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Regional Income Dispersion and Market Potential in the Late Nineteenth Century Hapsburg Empire

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Regional Income Dispersion and Market Potential in the Late Nineteenth Century Habsburg Empire*

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Abstract

This paper presents new regional GDP estimates for the Habsburg Monarchy and constructs measures of market potential for its 22 major regions. The paper argues that regional income differentials were significantly larger, that intra-empire catching-up of poor with rich regions was far more limited and that the empire's Eastern regions were much further behind Western Europe than suggested in the historiography. The measurement of regional market potential proves strongly sensitive to the composition of foreign economies considered in the computations and the choice of regional 'nodes'. Further, though being 'remote' imposed some penalty, there was no uniform relationship between changes in regions' relative GDP position and their market potential.

1. Introduction

The profound regional differences in geography, resource endowments and income across Austria-Hungary and issues of regional division of labour are recurrent themes in the Habsburg historiography (Good 1984; Gross 1973; Freudenberger, 2003; Komlos 1983). In the 1990s, David Good made a persistent effort to quantify regional product in the Habsburg domains as a means to assess the economic lag of East-Central Europe (Good 1991, 1994, 1997; Good and Ma 1998). According to the 1998 estimates, the poorest region in Austria-Hungary enjoyed per capita incomes that on the eve of the First World War, and after a long process of industrialization in the western regions stretching back to the late

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18th century (good 1984; Komlos 1983, 1989), were about 60 per cent below that of the richest region and about 30 per cent below the mean of the empire. In the Habsburg case, as elsewhere in Europe, the timing, direction and pace of economic change and industrialization were shaped by regional conditions (Pollard 1986). Yet a theoretically explicit and quantitative analysis of *how* these factors mattered for the development of the Habsburg economy, and more broadly, Europe's Eastern and South-Eastern periphery, is still missing. This paper aims at providing some empirical input as a first step towards such an analysis.

In terms of GDP per capita, the pre-1913 Austrian economy ranked near the bottom of the European growth league: income rose by less than 1 per cent per annum. By contrast, in Hungary – Austria's partner in the Habsburg customs union – per capita product increased by about 1.3 per cent during 1870-1913, (Schulze 2000, 2007). The following sections present new (Austria) and revised (Hungary) GDP estimates for the 22 major Habsburg regions as a means of gauging the extent to which empire-wide aggregate product measures mask significant regional variations in levels of economic activity. Further, they provide an input for the analysis of regional differences as a potential source of Austria's poor comparative growth performance. Finally, the regional product estimates are a key ingredient in the computation of regional market potential as an indicator of a region's centrality. The guiding idea from location theory is that producers are likely to settle in those locations that offer the best (least costly) access to input (supply) and output (demand) markets (Midelfart-Knarvik et al. 2000).

In an essentially descriptive exercise, the estimates for GDP and market potential are used to address three issues. First, what was the extent of regional income differentials across the 22 major regions of the Habsburg Empire and how did these differentials change over time? Second, what do

computations of economic potential reveal about the centrality or 'peripherality' of the Habsburg regions? Third, to what extent did differences in regional economic performance reflect differences in regional economic potential?

2. Methods and Data

2.1 Estimating Regional GDP

Austrian regional GDP levels at constant 1913 prices and for 1870 to 1910 (at 10 year census intervals) have been built up from sector level estimates, mirroring the procedure used in the construction of state-wide aggregates (Schulze 2000). The fourteen regions include: Lower Austria, Upper Austria, Salzburg, Styria, Carinthia, Carniola, Littoral, Tyrol/Vorarlberg, Bohemia, Moravia, Silesia, Galicia, Bukovina and Dalmatia. For Hungary, the paper relies on regional *shares* in total GDP derived from Good and Ma (1998), applying them to Hungarian total product (Schulze 2000, 2007). The estimates for Hungary cover eight regions: Left Bank Danube, Right Bank Danube, Danube Tisza Basin, Right Bank Tisza, Left Bank Tisza, Tisza Maros Basin, Transylvania and Croatia-Slavonia.

Good and Ma adopt a Crafts-type structural equation approach to estimate regional per capita income levels as a function of several proxy variables such as crude death rates, the share of the agricultural labour force and letters posted (Crafts 1983; Good 1994). The procedure and its application to the Habsburg case have been criticized by Pammer (1997) on theoretical and empirical grounds, leading to significant revisions of the estimates (Good, 1997; Good and Ma 1998). The proxy approach offers a way to estimate regional income levels where standard national income measures cannot be computed for lack of essential data. This, at present, is

the case for the Hungarian regions. For Austria, though, the sources allow reconstructing regional GDP within a national income accounting framework and from the output side. The key advantage compared to the earlier proxy approach to derive regional GDP estimates is the use of variables and measures that are theoretically linked to GDP. Section 3 below shows that the choice of procedure makes for large differences in outcomes.

Crafts (2004, 2007) relies on a modified version of Geary and Stark (2002) to estimate British regional GDP as a function of sectoral wages and sectoral employment, augmented by the evidence from income tax returns to account for the non-wage income component of GDP. Here a different route was adopted. Regional GDPs were estimated for each sector separately, reflecting the differences in data availability for each sector, by estimating regional shares in sectoral output at the national level and then aggregating across sectors (or industry branches) for each region. The national level 'frame' of sectoral gross value-added is provided in Schulze (2000, 2007).

For *crop production* this is straightforward as quantities of output for more than twenty major products, valued at 1913 prices, are available from Sandgruber (1978). The same source is used for estimating regional shares in *livestock* output, using the detailed material that underlies the national-level aggregates (Schulze 2000). *Mining*: regional quantities of the full range of mining products and 1913 prices are readily available from the official statistics (Bergbaustatistik). Regional shares in i*ron and steel production* have been approximated on the basis of regional output of pig iron and cast iron (Huettenwesen). No data are available on the regional distribution of wrought iron and steel output. However, the labour force statistics would indicate that this introduces no undue bias as refining was concentrated in the same regions as smelting (Austria – Census).

