

Extended Abstract

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Paper/Poster Title	Protein preferences and policies: Swedish consumers' WTP for plant-based proteins in pasta sauce
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Abstract prepared for presentation at the 98th Annual Conference of The Agricultural Economics Society will be held at The University of Edinburgh, UK, 18th - 20th March 2024.

Abstract	<i>200 words max</i>
<p>Due to the negative health impacts and significant environmental footprint of high meat consumption, many high-income countries should shift towards consuming more plant-based proteins. Previous studies indicate, however, that many consumers are unwilling to reduce their meat consumption. Still, some knowledge gaps exist on specific dishes and contexts where some meat substitution is achievable.</p> <p>We contribute to the literature by exploring Swedish consumers' protein preferences for a meat mince pasta sauce. We used revealed preferences from an in-store experiment (n = 206) and stated preferences from an online discrete choice experiment (n = 517) to estimate the willingness to pay (WTP) for plant-based and animal-based proteins. Additionally, we investigated policy scenarios by estimating market shares following the implementation of a meat tax.</p> <p>We found that the WTP was highest for meat, whereas the difference in WTP between plant-based proteins and opting out most often was statistically and economically insignificant. Lower prices for plant-based proteins could encourage consumers to change their protein consumption. Our findings suggest a meat tax could to some extent reduce the gap between meat and plant-based proteins. We observed substantial preference heterogeneity for all options, indicating that targeted interventions could encourage reductions in meat consumption.</p>	
Keywords	Discrete choice experiment; revealed preferences; stated preferences; plant-based proteins; Sweden
JEL Code	Q18, D12
Introduction	<i>100 – 250 words</i>
<p>Consuming high levels of meat poses a challenge for sustainability due to its negative health impacts and significant environmental footprint. It is, therefore, important that countries with high meat consumption levels, such as Sweden, shift towards more plant-based proteins. There are currently, however, no national policies in place in Sweden to support this protein transition.</p> <p>Previous studies indicate that consumers have a low willingness to substitute meat with plant-based proteins. Still, there are some knowledge gaps on specific dishes and contexts where some substitution of meat is achievable. We aim to contribute to the literature on this topic by exploring protein preferences for meat mince pasta sauce, which is a common dish in Sweden. In this dish, the meat is not the main</p>	

component as it blends with other ingredients, and there are several plant-based options available, making a shift more likely than for some other dishes.

The first objective of this paper is to explore Swedish consumers' willingness to pay (WTP) for plant-based and animal-based proteins in pasta sauce. We have used both revealed and stated preference methods to achieve this, and we included different types of plant-based proteins in our studies. The second objective of this paper is to investigate policy scenarios for a meat tax to encourage a shift towards plant-based protein consumption.

Methodology

100 – 250 words

We conducted two studies with Swedish consumers: one in-store real choice experiment (n = 206) and one online discrete choice experiment (n = 517).

The real choice experiment was conducted between February and May 2023 in two different grocery stores in Uppsala, the fourth largest Swedish city. Each participant was given a pasta of their choice, canned tomatoes, and a gift card with a starting endowment of 100 SEK. Participants were then asked to complete a survey on a tablet computer where they had to respond to six choice tasks. They were asked to choose between beef mince, plant-based mince, beans, and opting out. The products varied in price, origin, and production method. One choice was randomly selected for each participant, and if it was available in the store (the chance of the product being available was 50%), the participant received it with the price deducted from the gift card.

We conducted the discrete choice experiment using an online survey in April 2023. The survey was distributed to a panel of Swedish consumers. Each respondent was asked to complete eight choice tasks. They were asked to choose between mixed mince, pea-based mince, soy-based mince, red lentils, and opting out. The options varied in price and origin.

Results

100 – 250 words

In both studies, the respondents were willing to pay the most for the meat option. The difference in WTP between the meat options and opting out was 90.35 SEK (\approx € 8.00) in the real choice experiment and 63.99 SEK (\approx € 5.70) in the online choice experiment. Among the plant-based proteins, only the plant-based mince in the real choice experiment had a statistically significant difference in WTP from the opt-out option (28.32 SEK \approx € 2.50). However, we also observed large and significant standard deviations for each option in both studies.

We explored the preference heterogeneity by looking at the personal characteristics of the respondents. We found that sociodemographic variables interact with protein preferences to some extent.

The origin of the protein was significant for most of the options, where the respondents had a higher WTP for domestically produced protein. In the real choice experiment, including production method as an attribute, there was a higher WTP for organic than conventional proteins.

We used the estimates from the online choice experiment to make market predictions following the implementation of a meat tax. We see a reduction in the market share

for meat and increases for the other options. However, the largest increase is in the option to opt out rather than either of the plant-based proteins.

Discussion and Conclusion

100 – 250 words

In line with previous studies, our results demonstrate that consumers, on average, strongly prefer meat to plant-based proteins. The large difference in WTP between meat and plant-based proteins further suggests that a more competitive price could encourage consumers to choose plant-based proteins.

One possible approach is to introduce a meat tax. Our findings from the policy scenario indicate that a meat tax could lead to a reduction in the market share of meat. The biggest increase in the market shares, however, was for the opt-out option. This suggests that for some consumers, plant-based options are not seen as viable alternatives to meat, and they prefer to not purchase anything when the meat price increases.

We also observed significant preference heterogeneity. Therefore, targeted interventions that account for individual preferences could be a useful approach for shifting consumption towards plant-based proteins.