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Consumer patriotism in public farm animal welfare perceptions in South Tyrol: a segmentation study

Konsumentenpatriotismus in der öffentlichen Wahrnehmung von Tierwohl in Südtirol: eine Segmentierungsstudie

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Summary

The acceptance of local livestock farming practices within society is crucial for the long-term success of a regions' food supply. Consumer patriotism as a positive discrimination in the public perception of animal welfare levels in a region can lead to a loss of trust if the leap of faith is disillusioned. Therefore, this study analyses public perceptions of animal welfare levels in South Tyrol and uses a segmentation approach in order to account for diverse opinions in the population. The results show that consumer patriotism is related to welfare perceptions for the majority of respondents. Only one fourth of participants is highly concerned about animal welfare, also on South Tyrolean farms.

Keywords: : animal welfare, public perception of farming, consumer patriotism, local production

Zusammenfassung

Die Akzeptanz lokaler Tierhaltungspraktiken in der Öffentlichkeit ist für den langfristigen Erfolg der Lebensmittelversorgung in einer Region von großer Bedeutung. Konsumentenpatriotismus, verstanden als positive Diskriminierung des Tierwohlniveaus in der eigenen Region, kann langfristig zu einem Vertrauensverlust führen, wenn Vorstellungen und Realitäten auseinandergehen. Daher untersucht diese Studie die öffentliche Wahrnehmung des Tierwohlniveaus in Südtirol und bedient sich dabei eines Segmentierungsansatzes, um heterogene Meinungen in der Bevölkerung aufzudecken. Die Ergebnisse zeigen, dass es einen Zusammenhang zwischen Konsumentenpatriotismus und Tierwohlwahrnehmung bei der Mehrheit der Probanden gibt. Nur ein Viertel der Befragten ist auch um das Tierwohl auf Südtiroler Bauernhöfen besorgt.

Schlagworte: Tierwohl, öffentliche Wahrnehmung der Landwirtschaft, Konsumentenpatriotismus, lokale Produktion

1 Introduction

In many European countries, livestock farming systems face several challenges with regard to the acceptance of practices within the broader public. Animal welfare levels in conventional production systems are, from the public's point of view, often perceived to be comparably low (e.g. Boogaard et al., 2011; De Jonge and van Trijp, 2013; Kanis et al., 2003) and negative impacts on the environment as well as on human health are expected (Fraser, 2001). Societal views, perceptions and finally acceptability of production systems and associated farm animal welfare levels are important factors for the future development of a successful livestock industry. The 'license to produce', understood as societies' legitimation for farmers to produce food can only be maintained in the long-run if systems and practices are accepted by the majority of people. Knowing possible concerns of the public and recognizing chances derived from the criticism is of

fundamental importance for livestock farming in order to initiate changes to improve animal welfare. Looking at different countries within Europe, there are cultural differences. Citizens seem to be more concerned about animal welfare in northern-European countries such as Sweden, Denmark, Germany or Austria compared to citizens in Italy, Hungary, France or Spain (EU, 2015; Veissier et al., 2008).

The province of South Tyrol is located in the Italian Alps and is often recognized as the cultural melting pot between northern and southern Europe. It is unique due to its historic and cultural status lying in between Austria and Italy. Livestock farming plays an important role in the province and mountain areas in the region are characterized by small-scale livestock farms, especially those keeping dairy cows and other ruminants such as goats and sheep. Some beef cattle and laying hen farms are also present (Autonome Provinz Bozen, 2017). Welfare problems in the regions' animal production may derive from farm structure and management. Small dairy farm sizes are dominating with an average of 15 cows per farm. Farms are mostly (70%) run as part-time farms (Sennereiverband, 2017). This leads to many farms that have not invested in improving barn facilities during the past, resulting in a high proportion of dairy tie stall-systems that are associated with welfare deficits (Haley et al., 2000; Krohn, 1994). Further, the steepness of farmland (nearly half of the agricultural land has a slope gradient of more than 30% (Sennereiverband, 2017)) is one of the factors that leads to a low number of lactating cows having outdoor access. Nevertheless, the strong attachment of the local population to the territory may lead to a leap of faith in local farming and somehow bias perception of farming realities especially in comparison to other regions. Consumer patriotism or ethnocentrism is the systematic positive discrimination or preferential treatment given to products from domestic or local origin (Balabanis et al., 2001; Meas, 2014). Consumers prefer domestic/local products or express higher confidence in domestic/local production processes due to the closer distance to producers, enabling consumers to more easily meeting and talking to them. Moreover, there is the possibility to personally verify production, resulting in higher levels of trust (Upadhyay and Singh, 2006). Consumer patriotism/ethnocentrism has been found to occur for many products, including beef (Meas, 2014; Hoffmann et al., 2011).