For *manufacturing* and *construction* the regional estimates build on wage and employment data extracted from the statistics of the workers' accident insurance system (Unfallstatistik). The data differentiate between twelve major industry branches and about 38 sub-branches. For each benchmark year and each industry branch, regional wage sums have been converted into gross value added drawing on industry-specific wage sum/output ratios and value-added proportions from Fellner (1916). In the next step, gross value-added per worker was computed for each industry branch in each region. Finally, and cognizant of the less than full coverage of the accident insurance system, a region's share in total output of a given industry was computed by multiplying regional gross value-added per worker by regional employment in that industry. The relevant regional industry-level employment data have been taken from the censuses (Austria – Census).[1]

In the tertiary sector, regional shares in total gross value-added were computed for *trade, finance and communications* and *government, professional and personal services* on the basis of labour force statistics as no other data are available (Austria – Census). In the case of the latter, though, this corresponds fully with Kausel's (1979) series, incorporated in Schulze (2000), which provides the relevant 'frame' within which the regional estimates slot. Finally, regional shares in total rental income from housing have been estimated drawing on regional population and differences in regional output per capita (with regional GDP per capita excluding rental income as a proxy for average regional income).

[1] For 1870 and 1880, regional shares in industrial output were computed on the basis of weighted 1890 regional output per worker *relatives*, 1870 (1880) overall industrial output per worker and 1870 (1880) regional industrial employment levels. The regional shares so derived were cross-checked against the material in *NIHV* and found consistent.

The new estimates are documented in Tables 4 to 6 below, contrasting them with the results of Good and Ma's (1998) earlier proxy approach.

2.2 Estimating Market Potential

The market potential of a region depends on economic activity in that region and in other adjacent or distant regions (or countries) adjusted for their proximity. Proximity, in turn, depends on distance between localities over land and sea. Distances over land and sea are converted into equivalent measures using corresponding transport costs. Hence changes over time in a region's relative market potential can result from either shifts in the spatial distribution of economic activity, changes in relative transport cost or a combination thereof. Market potential can serve as a measure of a region's economic 'centrality' or 'peripherality'. In the market access literature (Midelfart-Knarvik et al. 2000), the degree of regions' centrality is expected to impact on firms' location decisions – all else being equal, producers are likely to locate where they find least costly access to markets for their inputs and outputs.

Going back to Harris (1954), the market potential of region *i* (MPi) can be calculated as increasing in purchasing power or GDP of all regions *j* (GDPj) and decreasing in distance or transport cost between regions *i* and *j* (D_{ij}). This can be formulated as

$$MP_i = \Sigma_j GDP_j * D^{\gamma}_{ij}$$

where γ is a distance weighting parameter set at –1. The regional market potential calculations are augmented by an 'own' distance measure $D_{ii.}$ (which is commonly approximated as a function of area size: D_{ii} =

$0.333\sqrt{(area_i/\pi)})^2$ and the GDPs of the empire's main trading partners with the associated distance (or transport cost) measures.

Estimating market potential requires data on the GDP of domestic regions and foreign countries, measures of transport costs and other trade costs such as tariffs. New GDP estimates for the Habsburg regions are documented in Table 4. GDP data for the empire's main foreign trading partners are taken from Maddison (2003), measured in purchasing power parity adjusted international dollars.[3] Fifteen foreign economies are included: Belgium, Denmark, France, Germany, India, Italy, Netherlands, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. However, almost three quarters of the empire's foreign trade was geared towards Continental Europe and more than half of that was with Germany alone (ÖSH).

With motorized road freight developing only after the First World War, both the internal and external goods traffic of the Habsburg Empire was heavily dominated by the railways. Coastal shipping played no significant role in internal transport. In 1913, the volume of freight transported between the empire's Mediterranean ports accounted for half a per cent of freight moved on the Austro-Hungarian railways (ÖSH, MSE). Likewise, waterborne transport on the rivers Danube, Elbe and Vlatava, the only major inland waterways, was equivalent to just one per cent of the railways' ton-

[2] The formula yields a distance value of 1/3 of the radius of a circle of the same area as region i.

[3] In principle, the use current price GDP seems preferable to constant price-PPP adjusted GDP as in terms of location decisions that is what mattered to economic agents at the time. However, GDP deflators that would allow reflating the constant price estimates of Habsburg GDP are as yet not available (or rather, only very crude approximations would be possible at this stage). Further, the question of what determines the location of industry is not the primary issue under enquiry in this paper. Here the interest lies mainly in the ex-post comparison of inter-temporal changes in absolute and relative regional income and regional market potential.

kilometres. Accordingly, railways are chosen as the transport mode for distances between the regions of the empire. Further, almost three quarters of the empire's foreign trade was geared towards Continental Europe and more than half of that was with Germany alone (ÖSH) .

For distances between Habsburg regions and foreign countries, the transport mode chosen was the cheaper of rail or rail and ship, based on new estimates of time-varying railway freight rates for Austria-Hungary and several European countries (see below) and Kaukiainen's (2003) estimate of ocean shipping rates. For both railway and sea transport cost approximations, coal and grain were taken as representative cargoes (cf. Crafts 2007). Further, both sets of freight rates build on estimates of terminal charges and cost per ton-mile.

Distances. For the measurement of railway distances between Habsburg regions and between these regions and foreign countries, provincial and country capitals, respectively, have been chosen as the relevant 'nodes'. Both the domestic and the international railway connections are measured such that they take full account of changes over time in route length. Railway distance measures between the twenty-two Habsburg internal 'nodes' have been extracted from the numerous sources listed under *Railway Distances*. For connections from Habsburg to foreign 'nodes' (and to/from port cities such as Hamburg, for example) the initial source is *Bradshaw's 1914 Continental Guide*. The distances reported there were checked against (and augmented by additional distance measures from) contemporary railway maps, held at the British Library, for all relevant years prior to 1914. Whenever the 1914 connection was not in place before, the shortest alternative route was extracted from this material.

Ocean shipping. The length of sea journeys has been estimated using the material in www.dataloy.com/newwebsite/index.php; as mentioned

above, estimates of costs of ocean transport have been taken from Kaukiainen (2003) and are reported in Table 1. Note, though, that only a relatively small proportion (c. 12 per cent) of Austria-Hungary's total foreign trade was conducted through her Mediterranean ports and, likewise, the port of Hamburg.

