

## Interregional and Intraregional Wealth Inequality in Nineteenth Century Austria

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How can we measure happiness? Can we arrive at an inclusive concept of happiness defining people as being altogether happier or less happy? And can we determine how happiness is distributed? There are numerous possible approaches to this problem, which in part could also be applied to historical situations. For instance, the concept of human development employed by the United Nations in their Human Development Index (HDI) comes quite close to the idea of happiness: the HDI defines human development as “a process of enlarging people’s choices”.<sup>1</sup> It assumes well-being to be the result of several factors which do not necessarily depend on each other and which concern the basic needs of physical well-being, economic necessities and cultural desires. Technically, the HDI uses income, life expectancy and literacy as measures of development (one might add other factors determining well-being and happiness such as human rights, political participation, environmental conditions, violence and safety, and so on). Although there are no clearly defined terms of choice between these fields (that is, how do people in fact value progress in life expectancy as opposed to higher income?) the basic idea of a multi-dimensional concept of well-being is convincing, and approaches along the lines of hedonic pricing models have been applied to historical settings.<sup>2</sup>

Of course, different aspects of human development have always been in the focus of the research on the economic and social history of Austria and Austria-Hungary in the 18th and 19th century. These studies focus mostly on consumption, the biological standard-of-living (nutrition, health, and life expectancy), education, working conditions, and various other topics, both on the micro- and the macro-level.<sup>3</sup> Extensive research on income growth has also been done, a tricky issue because income data for the 19th century and earlier periods are extremely poor. One approach tries to circumvent this problem by using proxy data: data which measure things other than income but are supposed to be strongly correlated with income, thus allowing an indirect measurement.<sup>4</sup> It need not be stressed that this approach is

1 United Nations Development Programme, Human Development Report 1990, New York 1990, p. 1; technical aspects of measurement are explained, pp. 104-113; for a historical application see N.F.R. Crafts, The Human Development Index and Changes in Standards of Living: Some Historical Comparisons, in: European Review of Economic History 1, 1997, pp. 299-322.

2 See, for instance, a debate on wages under different environmental conditions: J.G. Williamson, Urban Disamenities, Dark Satanic Mills, and the British Standard of Living Debate, in: Journal of Economic History 41, 1981, pp. 75-83; S. Pollard, Sheffield and Sweet Auburn – Amenities and Living Standards in the British Industrial Revolution, in: Journal of Economic History 41, 1981, pp. 902-904; J.G., Williamson, Some Myths Die Hard – Urban Disamenities One More Time: A Reply, in: Journal of Economic History 41, 1981, pp. 905-907.

3 For an extensive overview and further literature see H. Rumpler/P. Urbanitsch (Eds.), Die Habsburgermonarchie 1848-1918, Vol. IX: Soziale Strukturen, Wien 2010.

4 For concept and critique, see D.F. Good, Financial Integration in Late Nineteenth-Century Austria, in: Journal of Economic History 37, 1977, pp. 890-910; *Idem*, The Economic Lag of Central and Eastern Europe: Income Estimates for the Habsburg Successor States, 1870-1910, in: Journal of Economic History 54, 1994, pp. 869-891; M. Pammer, Proxy Data and Income Estimates: The Economic Lag of Central and Eastern Europe, in: Journal of Economic History 57, 1997, pp. 448-455; D.F. Good, Proxy Data and In-

somehow contrary to the idea underlying the HDI concept, which is based precisely on the assumption of relatively autonomous developments in different fields and, thus, choices.

Hedonic pricing and the terms of choice between factors of well-being have remained rather absent from these studies. Although this is also true for the present article, it offers at least a direct view on economic conditions and the scope for decision-making on the micro-level. It uses micro-data on the extent and composition of individual wealth in several thousand cases. On the supposition that a higher wealth status results in more options and more freedom to choose, the growth of wealth over time and the distribution of wealth within a population will give a clue to well-being in a wider sense and to the happiness enjoyed by people of various regions and classes.

This article addresses wealth distribution for the major part of what is Austria today, including the provinces of Lower Austria (including the city of Vienna), Upper Austria, Salzburg, (North) Tyrol and Vorarlberg, and the two parts of Styria.<sup>5</sup> Wealth as measured in this study includes all property such as landed property, movables, financial property and so on, but not human capital.

Although the distribution of wealth clearly differs from the distribution of income, this is also a study on the Kuznets curve. The Kuznets curve is a graphical expression of the relation between income and distribution in the era of modern economic growth as projected by Simon Kuznets in his presidential address to the American Economic Association in 1954.<sup>6</sup> As long as a widening income distribution coincides with a widening distribution of wealth the assumptions underlying the Kuznets curve can also be put to a test with wealth data. For our discussion of wealth as related to happiness, the relation between inequality and happiness is a special case.

In the following the research problems connected with this work are addressed in five sections. Section I discusses the relation between the distribution of wealth and of income and describes the sources used and the methodological problems they raise. Section II gives an outline of how overall inequality observed in the data is disaggregated in order to distinguish between interregional and intraregional inequality, an approach that is founded in a certain idea of happiness and human behaviour. For our analysis we use the Gini coefficient as a measure of inequality. In Section III we ask whether inequality became more pronounced in Austria in that period and whether the end of the nineteenth century is a turning point leading back to a more equal distribution. This section also distinguishes between intraregional and interregional wealth distribution for the whole of Austria and analyses wealth differentials between provinces. Section IV describes intraregional inequality for every region and its

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come Estimates: Reply to Pammer, in: *Journal of Economic History* 57, 1997, pp. 456-463; D.F. Good/T. Ma, New Estimates of Income Levels in Central and Eastern Europe, 1870-1910, in: F. Baltzerek/F. Butschek/G. Tichy (Eds.), *Von der Theorie zur Wirtschaftspolitik – ein österreichischer Weg*, Festschrift zum 65. Geburtstag von Erich W. Streissler, Stuttgart 1998, pp. 147-168; D.F. Good/T. Ma, The Economic Growth of Central and Eastern Europe in Comparative Perspective, 1870-1989, in: *European Review of Economic History* 3, 1999, pp. 103-137.

- 5 In this paper, Tyrol is approximately the same region as today's Austrian state of Tyrol, at that time the district of the Innsbruck Chamber of Commerce. Styria is equal to today's Austrian state of Styria (that is, with the exclusion of Lower Styria, which is part of Slovenia today); at that time, Styria was divided into the districts of the Graz and the Leoben Chamber of Commerce.
- 6 S. Kuznets, Economic Growth and Income Inequality, in: *American Economic Review* 45, 1955, pp. 1-28.

changes from the middle of the nineteenth century up to World War I and discusses factors that worked in specific ways in different provinces and thus determined different patterns of inequality in those regions. The last section sums up the results.

## I.

At the beginning of the 19th century, the western part of Austria (including the territory of the Republic) was more or less at the same income level as Germany. From the pre-March era onwards, it experienced sustained growth throughout the century, albeit at a comparably slow pace, which resulted in a much weaker relative position within Europe on the eve of World War I.<sup>7</sup> Annual income growth may be reckoned at perhaps 1 per cent or marginally more. More ambitious estimates specify the growth rates to two decimal places, which we shall not repeat since even the best data (those on agriculture) are rough contemporary estimates just about acceptable for official purposes at the time, and the rest consists of proxy data and crude extrapolations from one sector to another.<sup>8</sup> However, a growth rate of 1 per cent seems plausible and is in accordance with the growth rate of wealth: a projection of micro-data yields per capita wealth of about 2,270 florins between 1820 and 1866 and about 4,500 florins between 1867 and 1913 at 1914 prices, which amounts to an average annual growth rate of just under than 1.5 per cent.<sup>9</sup> Given the numerous sources of error in the estimating procedures both for income and of wealth, these results may still be regarded as sufficiently consistent given the correlation between the growth of income and wealth, and the data used in the respective studies.