To the best of our knowledge, there are indeed no studies exclusively analyzing the perceptions and attitudes of the South Tyrolean public towards animal welfare levels on domestic livestock farms. The aim of this study is to analyze societal views on animal welfare in South Tyrol that take consumer patriotism into account. Several studies have shown that there is not only one public opinion towards animal welfare topics (Busch et al., 2017a; Krystallis et al., 2009; Vanhonacker et al., 2007). According to that hypothesis, we applied a segmentation approach in order to detect possible variations in opinions. With this study, we intend to detect potential missing acceptance of local production practices in the livestock sector and stimulate discussion.

2 Data collection, sample description and analyses

Participants for this study were sampled conveniently and questioned using a standardized online survey with closed questions in April and May 2015. The link was advertised through press releases in local journals, as well as on the webpage and in the newsletter of the Consumer Advisory Service South Tyrol. Therefore, there was no control about sample composition. In total, 833 people participated. For the analyses presented herein, the sample consists of 536 people in total due to incomplete answers and missing values that led to an exclusion of some participants. Given the current population of South Tyrol of just above 500,000 inhabitants, the survey includes about one out of 1,000 South Tyrolians.

2.1 Sample design

The distribution of demographics within the sample and within the population of South Tyrol is displayed in Table 1. In the sample, there are more females and more German speaking participants compared to the population. With regard to age distribution, the sample is younger compared to official data. In addition, the share of participants from places of residency with less than 10,000 inhabitants is higher compared to the population. Therefore, the sample is not representative and the results cannot be interpreted as valid for the South Tyrolean population. However, it might give insights into opinions of an interesting group, namely the German-speaking food shopper who is still predominately female and younger.

2.2 Data analyses

Data were analyzed using IBM SPSS Statistics 23. An exploratory factor analysis with principal component analysis and varimax rotation (see Field, 2009) was undertaken in which we included seven statements about attitudes towards farm animal welfare issues in general and two statements about the perception of welfare laws and welfare controls. One reliable factor was identified that we named "Involvement with animal welfare" and that consists of the nine variables displayed in Table 2 (Kayser Meyer Olkin criterion = 0.88; Bartlett's test of sphericity: $p = 0.000$; total variance explained = 55.1%; Cronbach's Alpha = 0.89). Using this factor, as well as two further single variables referring to the perception of animal welfare levels and discussion specifically in South Tyrol, we undertook a three-step cluster analysis to identify different attitude groups with regard to farm animal welfare. We decided to use this three-step approach because it tries to illuminate the weaknesses of different clustering approaches if applied alone. In a first step, outliers were identified using the Single Linkage Procedure. We removed ten outliers for further analysis. In a second step, the number of clusters as well as cluster centers were identified using Ward Clustering Method. A three cluster solution was found to have the best fit. These cluster centers where then used as starting point in the K-means procedure. Using a par-

Table 1: Distribution of sex, age and first language in the sample (N=536) in comparison to the population of South Tyrol.

Characteristic	Specification	Sample	Population South Tyrol
Sex[a]	Male	30.8%	49.3%
	Female	69.2%	50.7%
Age groups[b]	15-19	4.6%	5.7%
	20-29	28.7%	11.4%
	30-39	22.8%	12.5%
	40-49	19.5%	16.0%
	50-59	15.5%	14.4%
	≥60	9.0%	24.2%
First language[c]	German	93.1%	69.4%
	Italian	6.9%	26.1%
Place of residency[d]	Village (< 10,000 inhabitants)	68.1%	56.2%
	City (> 10,000 inhabitants)	31.9%	43.8%

[a] Numbers for distribution in South Tyrol deriving from ASTAT 2016.
[b] Numbers for distribution in South Tyrol deriving from ASTAT 2015.
[c] Numbers for distribution in South Tyrol deriving from ASTAT 2016a.
[d] Numbers for distribution in South Tyrol deriving from ASTAT 2018.
N=536

Table 2: Mean comparison of cluster building variables (one factor and two single statements) between the three clusters using ANOVA.