Railway freight cost. Estimates of railway transport cost are based on material from a diverse set of sources. The (US) Bureau of Railway Economics (1915) provides comparative 1914 freight rate data for a large number of different-length railway routes in different countries and for a variety of products. Again, as for sea transport, coal and grain were chosen as representative cargoes. For both products transport costs were decomposed into terminal and variable charges, providing a set of 1914 baseline estimates for Austria-Hungary and several other European countries. Noyes (1905) and Cain (1980) provide estimates of average railway freight rates per ton-mile for Austria-Hungary, France, Germany, Italy, European Russia and Britain, respectively. These data have been converted into indices and used to extrapolate back to 1870 both the terminal and variable components in the 1914 equations. The estimates are shown in Table 2. For rail connections within the Habsburg Empire the rates reported under 'Austria' have been used, deflated by the 'Generalindex' of Mühlpeck et al. (1979). For rail connections between the Habsburg regions and foreign countries the arithmetic average of the Austrian and appropriate foreign rates given in Table 2 has been used, again deflated. Where no foreign country-specific freight rates are available for foreign countries, the estimate for 'Europe' has been used instead.

The comparison of real cost of transport in Table 3 shows that ocean freight rates fell more quickly over the course of the late nineteenth and early twentieth centuries than railway freight rates. The implication here is, all else

being equal, that market potential increased relatively faster in those regions of the empire that had ready access to the sea, like the Littoral (Trieste) and Dalmatia, compared with landlocked regions like the Bukovina and Silesia.

Tariffs. The last building block for the estimation of market potential involves accounting for the effects of trade costs such as tariffs. Here, the procedure of Crafts and Mulatu (2006) was followed to convert tariffs into distance equivalents drawing on Estevadeordal et al. (2003). They estimated a gravity model for trade which has a distance elasticity of -0.8 and a tariff elasticity of -1.0 (where the tariff is measured as (1+t)). These elasticities have been used to convert ad valorem tariffs between any two given countries into a distance equivalent measure which was then added to the intercept of the equations for sea and rail freight rates reported in Tables 1 and 2. All tariff figures were computed as the ratio of customs revenue over value of imports and Mitchell (2003) was the main source.[4]

Drawing on these elements (regional GDP, transport costs, tariffs), market potential estimates for all 22 Habsburg regions are presented in Tables 8 to 10, showing the evidence for three different country samples.

3. Growth and Dispersion in Regional Product

The new regional GDP estimates for the Habsburg regions are documented in Tables 4 and 5. They show major level differences compared with the results of Good and Ma (1998), ranging between a minimum of +/- 1 per cent (Salzburg) and +/- 39 per cent (Dalmatia) for 1910. For the Austrian

[4] Other sources are Mitchell and Deane for the UK; Prados de la Escosura (2003) for Spanish imports; Johanson (1984) for Denmark; Lains (2006) for Portuguese imports and Capie (1994) for an approximation of the German tariff rate for 1870.

part of the empire, these differences add up to 10 per cent and to about 13 per cent for the Hungarian half, also for 1910 (Table 6).[5]

Overall, regional product levels followed a far more pronounced profile of variations than the earlier historiography suggests. In 1870, the richest region (Lower Austria) enjoyed per capita incomes that were about 108 per cent above the Habsburg average and about 240 per cent above the level of the poorest region (Dalmatia). By 1910, this had changed to 74 and 258 per cent, respectively. The coefficients of variation for all years show a significantly higher degree of regional income dispersion for both Austria and the Habsburg Empire as a whole than indicated by the results of the proxy-approach (Table 5). All this suggest that the use of proxy variable within a structural-equations framework masks the extent and persistence of regional income differentials.

The material in Table 7 illustrates the extent of regional growth variations and contrasts the new evidence with the findings of Good and Ma. The key messages here is that growth in GDP per capita was persistently slower across the regions and, at the same time, characterized by stark inter-regional differences. Whereas the Good and Ma estimates for Austria point to a fairly narrow range of regional growth between 1.12 (Upper Austria) and 1.47 per cent per annum (Tyrol & Vorarlberg), the new estimates suggest a far wider band between 0.52 (Dalmatia) and 1.32 per cent (Silesia). Thus reconstructing regional GDP on the basis of regional output and employment data yields estimates that seem far more responsive to regional conditions and endowments.

[5] Note that the regional GDP estimates for Hungary are based Good and Ma's (1998) regional shares in total Hungarian GDP in each benchmark year that were applied to total state-level GDP as estimated in Schulze (2000, 2007) – the effect is an identical percentage point difference between the new and the Good and Ma estimates across all Hungarian regions in any given year. These differences, of course, change over time.

In Austria, the initially poorest regions in terms of GDP per capita in the East and South-East (Galicia, Bukovina, Dalmatia) were expanding at as low rates as the three richest regions in the West (Lower Austria, Upper Austria, Salzburg). This ties in well with the slow decline in income dispersion reported in Table 7. Apart from the generally faster growth of the Hungarian regions compared with those in Austria, there is only very limited evidence for intra-empire catching-up. Within the Austrian half of the monarchy, it was the initially mid-income regions such as Bohemia and Silesia whose relative position improved over 1870 to 1910.

4. Regional Market Potential in Austria-Hungary

Three alternative estimates of regional market potential have been prepared. These show that the composition of the sample of foreign countries included has a powerful influence on the Habsburg regions' relative market potential (Tables 8-10).

According to the evidence in Table 8, the relative position of two regions – the Littoral and Dalmatia – is particularly noteworthy. Their market potential was the highest in 1870 and continued to rise the fastest up to 1910. In close proximity to sea routes they were well located to benefit from lower and relatively fast declining shipping rates, offering ready access to overseas markets. The effect, though, is somewhat exaggerated as the two port cities of Trieste and Zara are the designated nodes. The only other regions that saw significant change in their relative market potential were Carniola adjacent to the Littoral, and Croatia-Slavonia – again, a region that is bordering on the sea. For all other, landlocked, regions the relative market potential remained practically unchanged over the period 1870 to 1910. In

other words, changes in railway route length and shifts in relative transport costs (shipping vs. rail) had little effect.