In a broad definition of income and wealth, their growth rates can be expected to be equal only if we accept certain tautological assumptions. In such a definition, income includes:

- both market and subsistence income as well as benefits from owners' own consumption (for instance, benefits from living in one's own house),
- both income from human capital (including personal claims like pension claims and so on) and from physical (including financial) assets, and
- both material and immaterial benefits (immaterial ones gained from, for instance, holding and enjoying valuable objects).

Accordingly, wealth includes human capital (including personal claims) and physical and financial assets regardless of whether they yield any market income. Under these conditions, the growth rates of domestic wealth and income will be equal, and those of wealth owned by nationals and income of nationals will also be equal.

The result is tautological since we can estimate the value of human capital only by capitalization of the income derived from it (not, for instance, by calculating investments in education).

7 M.-S. Schulze, Patterns of Growth and Stagnation in the Late Nineteenth Century Habsburg Economy, in: European Review of Economic History 4, 2000, pp. 311-340; *Idem*, Origins of Catch-up Failure: Comparative Productivity Growth in the Habsburg Empire, 1870-1910, in: European Review of Economic History 11, 2007, pp. 189-218.

8 M. Pammer, Entwicklung und Ungleichheit. Österreich im 19. Jahrhundert, Stuttgart 2002, pp. 175-183. Income data are very poor up to the introduction of accident insurance in 1888/89 (covering workers in factories with more than twenty employees) and the income tax reform of 1896.

9 *Idem*, Inequality in Property Incomes in Nineteenth-century Austria, in: Journal of Income Distribution 9, 2000, pp. 65-87, p. 75.

Benefits from owners' own consumption as well as immaterial benefits must be calculated applying some interest rates. In some cases, this interest rate may be estimated straightforwardly, for instance, by applying market rates on the wealth-income ratio for houses or on subsistence income (an important point, subsistence income being the main source of income for a major part of the population in the 19th century). Generally, such an estimation would assume a more or less even (risk-adjusted) interest rate for all kinds of wealth. This is plausible as long as different kinds of assets can easily be converted into one another: for instance, a painting yields the same (albeit immaterial) benefit as financial assets of the same value because otherwise the painting's market price would have to adjust. Of course, conversion is not equally easy for all kinds of assets.

A narrower definition of wealth, comprising only physical and financial assets, does not allow a straightforward projection to overall income, although this has been done in some studies based on wealth left by persons after their death.<sup>10</sup> According to all historical studies on the distribution of wealth, a major part of the population did not own any physical wealth at all, but clearly everybody must have earned some income, at least in kind. Thus, calculating overall income straightforwardly as a proportion of physical wealth will obviously yield the wrong results.

Given these considerations, the wealth data used in this article need not necessarily produce the same growth rates as the income studies available for Austria. Our wealth data measure wealth of national households excluding human capital, whereas the income data are supposed to measure domestic production, including subsistence production (and, of course, income from human capital) and excluding immaterial benefits.

This article relies on wealth data gained from probate inventories, an abundant source in many countries and particularly useful in the Austrian case. The Austrian law required a probate process in every case of death even when decedents had not left any property (in those cases, the case was cut short but the file was kept like any other file). Therefore Austrian probate sources, unlike probate records in some other countries, cover the whole population. The sample used in this study consists of about 7,100 cases from the period between 1820 and 1913.<sup>11</sup>

Probate files list belongings left after death, that is, they inform about real estate, movables (including valuables), financial assets and businesses, but almost never about the income a person had earned in their life, nor about pensions, life annuities or other such income. Thus, in the following, wealth means only physical and financial assets, not human capital.

The distribution of wealth as listed in probate inventories is probably different from the wealth distribution in the overall population because mortality depends on age, and wealth also depends on age to a certain degree. This relation between age and wealth may seem obvious beforehand: people accumulate wealth during their lifetime, either up to their death (in case they dispose of means independently from labour) or up to certain age from which

10 See, for example, A. Jones, *Wealth of a Nation to Be: The American Colonies on the Eve of the Revolution*, New York 1980, pp. 369-374. Jones assumes income to equal a certain proportion of wealth as estimated in probate records.

11 For a further discussion of the sources used in this analysis, see M. Pammer, *Austrian Private Investments in Hungary, 1850-1913*, in: *European Review of Economic History* 2, 1998, pp. 141-169, Appendix; *Idem*, *Inequality in Property Incomes*.

point on they stop saving. However, in 19th century Austria large parts of the population fit in neither pattern. In the agricultural population which comprised about 40 per cent of the population as late as 1900 and in rural industry, wealth depended heavily on transfers between generations. These transfers happened on a few occasions, particularly when farmers or rural tradespeople retired and consigned their farms or workshops (the latter often being connected with cottages) to a son or daughter or someone else, receiving a life-annuity in compensation. Children who did not succeed in the farm or shop received their inheritance mostly when their parents died, sometimes in advance. In any case, these transfers, which represented the main part of the following generation's wealth, happened relatively early on in the beneficiaries' lives. For major parts of the secondary and tertiary sector, on the other hand, wealth peaked at an age of about 60 years and diminished slightly afterwards, if at all.

## II.

Can we use wealth data to put the Kuznets theses to a test? The Kuznets curve relies on the assumption that the income distribution will widen in the first decades of modern economic growth, and become more even afterwards. For Germany, Kuznets assumes a widening distribution up the 1890s, and a narrowing one from World War I onwards.<sup>12</sup> If these assumptions are correct, we may assume a trend in the same direction for the distribution of wealth in the first period. This trend will be even more pronounced due to higher savings rates in high-income groups, which lead to a disproportionately high accumulation of wealth in these groups. Whether the wealth distribution narrows in the second period is less clear because even in a narrowing income distribution the savings rates of upper income groups will be higher. Therefore, in the second period (which is not in the focus of this article) the distribution of wealth might continue to widen.

In the following, we measure inequality using the Gini coefficient, because this measure can easily be disaggregated according to the relevant characteristics of the people included in the sample. The Gini coefficient yields rather ambiguous results when employed as an aggregate measure, but its disaggregate form allows a detailed and easily accessible analysis of where inequality arises.<sup>13</sup> Disaggregation is easy due to the simplicity of the coefficient. The Gini coefficient is the quotient of two terms: the mean absolute wealth difference between any two members of the population, and twice the mean wealth in the population. This has two implications:

1. Since the Gini coefficient is basically the result of a sum of differences, it can originate from a variety of patterns of wealth distribution, and it can be decomposed according to the interesting criteria.
2. By decomposing the coefficient, inequality can be expressed as the expected difference in wealth between two individuals drawn at random.

For an analysis of regional inequality, the interesting criterion for the decomposition of the Gini coefficient is, of course, the region to which an individual belongs. If we subdivide our

<sup>12</sup> Kuznets, Economic Growth and Income Inequality, p. 19.

