrettably, historical price data are often unavailable, particularly for poorer, more peripheral countries. As a result, historians have often used prices from Europe and the United States as proxies. The results can be considered 'proxy terms of trade':

$$Proxy\ NBTT = \frac{Foreign\ Px}{Foreign\ Pm}$$

Proxy estimates are calculated, then, with another country's prices used as proxies for a country's own prices. This is, by and large, the method that has been used to estimate Argentina's terms of trade in the existing literature.[89]

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88. Prebisch, 'Economic Development'; and Singer, 'Distribution of Gains'.
89. The standard series for Argentina for 1810-70 comes from Newland, 'Exports and Terms of Trade', pp. 413-15; for the underlying data, see 'Puramente animal: Exportaciones y crecimiento en Argentina 1810-1870', mimeo, 1990. Newland mainly used wholesale prices and unit values from the core countries. There is no canonical series for 1870-86, so the gap is filled by various means. Williamson, for example, relies on a series calculated using British commodity prices for exports and US wholesale price indices for imports. J.G. Williamson, 'Globalization and the Great Divergence: Terms of Trade Booms, Volatility and the Poor Periphery, 1782-1913', *European Review of Economic History*, 12:3, 2008, p. 390; also see C. Blattman, J. Hwang, and J.G. Williamson, 'Winners and Losers in the Commodity Lottery:

For the nineteenth century, such proxy estimates are likely to be inaccurate due to the price convergence that took place between countries, so prices in one place are unlikely to reflect prices in another. Consequently, some researchers have tried to get around this problem by using prices from the core countries and adjusting them for changes in trade costs. This involves, for example, taking British FOB export prices, adding the cost of insurance and freight, in order to arrive at CIF import prices in the peripheral country. Similarly, British CIF import prices can have insurance and freight deducted from them to estimate the peripheral country's FOB export prices. The problem with this procedure is that there are few insurance and freight indices for peripheral countries before the 1870s, let alone indices for all the other costs involved in trading a good internationally. Historians have resorted to using freight and insurance indices for core countries instead, yet this procedure has been shown to be problematic because there was considerable variation in the fall in trade costs from one place to another.[90] The indices that would be necessary to adequately adjust core prices do not, in short, exist.

It is necessary to labour this point because it has been missed in some of the recent literature. Antonio Tena-Junguito and Henry Willebald have sought to use British import prices with estimates of freight and insurance charges subtracted to estimate Argentine FOB export prices. They conclude that both official Argentine export prices and wholesale prices in Buenos Aires tend to undervalue Argentina's exports.[91] In making this finding, they nonetheless appear to have ignored the literature on price convergence in the nineteenth century, which has suggested that transportation costs were only part of the costs incurred in trading a good between two countries, with the share of freight and insurance in total trade costs decreasing the further back one goes.[92] Simply subtracting transportation costs from British import prices should not,

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The Impact of Terms of Trade Growth and Volatility in the Periphery 1870-1939', *Journal of Development Economics*, 82:1, 2007. Ferreres, meanwhile, chose a domestic wholesale export price index divided by Britain's export prices. Ferreres, *Dos siglos*, p. 588. For 1886-1913, an index originally calculated by Ford is the standard series. He used a mixture of prices from Argentina's trade statistics and British wholesale prices that he corrected for changes in transportation costs. A.G. Ford, 'Export Price Indices for the Argentine Republic, 1881-1914', *Inter-American Economic Affairs*, 9:2, 1955. This correction procedure should make Ford's estimates more accurate than those of Newland or Williamson, although his use of Argentina's official trade statistics is problematic because the statistical authorities did not use market prices for much of this period. See R. Cortés Conde, T. Halperin, and H. Gorostegui de Torres, 'Evolución del comercio exterior argentino: Tomo I: Exportaciones: Parte primera 1864-1930', mimeo, 1965.

90. Francis, 'Periphery's Terms of Trade', p. 58.
91. A. Tena-Junguito and H. Willebald, 'On the Accuracy of Export Growth in Argentina, 1870–1913', *Economic History of Developing Regions*, 28:1, 2013.
92. D. Jacks, 'Intra- and International Commodity Market Integration in the Atlantic Economy, 1800-1913', *Explorations in Economic History*, 42:3, 2005; and 'What Drove 19th Century Commodity Market Integration?', *Explorations in Economic History*, 43:3, 2006.

therefore, be expected to arrive at Argentine prices. Indeed, it should produce precisely Tena-Junguito and Willebald's results: Argentine prices appear to undervalue exports because their corrected British prices are too high, given that they do not subtract all the other trade costs. A sensible approach is to use prices from Argentina itself, as has been done here.