	Cluster 1 "The concerned patriots" (n=286)	Cluster 2 "The unconcerned" (n=110)	Cluster 3 "The concerned" (n=140)	Total (N=536)
Factor 1: Involvement with animal welfare	-0.25 (0.54)	1.45 (0.72)	-0.81 (0.34)	-0.05 (0.96)
[a] I often feel sorry for farm animals.***	1.63 (0.70)	3.00 (0.86)	1.12 (0.35)	1.78 (0.93)
[a] Animals on farms often suffer from stress and pain.***	1.69 (0.71)	2.89 (0.85)	1.19 (0.41)	1.81 (0.90)
[a] I advocate for better standards in animal husbandry.***	2.01 (0.89)	2.72 (0.95)	1.40 (0.62)	1.99 (0.95)
[a] It is not okay to tie animals in the barn permanently.***	1.32 (0.68)	2.50 (0.94)	1.15 (0.55)	1.52 (0.87)
[a] I am not okay with keeping animals the whole year inside the barn.***	1.23 (0.55)	2.46 (0.99)	1.07 (0.33)	1.44 (0.82)
[a] I am satisfied with todays' animal farming.***	3.31 (0.73)	2.20 (0.80)	3.81 (0.47)	3.21 (0.89)
[a] I do not think too much about quality of life for farm animals.***	3.66 (0.70)	3.15 (0.90)	3.84 (0.58)	3.60 (0.76)
[a] Do you think that animals are protected sufficiently by current legislation?***	3.51 (0.56)	2.21 (0.77)	3.84 (0.44)	3.33 (0.83)
[a] Do you think that current controls and law executions are sufficient to guarantee the protection and well-being of animals in agriculture?***	3.43 (0.59)	2.21 (0.86)	3.82 (0.38)	3.28 (0.84)
Do you associate 'local' products (i.e. from South Tyrol) with good animal husbandry practices and high animal protection levels?* **	1.94 (0.36)	1.58 (0.56)	3.39 (0.49)	2.24 (0.83)
Do you think that in the South Tyrolean public (media/politics/economy) there are sufficient discussions about the topics animal protection and animal welfare for farm animals?* **	3.40 (0.58)	2.16 (0.73)	3.85 (0.36)	3.26 (0.82)

Displayed are means and standard deviations in brackets. Scales: 1=fully applies, 2=rather applies, 3=rather does not apply, 4= does not apply
***=Differences between clusters are highly significant according to ANOVA ($p \leq 0.001$). a = Variables were bundled in the factor for building the clusters.

Table 3: Comparison of clusters with regard to animal product consumption, care for species and situation in South Tyrol using cross tabulation with χ^2-test.

		Cluster 1 "The concerned patriots" (n=286)	Cluster 2 "The un-concerned" (n=110)	Cluster 3 "The concerned" (n=140)	Total (N=536)
How did you change your animal product consumption over the last years?***	Reduced	61.4%	24.5%	82.6%	59.1%
	Stable	35.3%	67.3%	16.7%	37.1%
	Increased	3.5%	8.2%	0.7%	3.8%
	No answer	*1.1%*	*0%*	*1.4%*	*0.9%*
What are the reasons why animals from local production (i.e. from South Tyrol) might have a better life? (multiple answers possible)	Smaller farms***	72.4%	75.5%	40.0%	64.6%
	Outlet/pasture access/alpine pasture in summer***	83.9%	78.2%	56.4%	75.6%
	Less production pressure for the animals n.s.	26.9%	26.4%	17.1%	24.3%
	Shorter transport routes***	51.7%	34.5%	35.0%	43.8%
	More intense animal care***	28.7%	41.8%	10.7%	26.7%
	Others***	2.8%	4.5%	15.0%	6.3%
According to your opinion, in what way did the conditions for farm animals in South Tyrol change in the last 10 years?***	Worsened	31.7%	10.9%	48.8%	31.7%
	Unchanged	33.8%	16.8%	35.0%	30.4%
	improved	34.6%	72.3%	16.3%	37.9%
Sex***	Female participants	75.2%	34.5%	84.3%	69.2%
Language*	German	93.0%	88.2%	97.1%	93.1%
Place of residency n.s.	City (>10,000 inhabitants)	35.7%	28.2%	27.1%	31.9%

***=Differences between clusters are highly significant according to χ^2-test ($p \leq 0.001$).
*=Differences between clusters are significant according to χ^2-test ($p \leq 0.05$)
n.s.=Differences between clusters are not significant according to χ^2-test ($p > 0.05$)

Table 4: Mean comparisons between the clusters with regard to healthiness of products, familiarity with husbandry systems and subsidies for farmers.

