Economic nationalism and economic integration: the Austro-Hungarian Empire in the late nineteenth century[1]

By MAX-STEPHAN SCHULZE and NIKOLAUS WOLF*

This article seeks to square two seemingly contradictory strands in the literature on economic development in the late nineteenth-century Habsburg Empire. On the one hand, there is an extensive historiography stressing the rise of nationalism and its close correlate of growing efforts to organize economic life along ethno-linguistic lines. On the other, there is a substantial body of research that emphasizes significant improvements in market integration across the empire as an outcome of the diffusion of industrialization and an expanding railway network, among other factors. In this article, it is argued that the process of market integration was systematically asymmetric, shaped by intensifying intra-empire nationality conflicts. While grain markets in Austria-Hungary became overall more integrated over time, they also became systematically biased: regions with a similar ethno-linguistic composition of their population came to display significantly smaller price gaps between each other than regions with different compositions. The emergence and persistence of this differential integration cannot be explained by changes in infrastructure and transport costs, simple geographical features, asymmetric integration with neighbouring regions abroad, or communication problems. Instead, differential market integration along ethno-linguistic lines was driven by the formation of ethno-linguistic networks due to intensifying conflict between groups—economic nationalism mattered.

At the turn of the twentieth century, the now long-defunct Habsburg Empire was among the leading powers of Europe, with a share of roughly 13 per cent of the total European population and producing about 10 per cent of Europe's GDP. By the end of the First World War, the empire had militarily, politically, and economically collapsed. The Treaties of St Germain (1919) and Trianon (1920) merely confirmed what had become reality from late October 1918: the Monarchy was dismembered and its territories were either incorporated into new nation states or ceded to neighbouring countries. Austria and Hungary were reduced to small landlocked countries, while Czechoslovakia, Yugoslavia, and Poland emerged as independent nation states. The lands once tied together in a multinational customs and monetary union were now separated by no less than 11 national borders, quantitative and non-quantitative barriers to trade, and different national currencies.

* Author Affiliations: Max-Stephan Schulze, London School of Economics; Nikolaus Wolf, Humboldt-Universität Berlin.

There is an extensive historiography, reaching back into the years immediately after the First World War, which examines the rise and impact of nationalism in the Habsburg Monarchy as a multi-national state.[2] Irrespective of different analytical perspectives, the centrifugal, disintegrative forces of intra-empire nationalism have frequently been identified as key ingredients in a Habsburg story of 'imperial decline and dissolution'.[3] Yet most of this historical literature has a lot more to say on the political origins and consequences of nationality conflicts within the empire than on their economic dimensions. A more recent literature on economic nationalism, especially on the cooperative movement within the Habsburg Empire, has started to explore the formation of economic institutions along ethno-linguistic lines.[4] However, we still know very little about the extent to which, say, Czechs or Germans, Poles or Hungarians were conditioned in their economic behaviour by language, nationality, or loyalty to their region, and if behaviour along such lines changed over time. What we do know from the mainly political historiography is that over the second half of the nineteenth century, and with some variation in intensity, antagonism between different national and ethnic groups gained in importance.

In contrast, there is another branch in the historiography that rejects the notion of the empire's fall as inevitable or the Habsburg state as having become unviable.[5] This seems to be supported by findings in the last 30 or so years of quantitative research into the economic development of the Habsburg Monarchy. Modern Economic Growth began to emerge in the empire's western regions in the late eighteenth century and diffused gradually to the less advanced regions. This diffusion process went hand in hand with a spatial widening in market integration, stimulated by improvements in infrastructure during the nineteenth century.[6] Here the main message emerging is one of 'imperial stability' rather than decline. The issue then is whether and how these seemingly contradictory findings of intra-empire nationalism and intra-empire economic integration across regions can be squared.

In this article it is argued that market integration proceeded asymmetrically, shaped by intensifying intra-empire nationality conflicts that, in a way, foreshadowed the dissolution of the empire. Drawing on price evidence from grain markets, we show that overall market integration improved over time. This tallies fully with previous findings in the literature and is consistent with the evidence on infrastructure improvements.[7] However, such 'global' integration does not preclude the possibility that market integration evolved asymmetrically over time: some region or city pairs may have integrated relatively more than others. To explore this issue and to assess the potential quantitative significance of intra-empire nationalism therein, we examine the impact or otherwise of broadly conceived home bias within an analytical framework that is cognizant of the profound ethnic heteroge-

[2] Recent work includes Berend, *History derailed*; Okey, *Habsburg Monarchy*; see also Rudolph and Good, eds., *Nationalism and empire*.

[3] Jászi, *Dissolution*; Kornish, 'Constitutional aspects'; Wank, 'Habsburg Empire'; idem, 'Reflections'; Lieven, *Russian Empire*.

[4] Pogány, Kubu, and Kofman, *Nationale Wirtschaft*; Lorenz, ed., *Cooperatives in ethnic conflicts*.

[5] For example, Sked, *Decline and fall*.

[6] Good, *Economic rise*; Komlos, *Customs union*; idem, *Stature, nutrition and economic development*.

[7] Good, *Economic rise*.

neity across the Habsburg domains and informed by the recent literature on the trade-creating and trade-diverting effects of social and ethnic networks. Our analysis suggests that over time market integration became systematically biased: regions with a similar ethno-linguistic composition of the population displayed significantly smaller price gaps between each other than regions with different compositions. The emergence and persistence of such differential integration cannot be explained by changes in infrastructure and transport costs, simple geographical features, asymmetric integration with neighbouring regions abroad, or difficulties of communication between language groups. Instead, the evidence shows that the observed asymmetries in market integration were related to the effects of ethno-linguistic networks. We conclude that intensifying intra-empire nationality conflicts led to severely asymmetric patterns of market integration—economic nationalism mattered.

The rest of the article is organized as follows. Section I briefly sketches out key issues in the historiography on the significance of nationality conflicts in Habsburg economic development since 1867. Section II explains our empirical approach to assessing the effects of intra-empire nationalism on market integration and outlines our new dataset on prices, infrastructure, freight rates, and measures of ethno-linguistic heterogeneity across the empire. Section III presents the results of estimating the impact of ethno-linguistic networks on inter-regional price gaps. Section IV includes several robustness checks on the finding that asymmetric patterns of market integration were driven by the effects of nationalism as distinct from communication effects. The concluding section summarizes the main findings and looks to some wider implications.