<sup>13</sup> This part of the analysis follows G. Pyatt, On the Interpretation and Disaggregation of Gini Coefficients, in: Economic Journal 86, 1976, pp. 243-255.

sample into regional groups, regional inequality is split up and attributed to specific constellations of regional groups to which the individuals belong.

For a better understanding of this analysis, we reflect on how individuals would behave in a certain hypothetical game: what would members of our population do if they had the free choice to keep their wealth status or to switch places with other randomly selected members? We assume that individuals would keep their former wealth status if the new place offered the same or a lower wealth status, but would take the new place if it promised higher wealth. Although this assumption may seem intuitively plausible it should be stressed that it holds only *ceteris paribus*. Clearly, worldly goods are not the only and often not a decisive source of happiness, and becoming ever richer only offers diminishing returns. But, in the sage's words, "*ceteris paribus*, he who is rich in a civilized society, must be happier than he who is poor; as riches, if properly used, (and it is a man's own fault if they are not,) must be productive of the highest advantages. Money, to be sure, of itself is of no use; for its only use is to part with it."<sup>14</sup> This may be understood quite literally: *ceteris paribus*, owning more wealth makes a man happier simply because the rich are free to dispense with their wealth (and become poor) whereas the poor obviously are not free to enrich themselves (and become wealthy). Thus, for the purpose of our hypothetical game, we may assume that wealth, offering the freedom to keep or change one's social status is, *ceteris paribus*, desirable in any case and people will behave as described. In an aggregate analysis, the *ceteris paribus* clause becomes irrelevant since individual variations in the marginal conditions will be cancelled out anyway. This holds for a regional comparison, too, unless the valuation of wealth differentials in itself is associated with the regions to which persons belong. However, given the rather uniform market conditions of the 19th century there is no reason to assume that, for instance, Lower Austrian wealth would have been esteemed differently from Carinthian wealth.

In our hypothetical game, the relevant differences in wealth are always either zero or positive (the negative differences are disregarded), and therefore there are no losers. The potential gain can be expressed in absolute values; however, if we calculate the Gini coefficient we must express the potential gain as a proportion of the present wealth status.

If we deal with a population that is divided into regional groups, we can sum up these results for those groups. Calculating intraregional inequality, we ask what the gains of any member of a certain region would be if they changed rank with another member of the same region, for instance, we ask what Styrians could expect if they took the place of any other Styrian – again, the gains are expressed as a proportion of mean group wealth. Technically, we compare every single Styrian with every single other Styrian and calculate means; consequently, we do not focus on individual cases any more but deal with typical constellations. In this way, we calculate intraregional inequality for every region. Weighted by the size of the regions and summed up, these results yield a measure of intraregional inequality in the whole sample.

Interregional inequality is basically measured in the same way. Now we ask what the gains of any member of region A would be if they changed to region B. For instance, we ask what typical Carinthians could expect if they took the place of typical Lower Austrians – we com-

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14 J. Boswell, *The Life of Samuel Johnson*, New York 1992, p. 276.

pare every single Carinthian with every single Lower Austrian and calculate means. In this way, we can compare every region with every other region. Weighted by group size and summed up, these comparisons yield a measure of interregional inequality. However, inequality between two regions can result from two different constellations:

1. Every member of region A owns more wealth than any member of region B. In this case, interregional inequality is equal to the inequality in regional mean wealth.
2. Some members of region A own more wealth than some members of region B, and *vice versa*. On an average, region A may be richer than region B, but the wealth distributions of the two regions overlap. In this case, interregional inequality consists of inequality due to differences in regional mean wealth and inequality due to overlapping wealth distributions.

To sum up, in this article, the Gini coefficient denoting wealth inequality in the whole population is disaggregated into three terms: one of these terms denotes wealth inequality within the single regions, another depends on the differences in mean wealth between regions, the third one accounts for the inequality that is not covered by the other two terms and is due to overlapping regional wealth distributions. These three terms constitute the basic framework for the determination of regional patterns of inequality. They do not depend on each other in a strict sense, but are interrelated insofar as a lower degree of intraregional inequality and marked differences in mean wealth between regions will usually coincide with a minor importance of overlapping regional distributions.

Concerning the discussion of happiness, the relevance of inequality is far from self-evident. Clearly, a widening distribution means that some people enjoy increasing means (and are thus happier) than others. But the wealth distribution may well widen in a growing economy that allows for growing income in all classes, albeit more so in the upper ones. In this case, everyone will end up happier. On the other hand, happiness may also depend on the distribution as such, meaning that people rate their relative wealth (and income) status rather than their absolute wealth. In fact, current poverty statistics in developed countries are mostly based on such a concept of relative poverty. Of course, the idea that happiness is not just related to one's absolute status but also to one's rank is not implausible. However, the result depends on what the relevant population is. The concept of relative poverty usually assumes that people's relative position within their narrower environment counts more than their position within a wider context. For instance, the OECD publishes its poverty statistics on the level of national states, that is, poverty in any country is defined as related to the median income in the same country but not to the OECD income or world income. As a result, large countries will, *ceteris paribus*, display a higher degree of inequality due to wider regional disparities. Thus, in the context of our analysis, such a regional approach focuses on intraregional inequality as defined above, and leaves aside interregional inequality of both kinds.

### III.

In the nineteenth century, the Gini coefficient for overall wealth inequality in Austria lay between 0.8 and 0.9, in other words, close to maximum inequality (which would be 1.0) (*Graph 1*). This is much more than what can be observed for income distributions at any stage of development, but is not uncommon for a wealth distribution prior to or in the first stages of modern economic growth. For example, the United States, Canada, Norway and

Denmark show a similar wealth distribution at the end of the 18th or during the 19th century, respectively.<sup>15</sup>

The changes over time are more important. Wealth inequality seems especially high before 1840 and around 1900. From 1840 onwards, the development is more or less in accordance with what Kuznets assumed. The high values at the beginning of the period, however, do not fit to his conclusions.<sup>16</sup> A distinction according to regional criteria gives a better idea of variation and continuity in the distribution of wealth (*Graph 1*). Throughout the period, two thirds of the observed inequality was inequality between regions. The major part of this interregional inequality, however, was due to overlapping distributions: up to the 1870s, about half of overall inequality was inequality by overlapping distributions, and the rest was due to intraregional inequality in the first place and inequality by mean differences between regions in the second. From the 1870s onwards, the proportion of inequality by overlapping distributions becomes smaller. A large proportion of inequality by overlapping distributions means that regional conditions explain only a minor part of inequality: obviously it was not uncommon that quite a number of inhabitants of poor regions managed to accumulate fortunes that were larger than many fortunes in rich regions. Generally, it should be stressed that results of this kind of disaggregation (though not the Gini coefficient for the whole population) depend on the number and size of groups. A larger number of groups, properly defined, lowers the size of overall intragroup inequality.

