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Ethical Appetite: The Market Dynamics of Price Premiums for Animal Welfare-Friendly Food Products

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ABSTRACT

This study examines the relationship between animal welfare standards labeled on packages and retail pricing using real-world data from a Swiss supermarket. This data collection, before the mandatory animal-based food labeling, helps provide a clean baseline that represents market prices unaffected by regulatory requirements by the Swiss government, which allows a genuine assessment of the observed existing price premiums. The front-of-package animal welfare scores range from 1 to 5, with 5 being the highest; the scores are available in categories of products where animal welfare is a relevant factor: Dairy & Eggs, Meat & Fish. On average, a one-point increase in the animal welfare score corresponds to a 16.0% price increase, with the effect most pronounced in Dairy & Eggs (24.2%) compared to Meat & Fish (14.7%). This premium likely reflects both consumer willingness to pay for an ethically aligned sustainable agri-food system and producer cost burdens associated with higher welfare standards. Broader cultural and educational contexts in Switzerland may further reinforce societal acceptance of animal welfare practices. Our findings contribute to the understanding of how market, production, and cultural factors interact, offering insight into how ethical attributes are reflected in retail food pricing, as well as sustainable development goals (SDGs).

Keywords: Animal Welfare; Price Premium; Ethical Consumption

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1. Introduction

In recent years, consumer food choices have expanded beyond taste, price, and quality to include ethical considerations, particularly animal welfare. Animal welfare consists of any human actions that allow animals to live in accordance with their species, free from suffering, pain, harm, or unnecessary injury^[1]. European animal welfare policy was introduced in 1999, outlining the commitment of member states to fully respect animal welfare requirements. As income levels rise, consumers, especially in high-income European markets, increasingly prioritize ethical production methods^[2]. This encompasses protection of animals' biological mechanisms in both physical needs, like housing, hygiene, and behavioral needs, like expression and breeding^[3].

The growing demand for animal welfare-friendly products reflects a broader shift in consumer behavior, shaped by psychological, social, and cultural factors, as animal welfare is not solely assessed through biological indicators but is also influenced by societal values^[4]. In addition, consumers who prioritize ethical food attributes often perceive these products as higher quality, leading to a willingness to pay a premium^[5, 6].

On the production side, achieving higher animal welfare standards requires substantial adjustments in farming practices that increase operational costs. Enriched housing systems, lower stocking densities, improved feeding and hygiene, and the elimination of growth promoters all demand greater labor, space, and resource inputs, raising per-unit production costs. Farms must also bear additional expenses for third-party audits, certifications, and staff training to comply with welfare standards, which can limit economies of scale and contribute to higher retail prices^[7, 8].

Despite the growing interest in ethical food choices, empirical evidence on the price premium associated with these attributes remains limited. While numerous studies have examined consumer preferences for animal welfare-friendly foods through survey-based methods and experiments, relatively little is known about how these preferences and production realities translate into actual price differences in retail markets. Existing literature suggests that moral and psychological factors influence ethical food choices^[9], yet empirical evidence on

how these demand-side and supply-side factors manifest in retail pricing and consumer behavior remains scarce.

Switzerland has some of the world's most advanced animal welfare standards with its progressive legal provisions^[10]. Swiss Animal Welfare Legislation covers the entire chain from farm to fork, including the keeping of livestock, advertising involving the use of animals, breeding, killing and slaughter, the dignity of the animal, as well as animal experiments. Since 2001, at least 30% of farms in the country have complied with animal welfare production systems^[11]. Beyond regulatory controls, consumer pressure in Switzerland has also been significant, expressed through public opinion and voting. According to a government press release, the Swiss Federal Council's implementation of Motion 20.4267 requires mandatory animal-based food labeling with accessible information for consumers starting July 1, 2025, with a two-year transition period^[12]. As a result, Switzerland is considered one of the most reliable contexts for studying the relationship between animal welfare and pricing.