I

The ultimate causes of Austria-Hungary's dissolution are still heavily disputed in the historical literature. However, nationalism features as a key variable in most approaches, irrespective of whether they adopt a structuralist perspective on imperial decline,[8] point to the failure of political elites at the centre to engineer reform and maintain legitimacy,[9] or focus on the uncompromising pursuit of, effectively, mutually exclusive political aims by the different national communities in the Habsburg lands.[10] In short, historians have long argued that the rise of national self-consciousness and growing conflict among the empire's various 'nationalities', and the failure of the 1867 Constitutional Settlement between Austria and Hungary to offer an institutional arrangement capable of diffusing this conflict, were major factors in the empire's decline.[11] In that view, the First World War was the final blow in a long process of dissolution. Linked to this perspective is the notion that inter-regional inequality and intensifying intra-empire *economic* nationalism undermined the coherence and performance of the Habsburg economy which, ultimately, only served to accelerate the empire's demise in a war it was not economically fit to fight. Jászi, in his classic, albeit hardly dispassionate

[8] Wank, 'Habsburg Empire'; idem, 'Reflections'.
[9] Jászi, *Dissolution*; Taylor, *Habsburg Monarchy*.
[10] Kornish, 'Constitutional aspects'; Lieven, *Russian Empire*.
[11] For a recent treatment of the nationality problem and the rise of linguistic and national identities within the Habsburg Empire, see Okey, *Habsburg Monarchy*.

and bias-free, *Dissolution of the Habsburg Monarchy* (1929), put this case most dramatically when he wrote that, 'by 1913, the Austro-Hungarian Monarchy was already a defeated empire from the economic point of view'.[12]

However, there is also a dissenting historiography, according to which it was losing the war that finished off the empire, rather than any insurmountable structural, political, or economic problems in the preceding decades making for inevitable decline and dissolution.[13] Interpretations along these lines are broadly in tune with the findings of quantitative research on the economic history of the Habsburg Monarchy. These make for a less damning assessment of Austria-Hungary's economic performance than earlier writing in the field.[14] Even though economic growth and structural change in the empire were not nearly rapid enough to catch up with the European leaders before the war,[15] the work of Good and Komlos in particular has shown that the origins of Kuznetsian Modern Economic Growth in the western regions of the empire reach back into the eighteenth century, that growth impulses began to diffuse gradually from the more developed western to the less advanced eastern and south-eastern regions, and that broad intra-empire market integration across the crownlands made significant progress up to 1914.[16] The fact that the empire lost the Great War and that economic factors played a major role in this tells us that the war was of a scale too large to sustain on the basis of the resources at its disposal.[17] It does not necessarily imply that Austria-Hungary's economy was too underdeveloped to maintain the empire's territorial integrity in peacetime (or, for that matter, in times of war that made fewer demands on human and material resources).

Bruckmüller and Sandgruber observe an apparent contradiction between, on the one hand, increasing inter-regional economic integration within the empire over the nineteenth century and, on the other, the simultaneous rise of nationalist movements 'based mainly on common language or national consciousness . . . [that] strongly ran counter to the collective consciousness of belonging to a common state'.[18] Yet the historical evidence of the impact of nationalism on the empire's economy is patchy and ambiguous. For instance, at governmental level, the post-1867 empire had an inbuilt potential break-line: the customs union between Austria and Hungary had to be renegotiated every 10 years (and approved by both Parliaments), as did the so-called 'quota'. Common affairs (largely the army) were paid for out of tariff revenue and the quota was the proportion each part had to contribute to make up for any shortfall in tariff revenue.[19] Berend and Ránki argue that by the turn of the century the question of an independent Hungarian customs area had nearly become the dominant issue in Hungarian politics.[20] However, they emphasize that this was so primarily for political and

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[12] Jászi, *Dissolution*, p. 212. Jászi was a Hungarian social scientist, civil servant, radical politician, and, later, academic who, on the eve of the First World War, supported the pacifist movement, national self-determination, and federalism in east central Europe; cf. Bakisian, 'Jászi in exile'.

[13] Sked, *Decline and fall*, pp. 278–329.

[14] For example, Gerschenkron, *Economic backwardness*.

[15] Schulze, 'Patterns of growth'; idem, 'Origins of catch-up failure'.

[16] Good, *Economic rise*; Komlos, *Customs union*; idem, *Nutrition and economic development*.

[17] Schulze, 'Austria-Hungary's economy'.

[18] Bruckmüller and Sandgruber, 'Concepts of economic integration', p. 159.

[19] Eddie, 'Economic policy', p. 815; idem, 'Common expenditures', pp. 360–2.

[20] Berend and Ránki, 'Economic factors'.

nationalist reasons rather than on economic grounds. In the end, and despite the political deadlock in Austria's parliamentary process since 1897 which had grown out of intensifying nationality conflict, the customs union continued to be renewed, if necessary by imperial decree. In the words of Bruckmüller and Sandgruber, 'The fact that the Hungarians did not take advantage of this situation [that is, the political stalemate in the Austrian half of the empire] shows the importance of the Austrian market for Hungarian agricultural producers'.[21]

While the core political and economic interests of the Germans and the Magyars as the dominant groups in the two halves of the empire (without either of them having an absolute population majority in Austria and Hungary) were recognized and broadly accommodated in the constitutional compromise of 1867 that established the Dual Monarchy, those of the Slavic people in both parts of the empire were not. There is evidence going beyond the mere observation of increasingly pervasive nationalism within the empire that suggests deepening social and economic separation between self-integrating national communities in the decades following the *Ausgleich*.[22] Jaworski's research on boycott movements between different ethnic groups within the multi-national setting of east central Europe points to ethnic mobilization as a key element of intra-state economic nationalism at work.[23] Nationalist elites sought to mobilize popular political support for the national cause and to advance the economic interests of their clientele. In a similar vein, the contributions in Lorenz's edited volume map the growing inter-relatedness of national movements and the cooperative movement in east central Europe.[24] While, initially, recruitment was based largely on professional criteria, over the course of the late nineteenth century cooperatives became increasingly organized along ethnic lines. 'Through national segregation on the regional and, increasingly, on the local level, cooperatives evolved from socially organized and a-national, into inter-societal, nationally organized institutions'[25] during a phase of 'ethnic segregation' (broadly, in the 1860s and 1870s). This was followed by a phase of 'ethnic mobilization', much in line with intensifying national conflicts, when cooperation became an economic mass movement. A key issue here is the drive towards price discrimination through the concentration of selling and purchasing power and as a means to strengthen the 'national economy'. The theme of ethnically-based economic 'self-integration' as part of Czech national revival also features prominently in Albrecht's study of rural banks and Czech nationalism in Bohemia in the second half of the nineteenth century.[26]

However, the extent of these phenomena and their overall quantitative significance within the broader context of Habsburg economic development and their potential role in the empire's eventual dissolution remain unresolved problems.[27] The remainder of this article offers the first quantitative assessment of the impact of intra-empire nationalism on product market integration across the empire.

[21] Bruckmüller and Sandgruber, 'Concepts of economic integration', p. 161.
[22] Ibid.
[23] Jaworski, 'Zwischen ökonomischer Interessenvertretung'.
[24] Lorenz, ed., *Cooperatives in ethnic conflicts*. In this volume see, in particular, Albrecht, 'Nationalism'; Hunyadi, 'Three paradigms'; Struve, 'Peasant emancipation'; Lazarević;, 'National and economic features'.
[25] Lorenz, 'Introduction', p. 22.
[26] Albrecht, 'Rural banks'.
[27] Eddie, 'Economic policy', pp. 814–22; Bruckmüller and Sandgruber, 'Concepts of economic integration', p. 160.