Thus, regions showed little homogeneity in the wealth status of their inhabitants, although some regional characteristics and typical differences between regions are obvious. Moreover, a closer examination shows that changes in intraregional inequality as observed in the sample are mostly changes within Lower Austria. For most of the time, 75 to over 90 per cent of intraregional inequality was inequality within Lower Austria, which partly reflects the high proportion of Lower Austria in the population of Austria and partly the specifically high wealth differentials in this province. *Graph 2* which draws Lorenz curves for Lower Austria at different points of time, reveals that inequality became much more pronounced in Lower Austria up to 1890 and sank somewhat during the following two decades.<sup>17</sup>

Regional differences can be determined more precisely by focusing on single regions and their specific relations to other regions (*Graph 3* and *4*). *Graph 3* sums up results from an analysis of pairwise relations between Lower Austria and each other region; the pairwise relations between the other regions are left aside. The values given in the graph denote two kinds of inequality:

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15 L. Soltow, Wealth Distribution in Denmark in 1789, in: Scandinavian Economic History Review 27, 1979, pp. 121-138, p. 130; *Idem*, Wealth Distribution in Norway and Denmark in 1789, in: Historisk Tidskrift 59, 1980, pp. 221-235, pp. 230-231; *Idem*, Patterns of Wealthholding in Wisconsin since 1850, Madison 1971; G. Darroch/L. Soltow, Property and Inequality in Victorian Ontario, Toronto 1994; for the following results, Pammer, Entwicklung und Ungleichheit, pp. 202-210.

16 Kuznets, Economic Growth and Income Inequality, pp. 12-18.

17 The Lorenz curve is a graphical expression of the Gini coefficient as well as other indicators of inequality. The proportion of the area enclosed by the diagonal and the Lorenz curve, to the triangle formed by the axes and the diagonal, is equal to the Gini coefficient. In addition, the Lorenz curve allows an inspection of proportions in overall wealth owned by, for instance, the bottom 10 per cent, or the top 10 per cent, and so on.

- *Advantage* is one fraction of inequality between Lower Austria and other regions. In the sense of the game described in section I, *advantage* is equal to the gains that a person from outside of Lower Austria could have expected when taking the place of an average Lower Austrian. In other words, it is the advantage Lower Austrians enjoyed compared to other Austrians.
- Correspondingly, *disadvantage* is equal to the gains that Lower Austrians could have expected when taking the place of other Austrians, in other words, the advantage of other Austrians over Lower Austrians.

Summed up, these two kinds of inequality yield a Gini coefficient for the specific situation of one province in comparison with other provinces. Since wealth distributions of regions usually overlap, both *advantage* and *disadvantage* are positive.<sup>18</sup> The high values of *advantage* and low values of *disadvantage* given for Lower Austria indicate this province's favourable position, which means that Lower Austrians generally owned more wealth than inhabitants of other provinces. This difference became more marked over the course of the nineteenth century, when the wealth distributions of Lower Austria and other provinces overlapped less than before. Furthermore, overall inequality in this constellation rose from the middle of the nineteenth century up to 1890,<sup>19</sup> and in the last two decades prior to World War I the distance between Lower Austria and the other regions seems to have narrowed, possibly a sign of the more backward provinces catching up.

Changes in the pattern of regional inequality among the Austrian provinces appear primarily when comparing Lower Austria with the other provinces. Lower Austria was always ahead of the other lands and improved its leading position further in the second half of the nineteenth century. The other lands only managed to reduce their gap to the leading province in the last two decades prior to World War I.

#### IV.

So far, intraregional inequality has been analysed for all regions taken together (*Graph 1*). In this section, intraregional inequality will be examined for every province separately, which yields a clearer picture of the situation within the single regions. The measures of intraregional inequality of these regions can, of course, be transformed into overall Gini coefficients of the same regions, and can graphically be shown as Lorenz curves. Lorenz curves for single provinces are given in *Graph 4*.

Following Kuznets' basic ideas about the changes in inequality in a growing economy of the nineteenth century we would expect the distribution of wealth to be most unequal in the most advanced regions up to the end of the century. From that point of time onwards, the distribution might become narrower again in these regions. In the backward regions, on the other hand, the distribution of wealth may be expected to remain relatively equal, considering the slow changes in the sectorial structure and the low degree of urbanization in those regions.<sup>20</sup>

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18 In a constellation where wealth distributions do not overlap, either *advantage* or *disadvantage* would be zero, and in a situation of universal equality both would be zero.

19 This is not a necessary consequence – overall inequality could remain constant although the difference between *advantage* and *disadvantage* rises.

20 Kuznets, Economic Growth and Income Inequality.

However, a comparison of the Austrian provinces does not yield a consistent picture: inequality is highest in the most advanced region, Lower Austria, and the most backward region, Carinthia; only in the last decades before World War I does Upper Austria show a similar degree of inequality. Salzburg, Tyrol and Vorarlberg, on the other hand, seem to have been comparably egalitarian, with Gini coefficients of 0.65 or less (*Graphs 4 and 5*).

An explanation of these results has to take into account that these regions differed from each other greatly in terms of sectorial structure, economic growth, mentalities and various aspects of social structure. Since there is no constant relation between sectorial change, migration, urbanization and inequality in the various regions, we will have to employ specific sets of factors for each province, although this may seem *ad hoc*.

There is one region which largely follows the basic assumptions underlying the Kuznets curve: Lower Austria was on the ascending part of the Kuznets curve, with a peak around 1890 or 1900, which fits nicely with the German development as described above. Lower Austria was the most advanced province and a fast growing one, closer to the German pattern of development than any other region of Austria-Hungary. It had a comparably small and shrinking agricultural sector, an advanced industrial and a large service sector, a fast growing metropolitan area (Vienna) and a high degree of immigration (in 1890, 30 per cent of the Lower Austrian population were born outside the province), which favoured a more unequal wealth distribution (*Graphs 6 and 7*).<sup>21</sup>

The development of other regions is harder to explain. At first sight, Upper Austria seems to confirm the idea of a widening distribution in the course of economic growth. But Upper Austria is not exactly a model of dynamic development in the nineteenth century: the region was generally well off but was still a predominantly agrarian province and only showed slow changes both in demographics (Upper Austria had just 10 per cent of immigrant population) and in its sectorial structure, which would also suggest little change in the distribution of wealth (*Graphs 6 and 7*). In fact, inequality in this state was rather marked and became even more so in the last decades before World War I.

Vorarlberg followed its own path of development in almost every respect and also had a specific history of wealth distribution. This small province in the West of Austria, which is part of the Alemannic (that is, Swiss-Suevian) culture, was a rural industrial region whose success story was founded on its peculiar institutional system. The beginnings of Vorarlberg's remarkable development were marked by the poverty of an agricultural economy in a mountainous region with poor soil and a growing population. The inheritance laws of this province were an exception to the Austrian civil law insofar as landed property was divided in kind among the heirs in major parts of the province (by way of contrast, the predominant system in the rest of Austria provided for entailed estates). This led to a fragmentation of

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21 Die Ergebnisse der Volkszählung vom 31. December 1890 in den im Reichsrathe vertretenen Königreichen und Ländern. XXXII. Bd., 3. Heft: Die Bevölkerung nach Größenkategorien der Ortschaften, Stellung zum Wohnungsinhaber, Geschlecht, Alter und Familienstand, Confession, Umgangssprache, Bildungsgrad, Gebrechen (= Oesterreichische Statistik XXXII.3). XXXIII. Bd.: Berufsstatistik nach den Ergebnissen der Volkszählung vom 31. December 1890 in den im Reichsrathe vertretenen Königreichen und Ländern. 2. Heft: Nieder-Österreich. 3. Heft: Ober-Österreich und Salzburg. 4. Heft: Steiermark. 5. Heft: Kärnten und Krain. 7. Heft: Tirol und Vorarlberg (= Oesterreichische Statistik XXXIII.2-5,7), bearb. von dem Bureau der k. k. Statistischen Central-Commission, Wien 1892-1894.

estates and, in a growing population, to ever smaller estates and a high proportion of self-employed people within the agricultural sector (*Graphs 7 and 8*). The solution was protoindustrialization, the emergence of a highly successful textile industry and some emigration to the New World.<sup>22</sup> In the end, Vorarlberg was still a rural province with a working-class of industrial labourers and cottagers at the same time, who were petit-bourgeois rather than proletarian. The uncommonly egalitarian distribution of wealth in this province, which may seem strange taking into account Vorarlberg's status as an advanced region (second only to Lower Austria), becomes understandable in the context of this very special social system.

