

Historical remarks about the impact of global change on food supply in the Alpine area during the 20th century

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Abstract

Global change in the 20th century has strongly influenced the Alpine area as a whole as well as the Tyrol in particular. This fundamental change, especially in the field of nutrition, shifted the region from shortage to affluence. This development is closely related to general trends, like the speed-up of transportation, the intensification of international exchange and the harmonisation of consumption habits. And while on the one hand new problems arise from the increase of overweight, old problems in form of a chronic food deficit remain.

Keywords: change, history, hunger, nutrition, obesity, Tyrol.

1 Introduction

(Global) change in the 20th century has strongly influenced the Alpine area as a whole and the Tyrol in particular. This fundamental change, especially in the field of nutrition, almost completely transformed the living conditions. While at the beginning of the 20th century, agriculture dominated the Tyrolean region socially as well as economically, a hundred years later the share of the primary sector had dropped below the already low national average. A transformation of the Tyrol into a society dominated by industry and services, particularly tourism, accompanied this change.

This development is closely related to the trends of structural change: the speed-up of transportation (by improving infrastructure), the intensification of international exchange (particularly in the aftermath of Austrian EU accession), the harmonisation of consumption habits (not the least connected to mass tourism), and technical progress. These changes had negative as well as positive effects. While local and regional supply shortages can now be easily balanced, integration intensifies the competition for local producers; while mass tourism promotes demand for local goods, it changes local consumption patterns and aggravates food deficit; and market liberalisation opened up new markets, which – as well as price changes – worked both ways.

Our analysis will not only document this change, but also shed light on diverse connections and raise questions about the challenges ahead. Besides the fundamental problem of a high vulnerability in food supply due to almost complete import dependency and the economic question of chances and risks for local producers of agricultural products, the ecological and medical implications are of particular interest, resulting from growing traffic burdens, increasing competition for land use, and aggravating malnutrition (the overconsumption of unhealthy food).

2 A nutritional history of the Tyrol

2.1 Before the seminal shift: continuous food crisis

Although the Tyrol was an agrarian society in 1900, census data show a deterioration of the share of agriculture in employment even in the first half of the 20th century: from 56% in 1910 it dropped to 46% in 1939 and 37% in 1951, mainly to feed the expansion of industry. Nevertheless, food was always short in the country as geography (only 10% of the area is suitable for agriculture) and climate (cold and snow-rich winters, short growing periods vulnerable to disruptions) did not favour agriculture.

In contrast to today, hunger and extreme food shortage was a recurrent experience in the first half of the century. Even a tourist guide and his two sons in the Dolomites begged the tourists for food (Kramer 1983) and in the Western parts of the country, the sending of so called “Swabian” children to food-rich Southern Germany during summer time was common (Uhlig 1978). While these incidents point to widespread structural under-nutrition, virtual food crises – strange in an agrarian society – happened cyclically in periods of lacking peace or economic stability.

During World War I, people even starved, as for example in May 1918 in the city of Trent (Rettenwander 1997). In March 1916, the *Innsbrucker Hungerchronik* tells: “In this famine one could envy the ruminants” (Neugebauer 1938, translation A.E.). The main reasons were the lack of subsistence in food (the region was strongly dependent on imports from other Austrian regions and abroad) and the Austrian government’s insufficient preparation. In staple food, local imports dropped by three quarters until 1917, and domestic production by a third, resulting in extremely short food supply in the winter of 1917/18 (Rettenwander 1997). After the end of the war, disordered mass retreat of soldiers resulted in a collapse of supply, particularly in the cities (Gasteiger 1986). Until January 1919, food deposits in Innsbruck had disappeared and people received small rations of only about 800 kcal per head and day on average. To allow survival, by the end of April 1919 “smuggling” was allowed for limited quotas of food. During the same year a general strike was declared and hunger riots took place in Innsbruck in December. This escalation provoked international help, and after 1920 the situation improved slowly. Nevertheless it took until December 1921, three years after the war, when the system of food cards for flour and bread was removed, and the food market returned (in theory) to full freedom of transaction (Rettenwander 1997).

However, in reality differences in purchasing power curtailed this freedom, which further aggravated in the following years of war-related hyperinflation (table 1). The weekly wage of a carpenter aide increased from 29 Kronen in 1914 to 331,152 in December 1923 (ÖSZ 1924). While he could afford almost the same amount of bread with it (61 instead of 63 kg), in other foodstuffs the real value declined by a fifth to a third, its equivalent in coal even by more than half (ÖSZ 1923, ÖSZ 1924).

Hyperinflation and its consequences were not forgotten when in 1929 the Great Depression hit the people, doubling unemployment of the non-agrarian workforce to almost a third (Kleon-Praxmarer & Alexander 1994). Consequently, 14% of the

Table 1: Prices of selected staple food 1914–23.