II

Our central hypothesis is that the intensification of intra-empire economic nation-alism led to asymmetric integration of regional markets within an overall integrat-ing Habsburg economy. To this end we examine the dynamics of market prices across the empire and over time: *ceteris paribus*, two cities with little or no ethno-linguistic differences are likely to trade more with each other than cities with larger differences, given that trade networks tend to evolve along social and ethnic contacts.[28] According to Rauch and Trindade, ethnic networks may promote trade either by providing market information or by providing community enforcement of sanctions, for example, by blacklisting traders who violate specific rules of the community.[29] In the first case their effects on trade should be larger for trade in differentiated products (for example, machinery) than for trade in homogeneous products, especially those with 'reference prices' such as grain.[30] In contrast, in the latter case, which has been highlighted by Greif and by Rauch and Trindade, community sanctions should affect trade independently of the characteristics of the traded goods.[31] This network literature speaks to the Habsburg case of pro-found ethnic heterogeneity and the increasingly self-integrating national communi-ties identified in the historiography and provides the theoretical background to this study of grain price dynamics.

In line with many other studies, we take non-random, systematic deviations from the law of one price as indicators for trade costs.[32] Further, we assume that trade costs can be split up into three components: trade costs that depend on distance (transport costs), trade costs that depend on networks (or related trade-creating factors), and all causes of trade costs that are location-specific but not specific to any pair of locations.[33] If both distance-related and location-specific trade costs decrease over time, while the strength of networks stays high or even rises, the relative impact of the latter on trade will increase, which might result in patterns of asymmetric integration shaped by network boundaries and intensities.

The relationship between price dynamics and trade costs is examined within a simple analytical framework. Consider two cities i and j, letting $P_{i,t}$ and $P_{j,t}$ denote the respective prices of a good in cities i and j. Let $(p_{it} - p_{jt}) = gap_{ijt}$ denote the percentage gap for the two prices at time t.[34] Assume further that the trade costs are proportional to the prices in the importing market place. In line with the recent economic geography literature, let $(1 - e^{-\tau})P_{i,t}$ be the trade costs, where $\tau > 0$ is a cost parameter. Then, $e^{-\tau}P_{i,t}$ is the per-unit revenue when the good is sold in city i. Intuitively, τ depends positively on the geographical distance between the cities i and j. Moreover, when network effects are present, τ also differs depending on whether or not the city populations are part of the same network. Finally, trade from j to i is only profitable if $P_{i,t} e^{-\tau} > P_{j,t}$. This results in the condition: $\log(P_{i,t}/$

[28] Greif, 'Contract enforceability'; Rauch and Trindade, 'Ethnic Chinese networks'.

[29] Rauch and Trindade, 'Ethnic Chinese networks'.

[30] Rauch, 'Business and social networks'.

[31] Greif, 'Contract enforceability'; Rauch and Trindade, 'Ethnic Chinese networks'.

[32] For example, Engel and Rogers, 'How wide?'; Shiue, 'Political fragmentation'; Trenkler and Wolf, 'Integration across borders'.

[33] This is similar to the idea of multilateral resistance in Anderson and van Wincoop, 'Gravity with gravitas'. For an application of this framework in a related historical context, see Wolf, 'Path dependent border effects'.

[34] Shiue, 'Political fragmentation'.

$P_{j,t}$) = gap$_{ij,t}$ > τ. Hence, arbitrage from j to i takes place when the percentage price gap is larger than the cost parameter τ. Equivalently, one trades from city i to j only if gap$_{ij,t}$ < − τ. Thus, we obtain [− τ; τ] as a band of no-arbitrage. Within this band, no trade occurs that could reduce price differences between the two markets because trade costs exceed possible arbitrage profits. Obviously, the size of this band increases with τ, which in turn will depend on several factors, such as transport costs. In the literature, this trade cost view is often referred to as a weak form of the law of one price.[35]

The quantitative analysis builds on four new datasets: grain prices, railway distances, railway freight rates, and language statistics. The main characteristics of the data are set out in the following paragraphs.

We use annual current wholesale prices for five types of grain (wheat, rye, barley, oats, and corn) in 20 major cities of the empire to examine the integration of the Habsburg economy over the period 1878–1910.[36] Grain prices are given in the original sources in the same currency for all cities but sometimes for different volume or weight measures. All prices have been converted into Austrian Heller per 100 kilograms to make them fully comparable both in the cross-section and over time.[37] The price data are employed to construct our dependent variable, that is, the log-ratio of grain prices in two cities i and j for each year and all of the 190 city-pairs ij.[38]

Figure 1 shows the regional spread of the sample cities across the Habsburg empire and the lands ceded to its successor states after the First World War: (1) Vienna (Lower Austria), Linz (Upper Austria), Graz (Styria), and Innsbruck (Tyrol), which became part of the postwar Austrian Republic; (2) Prague in Bohemia, which later became the capital of Czechoslovakia; (3) Cracow and Lemberg in Galicia, both of which became part of the postwar Polish state; (4) Czernowitz in the Bukowina which was ceded to Romania after the First World War; (5) Trieste, in the Littoral, became part of Italy; (6) Budapest, the centre of Hungary in both its pre- and postwar borders; (7) Bratislava (Pozsony) in the Danube Left Bank district, which later became part of Czechoslovakia; (8) Pecs and Sopron in the Danube Right Bank district, part of both pre- and postwar

[35] This is equivalent to the so-called spatial arbitrage condition if it is only required that prices of the same good at two cities differ at most by the trade costs; see, for example, Fackler and Goodwin, 'Spatial price analysis'.

[36] The main sources for the price data are annual issue of k.k. Statistische Central-Commission, *Statistisches Jahrbuch*, and idem, *Österreichisches Statistisches Handbuch*, augmented by Hoszowski, *Ceny we lwowie w latach* (on Lemberg); Górkiewicz, *Ceny w Krakowie w latach* (on Cracow); and Központi Statisztikai Hivatal, *Preisstatistik*, and annual issues of Magyar Kir. Központi Statisztikai Hivatal, *Magyar Statisztikai Évkönyv*, on Budapest and the other cities in Hungary.

[37] However, prior to 1894, the prices for Austrian cities have been reported in gulden or kronen per hectolitre, and thereafter—like the Hungarian price data—in kronen per 100 kilograms. The evidence would suggest that reporting and measurement practice across the Austrian half of the empire was far from uniform prior to 1894, contrary to what the general reference to hectolitre in the official sources seems to imply. For several markets and products, application of the standard product-specific conversion factors leads to inexplicable and implausible 'jumps' between 1892/3 and 1894, and implausibly high absolute and relative price levels before 1894. Neither is the case for the price data taken from the Hungarian sources. This likely measurement error in the official Austrian sources is taken into account in the regression analysis below and the results are subjected to several robustness checks.

[38] The choice of wholesale rather than retail prices is dictated by data availability. However, there are good reasons to argue that the full impact of ethnically-based networks on regional trade integration, through local traders' preferences and boycotts against 'outsiders', may be captured more accurately in retail trade. Thus one would expect the effects of economic nationalism to be weaker at the wholesale than the retail level. The results reported below therefore present *lower bound* estimates of the impact of nationalism on integration.

Figure 1. *Regional spread of sample cities across the Habsburg Empire and the territories ceded to its postwar successor states*

Hungary; as was (9) Szeged in the central Danube-Theiss Basin; (10) Kassa on the right bank of the Theiss river, an area ceded to Czechoslovakia after the First World War; (11) Debreczen and Nagyvarad in the expansive Theiss Left Bank district; the predominantly Romanian parts of the region, where Nagyvarad was located, were later ceded to Romania along with (12) Arad and Temesvar in the Theiss-Maros Basin, and (13) Kolozsvar in Transylvania. The cities listed under (1) to (5) were part of the Austrian half of the empire (Cisleithania), those under (6) to (13) belonged to the Kingdom of Hungary (Transleithania).