That said, the new terms-of-trade estimate presented in this paper is far from perfect. It can be considered a 'part-proxy' estimate, in that it uses Argentina's own prices for exports but the prices of Argentina's main trade partners for imports. It is calculated as:

$$\textit{Part-proxy NBTT} = \frac{\textit{Domestic Px}}{\textit{Foreign Pm}}$$

The terms-of-trade estimate for nineteenth-century Argentina that results from this formula is likely to have a downward bias in the trend because it does not take into account the price convergence that occurred on the import side.

The following sources were found for domestic export prices: unit values for hides from Zacharías Moutoukias' compilation of late colonial trade statistics for 1779-96;[93] wholesale hide prices for 1810-23 from a report presented by British merchants to the new British consul in 1824;[94] Julio Broide's compilation of wholesale prices for 1829-51, taken from the English-language *British Packet and Argentine News*;[95] Juan Álvarez' compilation of wholesale prices for the 1860s onwards, taken from the bulletin of the Buenos Aires Stock Exchange;[96] Roberto Cortés Conde, Tulio Halperín Donghi, and Haydée Gorostegui de Torres's unpublished reconstruction of Argentina's export statistics from the 1860s to the early twentieth century;[97] and the official trade statistics from the early twentieth century onwards.[98] The fragmentary price series compiled from these sources were then converted into British pound sterling,[99] the era's domin-

93. Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3.
94. Anon., 'Report on the Trade', p. 33; and 'Precios corrientes', p. 60.
95. Broide, 'Evolución de los precios', pp. 41-3, 50, Cuadros 16-18, and 22.
96. J. Álvarez, *Temas de historia económica argentina*, Buenos Aires, 1929, pp. 208-26.
97. Cortés Conde, Halperin, and Gorostegui de Torres, 'Evolución del comercio', pp. 73-9.
98. As compiled in Dirección General de Estadística de la Nación, *Extracto estadístico de la República Argentina correspondiente al año 1915*, Buenos Aires, 1916, pp. 204-17; A. Bunge, *Intercambio económico de la República, 1910-1917*, Buenos Aires, 1919, ch. 11; and V. Vázquez-Presedo, *Estadísticas históricas argentinas (comparadas)*, II, *Segunda parte 1914-1939*, Buenos Aires, 1971, pp. 194-221.
99. For 1780-1822, it was necessary to estimate the exchange rate based on the silver content of the peso and the price of silver in London. From Álvarez, *Temas de historia*, pp. 80-124; as compiled by Rodolfo G. Frank, online at http://www.anav.org.ar/sites_personales/5/MONEDA.XLS (accessed 2 May 2013); and R.W. Jastram, *Silver: The Restless Metal* (New York: John Wiley and Sons, 1981), Table 15 and App. C; reproduced by G. Clark and P. Lindert, online at http://gpih.ucdavis.edu/files/England_1209-1914_(Clark).xls (accessed 3 May 2013). From 1816 onward, the exchange rate was compiled from Anon., 'Precios corri-

ant currency, and metric units.[100]

The various export price series were combined into a chained geometric Laspeyres index, which was used as a shorthand means to approximate a chained Fisher index.[101] Ten separate subperiods were calculated, then spliced together using the geometric mean of their overlapping years.[102] The weights assigned to the 31 different goods in each subperiod can be seen in Table A1.[103] They were assigned based on the values of goods exported in the indicated years, according to Argentina's trade statistics. As can be seen, the number of goods included in the index increases over time: from 1780 to 1821 it includes dry hides only; in 1822 salted hides are added; in 1829 jerked beef; and so on. This reflects both the paucity of price data and the increasing variety of goods that Argentina exported.

Particular attention should be given to the series for dry hides, as it accounts for 100 per cent of the index until 1822. This is not ideal, although the index remains legitimate because hides had such a dominant position in Argentina's exports.[104] Colonial trade statistics indicate that hides made up well over 90 per cent of total merchandise exports,[105] while they remained at around two thirds of exports in the 1820s,[106] when other products begin to be incorporated in the index. For this reason, coverage is not a major issue.

