Are most Germans already vegetarians?

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***Abstract* - Animal products have recently been discussed more critically than 30 years ago due to various negative effects, e.g. on the climate. Plant-based alternatives to meat and dairy products, on the other hand, seem to be experiencing a veritable triumph. To what extent this perception corresponds to reality or whether the real market situation differs from what some reports suggest, is examined in this paper using data from a panel of private households of the Gesellschaft für Konsumgüterforschung (GfK). The results show clear differences in the quantitative importance of alternative (plant-based) products. While alternative products are demanded in comparatively small quantities for meat products, they are in much higher demand for dairy products. The buyer reach and repurchase rates are significantly lower for plant-based alternative products, while the average price is significantly higher than for the animal-based "originals".**

INTRODUCTION

Nutrition in Germany has undergone a significant change in recent decades, particularly with regard to the consumption of animal products. While in the early 1990s the average per capita consumption for meat products, e.g., was over 100 kg per year (BMEL, 2021), this in the meantime seems to have changed significantly and meat as well as dairy products are regularly "on the index" for various reasons: Different negative effects on the climate and the environment are discussed but also on animal welfare (WBAE, 2020).

Various surveys indicate that consumer behaviour in Germany is changing to the effect that more and more people are giving up meat or even all animal protein sources (ProVeg international, 2021b). With the increasing proportion of people following a plant-based diet, a growing demand for plant-based protein sources and alternative products to traditional animal products can be observed.

Against this background, the aim of this paper is to examine the extent to which the appearance is true that more and more plant-based alternative products are being bought and that these substitute animal products. In this context, the following research questions (RQ) are answered:
RQ 1: How has private demand for alternatives to meat and dairy products changed between 2017 and 2021 compared to the demand for meat and dairy products?
RQ 2: How high are the buyers' reach and repurchase rates and average prices of the alternative products compared to the animal "originals"?

DATA AND METHOD

The data comes from the GfK household panel collecting representative data of 13,000 German households and in this case focusing on demand for meat, dairy products, and their plant-based alternatives between 2017 to 2021.

The advantage of the present data set is that it is based on real purchase data and not on survey results which often exhibit biases. A disadvantage is that the present data set only represents purchases by private households excluding out-of-home consumption.

The dataset covers highly aggregated data about product categories but without statements about specific products. For example, in the category of drinking milk, no differentiation is made according to fat content, and in the case of drinking milk alternatives, there is no differentiation at all between the various types such as almond milk, oat milk, etc.. In addition, purchase decisions of individual households are not considered, but rather the purchased quantities.

Due to this high level of aggregation of the data set, only descriptive calculations are possible.

RESULTS

The results of the demanded quantity for the main product groups are shown in Table 1.

Table 1. Quantitative household demand for meat products, dairy products and their alternatives in 1000 tons.

Product	2017	2018	2019	2020	2021
Meat c.	3148	3058	2935	3172	3002
Meat bio	51	52	57	84	96
Meat alt. c.	13	13	17	31	45
Meat alt. b.	9	10	12	16	17
Dairy c.	5701	5529	5473	5780	5614
Dairy bio	418	421	480	530	566
Dairy alt. c.	63	69	78	122	166
Dairy alt. b	77	81	108	154	196

b = biological production; alt. = alternative; c. = conventionally produced

Source: Own calculation based on GfK, 2022.

Dairy products account for 60% of demand for animal products. Table 1 shows the dominance of conventionally produced animal products. However, the requirement for these products has declined in 2018 and 2019. In 2020 demand for animal products increased again, probably due to the restrictions on eating out of home as a result of the Covid-19 pandemic. In the year 2021, private demand for conventional animal products fell again. In contrast, demand for organically produced animal products increased steadily for both meat and dairy products. However, this growth can only partially compensate for the decline in conventional meat products but compensates for the decline of dairy.

Plant-based alternative products have also shown steady growth over the years. In terms of share, however, they are of secondary importance compared to animal products. Thus, the alternatives (both conventional and organic) to meat account for 2% of the total meat products and meat alternatives in

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2021. For alternatives to dairy products, the figure was 5.5%.

