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**GENDER-SPECIFIC ENVIRONMENTAL BEHAVIOUR IN AUSTRIA:  
ENVIRONMENTAL CONDITIONS AND BEHAVIOUR — MICRO-CENSUS 2007**

Note by Statistics Austria<sup>1</sup>

Supporting paper

**ABSTRACT**

Within the micro-census on “environmental conditions and behaviour” in 2007, the relationship between environmental behaviour and gender was examined by analyzing the purchase of ecological products, the separation of waste in households and mobility behaviour.

The results show that the ecological buying behaviour of male and female respondents was not only influenced by their ecological motivation but also by spending capacity and different shopping preferences. Women bought organic products significantly more often than men, the major difference occurring in the organic fruits and organic vegetables category (difference: 9.4 percentage points). During the last three years women bought electrical devices less often than men. However, female respondents considered energy efficiency and durability almost as often as male respondents. Men and women showed almost the same rate of waste separation. The mobility behaviour of men and women was significantly different. Women used public transport more often (30.5 per cent daily or several times a week) than men (25.5 per cent daily or several times a week). In contrast men drove cars more frequently (76.0 per cent daily or several times a week) than women (64.4 per cent daily or several times a week).

**I. INTRODUCTION**

1. As part of the micro-census survey "environmental conditions and behaviour 2007" information on the environmental behaviour of the Austrian population in daily life was collected. The interactions between socio-demographic characteristics (such as gender, age and regional breakdowns) and the environmental issues were highlighted. The findings of the survey data were extrapolated to the whole population.

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2. Since the data collection was carried out at individual level (i.e. all household members were asked about their environmental behaviour, not just heads of household), a direct comparison of the environmental behaviour of men and women was possible. Thus, the purchasing behaviour - separated by gender – concerning organic products and durable, energy efficient products was examined. Furthermore, the waste separation behaviour was analyzed. The aspect of mobility in Austria was also surveyed in detail. Here, the gender-specific behaviour related to the daily choice for means of transport was examined.

3. In the gender-oriented environmental research a relationship between gender and the approach to environmental problems was found repeatedly, with women mostly regarded as more environmentally aware and committed in terms of sustainability than men. However, a higher environmental awareness is no guarantee for more sustainable actions in everyday life. For example, higher prices of organic products or increased time spent on waste separation can prove to be barriers to environmentally responsible behaviour. On the other side, environmental action can occur without environmental awareness; this might be the case if lower purchasing power leads to less use of environmental resources. This article in a first approach analyses the discrepancy between environmental consciousness and environmental behaviour by examining whether other factors such as purchasing power or gender-specific role attributions show an influence on environmental behaviour.

4. In the interpretation of the results however, the subjective nature of the responses should not be ignored. Social factors, such as a "social desirability" could have affected the statements of those interviewed about their behaviour (like waste separation). A comparison with control data – e.g. data about sales of organically produced food or data for waste management - showed some evidence of discrepancies between social desirability and actual behaviour.

## **II. SURVEY METHODOLOGY**

5. The latest survey on the above-mentioned environmental issues was conducted in the 4th Quarter of 2007. The approximately 27,000 respondents to the micro-census "Labour and Housing Survey" were asked - after completion of the obligatory part of the initial survey - to voluntarily answer some questions on "Environmental conditions and environmental behaviour". The response rate was almost 53% (over 14 000 respondents). The survey was open to all persons aged minimum 15 years; the results were extrapolated to approximately 6.95 million people.

6. The sample of the micro-census survey is composed of nine almost equally large regional samples for the Austrian "Bundesländer" (except the region "Burgenland" with a lower and the region "Vienna" with a higher sample size). Each of the nine sections was conducted as a random sample from the central population register (ZMR, "Zentrales Melderegister").

## **III. ECOLOGICAL BUYING BEHAVIOUR**

7. Sustainable consumption – such as the purchase of organic products, regional products or energy efficient technologies – are becoming more and more important. Total sales of organic food was estimated at 590 million € in 2006, (Austrian Food Report 2008). Sales of energy-efficient, durable products also grew, for example by means of the introduction of energy labelling for domestic appliances. According to calculations by the Austrian Energy Agency the share of sales of the most efficient refrigerators (A+ and A++) increased from 18% in 2006 to about 26% in 2007 (when newly purchased).