Rather low and declining transport cost to India, the USA and Turkey means that their GDPs feature strongly in the market potential measures, particularly in coastal regions. However, the use of a foreign country sample restricted to Europe reduces estimated relative market potential of the regions. For landlocked regions far removed from ports such as the Bukovina, Galicia and Transylvania, the inclusion or exclusion of these economies makes no difference (Table 9). Bohemia's profile is raised, though. This is an outcome of her proximity to large economies such as Germany and the UK (via the port of Hamburg) whose GDP now gains more weight in the market potential calculations. This finding is consistent with the foreign trade data: more than half of the empire's foreign just before the First World War was conducted with these two economies.

If the analysis is further restricted to consider only the GDP of the Habsburg regions, the emerging picture is one of stasis (Table 10). In effect, the procedure maximizes the impact of a region's own potential and that of its adjacent regions. There are no differential changes in transport costs over time as railway freight rates are assumed to change at the same rate across the entire network of the empire. Dalmatia, the region with the largest market potential if the full sample were considered, turns into the region with the lowest potential in the Habsburg-only setting. This is no coincidence. In fact, Dalmatia was not only the poorest and least rapidly growing region of the empire – it was also the only region with no direct railway connection to the rest of the empire.

5. Some Preliminary Conclusions

This paper has presented new estimates of regional GDP and regional market potential in the Habsburg Empire. There are several conclusions.

First, regional differentials in terms of both levels and growth of per capita GDP were significantly larger than earlier estimates based on the proxy-approach suggest. Further, the Eastern parts of the empire were economically much further behind Western Europe than the recent historiography acknowledges.

Second, intra-empire catching-up of poor with rich regions was very limited just as much as the Habsburg Empire, and especially Austria, failed to catch-up with the leaders in the European income league. .

Third, the measurement of market potential is highly sensitive to the composition of the group of foreign economies considered in the calculations and the choice of 'nodes'. Improvements in this area will involve the generation of new regional income estimates for Germany as the empire's main trading partner, building on Frank (1994), to replace the German aggregate. Further, drawing on overseas port cities as nodes (e.g. New York, Bombay etc.) appears to bias the result by, effectively, lowering relative transport cost. Hence the use of alternative, more 'representative' nodes needs to be explored. Likewise, the unique position of Dalmatia and Zara as a node needs to be accounted for by, for instance, allowing for high-cost road transport in the absence of direct rail communications.

Fourth, comparatively low and falling relative shipping cost meant that regions close to the sea further improved their market potential relative to landlocked regions during 1870 to 1910.

Fifth, some Habsburg regions commonly described in the literature as 'remote', 'economically backward' or 'peripheral' (e.g. the Bukovina and Galicia) display low levels of market potential on all alternative measures.

Finally, there is no clear-cut relationship between changes in regions' relative GDP (or GDP per capita) position and market potential. However, some regions such as, for example, Silesia appear to have been far more successful in tapping into their economic potential than others.

References

A. Official Publications, Maps, Reports, Statistics

Census 1869: K.k. Statistische Central-Commission, Bevölkerung und Viehstand der im Reichsrathe vertretenen Königreiche und Länder, dann der Militärgränze. Nach der Zählung vom 31. December 1869. Heft II: Anwesende Bevölkerung nach Beruf und Beschäftigung (Vienna, 1871).

Census 1880: K.k. Statistische Central-Commission, 'Die Bevölkerung der im Reichsrathe vertretenen Königreiche und Länder nach Beruf und Erwerb', *Österreichische Statistik* I (1882) 3. Heft.

Census 1890: K.k. Statistische Central-Commission, 'Berufsstatistik nach den Ergebnissen der Volkszählung vom 31. December 1890', *Österreichische Statistik* XXXIII (1894) 1. Heft ff..

Census 1910: K.k. Statistische Central-Commission 'Berufsstatistik nach den Ergebnissen der Volkszählung vom 31. Dezember 1910', *Österreichische Statistik*, N.F., III (1916) 1. Heft ff.

MSE: Magyar Kir. Központi Statisztikai Hivatal, *Magyar Statisztikai Évkönyv, 1872-1915* (Budapest).

NIHV: *Nachrichten über Industrie, Handel und Verkehr* 1870, 1880 (Vienna: 1873, 1886).

ÖSH: k.k. Statistische Central-Commission, *Österreichisches Statistisches Handbuch, 1883-1915* (Vienna).

Railway Distances:

(a) *Neueste Eisenbahnkarte der österreichischen Monarchie*, C. Lehmann (Vienna: 1870);

(b) *Eisenbahn-Karte von Oesterreich-Ungarn*, bearb. von T. Bomsdorff, einschl. Kilometer-Zeiger fuer die Eisenbahnen Oesterreich-Ungarns (Vienna: 1878);

(c) *Oesterreich-Ungarn. Eisenbahn-Karte*, gezeichnet und bearbeitet von T. v. Bomsdorff (Vienna: 1883);

(d) *Artaria's Eisenbahn-, Post- und Communicationskarte von Oesterreich-Ungarn* (Vienna: 1888, 1891, 93, 1900).

(e) *Eisenbahn- und Strassenkarte der oesterreichisch-ungarischen Monarchie* (Vienna: 1904).

(f) *Uebersichtskarte der Eisenbahnen der oesterreichisch-ungarischen Monarchie* (Vienna: 1913).

(g) Artaria's Eisenbahnkarte von Oesterreich-Ungarn, 3. Aufl., einschl. Stations-verzeichnis, etc. (Vienna: 1913).

(h) A. Bechtel, *Kilometerzeiger zu den allgemeinen und Militaer-Tarifen der oesterreichisch-ungarischen Eisenbahnen* (Vienna: 1882-91).

(i) F. Smolik, *Offizieller Kilometerzeiger der saemtlichen oesterreichisch-ungarischen und bosnisch-hercegovinischen Eisenbahnen* (Vienna: 1912).