Using real market data from a Swiss supermarket, this study examines whether higher animal welfare scores correspond to a price premium. Our findings indicate that higher animal welfare standards are consistently associated with higher prices. This price difference could reflect consumers' willingness to pay for ethical attributes and perhaps the higher production costs borne by farmers to meet animal welfare standards, such as improved housing, reduced stocking densities, and third-party certifications. The premium is most pronounced in the Dairy & Eggs category compared to Meat & Fish. The difference can potentially be explained by the diminishing sensitivity theory^[13].

The market for animal welfare-friendly food products reflects a complex interplay of consumer values, information signals, behavioral mechanisms, cultural and policy influences, and supply-side constraints. Understanding why such products often command a price premium requires looking beyond simple demand-side explanations and examining the broader ecosystem in which ethical food choices are made. This section explores theoretical perspectives from economics, behavioral science, and policy studies to understand the multi-dimensional drivers of price premiums for animal

welfare-friendly food products. It considers how consumer values, information signals, and behavioral nudges interact with cultural influences and producer cost structures, providing a conceptual foundation for analyzing the market dynamics behind welfare-friendly pricing.

1.1. Consumer Preference for Ethical Food Choices

Consumer preference theory suggests that individuals make decisions based on both tangible and intangible attributes to maximize their utility, with willingness to pay commonly used to assess preferences^[14]. Preferences in economic terms can be classified as transitive and non-transitive. Transitive preferences imply that if a consumer prefers product A over B and B over C, they should also prefer A over C^[15]. Research suggests that food products are more likely to follow transitive preferences due to repeated consumption and sensory^[15]. However, ethical considerations, such as animal welfare concerns, may introduce non-transitive preferences, influenced by complex social norms and cultural values.

There are several explanations supporting consumer preference for ethical food choices over those without the ethical quality^[16]. Consumers who prioritize ethical food attributes often perceive these products as higher quality, leading to a willingness to pay a premium^[5,6]. Cembalo et al. find that, in five European countries, self-transcendence values strongly influence attitudes toward animal welfare-friendly foods, while Miranda-de la Lama et al.^[17] show that consumers in Mexico are willing to pay more for certified welfare-friendly products while seeking clearer regulations and information. The connections between animal welfare and product quality are found in several past studies. Animals raised in better conditions typically have stronger immune systems and require fewer antibiotics and medications, while animals kept in large groups for food production pose higher risks of bacterial infection, causing the use of antibiotics and even leading to drug resistance problems^[18]. Farms with animal welfare also limit the use of synthetic additives to avoid prophylactic application^[19]. Eggs from hens raised on pasture appear to provide better amounts of fatty acids and vitamins^[20,21]. Similarly, beef from grass-fed cattle generally gives a better omega-3 to omega-6 ra-

tio and linoleic acid concentration^[22].

Unobserved linkages, such as stress, are also suggested by scientific studies. Farmed animals under stressful environments tend to release more stress hormones, such as cortisol, which can negatively impact the quality of their meat^[23]. Rey-Salgueiro et al. found high cortisol hormone levels in swine's saliva at pre-slaughter transport and lairage at the slaughterhouse with background noise and correlations with meat quality. As a result, health-conscious consumers reveal more tendencies to prefer animal-friendly food^[24].

1.2. Labeling as Information Signaling in Food Selection

Signaling plays a crucial role in communicating specific product attributes to decision-makers. In modern trade, any labels on a product's packaging serve as signals in practice. Labels and certificates for animal welfare-friendly food products act as indicators of ethical production methods, influencing consumer perception. A study by Araya et al. examining the effects of nutritional warning labels in Chile found that cereals, chocolates, and cookies with labels experienced price increases, whereas unlabeled items either had price reductions or negligible changes. This suggests that price-sensitive consumers are more likely to prefer unlabeled products, prompting companies to adjust prices in response to consumer reactions to labeling^[25]. Additionally, country-of-origin labeling influences consumers' willingness to pay, as they tend to prefer products from their favored regions^[26].