Carinthia represents quite a different case, again marked by specific institutions, both formal and informal ones, and the ecological conditions that determined its kind of agriculture. Formally, in terms of inheritance laws, Carinthia was a province of entailed property, which led to a heavy concentration of land in a small part of the population and a particularly low proportion of self-employed people within agriculture. The Carinthian agriculture focused on cattle-breeding, which demanded a large number of domestics who lived on the farms; these domestics remained mostly unmarried because they did not own the necessary means and, if they wished to marry anyway, did not obtain the consent of the authorities, which was necessary for a marriage at that time. These conditions coincided with an uncommonly high rate of illegitimate births which lay around 40 per cent in Carinthia (*Graph 9*) and were not just due to low marriage rates but also to a specific set of mentalities.<sup>23</sup> Almost all of these illegitimate births happened in the lower class population, often from parents who had been born illegitimately themselves. This fact determined wealth formation directly because according to civil law, illegitimate offspring inherited only from their mothers not from their fathers (unless an illegitimate father provided for his child by will). Altogether, these Carinthian family structures led to the formation of a rigid lower class and a class status that was handed down from illegitimate parents to their children.<sup>24</sup> This became particularly important for wealth formation because the wealth status of the lower classes was largely determined by what people inherited from their parents, not by what people managed to save themselves. In consequence, Carinthian lower class persons, when compared to the lower class population of other mountain provinces like Salzburg, Styria, or Tyrol, owned particularly little wealth.

## V.

The patterns of wealth distribution in Austria from the middle of the nineteenth century up to the First World War vary considerably according to region. On the aggregate level, including the whole area of today's Austria, we observe a high and slightly rising level of inequality in that period. This development is in accordance with the considerations underlying the Kuznets curve.

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22 M. Pichler, Auswanderer. Von Vorarlberg in die USA 1800-1938, Bregenz 1993, pp. 46-51; H. Weitensfelder, Industrie-Provinz. Vorarlberg in der Frühindustrialisierung 1740-1870, Frankfurt 2001.

23 M. Pammer, Risiko Unehelichkeit. Cisleithanien 1880-1913, in: H. Alexander/E. Dietrich-Daum/W. Meixner (Eds.), Menschen, Regionen, Unternehmen. Festschrift für Franz Mathis zum 60. Geburtstag, Innsbruck 2006, pp. 207-227.

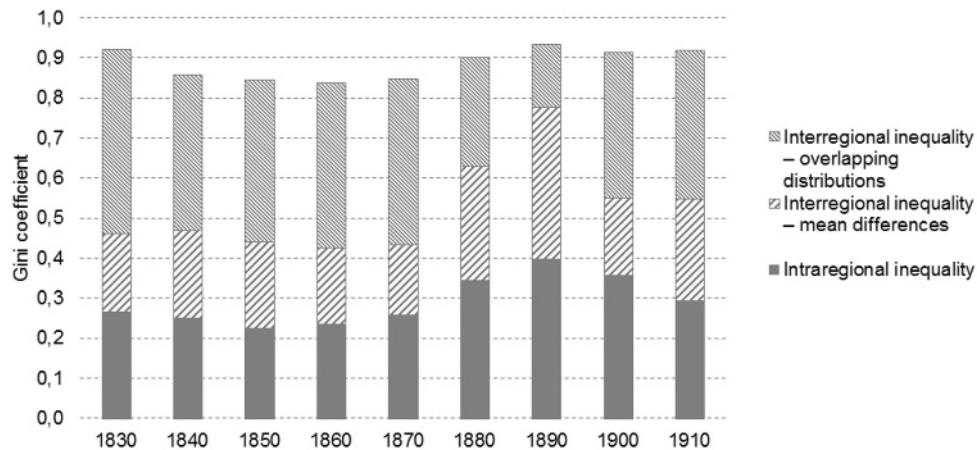
24 *Idem*, Ungleichheit im Ländervergleich, in: G. Ammerer/S.A. Weiss (Eds.), Tradition und Wandel. Beiträge zur Kirchen-, Gesellschafts- und Kulturgeschichte. Festschrift für Heinz Dopsch, München 2001, pp. 361-379.

The disaggregation of the measure of inequality into several regional components reveals more details of wealth distribution within and between regions. First, we see that all provinces, though differing from each other in mean wealth to a certain degree, had wealth distributions in themselves that were wide enough to overlap with wealth distributions of all other provinces. In the context of overall inequality, this kind of interregional inequality is the dominating component.

A separate analysis of intraregional distribution in the single provinces suggests that the idea of a general relation between rising wealth on the one hand and rising inequality on the other hand, does not hold on the regional level. We find rather an unequal distribution both in advanced and backward regions and more egalitarian structures in one of the more dynamic provinces. For an explanation, we address regional specifics in areas like sectorial structure, urbanization, class structure, family structure and patterns of inheritance. Sectorial structure and the degree of urbanization differed greatly between regions; we find low proportions of agriculture in both urbanized and rural-industrial provinces, and a large agricultural sector in other regions. Most regions had specific class structures and family structures, partly in connection with regional specifics in inheritance patterns: in almost all regions entailed property was the rule. The mountain regions had high rates of domestic servants in agriculture and high rates of illegitimate births, which were different in different strata of society; in the law of succession, illegitimacy could decide whether a person had a hereditary title or not. All these factors created a specific situation in every region concerning the accumulation of wealth and handing over wealth from one generation to the next. In some regions this resulted in classes of wealth owners which remained relatively static and represented an unequal distribution of wealth even in a backward society; in other regions quick fluctuation of wealth and a relative openness of social classes resulted in a relatively even distribution.

Taken together, these results suggest that specific institutions influenced the process of wealth formation and the creation of a certain wealth distribution in ways that differed considerably according to regional conditions. Although distribution in an early industrial economy may resemble the standard pattern of inequality patterns on the aggregate level, this standard image may be the rather accidental sum of individual and divergent processes on the disaggregate level.