The independent variables include, first, the shortest railway connection between all 190 city-pairs *ij*, again for each year 1878–1910. By 1878, all cities in the sample had been connected to the railway network. However, over time and up to the First World War, Austria-Hungary's railway network became denser and many bilateral distances shorter. This is fully accounted for in the time-varying railway distance measures derived here from a wide range of sources.[39]

[39] See *Eisenbahn-Karte von Oesterreich-Ungarn*; *Oesterreich-Ungarn. Eisenbahn-Karte*; *Artaria's Eisenbahn-, Post- und Communicationskarte von Oesterreich-Ungarn*; *Eisenbahn- und Strassenkarte der oesterreichisch-ungarischen Monarchie*; *Uebersichtskarte der Eisenbahnen der oesterreichisch-ungarischen Monarchie*; *Artaria's Eisenbahnkarte von Oesterreich-Ungarn*; Bechtel, *Kilometerzeiger*; Smolik, *Offizieller Kilometerzeiger*.
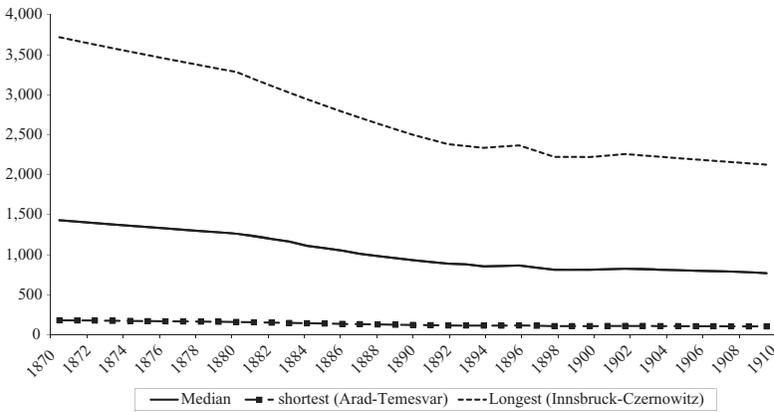
Figure 2. *Total freight cost per ton of grain (old pence), selected distances, 1870–1910*
Sources: See text.

The distance measures are augmented by new, fully time-varying estimates of railway freight rates for grain that account for both terminal and variable (that is, distance-related) rate components.[40] Used in conjunction with railway distances, they allow for the reconstruction of the costs of transport between two cities i and j as an alternative independent variable. The estimates of railway transport costs are based on material from a diverse set of sources. The (US) Bureau of Railway Economics provides comparative 1914 freight rate data for a large number of railway routes of different lengths in different countries and for a variety of products.[41] Decomposing into terminal and variable charges, we obtain a 1914 baseline estimate for Austria-Hungary. Noyes provides average railway freight rates per ton-mile for Austria-Hungary (and several other countries).[42] This information has been converted into indices and used to extrapolate back to 1870 both the terminal and variable components in the 1914 equations for Austria-Hungary. In addition to the impact of changes in freight rates over time, the effect of using transport costs so computed as compared to the proxy of simple railway distances is quite straightforward: given a common terminal component, average transport costs *per kilometre* decline in distance. Figure 2 illustrates the combined effect of falling freight rates and shortening distances over the course of the late nineteenth century. The greatest gains in terms of declining freight costs were made over the longest distances, here exemplified by the Innsbruck–Czernowitz connection.

For each of the 20 cities we reconstruct the composition of its population by language, taking account of the nine major languages spoken across the empire. We use 'main language spoken' (Austrian cities) and 'mother tongue' (Hungarian cities) as proxies for urban populations' ethnicity.[43] Table 1 reports population

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[40] M. S. Schulze, 'Regional income dispersion and market potential in the late nineteenth century Habsburg Empire', London School of Economics, working papers in economic history, 106/07 (2007), pp. 9, 22.

[41] US Bureau of Railway Economics, *Comparison of railway freight rates.*

[42] Noyes, *American railroad rates.*

[43] The 1880–1910 censuses report only languages spoken, not nationality or ethnicity. A comparison of the Austrian 1880 language data with the 1857 census data on nationality indicates a very close match, even if allowance is made for inter-temporal shifts in the composition. See Horch, 'Language and identity', on the relationship between language and national identity in the Habsburg context.

Table 1. Main languages spoken (shares of total population)

	German		Czech/Slovak		Polish		Ukrainian		Slovene		Serbo-Croat		Italian		Romanian		Hungarian	
	1880	1910	1880	1910	1880	1910	1880	1910	1880	1910	1880	1910	1880	1910	1880	1910	1880	1910
Vienna	0.958	0.941	0.036	0.054	0.003	0.003	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
Linz	0.984	0.995	0.015	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Graz	0.982	0.991	0.009	0.001	0.000	0.000	0.000	0.000	0.008	0.006	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
Innsbruck	0.985	0.976	0.002	0.002	0.001	0.001	0.000	0.002	0.000	0.002	0.000	0.000	0.013	0.016	0.000	0.000	0.000	0.000
Prague	0.165	0.068	0.834	0.930	0.001	0.000	0.001	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cracow	0.039	0.024	0.007	0.012	0.953	0.959	0.262	0.223	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Lemberg	0.084	0.024	0.002	0.002	0.650	0.750	0.479	0.383	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Czernowitz	0.266	0.288	0.004	0.003	0.071	0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.180	0.228	0.000	0.000
Trieste	0.043	0.062	0.001	0.003	0.000	0.001	0.000	0.000	0.218	0.298	0.001	0.013	0.738	0.623	0.000	0.000	0.000	0.000
Budapest	0.212	0.084	0.065	0.029	0.006	0.006	0.000	0.000	0.000	0.000	0.010	0.005	0.001	0.001	0.001	0.002	0.705	0.872
Bratislava	0.183	0.137	0.456	0.434	0.002	0.002	0.000	0.000	0.000	0.000	0.007	0.005	0.001	0.001	0.000	0.000	0.351	0.421
Pecs	0.347	0.332	0.008	0.007	0.000	0.001	0.000	0.000	0.002	0.002	0.115	0.069	0.001	0.001	0.002	0.000	0.525	0.588
Sopron	0.413	0.387	0.004	0.004	0.001	0.000	0.000	0.000	0.001	0.001	0.117	0.110	0.000	0.001	0.000	0.000	0.464	0.497
Szeged	0.012	0.009	0.004	0.002	0.004	0.004	0.000	0.001	0.000	0.000	0.002	0.004	0.001	0.000	0.001	0.001	0.980	0.983
Kassa	0.069	0.031	0.293	0.181	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.631	0.781
Debreczen	0.017	0.004	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.978	0.994
Nagyvarad	0.010	0.005	0.011	0.013	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.435	0.413	0.542	0.568
Arad	0.107	0.094	0.012	0.014	0.000	0.000	0.000	0.002	0.000	0.000	0.007	0.005	0.001	0.000	0.639	0.584	0.233	0.301
Temesvar	0.350	0.328	0.016	0.012	0.001	0.000	0.000	0.000	0.000	0.000	0.141	0.133	0.000	0.000	0.421	0.363	0.070	0.164
Kolozsvar	0.042	0.029	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.612	0.574	0.343	0.395

