

## 2.5. Rural resilience to disaster: explaining regional divergences (Middle Ages – c. 1850). Part III: Welfare effects of climate anomalies

Panel organiser: Pfister, Ulrich, University of Münster, Germany

240/242

*Antwurt, oder verstaßte Bestung In d. Vogel.*

*Bruggelen.*

	1766.	1767.	1768.	1769.	1770.	1771.	1772.	1773.
<i>Novbr.</i>		Febr.: 15.	Febrg.: 20.	Mark.: 19.	Mark.: 10.	Febrg.:	Febrg.:	Febrg.:
<i>Novbr.</i>		Febrg.: 17.	Febrg.: 26.					Janb.: 20.
<i>Vrossel singh.</i>		Markt.: 7.	Markt.: 17.	Markt.: 13.		Markt.: 6.	Markt.: 8.	Markt.: 1.
<i>Quib. flugh.</i>		Markt.: 9.	Febr.: 29.	Markt.: 7.	Markt.: 25.	Febr.: 23.	Markt.: 4.	Febr.: 21.
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<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>		Markt.: 13.	Markt.: 17.	Apr.: 8.	Markt.: 14.	Markt.: 18.	Febrg.: 29.	Markt.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>	Markt.: 14.	Markt.: 7.	Markt.: 17.	Markt.: 7.	Markt.: 27.	Febr.: 23.	Febrg.: 27.	Markt.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>	Markt.: 14.	Markt.: 7.	Markt.: 24.	Markt.: 15. Apr.: 16.	Markt.: 19. Apr.: 26.	Markt.: 16.	Markt.: 11.	Markt.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>	Markt.: 17.	Markt.: 18.	Markt.: 18.	Markt.: 14. 15.	Apr.: 9.	Markt.: 14.	Markt.: 11. 18.	Markt.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>		Markt.: 25.	Markt.: 28.	Apr.: 24.	Markt.: 28.	Apr.: 2.	Markt.: 24.	Markt.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>		Markt.: 30.	Apr.: 12.	Apr.: 26.				Markt.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>	Apr.: 6.	Apr.: 12.	Apr.: 30.	Apr.: 22.	Apr.: 18.	Apr.: 23.	Mai.: 3.	Apr.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>		Apr.: 10.	Apr.: 3.	Apr.: 21.	Markt.: 18.	Apr.: 12.	Markt.: 30.	Apr.: 1.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>			Apr.: 12.					Apr.: 28.
<i>W. P. l. e. n.</i> <i>Bahlw. i. g. r.</i>		Apr.: 13.	Apr.: 16.	Apr.: 14.	Apr.: 26.	Apr.: 13.	Apr.: 14.	Apr.: 2.

*Rittsch. i. n.*  
*W. P. l. e. n.*

The session includes contributions relating to the following two interrelated issues: (1) There are still very few studies using the relatively high-resolution data on climatic fluctuations that have become available over the past 15 years to assess the impact of fluctuations of climatic conditions on agricultural output, food prices and vital events. In particular, the description of the statistical relationships between climatic variables and vital events holds the potential to uncover regional differences with respect to sensitivity vs. resilience to climatic disaster. (2) It is still unclear to what extent market development improved resilience to climate shocks. Whereas Sen (1981) believed that a harvest failure not only operated through a supply shock but also led to a collapse of food entitlements through an inward movement of the demand for agricultural labour, others have concluded that markets were capable to mitigate disaster shocks from quite an early period on. By providing new historical evidence on the development of grain markets and its effects on material welfare in terms of the sensitivity of vital events to adverse climate the session will contribute to clarifying this issue.

Chair: Pfister, Ulrich, University of Münster, Germany

Monday 19.8.2013 // 1400 – 1530 // Session 2 – Room A 027

### 2.5.1. Social and economic vulnerability to climatic fluctuations in the Burgundian Low Countries during the fifteenth century

Camenisch, Chantal, University of Bern, Switzerland

During the pre-industrial era human societies were highly vulnerable to climatic fluctuations. For the 15th century the Burgundian Low Countries – the region of modern Belgium, the Netherlands and parts of northern France – are no exception in that regard. For that century a climate reconstruction, based mainly on narrative documents like chronicles, annals, journals or memoirs, which provide descriptions of weather and climate, has been made. Since the source density is sufficient, it was possible to use a seasonal resolution of temperature and precipitation indices. As weather and grain production were strongly linked, the weather-indices have been compared to grain price lists of the same region. The results of the statistical analysis show a remarkable correlation between prices and climatic fluctuations. Of course it is necessary not only to consider climatic fluctuations but also additional factors with regard to the development of the grain price. Amongst them are wars, the impossibility of grain imports or the degree of market integration.

### 2.5.2. Why did welfare improve during the Little Ice Age? Famines, integration of grain markets and nutritional status in early-modern France (17th–18th centuries)

Ewert, Ulf Christian, University of Münster, Germany

After the so-called Maunder Minimum (c. 1675–c. 1715), which is commonly considered as the coldest period of the last millennium, climate on average improved during the 18th century. In addition, aided by improvements in transport infrastructure, eighteenth-century France experienced an increase of grain market integration. Finally, the biological standard of living improved: From about 161 cm for birth cohorts of the 1670s average body height in France increased to about 167 cm for birth cohorts of the 1740s. The paper explores the interplay of climate and markets in bringing about this improvement in material welfare: (1) Annual data on climate conditions, grain prices and average height of the French allows estimating indirect age-specific effects of climate during the period of human growth on the later nutritional status of cohorts. (2) Focusing on the severe subsistence crises of 1693/94, 1709/10, 1740 and 1770 it becomes possible also to derive whether for those cohorts still having been in a growing age at the time it made a difference or not for their nutritional status, at which age starvation was actually experienced. Thus, welfare losses of climatic anomalies can be distinguished from welfare gains of a long-term climatic improvement. (3) Controlling for the long-term development of climatic conditions during the 18th century it is possible to assess the potential risk-reducing effect of increased market integration in times of a climate-induced subsistence crisis.

### 2.5.3. Climate variability and transatlantic migration from Southwest Germany in the nineteenth century

Mauelshagen, Franz, Institute for Advanced Study in the Humanities / Kulturwissenschaftliches Institut (KWI), Essen, Germany

This study looks at the statistical correlation between climatic variability and outmigration from Southwest Germany (Baden, Württemberg, and Bavaria) in the nineteenth century. In this period, Germans together with people from Ireland formed the largest group of immigrants to the U.S. We investigate qualitative links between climatic hardship, push factors resulting from harvest failures and other social circumstances, in the context of outmigration from Southwest Germany to North America. It is particularly important to reconstruct climatic variability and migration down to the local level of municipalities, particularly in a period of social transition from an agrarian to an early industrial society, to understand the complex interrelationship between climate, agriculture and migration.

#### Participants

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