Nonetheless, it is essential that the hide prices used are plausible, given their initial prominence in the index. To check this, in Figure A1 the hide prices collected for the first half of the nineteenth century are compared with the price of bulls. Both increased greatly following independence, although the price of bulls did not increase as much as the price of hides. This should be expected because the bull's meat would not have fetched such a high price, given the limited markets for beef during this period. Despite being so fragmentary, then,

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entes', p. 60.; J. Schneider, O. Schwarzer, and M.A. Denzel, *Währungen der Welt*, VII, *Lateinamerikanische Devisenkurse im 19. und 20. Jahrhundert*, Stuttgart, 1997, pp. 212-18; and M. Balboa, 'La evolución del balance de pagos de la República Argentina, 1913-1950', *Desarrollo Económico*, 12:45, 1972, p. 160.

100. Weights and measures come from E. Tornquist, *The Economic Development of the Argentine Republic in the Last Fifty Years*, Buenos Aires, 1919, pp. 325-28.
101. International Monetary Fund, *Producer Price Index: Theory and Practice*, Washington, DC, 2004, pp. 566, 593.
102. The geometric mean has been preferred due to its mathematical properties. See R.J. Hill and K.J. Fox, 'Splicing Index Numbers', *Journal of Business & Economic Statistics*, 15:3, 1997, pp. 387-89.
103. When a series was not available for part of a subperiod, these weights were adjusted accordingly.
104. Bullion exports have been excluded from the index because they were essentially financial flows used to cover a merchandise trade deficit with Europe. Including them would, in any case, make little difference to the finding of a long terms-of-trade boom, given that bullion exports became insignificant by mid-century.
105. Moutoukias, 'Crecimiento en una economía colonial', pp. 805, 808, Cuadros 4 and 7.
106. Parish, *Buenos Ayres*, p. 353, Table 1.

Table A1

Weights in Argentina's Export Price Index, 1780-1938

Base year:	...	1822	1837	1851	1866	1881	1896	1910	1925	1938
Subperiod:	1780 to 1822	1780 to 1837	1822 to 1851	1837 to 1866	1851 to 1881	1866 to 1896	1881 to 1910	1896 to 1925	1910 to 1938	1925 to 1938
Hides, dried (1780+)	1.0000	0.7347	0.6971	0.6501	0.3438	0.2658	0.0579	0.0382	0.0182	0.0093
Hides, salted (1822+)		0.0880	0.0835	0.0779	0.0412	0.0409	0.0471	0.0471	0.0668	0.0587
Beef, jerked (1829+)		0.1222	0.1057	0.0967	0.0296	0.0577	0.0274	0.0029		
Tallow and fat (1833+)		0.0435	0.0356	0.1348	0.0763	0.0275	0.0248	0.0293	0.0229	0.0103
Wool, dirty (1833+)		0.0116	0.0781	0.0164	0.4039	0.4899	0.3507	0.1633	0.0840	0.0998
Cattle (1864+)*					0.0193	0.0210	0.0899	0.0130		
Sheep skins, dirty (1864+)				0.0242	0.0858	0.0871	0.0453	0.0246	0.0063	0.0075
Wheat (1878+)						0.0002	0.1193	0.2004	0.2345	0.1491
Maize (1879+)						0.0078	0.1487	0.1672	0.1418	0.1467
Flour (1880+)						0.0022	0.0181	0.0137	0.0154	0.0083
Linseed (1887+)							0.0638	0.1238	0.1064	0.1473
Goat skins (1893+)							0.0070	0.0036		
Barley (1910+)								0.0004	0.0036	0.0149
Beef, chilled (1910+)*								0.0033	0.0853	0.1352
Beef, conserved (1910+)								0.0059	0.0202	0.0364
Beef, frozen (1910+)								0.0953	0.0581	0.0271
Bran (1910+)								0.0125	0.0073	0.0129
Butter (1910+)								0.0050	0.0251	0.0072
Oats (1910+)								0.0226	0.0204	0.0184
Quebracho extract (1910+)								0.0123	0.0220	0.0280
Quebracho logs (1910+)								0.0156	0.0033	0.0034
Rye (1910+)								0.0000	0.0004	0.0003

Table A1 (cont.)