Research on animal welfare labeling highlights its role in product differentiation and increased willingness to pay^[27,28]. Toma et al. find that access to animal welfare information and labeling significantly influences consumers' willingness to switch shopping locations, highlighting the need for more effective labeling systems^[29]. Gorton et al. investigate willingness to pay for chicken meat with and without animal welfare labels, revealing that consumers are willing to pay more for labeled products, though emotional appeals may influence decisions more than the actual welfare standards^[30]. Similarly, Cornish et al. find that detailed welfare information on labels increases consumer trust

and purchase likelihood, particularly among those with higher animal empathy.

1.3. Behavioral Nudges in Ethical Food Choices

Behavioral nudging^[31] involves subtly influencing consumer decisions without restricting choices or altering economic incentives. Nudges work by changing the way options are presented, leveraging psychological and cognitive biases to guide individuals toward desired behaviors. Behavioral nudging techniques can influence consumer purchasing patterns for animal welfare-friendly products. Van der Vliet tests the impact of nudging plant-based alternatives over meat and dairy in an online supermarket experiment but finds no significant effect, suggesting that additional strategies are needed to shift consumer behavior toward plant-based proteins^[32]. Conversely, Weingarten et al. test a visibility nudge in a virtual supermarket, showing that placing animal welfare-labeled products in prominent shelf locations significantly increases purchases, regardless of price sensitivity^[33]. Unlike other sustainability issues that feel more distant, such as climate change, animal welfare is more readily perceived through nudging, as consumers can more easily empathize with animal suffering^[34].

1.4. Early Education and Policy Influence

In German-speaking countries like Germany, Austria, and Switzerland, harmful live-animal procedures in primary and secondary schools are considered illegal. Animal welfare lessons help build empathy and compassion, countering the decline of sensitivity toward animals and reducing tendencies toward violence against vulnerable beings. Animal welfare education achieved popularity owing to the positive attitude children have towards animals during their educational attainment in primary school in Switzerland. Educators teaching animal welfare provide instruction about animals and offer demonstrations with animals, showing the value of living respectfully with them; this approach aims to increase student awareness of animal welfare issues and promote a better future for societies that promote animal welfare education in schools^[35].

In terms of policy influence, Europe began its leading legislation, named “Protocol on Protection and Welfare of Animals,” in the Treaty of Amsterdam in 1999^[36]. Despite having few distinct policy settings, the EU was trying to set “one-for-all” animal welfare policy; some of them are more advanced in animal welfare improvement, while the ones joining later may struggle to reach the legal framework^[37]. However, Switzerland and its close trade partner Germany had already included animal rights requirements in their national constitutions since the early 2000s^[38], implying that Switzerland had already made itself well-prepared as a crucial trade partner of the EU. Strong policy implementations, therefore, can encourage perceived responsibility and behavioral willingness of consumers^[39].

1.5. Supply-Side Burdens: Higher Costs of Production

Products with higher animal welfare quality require myriad conditions, causing additional costs as well as opportunity costs to firms’ productions. Enriched housing systems and facilities, such as design and materials, require more infrastructure investment and maintenance^[7]. Waiblinger suggests that factors like confinement, space per animal, availability and placement of resources, structural design, flooring types, enrichment opportunities, outdoor access, equipment design, and environmental conditions are to be considered for animal housing. Improved feeding and cleaner water also increase operational costs.

Refraining from the use of growth promoters is another quality of animal welfare^[40, 41], which can slow production cycles and raise per-unit cost compared to the irresponsible livestock industry. Likewise, reduced stocking density occurs with lower animal density compliance. Intensive area and free-range settings also require more on-hand care for animals, which may result in higher labor costs. This is seen as a diseconomy of scale, the contrary viewpoint^[42]. Vukina and Nestic review that free-range eggs are generally more expensive than caged ones, as they require much more space in comparison to dense cages^[43].

In order to receive a certified label on their products or scoring, farms always need to pay a price for

third-party audits and certifications, and the availability of players is limited. Complying with these standards also requires staff training, administrative documentation, and possibly the adoption of new technologies such as animal welfare monitoring systems. Farms that can bear these costs may choose values of animal welfare over mere profits for farmers^[44]. Higher animal welfare products reflect a trade-off at the supply side between ethical standards and economic scalability.