	Current prices in Austrian Kronen		
	Jul 1914	Dec 1921	Dec 1923
1 kg potatoes	0.16	55	1,800
1 kg bread	0.46	54	5,400
1 kg flour	0.52	580	6,600
1 kg sugar	0.84	300	11,400
1 egg	0.08	100	2,375
1 kg butter	3.20	2,400	60,000
1 kg pork	1.96	1,600	36,000
1 kg coffee	4.20	3,000	90,000

population were officially famished in 1933. A food survey among Tyrolean textile workers in 1932 revealed that only 18% had meat more than once a week, 40% once (on Sunday), and 42% only on holidays (Kleon-Praxmarer 1990). Another survey in 1933 came up with even worse results (Nussbaumer 1980). Average energy consumption was 2,215 kcal per head and day, 15% less than even in other regions of Austria.

From 1934 until World War II, the situation improved. Prior to the war the Nazi government (1938–45) introduced a rationing system to avoid food shortage at the home front. Production levels remained stable until at least 1942, mostly even until 1944, but rations were reduced from 2,600 kcal per head and day in 1939 to 1,700 until 1943, and to 1,500 until February 1945 (Schreiber 1994). To achieve this, domestic farmers were strongly controlled, war prisoners and forced labourers were exploited, and imports from occupied territories exacted, a policy resulting in starvation in other regions controlled by German forces (Nussbaumer 2003). Only in 1945, supply broke down and dropped by half in the first half of the year, domestic production provided only 440 kcal per head and day. For months the official rations remained at values around 1,000 kcal per head and day and until 1947 they hardly exceeded 1,400 (figure 1). Only in summer 1948 rations reached sufficiency, although not sustainably and consisting mainly of bread and maize (Nussbaumer and Exenberger 2006). In this situation, it became common to keep chicken on balconies and to use public lawns and gardens as vegetable fields.

Finally, after four years of suffering, the worst was over. While even in the early 1950s some shortages of milk, fat and meat still occurred, the quotation of bread, pasta, cheese and fish was removed in 1949 and for all other goods soon during the early 1950s (Nussbaumer 1992). And what contemporaries hardly could have believed: hunger did never return until now.

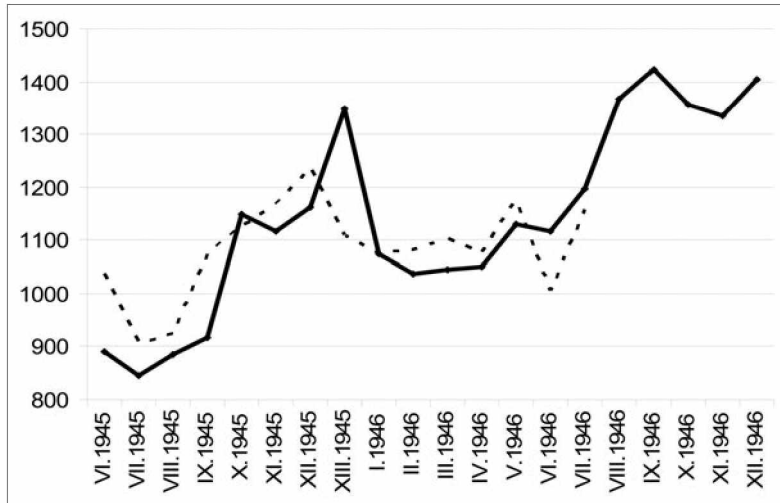


Figure 1: Food rations for adults in Innsbruck 1945–46 (in kcal per head and day). Remarks: Data is reported in four-weeks-periods (13 per year) counted in roman numbers; the series shown start at May 29, 1945 (beginning of VI. 1945), and end at December 8, 1946 (end of XII. 1946); the solid line shows data from the Statistical yearbook of Innsbruck and the Annual report of the workers' chamber (Nussbaumer 1992), the dotted line shows alternative data from the French occupational forces (Eisterer 1986).

2.2 After the shift: continuous improvements in nutrition

In the 1960s, everything had completely changed, when average nutritional energy consumption in Austria exceeded 3,000 kcal per head and day (according to FAO-STAT methodology). Although numbers for the Tyrol would be lower and actual consumption is lower anyway, this makes the region one of the best-fed in the world. Quantity improvements – the *Freßwelle*, a virtual “eating wave” (Bandhauer-Schöffmann and Hornung 1995) – were soon followed by improvements in quality. This radical change of consumption patterns, labelled the “1950s-syndrome” (Pfister 1995), is fundamentally questioning all historical memories and turning them upside down. Also eating patterns changed completely (figure 2). During the 1970s, meat even quantitatively surpassed bread as well as potatoes in the food basket (Nussbaumer 1992).