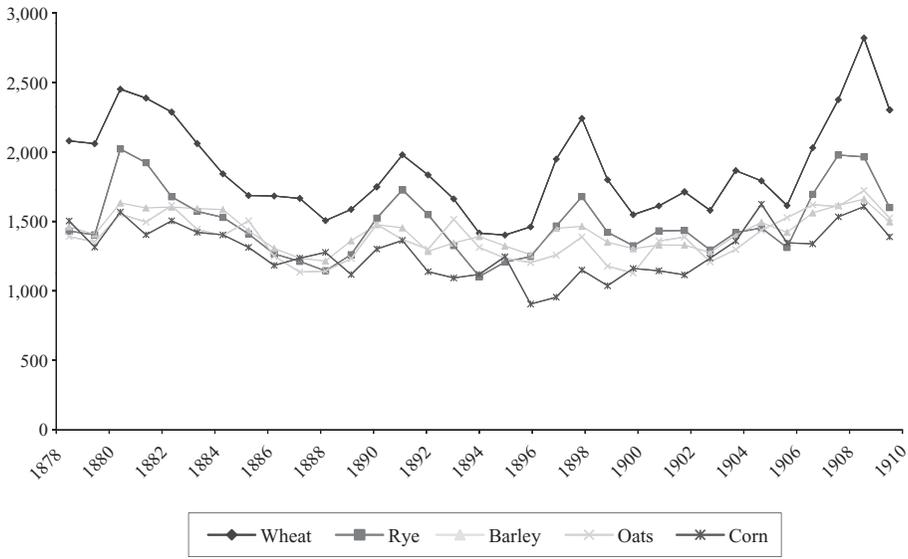Sources: Austria—Census (1880–1910); Hungary—Census (1880–1910).

Figure 3. *Average prices (Heller per 100 kg)*
Sources: See text.

composition by language and shows the extent of ethno-linguistic heterogeneity both within and across the 20 cities in the sample. The data, extracted from the official (decadal) censuses, refer to the population within the boundaries of a city and that of the immediately adjacent or surrounding administrative district(s). Given the widening over time of the geographical and administrative boundaries of some of the cities (especially Budapest, Prague, and Vienna), this makes for more stable and meaningful 'catchment areas'. The most striking feature here is the pronounced heterogeneity across the cities and, in some cases, the shifts in population shares held by the different national groups. We use the language data to construct a *bilateral* measure of ethno-linguistic similarity (or 'matching probability') of the two cities in any one of the 190 city-pairs as an independent variable. Section IV below offers robustness checks on this variable's explanatory power.

How did grain prices in Austria-Hungary evolve over time? Figure 3 shows the average prices of the five grains across the 20 sample cities for 1878–1910. Prices tended to decline until the mid-1880s, then fluctuated without a visible trend for about 20 years, before they moved upwards in the decade prior to the First World War. Not surprisingly, wheat prices were markedly above other grain prices, typically followed by rye and barley.

Figure 4 plots the 'between' coefficient (CV_between) over the whole cross-section of the 20 cities averaged over wheat, rye, barley, oats, and corn, 1878–1910. The variation of grain prices across cities declined substantially over time, in line with previous findings by Good.[44] However, it is possible that integration proceeded asymmetrically, that is, some city-pairs may have integrated relatively more than others. As a first check, figure 4 also shows the coefficients of

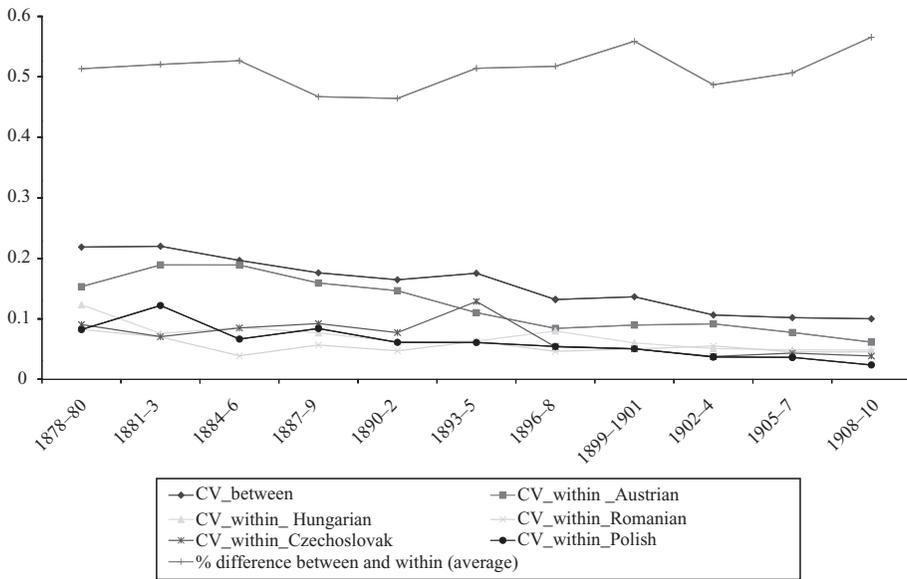[44] Good, *Economic rise*, pp. 111–17.

Figure 4. *Coefficient of variation within and between 'national' city groups*
Sources: See text.

variation (calculated again as an average over the five grains) *within* groups of cities that after 1918 belonged to the same Habsburg successor state. Finally, the graph shows the percentage difference between the 'between' and 'within' price dispersion over time, with the latter calculated as the mean of 'within group' variations.

The evidence so far suggests that, first, city-pairs with a common postwar border were apparently already in 1878 somewhat better integrated than other pairs, which can be explained partly in terms of their different average distances. Second, price dispersion declined with some fluctuation within all 'national' city groups along similar paths. However, third, the percentage gap between 'global' and 'within' price dispersion was, with some fluctuation, increasing slightly during 1878–1910, from about 51 per cent to more than 56 per cent. It should be emphasized, though, that this is likely a *lower* bound approximation of the widening gap. On an alternative measure of dispersion, integration became far more progressively asymmetric over the late nineteenth century, with the gap growing from about 30 per cent in the late 1870s and early 1880s to over 56 per cent just before the war.[45]

To explore such asymmetric integration and its origins systematically, we examine a balanced panel of price ratios between all 190 possible city-pairs in our sample, drawing on a total pool of more than 10,000 observations. The analysis of the price dynamics in this panel has to take into account that trade costs imply a no-arbitrage band in relative prices and hence non-linearities. Moreover, we need to focus on the cross-section, while allowing for product- and city-specific factors

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[45] The difference in the two measures, both based on coefficients of variation, is accounted for by the alternative use of unconverted, original source data rather than converted Austrian prices for the period 1878–94. See above, n. 37, for an explanation of data inconsistencies and the problem of conversion of the official data.