	Cluster 1 "The concerned patriots" (n=286)	Cluster 2 "The unconcerned" (n=110)	Cluster 3 "The concerned" (n=140)	Total (N=536)
Do you think that products from healthy and species-appropriately kept animals are also healthier for humans?***	3.70^a (0.64)	3.35^b (0.78)	3.43^b (1.03)	3.56 (0.81)
Are you familiar with current animal husbandry standards?***	2.59^a (0.73)	2.77^a (0.93)	3.09^b (0.69)	2.76 (0.79)
Age of participants in years n.s.	38.61 (14.33)	38.59 (14.07)	38.35 (12.73)	38.54 (13.85)

Scale: 1= does not apply, 2=rather does not apply, 3=rather applies, 4=fully applies.
Displayed are means and standard deviations in brackets.
***=Differences between clusters are highly significant according to ANOVA ($p \leq 0.001$).
n.s.= Differences between clusters are not significant according to ANOVA ($p > 0.05$).

titioning K-Means cluster procedure, participants were assigned to one of the three clusters. According to discriminant analysis, 96.6% of all cases are classified correctly indicating a good cluster solution. ANOVA and cross tabulation with χ^2- tests are used to test for differences between the clusters. We further conducted a regression analysis in order to test for the influence of socio-demographics (age, gender, language and residency) on welfare perceptions bundled in the factor. Gender was found to have a significant influence whereas the other variables were not. Thereby, women are more critical and concerned about animal welfare than men. This finding is also reflected in the results of the cluster analyses (see cluster descriptions).

3 Results – Public attitudes towards farm animal welfare in South Tyrol

The cluster analysis found three different clusters based on attitudes towards animal welfare in general and on the local level in South Tyrol (Table 2).

Cluster 1 – The concerned patriots

Cluster 1 is the largest of the three clusters and contains 53% of participants. We named this cluster "The concerned patriots". Participants in this cluster show a comparably high concern about animal welfare issues in general. They rather believe that farm animals suffer stress and pain, they feel sorry for farm animals and are not satisfied with todays' farming practices. Nevertheless, this cluster associates local products from South Tyrol with good husbandry practices and high animal welfare levels (Table 2). These participants perceive advantages in local production that lead to a better life for farm animals. This is mainly expected due to outlet/pasture access or alpine pasture during summer, smaller farm sizes and shorter transport routes for the animals in the province. Heterogeneous opinions about how conditions for farm animals changed in the last 10 years are observable with one third of participants thinking they have worsened, one third being of the opinion they remained the same and one third stating they have improved. Consumption habits are similar compared to the total sample average with around 60% having reduced their animal product consumption over the last years (Table 3). Compared to the other two clusters, the concerned patriots-cluster perceives a strong correlation between animal health and welfare on the one and product impact on human health on the other hand. They further have the least familiarity with current animal husbandry standards of all clusters (Table 4). With regard to socio-demographics, there is a higher amount of female participants in this cluster (Table 3). No differences with regard to age, or place of residency with the other two clusters are observable, whereas the share of German speaking participants is in between the other two clusters (93%, Tables 3 and 4).

Cluster 2 – The welfare unconcerned

Cluster 2 is with 21% of participants the smallest. Participants belonging to this cluster show the highest satisfaction with current animal farming practices. They are least active in animal advocacy and have the highest satisfaction with legislation and controls regarding farm animals (Table 2). Therefore, we named this cluster "The welfare unconcerned". They further have the most positive perception of local products and believe that in the South Tyrolean public there are sufficient discussions about animal protection and welfare (Table 2). Advantages of local production are perceived due to outlet/pasture access or alpine pasture during summer, smaller farm sizes and more intense animal care on farms. Over 70% of participants within this cluster believe that conditions for farm animals in South Tyrol have improved within the last 10 years. Most participants within this cluster show a stable consumption of animal products and only one fourth of cluster participants have reduced their consumption of products from animal origin (Table 3). Unlike cluster 1 participants, these people see a less strong relationship between animal health and welfare on the one hand and healthy products for humans on the other hand. Own knowledge about current husbandry systems is perceived similarly as by cluster 1 participants (Table 4). The proportion of male participants in this cluster is higher compared to the other two clusters (66% compared to 25%/16%; $p \leq 0.001$).