In close connection to these trends, food security further declined in the Tyrol. Production shifted from subsistence needs towards specialisation for export demand. In the 1980s, the region was self-subsistent only in certain cattle products, particularly milk, and veal, and dependent on imports particularly in grain, vegetable oil, vegetables and fruits. Some of these deficits (like the one in bread) could be covered through intra-Austrian trade, some demanded international trade (Nussbaumer 1992).

2.3 The evolvement of a new problem: obesity

With the complete change of the whole nutrition pattern in the 20th century, also the major problem changed: in the first half it was too low weight, at the end of the

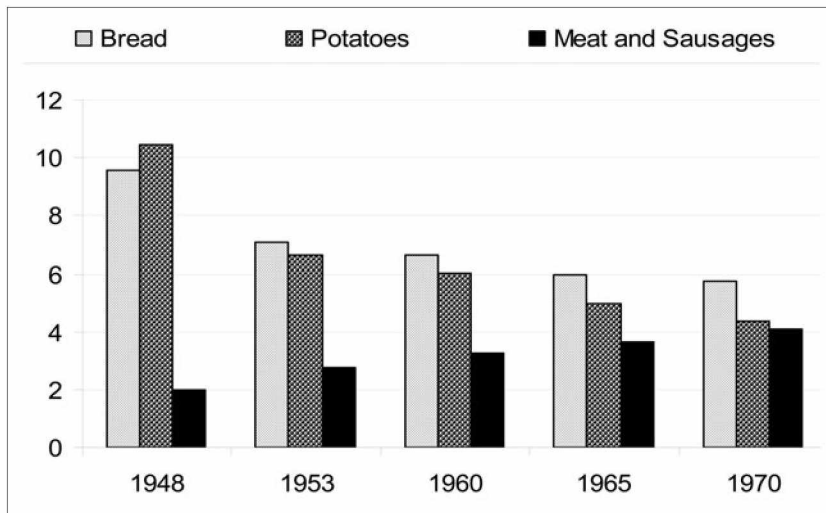


Figure 2: Average consumption of selected goods 1948–70 (in kilograms per head and month). Remark: Data from the Tyrolean workers' chamber (Nussbaumer 1992).

very same century it was too much. And as in other cases, affluence was and is not necessarily a good thing (Oswald & Powdthavee 2007). However, the pharmaceutical industry profited from both situations, advertising medicine to overcome weight deficits in the 1900s and anti-fat pills in the 1990s (Nussbaumer 2000).

While average body mass is generally lower in Western compared to Eastern Austria, the increased share of obese people by a quarter from 1999 alone also in the Tyrol, indicates a growing problem (table 2). To get a more detailed picture, table 3 reproduces two representative medical surveys about weight distribution and eating disorders in the Tyrolean population.

Table 2: Distribution of weight classes in Austria and the Tyrol 1999–2007.

	1999		2007	
	Tyrol	Austria	Tyrol	Austria
Underweight (BMI < 18.5)	3.2	2.2	2.8	2.6
Normal weight (18.5 < BMI < 25)	57.0	51.7	56.2	49.8
Overweight (25 < BMI < 30)	33.0	37.0	32.4	35.3
Obese (BMI > 30)	6.8	9.1	8.6	12.4

Remarks: The BMI (body mass index) is calculated as weight (in kilograms), over height (in metres) squared; data from surveys (Statistik Austria 2007, Klimont et al. 2007).

Table 3: Distribution of weight classes and frequency of eating disorders in the Tyrol 1997.

	Women	Men
Underweight (BMI < 19)	11.6%	4.3%
Normal weight (BMI 19–25)	51.6%	59.4%
Overweight (BMI 25–30)	32.1%	31.5%
Obese (BMI > 30)	4.8%	4.8%
Anorexia nervosa (acute)	0.3%	...
Anorexia nervosa (biographical)	1.5%	...
BE (binge eating)	12.2%	...
BES (binge eating syndrome)	8.4%	4.2%
BED (binge eating disorder)	3.3%	0.8%
Bulimia nervosa	1.5%	0.5%
Non-specific eating disorder	...	9.4%

Remarks: Data from 1,000 telephone interviews (two stage random, representative) among women and men each in the Tyrol; the definition of BES is different between men – “binge eating disorder, partial picture” – and women – “binge eating syndrome” (Kinzl et al. 1998a, Kinzl et al. 1998b).

3 Influence factors

3.1 Economic growth

One of the main reasons for these nutritional improvements was the growth of wealth after World War II, which was perceived as miraculous and hence labelled *Wirtschaftswunder*. Austria, as neighbouring Germany, was subject to an economic boom without reference in European history. Average growth of GDP per capita (measured in purchasing power) was 5.8% in the 1950s and 4.1% in the 1960s. This growth exceeded the global average by far and consequently, Austria surpassed the Western European average in 1974 (Maddison 2002). These changes corresponded directly with changes in the economic structure of the Tyrol. The employment share of the agricultural sector, still the most important one in the late 1940s, has dropped to 10% in 1971 and to less than 3% in 2001.