1.6. Hypothesis Development

Ethical attributes such as animal welfare can influence food pricing through multiple channels. Consumers may be willing to pay more for welfare-friendly products, while producers face higher costs to meet welfare standards, including improved housing, reduced stocking densities, and certification requirements. In Switzerland, strong cultural and educational awareness of animal welfare further reinforces both consumer acceptance and producer compliance.

Based on these demand, supply, and cultural factors, we hypothesize that food products with higher animal welfare scores are associated with higher retail prices.

2. Materials and Methods

2.1. Data

We utilize data from a Swiss supermarket (as of February 2025), focusing on food products in the Dairy & Eggs and Meat & Fish categories, where animal welfare is a relevant factor. This data collection during the pre-transition period provides a clean baseline that shows market prices unaffected by regulatory requirements, allowing true assessment of existing price premiums. We include only products with an assigned animal welfare

score, which ranges from 1 to 5, with 5 indicating the highest standard. The animal welfare score assessment evaluates key aspects of the production process, including but not limited to sick animal medication, regular exercise, mother-bonded rearing, and the use of painful procedures. To ensure consistency in our analysis, we retain only products for which the size variable is specified in grams. Products measured in volume (e.g., liters) are excluded, and sizes originally recorded in kilograms are converted to grams. The final dataset comprises 550 products, with 264 in the Dairy & Eggs category and 286 in the Meat & Fish category.

Table 1 presents the summary statistics of the dataset. The price of the products ranges from 0.90 CHF to 38.65 CHF, with an average price of 6.53 CHF. The product size varies between 50 g and 1,325 g, with an average of 329.9 g. Additional nutritional attributes are also summarized in the table. On average, the products contain 15.93 g of carbohydrates, 43.29 g of fat, 50.56 g of protein, 1.40 g of fiber, 3.24 g of salt, and provide 657.54 kcal of energy. Regarding ethical considerations, the average animal welfare score is 3.25. The score ranges from 1 to 5, with higher values indicating better performance in animal welfare standards.

Tables 2 and **3** summarize the statistics for the Dairy & Eggs and Meat & Fish categories, respectively. The Dairy & Eggs category is further divided into three subcategories: Cheese, Fresh Food, Milk, Butter & Eggs, and Yogurts & Desserts. Meanwhile, the Meat & Fish category consists of two subcategories: Cold Cuts and Meat & Poultry. The average price of products in the Dairy & Eggs category is 4.32 CHF, with an average size of 1.36 g. In terms of nutritional composition, these products contain, on average, 28.32 g of carbohydrates, 51.58 g of fat, 40.69 g of protein, 1.53 g of fiber, 2.56 g of salt, and provide 744.02 kcal of energy. Concerning ethical considerations, the average animal welfare score is 3.20.

Table 1. Summary Statistics—All Observations.

Variable	Obs	Mean	Std. Dev.	Min	Max
Price (CHF)	550	6.53	5.74	0.90	38.65
LnPrice	550	1.57	0.78	-0.11	3.65
Size (g)	550	329.90	213.66	50.00	1,325.00
Carb (g)	541	15.93	29.79	0.00	218.35
Fat (g)	541	43.29	46.95	0.00	350.00
Protein (g)	541	50.56	44.86	0.00	250.00
Fibre (g)	514	1.40	2.66	0.00	27.75
Salt (g)	541	3.24	3.93	0.00	24.15

Table 1. Cont.

Variable	Obs	Mean	Std. Dev.	Min	Max
Energy (kcal)	541	657.54	523.24	92.00	3,631.25
Animal_Welfare	550	3.25	0.69	1.00	5.00
Category	Freq.	Percent	Cum.		
Dairy & Eggs	264	48.00	48.00		
Meat & Fish	286	52.00	100.00		
Total	550	100.00			

Table 2. Summary Statistics—Dairy & Eggs.