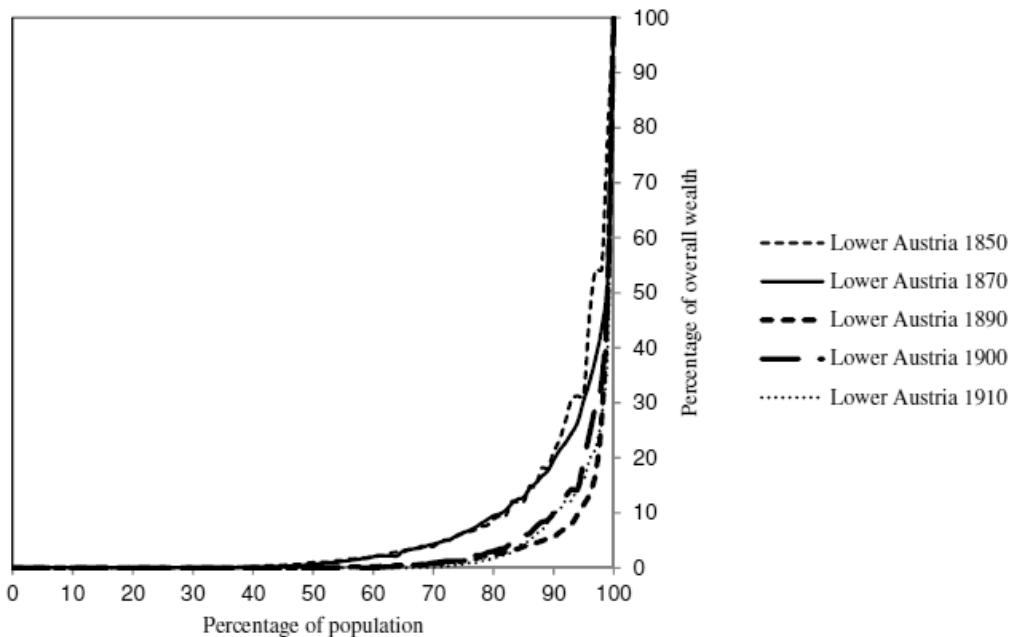
Graph 1: Interregional and intraregional inequality, 1830 to 1910



Sources: Probate inventories, see text.

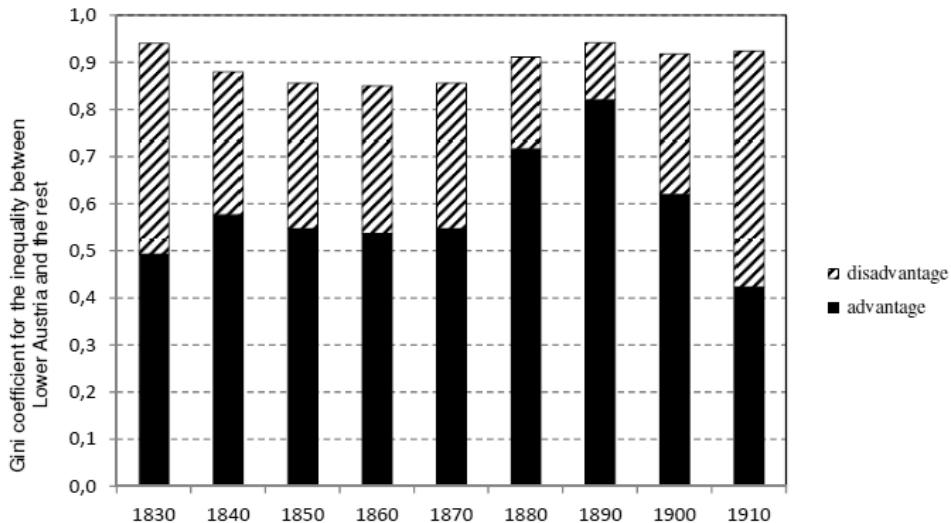
Notes: Data indicate Gini coefficients for given time periods, disaggregated into one intraregional and two interregional terms, summed up over all regions.

Graph 2: Wealth inequality in Lower Austria, 1850 to 1910



Sources: Probate Inventories; see text.

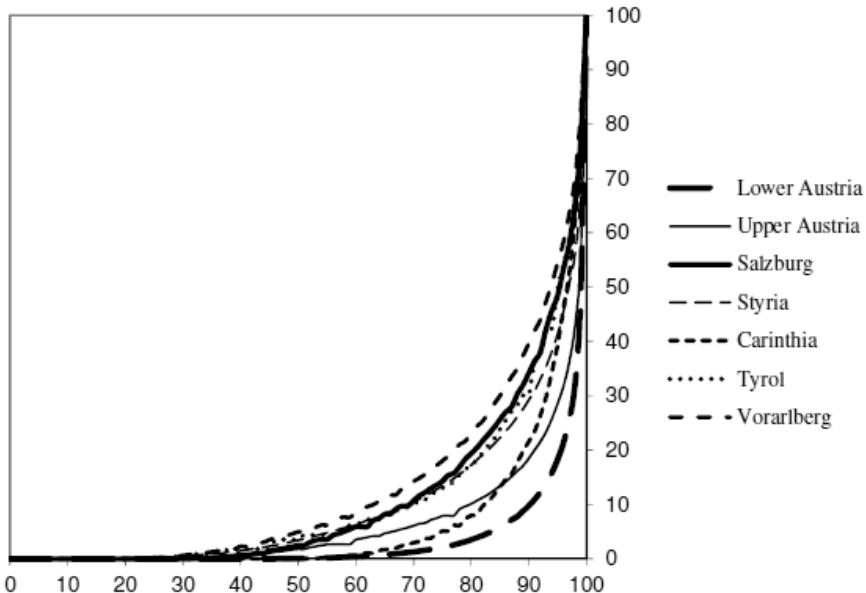
*Graph 3:* Relative Position of Lower Austria, 1830 to 1910



Sources: Probate inventories; see text.

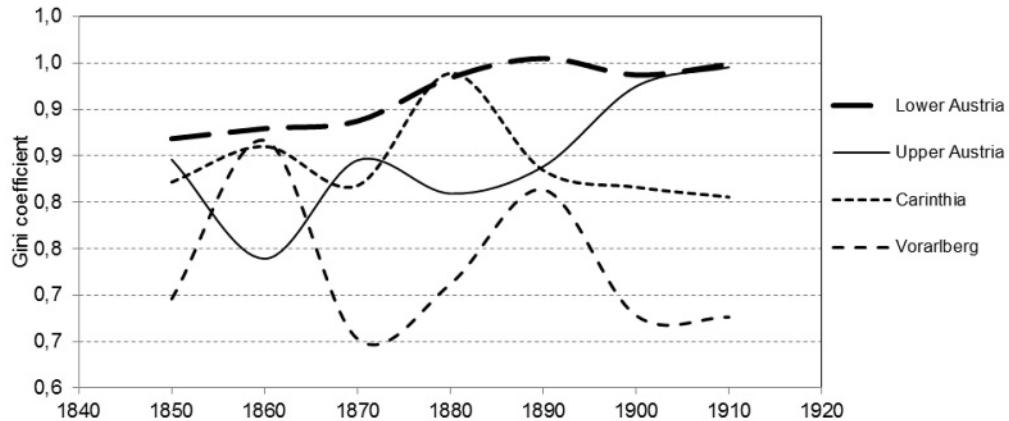
Notes: Data indicate Gini coefficients for the inequality between Lower Austria on the one hand and all other provinces on the other. *advantage* denotes inequality between Lower Austrians and less wealthy other Austrians. *disadvantage* denotes inequality between Lower Austrians and wealthier other Austrians.