and—crucially—allowing for structural change over time. The basic idea is that on average, higher trade costs should limit the scope for arbitrage and hence increase the price gap between any pair of cities. Trade costs, in turn, can be decomposed and we distinguish three categories: trade costs that depend on distance (transportation costs), cost components related to networks, and trade costs that are city-specific. We estimate the following simple specification:

$$\log\left(\frac{p_{i,t}^{h}}{p_{j,t}^{h}}\right) = c_0 + c_1 * \log\left(raildistance_{ij,t}\right) + c_2 * language_{ij,t} + \sum_{g=1}^{20} c_g city_g + \varepsilon_{ij,t}^{k} \quad (1)$$

where *raildistance* is the railway distance between two cities i and j in kilometres, *language* is a bilateral measure of ethno-linguistic similarity between city populations, *city* is a full set of dummies over all cities g to capture unobservable city-specific factors, while $\varepsilon_{ij,t}^{k}$ is an independent and identically distributed error component. The index h stands for the five kinds of grain in our sample. The variable *language* is calculated as:

$$language_{ij,t} = \sum_{k=1}^{n}\left(a_{i,t}^{k} * a_{j,t}^{k}\right) \quad (2)$$

where $a_{i,t}^{k}$ is the percentage share of language k in city i and at time t, and n is the total number of language groups (in our case $n = 9$). This is equivalent to summing up over all possible same-language encounters between individuals from the two different cities in each pair and dividing by the total number of all possible encounters for that city-pair.[46]

This 'matching probability' varies between 0 (no similarity between two cities i and j) and 1 (no differences). For example, for 1910 the lowest score is 0.0003 for the city-pair Lemberg–Debreczen, while the highest is 0.9864 for Graz–Linz. Note that, similar to Rauch and Trindade, we use language as a proxy for membership in a specific ethno-linguistic network, say Czech or Hungarian, rather than as a control for the costs of communication.[47] We explore the crucial differences in section IV below.

III

To assess the evidence of asymmetric integration across the Habsburg regions, we estimate equation (1) using a generalized least squares estimator, which allows for heteroskedasticity in the cross-section. We start by pooling over all five grains and over the whole period 1878–1910. Reported standard errors are based on White's period robust coefficient variance estimator throughout, to accommodate for serial correlation in the price data. Table 2, column 1, shows the results.

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[46] The underlying absolute figures are truncated to facilitate a full match of the Austrian and Hungarian language groups. The very small group of 'other languages' (that is, those different from the nine main languages referred to in tab. 1), which is not reported for Austrian cities and is only available for Hungary for 1910, is excluded.

[47] Rauch and Trindade, 'Ethnic Chinese networks'.

Table 2.   *Asymmetric integration—balanced sample, basic results, 1878–1910*

Pooled EGLS

Variable	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)
Constant	−0.1765 (−8.668)	−0.1710 (−8.2441)
Log(raildistance)	0.0600 (18.854)	
Log(freightcost)		0.0534 (18.052)
Language	−0.1256 (−15.347)	−0.1351 (−16.809)
Fixed city effects	Yes	Yes
No. of obs.	10,640	10,640
Adj. R^2 (weighted)	0.4014	0.4028

Notes: Dependent variable: *log price-ratio* as defined in text; White diagonal standard errors and covariance; conversion dummies.

As hypothesized, we find that, while controlling for unobservable city-specific effects, price differentials increased in distance between the cities and decreased with a closer ethno-linguistic match between their populations. The coefficient on *language* is negative (that is, the larger ethnic congruency between cities, the smaller the price gap) and highly significant, which here is interpreted as evidence of trade costs related to ethnic networks.

This finding is robust to the theoretically and empirically preferable use of time-varying transport costs instead of railway distances. We re-estimate equation (1), replacing *raildistance* by *freightcost*, a measure that fully accounts for inter-temporal changes in both distances (due to the extension of the railway network over time) and freight rates. Table 2, column 2, shows that the results are materially unchanged. Note that in both cases *language* is estimated to be highly significant after controlling for distance or transport costs. The variation in our sample is sufficiently high to distinguish between bilateral price differences related to distance and bilateral price differences related to network effects. While, in general, very distant cities also tended to be characterized by different ethno-linguistic profiles of their populations, our sample has a lot of variation in this respect. Consider the following examples. In 1910, there were only 58 railway kilometres lying between Arad and Temesvar in Hungary, the shortest bilateral distance in our sample and about one-ninth of the median distance. This contrasts with the 1,515 kilometres between the two cities furthest apart—Innsbruck in the west of Austria and Czernowitz on its eastern periphery. However, despite these stark differences in bilateral distances, the two city-pairs were characterized by virtually identical bilateral matching probabilities of 0.28 to 0.29. Furthermore, the two cities least similar in terms of their ethno-linguistic composition, Lemberg and Debreczen, were only 432 kilometres apart—far less than the median distance of 538 kilometres.

The observed price differentials cannot be explained by major systematic administrative barriers to trade such as tariffs or different currency regimes, since such barriers were not in place in the Habsburg customs and monetary union. Whatever minor and, effectively, unobservable impediments to inter-regional trade there were, these are likely picked up in the location dummies. What needs accounting for is the significant impact of ethno-linguistic networks which is

evident despite controlling for transport costs and location-specific factors. A key to the nature of network-driven asymmetric integration may lie in changing patterns over time. There is no a priori reason to assume that such network effects were present over the whole period. On the contrary, the political historiography stresses the rise in intra-empire national conflict from the late 1880s and, for instance, the political deadlock between Czechs and Germans from the early 1890s,[48] while recent research on intra-state economic nationalism emphasizes the growing significance of ethnic mobilization and antagonism during the 1890s.[49] If the historical literature is about right on the intensification of national conflict in Austria-Hungary, we would expect our proxy for ethnic network membership (*language*) to be more powerful in explaining persistent price differentials after, say, the early 1890s than before. To explore the issue systematically, we extend model (1) and estimate equation (3), using fully time-varying *freightcost* as an independent variable and allowing the coefficient on the network measure (*language*) to vary between two major periods—1878–94 and 1895–1910:

$$
\log\left(\frac{p_{i,t}^{h}}{p_{j,t}^{h}}\right) = c_0 + D_1 + c_1 * \log\left(freightcost_{ij,t}\right)
$$
$$
+ \sum_{t=1878/1894}^{t=1895/1910} c_t * language_{ij,t} + \sum_{g=1}^{20} c_g * city_g + \varepsilon_{ij,t}^{k}
$$
(3)

where D_1 is an intercept dummy for 1895–1910. The results are set out in table 3, column 1.

While the estimated coefficient on *freightcost* remains positive and significant as expected, the negative coefficient on *language* is almost the same in both periods 1878–94 and 1895–1910, although statistically more significant for the years after 1895. This preliminary result would suggest that, in a first approximation, ethnolinguistic networks influenced the pattern of market integration in both periods and to a similar extent. Note that features of natural geography such as mountains, rivers, or access to seaports (here controlled for through the use of city dummies) cannot possibly come into play here due to their time-invariant nature. However, to test for the possible effects of changes in the cost of transport along the Danube, the empire's most important waterway, connecting, for example, Linz, Vienna, Bratislava, and Budapest, we add a dummy variable *Danube* to model (3), allowing its coefficient to vary between the two periods. The dummy takes the value of 1 if both cities are located on the Danube and 0 otherwise. Hence, if trade on the Danube had mattered for grain price dynamics, we would expect to find a negative and significant coefficient on this variable. The results reported in table 3, column 2, show the Danube to have had either no impact on price dynamics at all (1878–94) or, implausibly, a positive effect (1895–1910). This finding is not

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[48] See Berend, *History derailed*, pp. 200–3, 258–84; Kornish, 'Constitutional aspects'; Sked, *Decline and fall*, pp. 212–43.
[49] Bruckmüller and Sandgruber, 'Concepts of economic integration'; Jaworski, 'Zwischen ökonomischer Interessenvertretung'; Lorenz, 'Introduction'.