SJB: (1870-1882): k.k. Statistische Central-Commission, *Statistisches Jahrbuch der österreichischen Monarchie, 1870-1882* (Vienna).

Unfallstatistik: (a) K.k. Ministerium des Innern, *Die Gebarung und die Ergbenisse der Unfallstatistik 1889-1896* (Vienna, 1891-1898).

(b) K.k. Ministerium des Innern, *Ergebnisse der Unfallstatistik der fünfjährigen Beobachtungsperiode 1897-1901, 1902-1907, 1907-1911* (Vienna, 1904-1914).

(US) Bureau of Railway Economics (1915), *Comparison of Railway Freight Rates in the United States (and) The Principal Countries of Europe, South Australia, and South Africa* (Washington, D.C.).

B. Books, Articles

Abramovitz, M. (1986), 'Catching up, forging ahead and falling behind', *Journal of Economic History* 46, No.2, pp.385-406.

Bradshaw's August 1914 Continental Guide (repr. Newton Abbot, 1972)

Cain, P.J. (1980), 'Private enterprise or public utility? Output, pricing and investment on English and Welsh railways, 1870-1914', *Journal of Transport History* 1, No.1, pp.9-28.

Capie, F. (1994), *Tariffs and Growth* (Manchester 1994).

Crafts, N.F.R. (2005), 'Regional GDP in Britain, 1871-1911: Some estimates', *Scottish Journal of Political Economy* 52, No.1, pp.54-64.

Crafts, N.F.R. and A. Mulatu (2006), 'How did the location of industry respond to falling transport costs in Britain before World War I?', *Journal of Economic History* 66, No.3, pp.575-607.

Estevadeordal, A., Frantz, B. and A. Taylor (2003), 'The rise and fall of world trade, 1870-1939', *Quarterly Journal of Economics* 118, No.2, pp.359-407.

Fellner, F. (1915), 'Das Volksvermögen Österreichs und Ungarns', *Bulletin de l'Institut International de Statistique*, Tome XX – 2e Livraison (Vienna), pp.503-573.

Frank, H. (1994), *Regionale Entwicklungsdisparitäten im deutschen Industrialisierungs-prozeß* (Münster).

Freudenberger , H. (2003), *Lost Momentum. Austrian Economic Development 1750s-1830s* (Vienna).

Gerschenkron, A. (1962), *Economic Backwardness in Historical Perspective* (Cambridge, MA)

Estevadeordal, A., Frantz, B. and A. Taylor (2002), 'The rise and fall of world trade, 1870-1939', *NBER Working Paper* No. 9318.

Geary, F. and T. Stark (2002), 'Examining Ireland's post-famine economic growth performance', *Economic Journal* 112, pp.919-35.

Good, D.F. (1984). *The Economic Rise of the Habsburg Empire, 1750-1914* (Berkeley).

Good, D.F. (1994). 'The economic lag of central and eastern Europe: income estimates for the Habsburg successor states, 1870-1910', *Journal of Economic History* 54, No.4, pp.869-91.

Good, D.F. (1997). ' Proxy data and income estimates: reply to Pammer', *Journal of Economic History* 57, No.3, pp.456-63.

Good, D.F and Ma, T. (1998). 'New estimates of income levels in central and eastern Europe, 1870-1910', in F. Baltzarek, F. Butschek and G. Tichy (eds), *Von der Theorie zur Wirtschaftspolitik - ein österreichischer Weg* (Stuttgart).

Harris, C. (1954), 'The market as a factor in the localization of industry in the United States', *Annals of the Association of American Geographers* 64, pp.315-348.

Johansen, H.C. (1980), *Dansk historisk statistik* (Copenhagen).

Kaukiainen, Y. (2003), 'How the price of distance declined: Ocean freights for grain and coal from the 1870s to 2000', mimeo, University of Helsinki.

Kausel, A. (1979), 'Österreichs Volkseinkommen 1830 bis 1913', in Österreichisches Statistisches Zentralamt (ed.), *Geschichte und Ergebnisse der zentralen amtlichen Statistik in Österreich, 1829-1979* (Vienna), pp. 689-720.

Komlos, J. (1983). *The Habsburg Monarchy as a Customs Union. Economic Development in Austria-Hungary in the Nineteenth Century* (Princeton).

Komlos, J. (1989). *Stature, Nutrition, and Economic Development in the Eighteenth Century Habsburg Monarchy: The `Austrian' Model of the Industrial Revolution.* (Princeton).

Lains, P. (2006), 'Growth in a protected environment: Portugal, 1850-1950', *Research in Economic History* 24, pp.121-163.

Maddison, A. (2003), *The World Economy: Historical Statistics* (Paris).

Midelfart-Knarvik, K.H., H.G. Overman, S.J. Redding and A.J. Venables (2000), 'The location of European industry', *Economic Papers* 142. DG Economic and Financial Affairs, European Commission (Brussels).

Mitchell B.R. (2003), *International Historical Statistics: Europe, 1750-2000* (Basingstoke).

Mirchell, B.R., Deane, P. (1962), *Abstract of British Historical Statistics* (Cambridge).

Pammer, M. (1997). 'Proxy data and income estimates: The economic lag of central and eastern Europe'. *Journal of Economic History* 57, No.2, pp.448-455.

Noyes, W.G. (1905), *American Railroad Rates* (Boston).

Pollard, S. (1986), *Peaceful Conquest* (reprint, Oxford).

Prados de la Escosura, L. (2000), 'International comparisons of real product, 1820-1990: An alternative data set', *Explorations in Economic History* 37, pp.1-41.

Prados de la Escosura, L.(2003), *El progreso económico de España* (Madrid).

Sandgruber, R. (1978), *Österreichische Agrarstatistik 1750-1918* (Munich).

Schulze, M.S. (2000), 'Patterns of growth and stagnation in the late nineteenth century Habsburg economy', *European Review of Economic History* 4, pp.311-340.

Schulze, M.S. (2007), ‘Origins of catch-up failure: comparative productivity growth in the Habsburg Empire, 1870-1910’, *European Review of Economic History* 11, pp.189-218.