*Graph 4:* Wealth inequality in Austrian lands



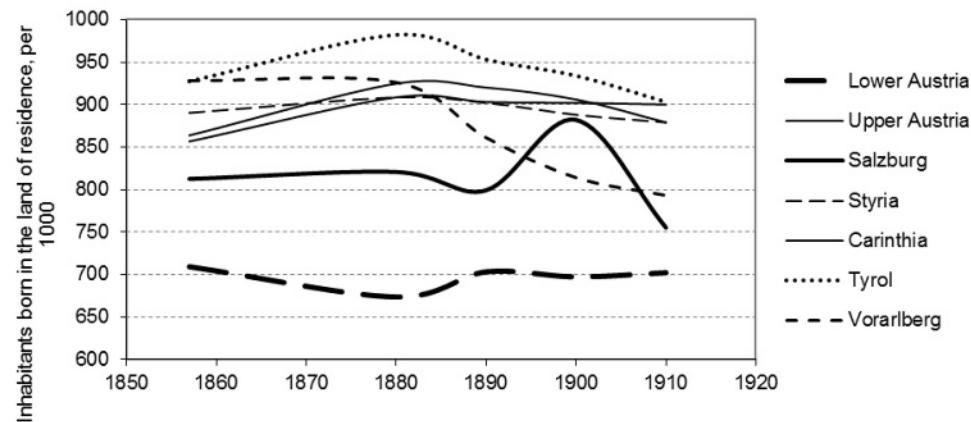
Sources: Probate inventories; see text.

Graph 5: Inequality in various Austrian provinces



Source: Probate inventories; see text.

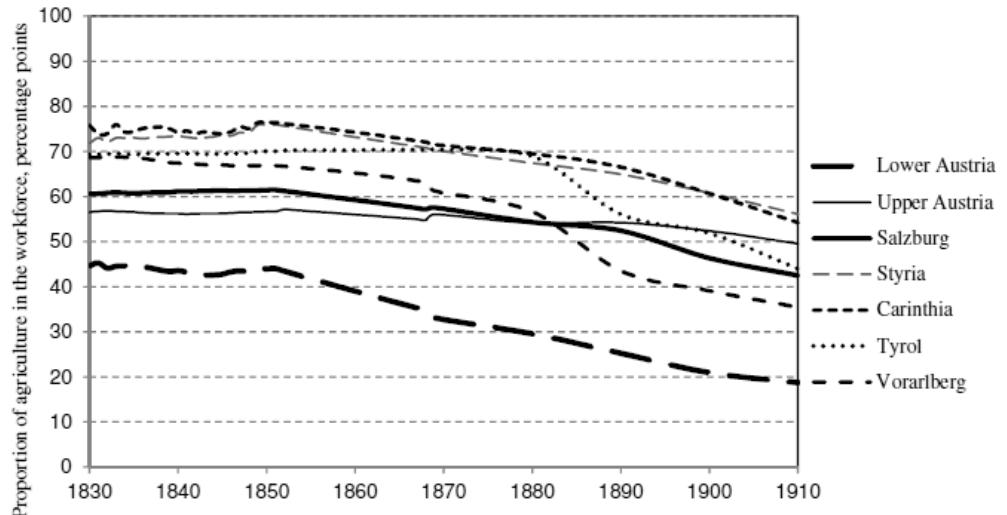
Graph 6: Migration, 1850s to World War I



Source: Österreichische Statistik, Volkszählungen.

Notes: Data indicate the proportion of legal natives (until 1880) or inhabitants born in the respective crown-land (1890 to 1910), per 1000 inhabitants.

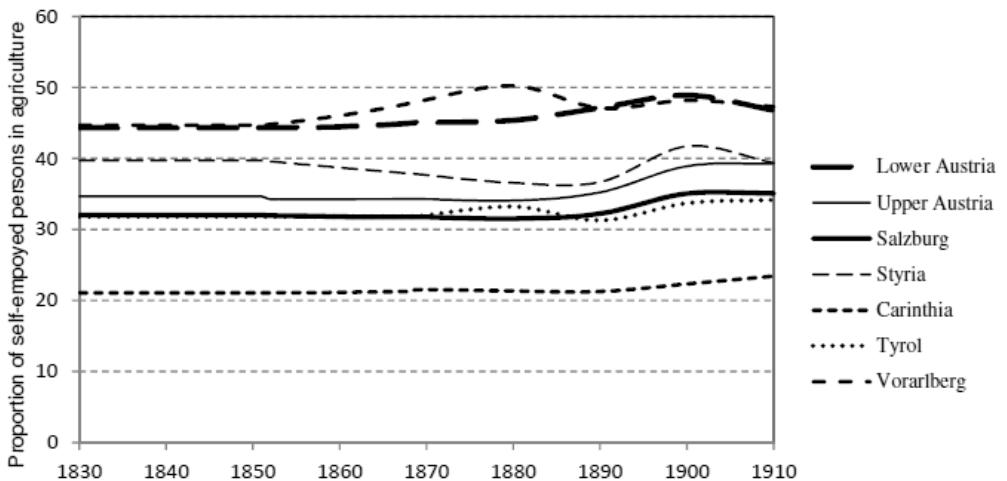
Graph 7: Size of the agricultural sector



Source: Tafeln zur Statistik; Österreichische Statistik.

Notes: Data indicate the proportion of agriculture in the population at an age of 20 years or more.

Graph 8: Employment status in agriculture



Sources: Tafeln zur Statistik; Österreichische Statistik.

Notes: Data indicate the proportion of self-employed farmers in the agricultural population at an age of 20 years or more.

Graph 9: Illegitimacy in Austrian land, 1881 to 1912



Source: Bewegung der Bevölkerung der im Reichsrathe vertretenen Königreiche und Länder, 1881–1912, Wien 1884–1915.

## Sources

The data used in the present analysis were collected in the course of a project on wealth formation in central Europe in the period between 1820 and 1913. As mentioned in the text, data used to determine investment behaviour were gained from probate inventories established in those provinces that now form the Republic of Austria. The following archival sources were used for sampling:

LOWER AUSTRIA: Niederösterreichisches Landesarchiv, A-Akten, BG Amstetten (A 1, 2, 5, 6, 9, 11, 13, 16–20, 22, 26, 28, 32), Aspang (K 1–5, 7, 11, 17, 18, 25–30, 32), Baden (K 4–22, 24–31, 34), BG Dobersberg (K 13–25, 34, 35), Ebreichsdorf (A 1, 2, 4, 6–10), Matzen (K 1). Wiener Stadt- und Landesarchiv, Handelsgericht (A 2 Sch. 1–41, 45–75, 78, 82, 86–95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 159, 160, 165, 170, 175, 180, 185, 190, 195, 200, 205, 210, 215, 230, 233, 235, 244, 245, 258, 260; A 11 Sch. 8, 10, 29, 30, 31, 50, 69, 70, 82, 90, 92, 109, 110, 113, 117–8, 129, 130, 150, 165, 170, 190, 210, 219, 220, 230, 240, 250, 258, 260, 270, 289, 290); BG Innere Stadt I (A 2 Sch. 1, 3–6, 30–2, 52, 80, 100, 120, 140, 145, 150, 155, 160, 190, 198, 200, 209, 210, 220, 228, 230, 240, 250, 260, 270, 280, 300, 315, 330, 340, 360, 370, 390, 400, 420, 430, 440, 460, 480, 500, 520, 540, 560, 580, 587, 600, 607, 620, 636, 640, 660, 680, 695, 700, 707, 720, 740; 5A 31 Sch. 1, 5, 8, 13; 6A 36 Sch. 47, 51, 53), Leopoldstadt I (A 1850, 1851, A 2 Sch. 6; 1A 11 Sch. 25, 46), Landstraße (A 1875–97; 5A 21 Sch. 43, 49, 61, 65), Wieden (A 2 Sch. 18, 36, 60, 95, 100; A 11 Sch. 71), Mariahilf (A 1850), Neubau (A 2 Sch. 9, 52; 2A 16 Sch. 36). Österreichisches Staatsarchiv, Allgemeines Verwaltungsarchiv, Niederösterreichisches Landrecht 5 (Verlassenschaftsabhandlungen) 61, 63, 65, 66, 68, 69, 71, 73, 74.