Base year:	...	1822	1837	1851	1866	1881	1896	1910	1925	1938
Subperiod:	1780 to 1822	1780 to 1837	1822 to 1851	1837 to 1866	1851 to 1881	1866 to 1896	1881 to 1910	1896 to 1925	1910 to 1938	1925 to 1938
Sugar (1910+)								0.0000	0.0000	0.0009
Cotton (1914+)									0.0045	0.0099
Sheep skins, treated (1914+)									0.0039	0.0015
Casein (1916+)									0.0037	0.0029
Guts, salted (1916+)									0.0038	0.0021
Mutton (1916+)									0.0261	0.0275
Offal, frozen (1916+)									0.0055	0.0093
Wool, clean (1916+)									0.0069	0.0068
Wool, washed (1920+)									0.0035	0.0184
Total:	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*

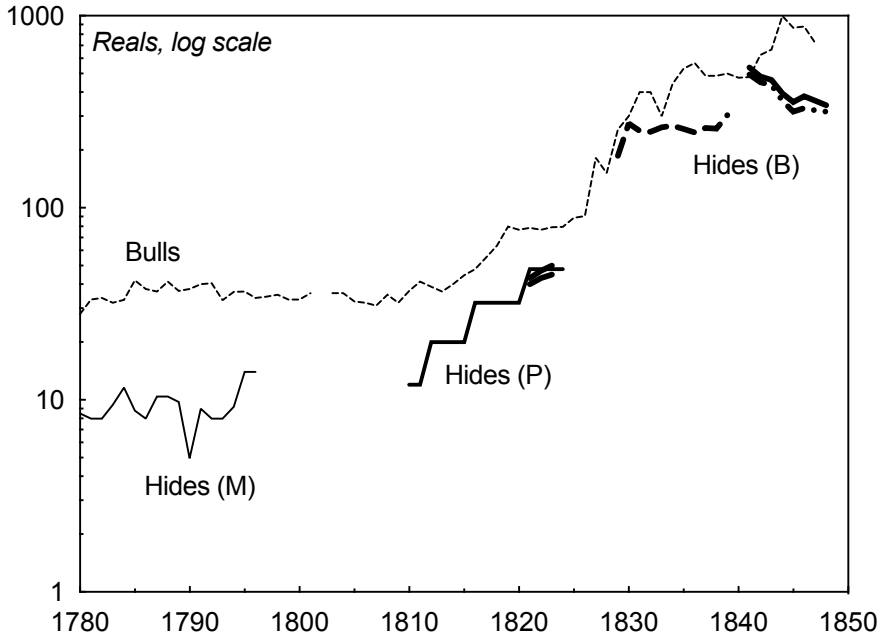
* Prior to 1910, the price of cattle is used as a proxy for the prices of chilled and frozen beef, which is reflected in the weight given to cattle until that year.

Note: The year after each good indicates the year in which is price series begins. When a weight of 0.0000 is given, it indicates that the product was included, but the weight given was less than 0.01 percent. The sum of the weights may not equal one due to rounding.

Sources: The base year weights were calculated from the following sources: 1822, 1837, 1851: Parish, *Buenos Ayres*, pp. 353-54, Tables 1 and 2. 1866, 1881, 1896: Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio', pp. 66-68, Cuadro 3. 1910: Bunge, *Intercambio económico*, pp. 314-18. 1925, 1938: Vázquez-Presedo, *Estadísticas históricas*, II, pp. 194-221.

Figure A1

Prices of Bulls and Dry Hides in Buenos Aires, 1780-1848



Note: Prices of bulls are reals per head; hides are in reals per 35 lb pesada.

Sources: Bulls: Garavaglia, 'Economía rural'; the underlying data were kindly provided by Professor Garavaglia. B: Broide, 'Evolución de los precios', pp. 41-43, Cuadros 16-18. M: Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3. P: Anon., 'Report on the Trade', p. 42; and idem, 'Precios corrientes', p. 60.

these series probably do reflect the evolution of hide prices with some accuracy.

The proxy import price index, on the other hand, is quite crude. It is calculated from export price indices for six of Argentina's major trade partners: Brazil, Britain, France, Germany, Italy, and the United States. With the exception of Brazil,[107] the export price indices were taken from the secondary literature,[108]

107. Nine goods were included in Brazil's export price index. They were reweighted every 10 years according to the value of their exports. Calculated from Fundação Instituto Brasileiro de Geografia e Estatística, *Estatísticas históricas do Brasil: Séries econômicas demográficas e sociais de 1550 a 1988*, 2nd ed., Rio de Janeiro, 1990, pp. 345-56.