Table 1: Shipping Rates Per Ton
(current price in old pence)

	Terminal Component	Cost per mile
1870	159	0.046
1880	132	0.030
1890	104	0.020
1900	79	0.018
1910	70	0.020

Source: Kaukiainen (2003) . Years refer to 1872-1874, 1879-1880, 1888-1889, 1898-1899 and 1911-1913.

Table 2: Railway Freight Rates Per Ton
(current price in old pence)

	Austria		**France**		**Germany**	
	Terminal	**Variable**	**Terminal**	**Variable**	**Terminal**	**Variable**
1870	44	1.085	62	0.252	53	0.435
1880	39	0.958	78	0.317	60	0.488
1890	29	0.730	71	0.289	58	0.473
1900	26	0.648	61	0.246	52	0.429
1910	25	0.620	55	0.224	47	0.387
1914	24	0.593	52	0.209	44	0.362

	Russia		**UK**		**Europe**	
	terminal	**variable**	**terminal**	**variable**	**terminal**	**variable**
1870	281	0.638	19	0.686	61	0.446
1880	238	0.542	21	0.730	68	0.497
1890	175	0.397	19	0.684	59	0.431
1900	128	0.291	20	0.689	54	0.393
1910	96	0.219	18	0.637	49	0.358
1914	85	0.193	17	0.608	46	0.339

Sources: See text.

Table 3: Real Transport Cost

	Sea	Europe Rail	Austria Rail
1870	100.0	100.0	100.0
1880	78.5	107.9	85.6
1890	66.6	102.4	71.2
1900	52.3	95.3	64.7
1910	40.0	73.2	52.2

Sources: See text. Assumes 500 miles as the distance in all three cases. Deflated using 'Generalindex' from Mühlpeck et al. (1979).

Table 6: Percentage Difference in GDP - New Estimates vs. Good & Ma

	1870	1880	1890	1900	1910
Lower Austria	7.00%	-4.15%	-6.96%	-12.14%	-11.57%
Upper Austria	32.56%	16.46%	14.27%	9.70%	13.62%
Salzburg	19.23%	4.47%	-10.55%	-4.11%	-1.03%
Styria	4.67%	-0.94%	1.42%	7.73%	3.92%
Carinthia	-8.86%	-17.87%	-16.55%	-2.87%	-7.30%
Carniola	-13.34%	-29.67%	-24.90%	-10.48%	-13.95%
Littoral	-8.40%	-16.11%	-16.16%	-20.68%	-16.81%
Tyrol & Vorarlberg	10.94%	-2.97%	-14.26%	-8.52%	-9.53%
Bohemia	1.57%	-4.93%	-5.28%	-10.70%	-4.86%
Moravia	1.44%	-14.92%	-11.21%	-5.57%	-1.63%
Silesia	-10.51%	-24.92%	-16.79%	-18.45%	-12.20%
Galicia	-8.78%	-15.25%	-17.77%	-30.40%	-22.43%
Bukovina	-11.62%	-24.63%	-23.20%	-30.90%	-29.56%
Dalmatia	-17.74%	-18.80%	-30.02%	-34.14%	-39.04%
Left Bank Danube	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Right Bank Danube	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Danube Tisza Basin	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Right Bank Tisza	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Left Bank Tisza	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Tisza Maros Basin	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Transylvania	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Croatia-Slavonia	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Austria	0.85%	-8.69%	-9.76%	-13.74%	-10.12%
Hungary	-6.44%	-13.95%	-10.72%	-12.92%	-13.09%
Habsburg Empire	-1.72%	-10.55%	-10.11%	-13.45%	-11.21%

***Sources**:* See text.

Table 7: Growth in GDP Per Capita (Per Cent Per Annum), 1870-1910

	New	Good & Ma
Lower Austria	0.65%	1.13%
Upper Austria	0.73%	1.12%
Salzburg	0.80%	1.27%
Styria	1.17%	1.19%
Carinthia	1.23%	1.18%
Carniola	1.29%	1.30%
Littoral	1.02%	1.27%
Tyrol & Vorarlberg	0.95%	1.47%
Bohemia	1.10%	1.27%
Moravia	1.07%	1.15%
Silesia	1.32%	1.37%
Galicia	0.85%	1.26%
Bukovina	0.67%	1.25%
Dalmatia	0.52%	1.27%
Left Bank Danube	1.18%	1.36%
Right Bank Danube	1.39%	1.58%
Danube Tisza Basin	1.35%	1.54%
Right Bank Tisza	1.26%	1.44%
Left Bank Tisza	1.24%	1.42%
Tisza Maros Basin	1.28%	1.46%
Transylvania	1.31%	1.49%
Croatia-Slavonia	1.36%	1.54%
Austria	0.97%	1.20%
Hungary	1.34%	1.50%
Habsburg Empire	1.10%	1.28%

Sources: See text.

Table 4: Regional GDP in the Habsburg Empire (million 1990 G-K Intl. $)