UPPER AUSTRIA: Oberösterreichisches Landesarchiv, BG/LG Linz (Präs 1854 ff, Abh. Sch. 1000–7, 1009, 1011–2, 1015–6, 1019, 1025, 1027, 1028, 1032–5, 1037, 1040, 1042, 1045, 1047–1051, 1053, 1055–6), BG Braunau (A 54, 64, 91–2, 108), Eferding (A 7, 44), Frankenmarkt (A 4, 12, 71), Freistadt (A 17, 44, 70, 108), Grein (A 16, 53), Grieskirchen (A 16, 46), Grünburg (A 8, 15, 16, 23, 28, 44), Ischl (A 13, 42, 44, 52, 54, 58, 70, 78), Kirchdorf (A 1, 19), Kremsmünster (A 3, 22, 28, 31, 58, 81, 87, 89, 91, 115–6), Lambach (A 8, 17–8, 34, 42–3, 48), Leonfelden (A 34, 46, 64, 106), Mauthausen (A 2), Mondsee (A 19), Ottensheim (A 10, 17), Pregarten (A 30), Ried (A 3, 55, 65, 78, 96, 119, 137, 140), Schärding (A 73, 106, 110, 115, 134, 185, 194, 200), Urfahr (A 10, 36), Wildshut (A 2, 10, 14, 24), Wels (A 10, 30, 35, 47, 50, 70, 126).

SALZBURG: Salzburger Landesarchiv, BG Salzburg (A Sch. 430, 432, 436, 438, 442, 445, 447, 450, 455, 464, 466, 474, 477, 536, 559, 570, 597, 598, 610; A I Sch. 160, 185, 249), Golling (A I Sch. 6–8), Hallein (A Sch. 98, 107, 109, 111, 117, 121, 122, 129, 130, 145, 146), Lofer (IV A Sch. 7, 9, 16), Mattsee (Sch. 17, 19), Mittersill (A Sch. 226–9, 231–6, 240, 243–5, 248–59, 269, 270, 274, 277, 285, 288, 289, 291), Neumarkt (1 A 1898–9, 1909–11), Oberndorf (IV 1861; IV A 1869 57; IV 1870; IV A 1874 63), Saalfelden (A Sch. 67, 142, 148–9), St. Gilgen (A Sch. 21, 29), Tamsweg (P 89), Thalgau (A 8, 29, 30), Werfen (A Sch. 60, 75, 76, 122–5, 132–3), Zell am See (A 7a, 13, 29).

STYRIA: Steiermärkisches Landesarchiv, Landesgericht (A 1903, 1–13), BG Aflenz (A 1884, 1904), Birkfeld (A 1850), Bruck (A 1865, 1871, 1872–3, 1879, 1893, 1912), Eisenerz (A 1858–61), Fürstenfeld (A 1871–2, 1906–7), Gleisdorf (A Sch. 22), Graz (D 1853, 1856, 1860, 1862, 1867, 1869, 1871, 1873, 1882, 1886, 1891, 1892, 1895; A 8 1899, 1901, 1905, 1910, 1912), Graz-Umgebung (A 1868), Gröbming (A 1899–1903), Hartberg (A Sch. 48, 228), Irdning (A Sch. 10, 88), Judenburg (A Sch. 57, 73, 74, 77, 80, 84, 89), Knittelfeld (A 1850, 1898, 1900, 1901, 1903), Leibnitz (A Sch. 66, 74), Liezen (A 1863, 1907), Murau (A Sch. 8), Mureck (A 1855, 1909), Neumarkt (A 1870, 1873, 1875, 1879, 1911), Obdach (A Sch. 7–8), Oberwölz (A Sch. 9, 11), Pöllau (A Sch. 193, 200, 202), Radkersburg (A Sch. 108, 137), Schladming (A 1899), Stainz (A Sch. 38, 47, 198), Voitsberg (A 1859, 1865, 1872, 1876, 1880, 1883, 1889, 1894, 1896, 1897, 1899–1909), Voral (A 1856–63), Weiz (A 1877, 1885).

CARINTHIA: Kärntner Landesarchiv, BG Althofen (Abhandlungen Fasz. 27, 35, 42, 49), Ferlach (Akten 30, 31, 42, 45, 50, 72, 86), Gurk (Verlässe Sch. 43, 54), Millstatt (Verlassenschafts-, Vormundschafts- und Kuratelsakten 27, 28, 34, 35, 39, 60, 75, 84), Paternion (1, 3), Wolfsberg (27, 31, 75, 83).

TYROL: Tiroler Landesarchiv, BG Imst (A 1, 2, 6), Innsbruck (A 1, 10, 17, 23, 34, 41, 45, 49, 52, 55, 60, 76, 82, 110, 124, 127, 136, 140, 145, 148), Reutte-Ehrenberg (A 1, 4, 10), Schwaz (A 2, 7, 9), Nauders (A 1, 3–4, 6–7, 9).

VORarlBERG: Vorarlberger Landesarchiv, BG Bludenz (A Sch. 61, 65, 70, 75, 78, 81, 84, 92, 94, 96), Bregenz (A Sch. 104, 114, 121, 127, 130, 131, 132, 133, 144, 152, 156, 164, 169, 172, 180, 184, 186, 188, 189, 190, 192, 193, 196), Feldkirch (A Sch. 38, 49, 57, 67, 69, 77, 88, 93, 98, 106, 111, 112, 117, 124, 128, 133, 148, 146, 147, 154, 168, 170, 171, 186, 191, 195, 197, 204, 207, 212, 214, 221, 229, 234, 238, 240, 241, 242, 243, 244, 248, 252, 253, 254).

**Michael Pammer: Interregional and Intraregional Wealth Inequality in Nineteenth Century Austria***Abstract*

The paper addresses changes in income and wealth inequality in the first decades of modern economic growth. It relies on wealth data gained from probate inventories established in those provinces of the Habsburg Empire that eventually formed the Republic of Austria. These sources cover the whole population in the period between 1820 and 1913, including unpropertied persons. The analysis is based on a sample that consists of about 7,000 cases. The paper first examines wealth distribution on an aggregate level, using the Gini coefficient as a measure of inequality. It shows that the Austrian economy follows a Kuznets curve but that rise and decline are not particularly steep. These results are then compared with development within the regions, which yields quite different results for the regions involved. These results do not show the consistent picture of high inequality in more advanced regions and low inequality in backward regions that might be expected following the basic assumptions underlying the Kuznets curve. The explanation of the specific development within the different regions includes factors like class structure, family structure and patterns of inheritance, which explain why sectorial change, urbanization and other processes did not create a uniform pattern of wealth distribution in those provinces.

Keywords: wealth, Kuznets curve, distribution, inequality, Austria, 19th century, regional comparison

JEL-Codes: N 33, N 93

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