3.2 Tourism

Another main reason is the impact of tourism (table 4). Its growth in numbers of tourists took place mainly until the early 1980s. In the 1990s, winter tourism surpassed its seasonal counterpart. In 2006, tourists accounted for an extra population of 114,000 on average in the country (16.4%). But since tourists tend to cluster geographically as well as temporally, the potential extra population (i.e. the number of tourist beds) in some cases exceeds the resident population by up to five times.

Table 4: The impact of tourism in the Tyrol 1950–2000.

	Millions of overnight stays			Extra population	
	Winter	Summer	Total	in thousands	in per cent
1950	0.6	1.7	2.3	6.4	1.5
1960	2.8	8.9	11.7	31.9	6.9
1970	7.8	17.9	25.7	70.4	12.9
1980	15.9	22.9	38.7	105.8	18.0
1990	20.6	21.9	42.5	116.3	18.4
2000	22.4	17.4	39.8	108.8	16.1

Remarks: Extra population is calculated by dividing total overnight stays (from Landesstatistik Tirol) by the number of days, its relation to population by using census data (Nussbaumer & Exenberger 2006, with friendly assistance of Paul Tschurtschenthaler).

With respect to built-up area, top tourist destinations show population densities of more than 500 per hectare (YEAN 2005). For this extra population infrastructure and food supplies are necessary. Their provision is particularly costly and difficult in winter times and in remote valleys, both particularly attractive to tourists.

Tourism has four effects on the local food market: producers profit from the additional purchasing power of tourists, hence demand for and prices of local products increase; demand by tourists changes food habits causing further import demand; consumers face some more choice, but also higher prices for food, particularly during tourist seasons; finally, producers profit also because at least some tourists discover Tyrolean food specialities and raise export demand. Particularly the last point became increasingly important after Austrian accession to the European Union in 1995, when European markets opened for Tyrolean products.

3.3 Transportation

At the beginning of the 20th century, today's railway system was already in place (which of course contributed to the improvement of food security in the cities already in the 19th century). Later, particularly in the 1950s and 1960s, a street network was built up, including a motorway system of 216 kilometres (in 2000), which opened up the country (IVT 2001). Not until then also the countryside could profit from international ties. The quality of the streets increased continuously, particularly in the form of bypasses for most of the villages. This had two intertwined and mutually self-enforcing effects: increased individual mobility and the location of shopping areas (including food retailers) in the periphery of settlements. Mobilisation accompanied this process: the number of cars, passenger as well as freight, grew steadily over the decades following World War II. In 2000, 28,741 freight vehicles and 329,911 passenger cars (almost 0.5 per head) were in use in the Tyrol (Nussbaumer & Exenberger 2006), which points to an enormous intensification of the possibility to buy, sell and transport goods over larger distances.

M-Preis, the biggest domestic supermarket chain, has commented on that development on its website: “Society has changed radically in the last 30 years. In times, when a nearly car-free society made shopping primarily by foot, ‘proximity’ was defined completely different from today. By increased individual mobility the meaning of this term has shifted: more than 80% of shopping is now done by car” (M-Preis 2007).

Consequently, there are already a considerable number of municipalities without shops providing basic supplies (31 out of 278 in 2007). On the other hand, supermarket chains cluster in populated areas, including 14 McDonalds (YEAN 2005).

4 Concluding remarks

In 1900, the Tyrol was an agrarian society, although never self-sufficient in food. Hence, hunger was prevalent during the first half of the century, particularly during five serious man-made periods of food shortage. In the 1950s, consumption patterns changed completely and sustainably. While in the early 1950s under-nutrition was still a serious problem and weight deficits were widespread, in the late 1990s over-nutrition became an important question with respect to public health. Excess weight is as widespread as deficits were earlier. The three most important reasons for these developments are the improvements in transportation, particularly in formerly remote regions, the economic boom (general trends) and the manifold influences of mass tourism (specific trend). The Tyrol is exemplary for an Alpine region particularly sensitive with respect to nutritional vulnerability for economical, but also geographical and climatic reasons. Its history reveals a remarkable potential for existential problems related to under-nutrition at least in case of severe crisis (war, economic collapse), which is further aggravated by increasing competition for land use (settlement, tourism, industry, traffic, leisure), which not only holds for its cities but also for the countryside. However, the present of the Tyrol points to very different health challenges related to over-nutrition self-enforced by increased mobilisation. Of course, the former is a rather latent problem and the latter is not as severe as elsewhere. Nevertheless, both problems have to be appropriately addressed to secure the fragile economic and social equilibrium seemingly natural only during the second half of the 20th century in the case of this Alpine region.

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