8. Respondents were asked to disclose their personal buying habits with regard to environmentally friendly products. The purchase of organic produced food (which includes dairy products like milk and dairy products, fruits and vegetables, bread and pastries, beverages and meat) within the last twelve months was surveyed. Furthermore - for the last three years - the acquisition of environmentally friendly, energy efficient durable household goods was asked; categories are TV/VCR, refrigerators, computer and other electrical appliances such as washing machines.

9. When interpreting the data, the following restriction must be noted:

- The micro-census only asked if a product was purchased in the last twelve months or in the last three years. Regarding the frequency of purchases, however, no information was obtained; therefore quantity and value estimates were not possible. That is, regardless of how often the product was actually purchased in the given period, it was counted only once. This can - especially in the group of non-durable consumer goods (i.e. food) that have to be purchased regularly, lead to interpretation errors. For statistical reasons a similar buyer behaviour was assumed between the food categories.

### III.1 Consumption behaviour — non-durable consumer goods

10. Women reported significantly more often than men the purchase of organic food within the last year. The biggest differences were found in organic fruits and organic vegetables (9.4 percentage points difference), as well as organic milk and organic dairy products (7.1 percentage points difference), but also organic bread and organic meat was purchased more frequently by women than men (see figure 1). The only exception was the purchase of organically produced beverages: men bought slightly more organic beverages than women.<sup>2</sup>

**Figure 1**



S: Statistics Austria, Environment, Micro Census "Environmental conditions and behaviour 2007".

11. The actual market volume of organically produced food was naturally much lower, due to the fact that micro-census figures - as already mentioned – stated only whether organic food was

<sup>2</sup> The differences are statistically significant at a level of 0.00; except for beverages, this difference is not significant (Chi-square test).

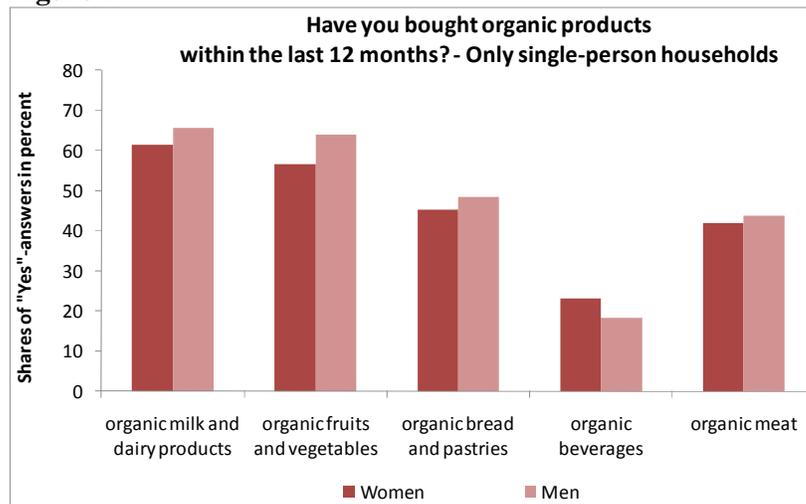
purchased, but not how often. According to a study by the AMA<sup>3</sup> in 2006 the share of organic products to the total household food purchases was as follows: milk 14.3%, eggs 23.6%, fresh fruit and fresh vegetables (excluding potatoes) around 6%, meat and poultry 2.9%, sausage and ham 1.5%. Accordingly, about 71% of female and 63% of male respondents reported to purchase at least occasionally organic milk and dairy products; but buy in fact only on a value basis of 14.3% organic milk or organic dairy products.

12. As already mentioned, it was not collected, whether the products were bought at all (regardless of produced conventionally or organically purchased). If the purchasing behaviour of women in general differs from the purchasing behaviour of men, this would also affect the analyzed data. Assuming, then, that men do their grocery shopping even more rarely than women; a systematic misinterpretation may occur in relation to their eco-shopping behaviour, men may reject not - as the data suggest - organic food, but the shopping itself. If so; the data on buying behaviour of men would not reflect their real interest in organic products.