108. Britain: A.H. Imlah, *Economic Elements in the Pax Britannica: Studies in British Foreign Trade in the Nineteenth Century*, Cambridge, MA, 1958, pp. 94-98, Table 8; C.H. Feinstein, *National Income, Expenditure and Output of the United Kingdom, 1855-1965*, Cambridge, 1972, pp. T132-2, Table 61; and J. Cuenca Esteban, 'The Rising Share of British Industrial Exports in Industrial Output, 1700- 1851', *Journal of Economic History*, 57:4, 1997, p. 901, App. Table 1. France: United Nations, 'International Trade Statistics 1900-1960', mimeo, 1962, Table 11, online at http://unstats.un.org/unsd/trade/imts/historical_data.htm (accessed 1 July 2014); and M. Lévy-Leboyer, 'L'héritage de Simiand: Prix, profit et termes d'échange au XIX e siècle', *Revue Historique*, 243, 1970, pp. 108-11, Tableau 5. Germany: W.G. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Berlin, 1965, pp. 606-09, Table 151. Italy: G. Federico, S. Natoli, G. Tattara, and M. Vasta, *Il commercio estero italiano 1862-1950*, Rome, 2011, pp. 228-29, Tabella 7b. United States: various series compiled in D.A. Irwin, 'Exports and Imports of Merchandise – Price Indexes and Terms of Trade:

Table A2

Weights in Argentina's Proxy Import Price Index, 1780-1938

Base year:	1825	1850	1870	1890	1910	1930
Subperiod:	1780 to 1850	1825 to 1870	1850 to 1890	1870 to 1910	1890 to 1930	1910 to 1938
Britain (1780+)	0.6250	0.4639	0.3674	0.5194	0.3727	0.2710
United States (1790+)	0.1406	0.1031	0.0814	0.0836	0.1650	0.3016
France (1809+)	0.0859	0.2577	0.3630	0.1786	0.1147	0.0823
Brazil (1821+)	0.1484	0.1134	0.0955	0.0301	0.0310	0.0565
Italy (1862+)		0.0619	0.0479	0.0778	0.1083	0.1277
Germany (1880+)			0.0448	0.1105	0.2083	0.1608
Total:	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*

Notes: The weights of each country were calculated based on the value of the imports into Argentina from that country. The year after each good indicates the first year of its export price index. The sum of the weights may not equal one due to rounding.

Sources: 1825 and 1850: Parish, *Buenos Ayres*, p. 361. 1870: R. Napp, *La República Argentina*, Buenos Aires, 1876, p. ii. 1890: F. Latzina, *Estadística retrospectiva del comercio exterior argentino 1875-1904*, Buenos Aires, 1905, pp. 220-3. 1910 and 1930: Dirección General de Estadística de la Nación, *Anuario del comercio exterior de la República Argentina correspondiente a 1937 y noticia sumaria del período 1910-1937*, Buenos Aires, 1938, pp. lxxxviii-cv.

then converted to sterling.[109] Again, they were combined into a chained geometric Laspeyres index, using the weights shown in Table A2, which were calculated using the value of the import of each country into Argentina. This proxy index is crude because it assumes that the composition of Argentina's imports from each of the six countries was similar to the composition of their exports to all countries. A better proxy could be constructed using prices for specific goods from each country, although calculating such an index is unlikely to make a great difference to the final result.[110] Rather, what is needed is an

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1790-2002', in S.B. Carter, S.S. Gartner, M.R. Haines, A.L. Olmstead, R. Sutch, and G. Wright, eds., *Historical Statistics of the United States: Earliest Times to the Present: Millennial Edition*, New York, 2006, online at http://hsus.cambridge.org/HSUSWeb/HSUSEntryServlet (accessed 20 November 2013.

109. Using exchange rates from L.H. Officer, 'Dollar–Sterling Exchange Rates: 1791-1914' and 'Bilateral Exchange Rates – Europe: 1913-1999', in Carter et al, *Historical Statistics*, Series Ee618, Ee625, Ee626, Ee629, and Ee636; and M.A. Denzel, *Handbook of World Exchange Rates, 1590-1914*, Farnham, 2010, pp. 15-28, 42-43.

110. In theory, Newland's proxy import price index for 1810-70 should be superior to the one used here. It consists of five goods that cover 50-60 per cent of imports for the 1820s, but less than 40 per cent for the 1860s. Dividing the new export price index with his import price index results in terms of trade with an annual trend of 1.4 per cent, compared to a 2 per cent annual trend when the new proxy import price index is used for the same period. This difference is largely due, however, to Newland's arbitrary downward adjustment of

import price index calculated using prices from Argentina itself. As of yet, however, there are few series for the prices of imported goods in Buenos Aires, so that remains an agenda for future research.

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the share of cotton textiles in his index, from around 56 per cent to 32 per cent of the total. Had he used the higher figure, which his own numbers suggest is more accurate, his index would be far closer to the new one. See Newland, 'Puramente animal', Apéndices D and E.

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