Table 3. *Asymmetric integration—balanced sample, time variation and city-specific shocks*

Pooled EGLS

Variable	(1)		(2)		(3)		(4)	
	Coefficient	(t-statistic)	Coefficient	(t-statistic)	Coefficient	(t-statistic)	Coefficient	(t-statistic)
Constant	−0.0923	(−4.938)	−0.0917	(−4.794)	0.0302	(1.582)	0.0197	(1.007)
$D_{95\text{-}10}$	0.0562	(15.021)	0.0562	(14.999)	−0.1442	(−8.746)	−0.1429	(−8.640)
Log(freightcost)	0.0714	(16.276)	0.0718	(15.831)	0.0621	(14.289)	0.0649	(14.398)
Language*$D_{78\text{-}94}$	−0.0932	(−6.033)	−0.0936	(−5.636)	−0.0245	(−1.367)	−0.0213	(−1.186)
Language*$D_{95\text{-}10}$	−0.0961	(−12.369)	−0.0984	(−12.607)	−0.1139	(−14.243)	−0.1147	(−14.353)
Danube*$D_{78\text{-}94}$			0.0014	(0.317)			0.0214	(1.843)
Danube*$D_{95\text{-}10}$			0.0732	(8.370)			0.0206	(2.413)
Fixed city effects	Yes		Yes		No		No	
Time-varying city effects	No		No		Yes		Yes	
No. of obs.	10,640		10,640		10,640		10,640	
Adj. R² (weighted)	0.4743		0.4767		0.4937		0.4950	

Notes: Dependent variable: *log price-ratio* as defined in text; White diagonal standard errors and covariance; conversion dummies.

surprising—the volume of grain transported on the Danube was only a small fraction of grain produced in and traded across the Habsburg Empire.[50]

However, the likely inconsistencies in part of the Austrian converted data may obfuscate changing *relative* integration patterns between cities and over time.[51] In addition, relative integration across Austria-Hungary may have been influenced by *changing* integration or disintegration with neighbouring regions in other countries. For example, the large changes in German and Russian tariffs between 1878 and 1910 might have affected different regions of the Habsburg economy in different ways. We can take both these issues into account by adding to model (3) a set of time-varying city effects, to capture city-specific integration or disintegration shocks. Table 3, column 3, shows that the introduction of time-specific city effects separates out a weak, barely significant *language* effect for 1878–94 and a strong, highly significant *language* effect for 1895–1910. Further, controlling for possible Danube effects again makes no difference to the findings (table 3, column 4). The centrality of ethno-linguistic networks in accounting for the observed changes in patterns of relative integration across the Habsburg regions is confirmed by the results of two independent robustness checks implemented to gauge the effects of unit conversion.[52] We conclude that city- and time-specific differences in integration—such as varying degrees of integration with neighbouring regions—cannot explain the observed asymmetric integration within the Habsburg economy. However, the extent of ethno-linguistic congruence between locations, measured as a matching probability, is a factor that can.

IV

The argument here is that language statistics can capture membership in ethno-linguistic networks, which in turn help explain the emerging pattern of asymmetric integration within the late nineteenth-century Habsburg economy. However, for this argument to hold, one needs to be able to distinguish between 'community effects' and 'communication effects' of membership in an ethno-linguistic network. Networks can provide market information, which should be facilitated by the ability to speak a common or at least a very similar language.[53] They can also provide community enforcement of sanctions, for example, by blacklisting traders who violate community rules. In the first case, one would expect significant network effects on trade in differentiated products and far less so on trade in homogeneous products like wheat or rye. In the second case, however, community sanctions are seen as affecting trade independently of the characteristics of the

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[50] An upper bound estimate for 1913 suggests that grain transported on the Danube in 1913 was just about 3.5% of Austrian and Hungarian grain output. In 1870, total grain shipments of the DDSG (Donau-Dampfschiffahrts-Gesellschaft), at the time the world's largest inland waterway transportation company, accounted for about 2.7% of Austria-Hungary's grain production. See k.k. Statistische Central-Commission, *Österreichisches Statistisches Handbuch*, vol. 33 (1914), pp. 163–7; Komlos, *Customs union*, tabs. D.8 and D.10, pp. 266–7, 274–7; Sandgruber, *Agrarstatistik*, tab. 135, p. 186.

[51] Cf. n. 37.

[52] First, we ran the regressions with annual changes in the price ratios as the dependent variable—where units of measurement are not an issue—and the results of this exercise point in the same direction: rates of change were far more affected by *language* after 1894 than before. Second, we ran the regressions with the data as taken directly from the sources (that is, with no conversion): again, the results are clear and suggest a strong *language* effect for the post-1894 period, but not before.

[53] Rauch and Trindade, 'Ethnic Chinese networks'.

Table 4. *Community vs. communication effects, balanced sample*

Pooled EGLS

	(1)	(2)
	Communication	Community (Herfindahl)
Variable	Coefficient (t-statistic)	Coefficient (t-statistic)
Constant	−0.0471 (−2.159)	−0.0736 (−3.284)
$D_{95\text{-}10}$	−0.1459 (−8.830)	−0.1941 (−9.913)
Log(freightcost)	0.0465 (15.062)	0.0482 (15.676)
Language*$D_{78\text{-}94}$	−0.1955 (−5.351)	
Language*$D_{95\text{-}10}$	−0.2195 (−9.261)	
Dyencomm*$D_{78\text{-}94}$	0.1742 (5.475)	0.1113 (3.670)
Dyencomm*$D_{95\text{-}10}$	0.1185 (5.634)	0.1154 (5.738)
Hflang*$D_{78\text{-}94}$		0.0991 (3.118)
Hflang*$D_{95\text{-}10}$		0.2153 (9.5003)
Time-varying city effects	Yes	Yes
No. of obs.	10,640	10,640
Adj. R^2 (weighted)	0.4935	0.4923

Notes: Dependent variable: *log price-ratio* as defined in text; White diagonal standard errors and covariance; conversion dummies.