Variable	Obs	Mean	Std. Dev.	Min	Max
Price (CHF)	264	4.32	4.07	0.90	23.50
LnPrice	264	1.17	0.72	−0.11	3.16
Size (g)	259	1.36	1.10	0.17	7.80
Carb (g)	259	28.32	37.63	0.00	218.35
Fat (g)	259	51.58	57.19	0.00	350.00
Protein (g)	259	40.69	42.92	0.50	250.00
Fibre (g)	258	1.53	3.51	0.00	27.75
Salt (g)	259	2.56	3.44	0.00	20.00
Energy (kcal)	259	744.02	608.40	103.70	3,631.25
Animal_Welfare	264	3.20	0.52	2.00	4.00
Type	Freq.	Percent	Cum.		
Cheese	113	42.8	42.8		
Fresh Food, Milk, Butter & Eggs	41	15.53	58.33		
Yogurts & Desserts	110	41.67	100		
Total	264	100			

Table 3. Summary Statistics—Meat & Fish.

Variable	Obs	Mean	Std. Dev.	Min	Max
Price (CHF)	286	8.57	6.28	1.75	38.65
LnPrice	286	1.94	0.63	0.56	3.65
Size (g)	272	3.49	2.50	0.59	15.95
Carb (g)	282	4.55	11.57	0.00	120.00
Fat (g)	282	35.67	33.33	1.00	210.00
Protein (g)	282	59.62	44.75	0.00	240.00
Fibre (g)	256	1.27	1.32	0.00	8.05
Salt (g)	282	3.86	4.24	0.00	24.15
Energy (kcal)	282	578.12	415.98	92.00	2,422.00
Animal_Welfare	286	3.30	0.80	1.00	5.00
Type	Freq.	Percent	Cum.		
Cold Cuts	151	52.8	52.8		
Meat & Poultry	135	47.2	100		
Total	286	100			

On the other hand, products in the Meat & Fish category have a higher average price of 8.57 CHF and a larger average size of 3.49 g. Their nutritional profile differs significantly from the Dairy & Eggs category, with an average of 4.55 g of carbohydrates, 35.67 g of fat, 59.62 g of protein, 1.27 g of fiber, 3.86 g of salt, and 578.12 kcal of energy. The average animal welfare score is slightly higher at 3.30.

2.2. Methodology

To test our hypothesis, we examine whether food products with higher animal welfare standards are as-

sociated with a price premium, potentially reflecting both demand-side and supply-side effects towards ethical consumption. We employ the following empirical model:

$$y_i = \beta_0 + \beta_1 a_i + \beta_2' x_i + \theta_{country} + \gamma_{subtype} + \varepsilon_i \quad (1)$$

where y_i represents the natural logarithm of the price of product i . The variable a_i corresponds to product i 's animal welfare score. The vector x_i includes product attributes such as size and nutritional components (carbohydrates, fat, protein, fiber, salt, and energy). β_0 is the intercept term. β_1 is the coefficient of the animal welfare score, and it is the coefficient of our interest. β_2' is

a vector of coefficients of product attributes. Fixed effects for country of origin ($\theta_{country}$) and product subtype ($\gamma_{subtype}$) are included to account for unobserved heterogeneity. The error terms ε_i are clustered at the subtype level to account for within-group correlations in pricing.

Subtypes represent a more granular classification than subcategories. For instance, within the Cheese subcategory, subtypes include fresh cheese, sliced cheese, and hard & semi-hard cheese, among others. Similarly, the Fresh Food, Milk, Butter & Eggs subcategory comprises fresh pasta, milk, margarine, eggs, and additional subtypes. The Yogurts & Desserts subcategory includes

yogurts, children's desserts, and other similar products. In the Cold Cuts subcategory, examples of subtypes include bacon, smoked ham, and salami, while the Meat & Poultry subcategory encompasses beef, chicken, rabbit, pork, and several other meat varieties.

3. Results

Table 4 presents the main regression results. Columns (1) report estimates based on the full sample, while Columns (2) focus on the Dairy & Eggs category, and Columns (3) examine the Meat & Fish category.

Table 4. Regression Results—Main.