Cluster 3 – The welfare concerned

This cluster consists of 26% of study participants. We named this cluster "The welfare concerned" because respondents show the highest compassion for farm animals and are least satisfied with current farming practices. They especially feel problematic about keeping animals inside a barn the whole year and tying them in the barn. In contrast to the other two clusters, respondents do not associate products from South Tyrol with good husbandry practices and welfare levels. In addition, respondents have the opinion that there are not sufficient discussions in the South Tyrolean public on the topic of farm animal welfare (Table 2). Over 80% of the cluster participants' reduced their consumption of animal products over the last years. Nearly half of participants in this cluster believe that conditions for farm animals in South Tyrol have worsened in the last ten years (Table 3). This cluster has the highest subjective knowledge about animal husbandry and shows, in comparison to cluster 1 and 2, a lower perception of relationships between animal health and welfare and healthiness of food products, although differences are only marginal (Table 4). With regard to demographic characteristics, the share of female participants in this cluster is higher, especially compared to cluster 2 (84% compared to 35%) and the cluster has the highest proportion of German speaking participants (97% compared to 93% in cluster 2 and 88% in cluster 3; $p \leq 0.05$).

4 Discussion

The study results show that there are heterogeneous opinions in the South Tyrolean population with regard to animal welfare perceptions and concerns. This general finding is in line with other studies showing segmentation to be a useful tool for identifying groups of people that share homogeneous opinions about animal welfare within the group and that have heterogeneous opinions between the groups (e.g. Te Velde et al., 2002; Vanhonacker and Verbeke, 2014). In our study, about half of respondents form the largest of the clusters (cluster 1- The concerned patriots). Although concerned about and rather not satisfied with livestock farming, this group is positive about local production of animal products in South Tyrol. This effect is also known as country-of-

origin effect or domestic country bias describes that country or region of origin acts as an extrinsic quality cue for consumers and that products coming from the home country or region are preferred over others (e.g. Hoffmann, 2000; Balabanis and Diamantopoulos, 2004). Accordingly, the unconcerned study group (cluster 2) also associates products from the region with good animal welfare levels without being concerned about animal welfare in general. This may be explained by participants who either do not care about animal welfare or who are really satisfied about current welfare in livestock production. In contrast, the third group (cluster 3) is rather critical regarding local husbandry practices. Full indoor housing and tying animals inside the barns, both common practices in dairy farming in South Tyrol, are evaluated very critical by the majority of respondents. To sum up, nearly 80% of participants (cluster 1 and 3) in our study are somehow concerned about animal welfare in general and one quarter does not associate local products with good husbandry practices. This indicates that there is potential for livestock farming to become a contentiously discussed topic in South Tyrol. Discussions in apple production about the use of pesticides in South Tyrol currently show how public disagreement with production methods in agriculture can lead to severe difficulties in the farming communities and can cause a public outcry (http://wundervonmals.com/).

These critiques and concerns cause severe challenges for livestock farming in the region. Especially when considering that small farm sizes are perceived positively. From a scientific point of view, there is no evidence for a relationship between farm size and animal welfare as other factors such as management and housing are more important (Busch et al., 2017b). Nevertheless, smaller farms have a higher likelihood of keeping animals in tie-stalls instead of loose housing (Robbins et al., 2016). The strong positive association of local production with outdoor access and alpine pasture in summer is only partly reflecting the current state of production. Mostly young cattle are in the mountains during summer while dairy cows often stay in the stables all year long. These examples show that there might be some conflict once the public gets aware of practices. Further, public goals might also be conflicting like maintaining small farms versus improving husbandry systems, although both are preferred by the public. In order to maintain/regain acceptance of local husbandry practices these issues should be addressed and adjusted according to widely hold social values in the long-run. New strategies for the development of mountain farming are needed. Just informing and trying to convince people about why animals are kept e.g. in tie stalls or indoor all yearlong is rather not a successful strategy to (re-)gain acceptance (National Academy of Science, Engineering, and Medicine, 2017). The observed consumer patriotism tendencies don't provide sufficient inputs for initiating strategies towards animal welfare improvements. Biased perception decreases problem awareness and may slow down change initiatives. While positive discrimination of local products or practices may be a human and understandable notion and good in the short run, it is not in the best interest of the bearer in a long-term perspective. In the case of South Tyrol, an open and honest debate of local realities and ways for improvement could accelerate innovation and secure the acceptability of agricultural activities.

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