	1870		1880		1890		1900		1910	
	New	Good & Ma	New	Good & Ma	New	Good & Ma	New	Good & Ma	New	Good & Ma
Lower Austria	5132.48	4796.81	5719.20	5966.86	7071.86	7600.50	9521.75	10837.15	11807.95	13352.38
Upper Austria	1371.00	1034.27	1412.65	1213.04	1647.49	1441.76	1839.53	1676.89	2126.16	1871.32
Salzburg	285.27	239.25	309.91	296.65	325.63	364.04	444.94	464.02	550.16	555.89
Styria	1622.66	1550.28	1832.59	1850.01	2178.95	2148.54	2829.50	2626.44	3280.95	3157.22
Carinthia	438.36	480.98	468.01	569.82	498.71	597.61	669.42	689.17	837.72	903.65
Carniola	451.19	520.62	435.96	619.84	533.86	710.82	695.69	777.11	848.42	985.93
Littoral	849.52	927.45	920.38	1097.08	1037.98	1237.99	1224.22	1543.43	1900.18	2284.19
Tyrol & Vorarlberg	1387.11	1250.29	1357.79	1399.30	1396.48	1628.69	1898.09	2074.86	2499.83	2763.25
Bohemia	8776.23	8640.74	9632.27	10131.26	11501.78	12142.53	13985.79	15660.89	17920.94	18836.27
Moravia	3069.64	3026.11	3146.37	3698.26	3885.23	4375.69	5020.02	5316.15	6118.89	6220.29
Silesia	717.20	801.45	796.42	1060.72	1047.52	1258.84	1319.33	1617.84	1786.09	2034.38
Galicia	4672.83	5122.36	5217.58	6156.15	6716.23	8167.92	7389.18	10616.89	9671.98	12469.49
Bukovina	444.46	502.88	482.07	639.59	608.38	792.14	735.72	1064.70	906.19	1286.40
Dalmatia	347.83	422.84	397.33	489.29	447.03	638.77	514.89	781.78	602.33	988.00
Left Bank Danube	1792.32	1915.76	1862.20	2164.15	2464.49	2760.35	2951.86	3389.85	3592.92	4134.26
Right Bank Danube	2280.08	2437.11	2572.89	2990.08	3476.83	3894.22	4133.16	4746.43	5034.58	5793.13
Danube Tisza Basin	2761.33	2951.51	3434.18	3991.03	4415.16	4945.20	6135.60	7045.99	8258.96	9503.31
Right Bank Tisza	1498.90	1602.13	1500.69	1744.03	1956.00	2190.82	2425.24	2785.10	2915.67	3354.96
Left Bank Tisza	1697.94	1814.88	1738.00	2019.82	2330.18	2609.92	2938.49	3374.50	3797.90	4370.11
Tisza Maros Basin	1610.30	1721.21	1716.01	1994.26	2248.28	2518.19	2697.44	3097.68	3250.44	3740.17
Transylvania	1828.04	1953.94	1959.50	2277.23	2466.87	2763.03	2947.47	3384.82	3800.61	4373.24
Croatia-Slavonia	1443.26	1542.66	1769.57	2056.51	2296.54	2572.24	2722.13	3126.04	3536.75	4069.62
Austria	29565.77	29316.33	32128.53	35187.86	38897.10	43105.84	48088.07	55747.32	60857.79	67708.64
Hungary	14912.18	15939.20	16553.04	19237.11	21654.34	24253.96	26951.38	30950.42	34187.83	39338.80
Habsburg Empire	44477.95	45255.54	48681.58	54424.96	60551.44	67359.80	75039.44	86697.74	95045.62	107047.44

Sources: See text.

Table 5: Regional GDP Per Capita in the Habsburg Empire (1990 G-K Intl. $)

	1870		1880		1890		1900		1910	
	New	Good & Ma	New	Good & Ma	New	Good & Ma	New	Good & Ma	New	Good & Ma
Lower Austria	2578.2	2409.6	2453.9	2560.2	2656.80	2855.4	3071.0	3495.3	3343.3	3780.6
Upper Austria	1861.4	1404.2	1859.7	1596.9	2096.49	1834.7	2270.3	2069.6	2492.5	2193.8
Salzburg	1862.6	1562.1	1894.7	1813.6	1876.70	2098.1	2308.2	2407.2	2562.0	2588.7
Styria	1425.9	1362.3	1510.1	1524.4	1698.71	1675	2085.9	1936.2	2271.9	2186.2
Carinthia	1298.1	1424.3	1342.1	1634	1381.44	1655.4	1822.4	1876.2	2114.4	2280.8
Carniola	967.5	1116.4	905.9	1288	1069.95	1424.6	1369.1	1529.3	1613.0	1874.4
Littoral	1414.6	1544.4	1420.5	1693.2	1492.67	1780.3	1618.3	2040.1	2126.0	2555.6
Tyrol & Vorarlberg	1566.0	1411.5	1487.9	1533.4	1503.58	1753.6	1933.0	2113	2289.2	2530.4
Bohemia	1707.3	1680.9	1732.2	1821.9	1968.44	2078.1	2213.4	2478.5	2647.3	2782.5
Moravia	1521.7	1500.1	1461.1	1717.4	1706.39	1921.8	2059.3	2180.8	2333.4	2372.1
Silesia	1397.1	1561.2	1408.4	1875.8	1729.58	2078.5	1939.0	2377.7	2359.6	2687.6
Galicia	858.2	940.8	875.6	1033.1	1016.41	1236.1	1010.0	1451.2	1205.1	1553.7
Bukovina	865.7	979.5	843.3	1118.8	940.90	1225.1	1007.6	1458.1	1132.6	1607.8
Dalmatia	758.5	922	834.5	1027.7	847.56	1211.1	867.1	1316.6	932.9	1530.2
Left Bank Danube	1033.6	1104.8	1058.0	1229.5	1304.6	1461.2	1440.2	1653.9	1651.2	1900
Right Bank Danube	940.2	1004.9	996.6	1158.2	1254.6	1405.2	1413.8	1623.6	1632.3	1878.2
Danube Tisza Basin	1279.2	1367.3	1453.0	1688.6	1589.0	1779.8	1868.2	2145.4	2190.9	2521
Right Bank Tisza	999.6	1068.4	1034.5	1202.2	1279.0	1432.6	1448.6	1663.5	1647.6	1895.8
Left Bank Tisza	895.1	956.7	951.3	1105.6	1122.0	1256.7	1257.9	1444.5	1463.6	1684.1
Tisza Maros Basin	913.7	976.6	991.5	1152.3	1171.8	1312.5	1312.8	1507.6	1517.6	1746.3
Transylvania	843.9	902	933.9	1085.3	1087.7	1218.3	1189.9	1366.5	1419.0	1632.8
Croatia-Slavonia	772.1	825.3	918.1	1067	1028.8	1152.3	1108.7	1273.2	1323.8	1523.2
Austria	1449.6	1447.8	1450.8	1584.4	1627.8	1801	1838.9	2116.7	2130.0	2334.5
Hungary	961.3	1040.4	1051.7	1239.5	1240.0	1398	1399.7	1609.1	1636.8	1887.7
Habsburg Empire	1238.6	1301.2	1285.0	1453.1	1464.0	1651.8	1652.7	1925.5	1921.7	2164.2
c.v. Austria	*0.342*	*0.268*	*0.327*	*0.253*	*0.320*	*0.249*	*0.332*	*0.273*	*0.316*	*0.256*
c.v. Hungary	*0.160*	*0.160*	*0.166*	*0.166*	*0.142*	*0.142*	*0.168*	*0.168*	*0.165*	*0.165*
c.v. Habsburg Empire	*0.364*	*0.289*	*0.331*	*0.265*	*0.305*	*0.254*	*0.326*	*0.277*	*0.311*	*0.257*

Sources: See text.