	(1)	(2)	(3)
Variables	LnPrice	LnPrice	LnPrice
Size	0.000358 (0.000257)	0.000635*** (0.000206)	-0.000544 (0.000597)
Carb	0.00591*** (0.00195)	0.00254* (0.00138)	-0.0925** (0.0375)
Fat	0.0146*** (0.00531)	0.0122*** (0.00301)	-0.205** (0.0844)
Protein	0.0108*** (0.00198)	0.00864*** (0.00138)	-0.0794* (0.0373)
Fibre	-0.0245* (0.0136)	-0.00674 (0.00608)	-0.0373 (0.0220)
Salt	0.0297** (0.0128)	-0.0279 (0.0188)	0.0493*** (0.0114)
Energy	-0.00158** (0.000583)	-0.00106*** (0.000335)	0.0224** (0.00944)
Animal_Welfare	0.160*** (0.0307)	0.242*** (0.0447)	0.147*** (0.0262)
Constant	0.838*** (0.195)	0.415* (0.209)	0.0235 (0.196)
Observations	514	258	256
R-squared	0.865	0.888	0.805
Country Dummy	Yes	Yes	Yes
Category Dummy	subtypeID	subtypeID	subtypeID
Cluster	subtypeID	subtypeID	subtypeID
Obs. Group	All	Dairy & Eggs	Meat & Fish

Note: Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Across all specifications, the coefficients on the animal welfare score are positive and statistically significant, indicating a price premium for animal welfare-friendly products. On average, a one-point increase in the animal welfare score is associated with a 16.0% increase in price. This premium is more pronounced in the Dairy & Eggs category compared to the Meat & Fish category (24.2% vs. 14.7%). The difference can potentially be explained by the diminishing sensitivity theory^[13]. Consumers can recognize the premium differently between a 10% price change in a 1.5 CHF milk

product and the same percentage change in a 15 CHF meat product.

The impact of nutritional components—such as carbohydrates, fat, protein, fiber, salt, and energy—on product prices appears to be inconclusive. For instance, higher protein content is associated with higher prices in the full-sample model (Column 1) and the Dairy & Eggs category (Column 2). However, in the Meat & Fish category, the effect of protein is hardly statistically significant or even negative, suggesting that its influence on pricing varies across product categories.

Table 5 presents the regression results for the Dairy & Eggs subgroups. Column (1) reports estimates based on the Cheese subgroup, while Column (2) focuses on the Fresh Food, Milk, Butter & Eggs subgroup, and Column (3) examines the Yogurts & Desserts subgroup. Consistently across all specifications, the coefficients on the animal welfare score remain positive and statistically significant, reinforcing the presence of a price premium for animal welfare-friendly products. Specifically, a one-point increase in the animal welfare score is associated with a 21.5%, 23.5%, and 32.3% increase in price for the

Cheese, Fresh Food, Milk, Butter & Eggs, and Yogurts & Desserts subcategories, respectively.

Table 6 presents the regression results for the Meat & Fish subcategories. Column (1) shows estimates for the Cold Cuts subgroup, while Column (2) pertains to the Meat & Poultry subgroup. Consistently across all models, the animal welfare score exhibits a positive and statistically significant relationship with price. Specifically, each additional point in the animal welfare score corresponds to a 16.1% increase in price for Cold Cuts and a 17.3% increase for Meat & Poultry.

Table 5. Regression Results—Dairy & Eggs Subgroups.

	(1)	(2)	(3)
Variables	LnPrice	LnPrice	LnPrice
Size	0.00165 (0.000943)	-0.000703 (0.000790)	-0.00150** (0.000336)
Carb	0.00464 (0.00932)	-0.0733** (0.0273)	-0.00769 (0.0114)
Fat	0.0215 (0.0119)	-0.146** (0.0597)	-0.00982 (0.0265)
Protein	0.00953* (0.00490)	-0.0408 (0.0393)	0.0123 (0.0112)
Fibre	-0.00976 (0.0620)	-0.0157 (0.0141)	-0.00267 (0.00534)
Salt	-0.0331 (0.0216)	0.0372 (0.0529)	0.625 (0.297)
Energy	-0.00216 (0.00144)	0.0168** (0.00680)	0.00247 (0.00267)
Animal_Welfare	0.215** (0.0636)	0.235*** (0.0551)	0.323*** (0.0260)
Constant	-0.636*** (0.171)	0.411 (0.314)	-0.958** (0.247)
Observations	108	41	109
R-squared	0.913	0.725	0.698
Country Dummy	Yes	Yes	Yes
Category Dummy	subtypeID	subtypeID	subtypeID
Cluster	subtypeID	subtypeID	subtypeID
Obs. Group	Dairy & Eggs Cheese	Dairy & Eggs Fresh & Milk & Eggs	Dairy & Eggs Yogurt & Desserts