If only alternative products are considered, the dominance of alternatives for dairy products becomes clear. In 2017, organically produced dairy alternatives had the largest share of all alternative products at 47.5%. This slightly declined to 46.2% in 2021. In contrast, the share of conventionally produced dairy alternatives increased a little bit from 38.8% to 39.2%. The alternatives to meat products showed significantly lower shares: Organically produced alternatives had shares of 5.7% in 2017 and 4.0% in 2021, conventionally produced meat alternatives had shares of 8.0% in 2017 and 10,5% in 2021. Consequently, meat alternatives have a higher proportion of conventionally produced products whereas dairy alternatives have a higher share of organically produced ones.

Table 2 shows the dominance of drinking milk and plant-based milk over the remaining dairy products. The substitutes for drinking milk dominate the other dairy alternatives with 85% in 2021.

Table 2. Quantitative household demand for drinking milk and their alternatives in 1000 tons.

Product	2017	2018	2019	2020	2021
Milk con.	3265	3187	3125	3260	3167
Milk bio	298	302	349	379	416
Milk alt. con	44	49	55	83	119
Milk alt. b.	72	77	103	147	189

bio/b. = biological; con. = conventional; alt. = alternative; oth dai = other dairy

Source: Own calculation based on GfK, 2022.

Table 3 shows that conventional drinking milk has a very constant buyer reach of about 95%. In contrast, organically produced drinking milk increased its reach from 24% in 2017 to 33% in 2021.

The alternative products have significantly lower buyer reaches, which, however, also increased significantly during the observed period: Conventionally produced products had a reach of 13% in 2017, and 26% in 2021. Organically produced drinking milk alternatives were able to increase their share from 12% in 2017 to 25% in 2021.

Conventional drinking milk has an annual repurchase rate of around 97%, i.e. in 2017-2021 around 97% of consumers who bought conventional milk once will do so at least a second time. The repurchase rate of organic milk was around 70% in 2017 with a slight upward trend (2021: 73%).

The repurchase rate also developed positively for plant-based milk and was 62% in 2017, and 65% in 2021 for conventional milk alternatives. There was an even more significant increase in the rate for organic milk alternatives. This was 63% in 2017, and 70% in 2021. In the case of plant-based milk, there is a clear positive trend towards higher repurchase rates with a simultaneous significant increase in buyer reach. Nevertheless, the relatively high proportion of 'mystery' shoppers who buy plant-based drinks only once or at relatively long intervals is evident.

Table 3. Purchaser reach, re-purchase rate and mean price

Product	Drinking Milk				Alternatives			
Year	2017		2021		2017		2021	
Production	con	bio	con	bio	Con	bio	con	bio
Pur. reach %	95	24	94	33	13	12	26	25
Re-purchase rate/year %	98	70	98	73	62	63	65	70
Mean price	84	118	99	118	203	139	198	124

con = conventional production; bio = biological production, Mean price in EUR-Cents

Source: Own calculation based on GfK, 2022.

Conventionally produced plant-based drinks have by far the highest average price at around two EUR. In contrast, organically produced plant-based drinks cost on average less than 1.30 EUR in 2021, organic milk about 1.20 EUR and conventionally produced milk about 1 EUR.

Discussion

The quantity of plant-based alternative products for meat and dairy required by private households rose continuously and has more than doubled in the period from 2017 to 2021. Nevertheless, with a share of 4.2% of the total quantity, alternative products still play a subordinate role compared to animal products. This is particularly true of alternatives for meat products whose share is 1.4% while alternatives to dairy already account for 5.5%. More important than the quantities demanded in this context, however, are variables such as buyers reach and repurchase rate. The buyers reach of drinking milk alternatives has doubled during the observation period. In 2021 the repurchase rate has also increased and is only slightly below that of organic milk. The positive trend towards higher repurchase rates of milk alternatives shows that progressively a larger buyer base is developing.

Even though the results clearly show that Germany is certainly not on the road to vegetarianism, the data show that plant-based alternatives are clearly gaining in importance. In this context, it would be important to explore which types of consumers primarily buy plant-based alternative products: are they really vegetarians and vegans or rather omnivores who try to reduce their consumption of animal products with the help of these products?

References

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