Table 8: Market Potential - Full Sample

	Lower Austria = 100					1870 = 100				
	1870	**1880**	**1890**	**1900**	**1910**	**1870**	**1880**	**1890**	**1900**	**1910**
Lower Austria	100	100	100	100	100	100	141	197	282	446
Upper Austria	91	92	91	94	95	100	142	198	294	468
Salzburg	88	90	89	89	89	100	144	199	282	449
Styria	104	111	112	112	112	100	150	212	303	481
Carinthia	106	113	113	113	114	100	150	212	302	480
Carniola	125	138	142	142	143	100	156	224	322	510
Littoral	170	201	209	216	215	100	166	243	357	562
Tyrol & Vorarlberg	99	100	99	99	99	100	143	198	282	449
Bohemia	118	115	112	113	115	100	138	187	271	438
Moravia	100	98	94	94	96	100	138	187	266	429
Silesia	87	86	83	83	85	100	139	189	269	436
Galicia	71	70	68	67	69	100	139	188	266	432
Bukovina	61	61	58	58	60	100	139	187	268	434
Dalmatia	168	200	209	216	215	100	168	245	362	572
Danube Left Bank	94	94	94	93	94	100	140	196	279	443
Danube Right Bank	91	96	97	96	97	100	148	210	298	475
Danube-Tisza Basin	88	91	92	91	92	100	145	205	292	465
Tisza Right Bank	83	83	80	80	82	100	141	190	270	440
Tisza Left Bank	73	74	74	74	74	100	144	201	285	454
Tisza-Maros Basin	74	76	76	75	76	100	145	203	288	459
Transylvaina	60	60	60	59	60	100	141	196	277	443
Croatia-Slavonia	108	117	118	118	119	100	153	217	310	494

Table 9: Market Potential -Restricted Sample (excl. Russia, Turkey, India, USA)

	Lower Austria = 100					1870 = 100				
	1870	**1880**	**1890**	**1900**	**1910**	**1870**	**1880**	**1890**	**1900**	**1910**
Lower Austria	100	100	100	100	100	100	131	180	258	388
Upper Austria	88	89	88	91	91	100	132	180	266	400
Salzburg	87	88	86	85	85	100	132	179	253	381
Styria	96	101	101	101	101	100	138	191	272	409
Carinthia	96	101	101	101	100	100	138	190	270	405
Carniola	107	117	119	118	118	100	143	200	285	428
Littoral	143	167	172	176	176	100	153	217	318	478
Tyrol & Vorarlberg	98	99	97	96	97	100	132	178	253	382
Bohemia	126	124	121	122	124	100	129	173	250	384
Moravia	101	100	97	97	98	100	129	173	248	379
Silesia	85	85	83	83	84	100	130	175	251	386
Galicia	69	69	67	66	68	100	130	175	248	380
Bukovina	58	57	56	56	57	100	130	175	251	385
Dalmatia	136	162	168	172	172	100	156	222	326	490
Danube Left Bank	94	93	93	93	93	100	130	179	256	386
Danube Right Bank	83	87	88	87	87	100	137	191	270	406
Danube-Tisza Basin	84	86	87	87	87	100	134	187	266	400
Tisza Right Bank	79	79	77	76	78	100	131	176	251	383
Tisza Left Bank	69	71	71	70	70	100	133	183	260	391
Tisza-Maros Basin	69	71	71	70	70	100	134	185	261	393
Transylvaina	57	57	56	56	56	100	131	179	253	381
Croatia-Slavonia	94	101	102	101	101	100	140	195	277	417

Sources: See text.

Table 10: Market Potential - Considering Habsburg Regions Only

	Lower Austria = 100					1870 = 100				
	1870	**1880**	**1890**	**1900**	**1910**	**1870**	**1880**	**1890**	**1900**	**1910**
Lower Austria	100	100	100	100	100	100	124	204	293	383
Upper Austria	71	70	69	69	68	100	123	199	283	369
Salzburg	56	55	54	53	53	100	123	197	278	365
Styria	67	67	67	66	66	100	125	202	290	378
Carinthia	53	53	52	51	52	100	124	200	284	373
Carniola	52	52	51	50	51	100	124	202	285	377
Littoral	44	44	43	42	44	100	124	200	282	381
Tyrol & Vorarlberg	48	47	45	44	45	100	122	192	273	362
Bohemia	90	89	87	84	85	100	124	198	276	365
Moravia	85	84	83	82	83	100	123	199	283	371
Silesia	62	62	62	60	61	100	124	203	285	378
Galicia	55	56	57	53	54	100	125	211	281	377
Bukovina	35	35	36	36	37	100	124	212	303	405
Dalmatia	31	32	34	32	33	100	127	221	297	402
Danube Left Bank	88	88	88	88	88	100	124	205	292	383
Danube Right Bank	60	61	65	63	64	100	125	219	307	404
Danube-Tisza Basin	72	74	78	78	80	100	127	219	316	421
Tisza Right Bank	55	55	56	55	55	100	123	208	291	384
Tisza Left Bank	56	56	58	57	58	100	123	211	297	394
Tisza-Maros Basin	53	53	55	53	53	100	124	210	294	387
Transylvaina	40	40	40	39	39	100	123	204	283	376
Croatia-Slavonia	56	57	57	55	56	100	126	208	291	386

Sources: See text.

Map 1: Regions of the Habsburg Empire

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