Note: Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6. Regression Results—Meat & Fish Subgroups.

	(1)	(2)
Variables	LnPrice	LnPrice
Size	-0.00194* (0.000876)	-0.0000212 (0.000436)
Carb	-0.0566 (0.117)	-0.0889* (0.0454)
Fat	-0.241 (0.251)	-0.194* (0.0998)
Protein	-0.0777 (0.111)	-0.0783 (0.0447)
Fibre	-0.0259 (0.0496)	-0.0683*** (0.0129)
Salt	-0.0739* (0.0319)	0.0556*** (0.0142)
Energy	0.0268 (0.0280)	0.0214 (0.0112)

Table 6. *Cont.*

	(1)	(2)
Variables	LnPrice	LnPrice
Animal_Welfare	0.161*** (0.0261)	0.173** (0.0515)
Constant	0.345** (0.128)	0.959** (0.266)
Observations	136	120
R-squared	0.774	0.715
Country Dummy	Yes	Yes
Category Dummy	subtypeID	subtypeID
Cluster	subtypeID	subtypeID
Obs. Group	Meat & Fish Cold Cuts	Meat & Fish Meat & Poultry

Note: Robust standard errors in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4. Discussion

The regression results provide consistent evidence that animal welfare-friendly products command a price premium across all categories and subcategories. The animal welfare score is positively and significantly associated with price. Notably, the premium appears more pronounced in the Dairy & Eggs category compared to Meat & Fish. The impact of nutritional components on pricing remains inconclusive, as their effects vary across product categories and subcategories. While some factors, such as protein content, are associated with higher prices in certain models, these relationships are inconsistent.

The findings have certain implications for marketing in terms of value-based segmentation and ethical branding. According to means-end chain theory, consumers recognize animal welfare scores as an additional form of value that aligns with their personal ethical consumption values, creating bond gains^[45]. De Pelsmacker et al. find that surveyed Belgian consumers value the distribution strategy, type, and issuer of ethical labels most^[46]. Heerwagen et al. examine quality labels in promoting animal welfare in the Danish pork market and suggest that strong animal welfare profiles should be marketed separately to improve animal welfare demand^[47]. Ufer et al. also survey consumer preferences for redundant labeling in the US organic fluid milk market^[48] and find that all labeled milk commanded premiums over conventional milk, and premiums generally increased when detailed information was provided. In markets with strong cultural value toward animal welfare, bond gains can support recurring buy decisions. This is also partly linked to the self-congruence theory

that consumers tend to purchase products that reflect their self-image and social identity^[49]. Thus, purchasing animal welfare certified products allows consumers to express moral alignment with animal welfare concerns. The higher animal welfare scores can also support ethical branding of the producers, which can nurture their core product quality, such as taste, to become more attractive to new consumers. Firms can make a good strategy by gaining ethical branding by establishing ethical credibility with an outstanding animal welfare score across all their product lines. Dentoni et al. found that prior positive brand information can alleviate customers' unfavorable responses to welfare-related complaints, encouraging meat companies to communicate efficiently about animal welfare to maintain a competitive advantage^[50]. Significantly more data related to animal welfare-friendly food products are needed to enable deep examinations of each product type. For instance, a research survey of Yue et al.^[51] found that consumer segments of price-sensitive consumers were more dominant in Switzerland and Czechia, compared to those in Spain and Sweden. In countries where meat consumption is generally highest, many omnivorous consumers show little preference for conventional plant-based alternatives to animal products^[52]. There has also been evidence that animal welfare can be prioritized more highly by women than by men^[53]. Motivations for meat reduction and dairy & egg reduction can be driven differently by circumstances of health, environment, and animal rights actions^[54].