traded goods.[54] It should not matter whether it is trade in grain or trade in machinery or textiles. Since the focus here is on grain markets only, it is the second effect that likely matters most in our case. Following Dyen et al. and using the lexicostatistical similarities between languages, the 'matching probability' is extended to permit the identification of 'communication effects' as distinct from 'community effects':[55]

$$DyenComm_{ij,t} = \sum_{l=1}^{n} \sum_{k=1}^{n} \left(a_{i,t}^{k} * a_{j,t}^{l} * SW200^{kl} \right) \qquad (4)$$

where *SW200* is the index of lexicostatistical similarity between languages k and l based on the Swadesh-200 list of basic words as used in Dyen et al.[56] For example, the *SW200* index is 0.660 for Romanian and Italian, 0.223 for Romanian and Czech, 0.249 for Romanian and German, 0.766 for Czech and Polish, and 0.259 for Czech and German. The new *DyenComm* index then measures the probability that any two citizens from, say, Lemberg and Arad meeting can actually communicate without necessarily sharing the same mother tongue. The point of the exercise is to use the available language data via equation (4) in such a manner that they capture the *communication* effects rather than the effects of membership in a specific *community*. In light of our hypothesis that it is community effects that drive the findings on grain price dispersion, we expect adding the communication index *DyenComm* as a control to have little effect on the results. Table 4, column 1,

[54] Greif, 'Contract enforceability'; Rauch and Trindade, 'Ethnic Chinese networks'.
[55] Dyen, Kruskal, and Black, 'Indo-European classification'.
[56] Hungarian is not part of the Indo-European language family. We therefore set the index to zero for all pair-wise combinations with Hungarian, which tends to understate the ability to communicate between city populations. Similarly, we neglect the fact that many people would have been able to speak more than one language. This again leads us to underestimate the ability to communicate between city populations.

essentially confirms this. The network effects captured in the matching probability (*language*) remain large and significant while the coefficients on the communications variable are of the wrong sign.[57] Hence the evidence suggests that it was not communication as such that was the problem, but rather conflict between distinct ethno-linguistic groups. Asymmetric integration was an outcome of intra-empire economic nationalism.

However, one cannot exclude the possibility that this result of powerful community effects may be driven by the specific metric of a 'matching probability' used here. To deal with this issue we can define an alternative bilateral index of ethno-linguistic heterogeneity that is similar to a Herfindahl index:

$$HFLang_{ij,t} = 1/2 \sum_{k=1}^{n} \left(a_{i,t}^k - a_{j,t}^k \right)^2 \qquad (5)$$

If both cities have an identical ethno-linguistic composition the index equals 0. If there is no overlap in the ethno-linguistic composition, the index equals 1 as its maximum. Like the initial matching probability, it varies between 0 and 1 and so reflects the idea that trade costs between a pair of cities are expected to increase along with the ethno-linguistic heterogeneity between them.[58] As shown in table 4, column 2, the results support the findings in table 3, columns 3 and 4: the observation of strong community effects is robust to alternative measures of ethno-linguistic networks.

We have used language, or rather the degree of similarity in cities' linguistic profiles, as a means to capture membership in ethno-linguistic networks and showed that it was indeed the 'community effects' as distinct from the 'communication effects' of such networks that mattered. However, language as a proxy does not explicitly account for Jews, many of whom, in the face of widespread anti-Semitism, shared a common identity independent of differences in languages used or regional backgrounds and who played a prominent role in trade and finance across the regions of the empire.[59] The historical evidence presented above suggests strong ethnic community effects making for asymmetric market integration, and this holds *despite* any scope that an empire-wide group such as Jewish grain traders may have had to engage in arbitrage trade between other ethnic groups.[60] Further, this scope was progressively narrowing in late nineteenth-century Austria-Hungary: the competing and exclusionary economic nationalisms of different national communities within the empire and their associated group-specific cooperatives were not only directed against neighbouring 'national' groups, but just as much against Jews and their role in trade intermediation.[61] Whatever 'equilibriating' impact Jewish traders may have had on cross-regional or

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[57] The likely reason for the impact of *language* looking similar in both sub-periods can be found in the way *language* and *DyenComm* have been constructed. *DyenComm* is, in essence, a weighted version of *language*, so the two variables effectively cancel each other out. The issue is addressed in tab. 4, col. 2, where a different metric is used.

[58] Note the different expected signs on the coefficients for the matching probability and the Herfindahl index.

[59] On the history of Jews in the Habsburg Empire see, for example, Bihl, 'Juden'; McCagg, *Habsburg Jews*.

[60] Note that the estimates above include controls for location-specific factors; that is, if, for instance, the number of Jewish traders in any given location was particularly high then this has been taken into account.

[61] Lorenz, 'Introduction', pp. 11, 39; Struve, 'Peasant emancipation', pp. 230–1, 249–50.

cross-'nationality' market integration, this was, ultimately, overpowered by the force of ethnically-based preferences among the nationalities of the empire.

<p style="text-align:center">V</p>

In this article it has been argued that two seemingly contradictory strands in the literature—one emphasizing the centrifugal impact of growing intra-empire nationalism, the other stressing significant improvements in market integration across the empire—can be reconciled. The process of overall market integration across the Habsburg domains, though ongoing, was profoundly asymmetric: some localities were more rapidly and deeply integrating with each other than others—and 'national biases' played a key role in that. Empire-wide absolute declines in price differentials between regions or towns thus went hand in hand with profound regional differentials in relative integration (or even relative disintegration). The extent of ethno-linguistic heterogeneity across regions and cities became a force making for asymmetric intra-empire market integration from the late 1880s/early 1890s onwards, roughly in line with the time pattern suggested by the historiography of rising national conflict across the empire.[62] This, the analysis suggests, was the outcome of two factors, in particular. First, as markets became more closely integrated as a result of declining transport costs, the *relative* importance of other non-distance-related barriers to inter-regional exchange, such as ethnic or linguistic differences, increased. Second, the *absolute* importance of these differences rose with increasingly ethnically-based forms of social and economic organization such as trade co-operatives, especially from the mid-1880s. While the formation of ethno-linguistic networks entailed a lowering of information costs among members and helped diffuse common preferences, it also reduced the extent of effective exchange with non-network members. It has been shown here that it was not growing difficulties in communication between ethno-linguistic groups that led to growing price differentials between different markets, but rather intensifying conflict between them.

Of course, intra-empire nationalism and ethnic conflict were not phenomena emerging only after the 1867 settlement. The Habsburg nationality problem 'retained throughout its determining place in the empire's evolution', at the very least from the *Vormärz* period onwards.[63] However, it was new forms of social and ethnic organization such as cooperatives and the contemporaneous improvements in infrastructure provision, entailing a fall in transport costs, that, taken together, made the resurgent nationalism of the *late* nineteenth century count economically.

Ethnicity-based networks increasingly affected trading costs between different ethnic groups by systematically directing trade towards their own group.[64] Arbitrage trade between these groups became progressively limited and so ethnic conflict came to impact on price dynamics in a similar way as other, for example, distance-related, trading costs. Intra-empire nationalism became increasingly exclusionary—Bruckmüller and Sandgruber's 'self-integrated national com-

[62] See, for example, Berend, *History derailed*, pp. 258–73; Okey, *Habsburg Monarchy*, pp. 283–309.
[63] Okey, *Habsburg Monarchy*, p. 397.
[64] Cf. Jaworski, 'Zwischen ökonomischer Interessenvertretung'; Lorenz, ed., *Cooperatives in ethnic conflicts*.

munities'[65] were indeed alive, ventured to keep 'others' out, and so foreshadowed the break-up of the Habsburg Empire a generation later.

[65] Bruckmüller and Sandgruber, 'Concepts of economic integration', p. 161.

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