In terms of policy implications, several insights can be drawn from our study's results. Firstly, when prop-

erly informed, consumer preferences can drive industry transformation through economic decisions. Our findings suggest that it's possible that consumers are willing to pay premiums for welfare attributes even without mandatory labeling, indicating that the new labeling requirements may further strengthen these market signals and potentially intensify premiums across sampled product categories—dairy, eggs, meat, and fish. Farmers may be financially motivated to adopt higher standards for animal welfare as a result of the observed price premiums. This can reduce the necessity of either generous subsidies or aggressive enforcement by bringing private production incentives into line with public ethical objectives. Policymakers may also expect that mandatory labeling will drive down the prices of low-welfare products, encouraging market expansion, competition, and economies of scale for products with higher animal welfare standards.

Policymakers can also support producers through creative, non-regulatory approaches that encourage both consumers and producers to adopt higher animal welfare standards. For example, nudge-based choice architecture can make ethical options more appealing and easier to choose by using well-designed infographics, placing high-welfare products in prominent default positions, or enhancing their visibility in stores. In addition, social norms messaging—such as highlighting that a majority of consumers already choose welfare-certified products—can leverage the human tendency to conform to widely accepted behaviors, further reinforcing sustainable purchasing patterns.

5. Conclusions

This study contributes to the growing body of research on ethical consumption by examining the market premium for animal welfare-friendly food products using real-world price data from a Swiss supermarket. Our findings indicate that higher animal welfare standards are consistently associated with higher prices. Specifically, a one-point increase in the animal welfare score is linked to a 16.0% price increase, with the effect being most pronounced in the Dairy & Eggs category (24.2%), compared to Meat & Fish (14.7%).

Potential explanations for the observed price premium involve multiple interacting factors. On the demand side, psychological and behavioral drivers—such as consumers' ethical considerations and perceptions of higher quality—play a key role in shaping willingness to pay. On the supply side, achieving higher welfare standards imposes additional production costs, including improved housing systems, reduced stocking densities, and certification requirements, which are reflected in retail prices. In addition, broader cultural and educational contexts in Switzerland, where animal welfare awareness is reinforced through policy, early education, and social norms, further strengthen both consumer acceptance and producer compliance with welfare standards.

This study's limitation is its focus on Switzerland, a high-income country with strong social welfare, which may limit generalizing the price premium to other economies with different income levels or cultural attitudes. The supermarket's selling prices are interpreted as market equilibrium prices that reflect both consumers' willingness to pay and producers' willingness to sell, under the assumption that retailers adjust prices to balance demand and supply in a non-negotiated retail environment. Future research could explore how mandatory animal welfare labeling affects price premiums over time, examine whether similar patterns hold in countries with different cultural or policy settings, and investigate how premiums for animal welfare compare with those for other ethical attributes such as climate-friendly production. Further studies could also integrate consumer survey data with retail pricing to better disentangle demand-driven and cost-driven effects. Other related data could also be explored further, such as purchase quantities and numbers of consumers, to observe whether higher-welfare products involve lower sales volumes or not.

Overall, this study highlights how demand, supply, and cultural factors interact to shape the pricing of animal welfare-friendly products in retail markets. By revealing clear market premiums even before mandatory labeling takes effect, our findings underscore the potential for consumer preferences and producer incentives to align with public ethical objectives. These insights can guide policymakers, retailers, and producers in de-

signing strategies that promote higher animal welfare standards while leveraging market-based mechanisms to support more sustainable and ethical food systems. This article contributes to SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 15 (Life on Land).

Author Contributions

Conceptualizing and designing the study, V.N., C.T., T.C. and C.P.; refining the raw data for analysis, V.N. and C.T.; conducting data analysis and interpretation, V.N.; acquisition of data, T.C.; drafting and revising the manuscript, V.N. and C.T. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors disclosed no conflict of interest.

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