13. To investigate this potential source of error, the organic food purchase of women and men living in single-person households was compared. It was assumed that solely living people generally buy their food themselves, since the purchases cannot be done by other people living in the same household<sup>4</sup>.

14. It turns out that also in single-person households, women purchased more frequently organic products than men (with the exception of the bio-drinks); but the gap narrowed: organic fruits and organic vegetables - 7.4 percentage points difference, organic milk and organic dairy products - 4.1 percentage points difference (figure 2). The differences in the buying behaviour for organic bread and organic meat are not significant any more. Organic drinks were bought significantly more often by male respondents living alone than female respondents.

**Figure 2**



S: Statistics Austria, Environment, Micro Census "Environmental conditions and behaviour 2007".

15. Therefore, when considering a possible gender role division of housework - by focusing on one-person households - the differences in purchasing behaviour of organic foods between women and men are reduced. Although women continue to purchase organic food more often

<sup>3</sup> Agrarmarkt Austria: „RollAMA/AMA Marketing“. Survey on 1.400 households.

<sup>4</sup> The aspect that single-person households buy less organic food than all households surveyed is not considered at all.

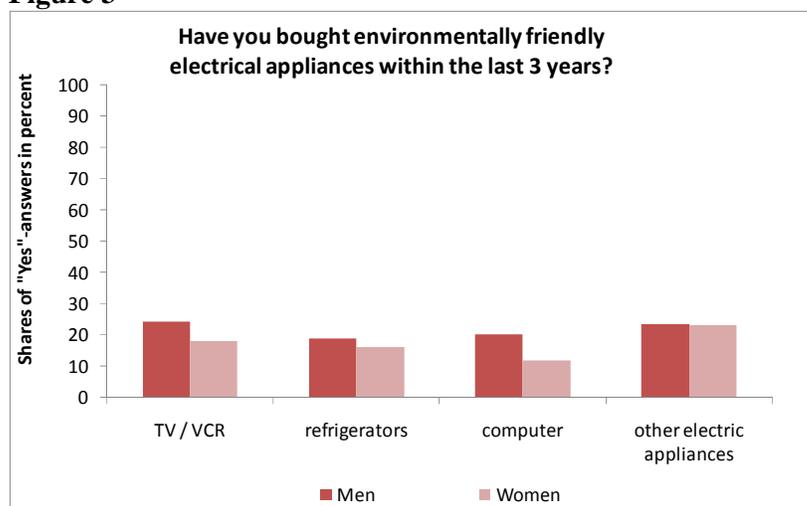
than men, any relevant differences occur only within the categories organic milk and organic fruit and vegetables. This suggests that men also mentioned less often the purchase of organic food than women because they generally buy food less often.

### III.2 Consumption behaviour — durable household goods

16. For electrical appliances (TV/VCR, Refrigerators, computer and the category “other electrical appliances” such as washing machines, dishwashers and stoves) it was surveyed whether the goods were purchased at all (in fact environmentally friendly or not environmentally friendly) in the last three years, and whether their energy efficiency and durability was observed. This allowed the analysis of effects of any gender role allocation on the consumption behaviour for eco-products; e.g. larger IT-affinity<sup>5</sup> or greater purchasing power of men.<sup>6</sup>

17. Women bought all categories mentioned less often than men (see Figure 3). The difference was greatest in the IT field (8.4 percentage points difference). For the category "other electrical appliances" (such as washing machines, dishwashers or stoves) buying behaviour was almost the same.<sup>7</sup>

Figure 3



S: Statistics Austria, Environment, Micro Census “Environmental conditions and behaviour 2007”.

18. If the analysis was limited to those persons who - in the past three years – purchased the products at all – (environmentally friendly or not) - a change in the results occurred: the difference between women and men reduces considerably. This is also reflected in the levels of significance of the differences in purchasing behaviour: they are no longer significant for all groups of devices, according to Chi-square test. It can be concluded that factors such as the

<sup>5</sup> The share of men between 16 and 74 years who reported having used a computer within the past three months was, in 2009 at 80.3%, the proportion of women was at 70.6%. S: STATISTICS AUSTRIA - „Europäische Erhebung über den IKT-Einsatz in Haushalten 2002-2009“, Vienna, 2009.

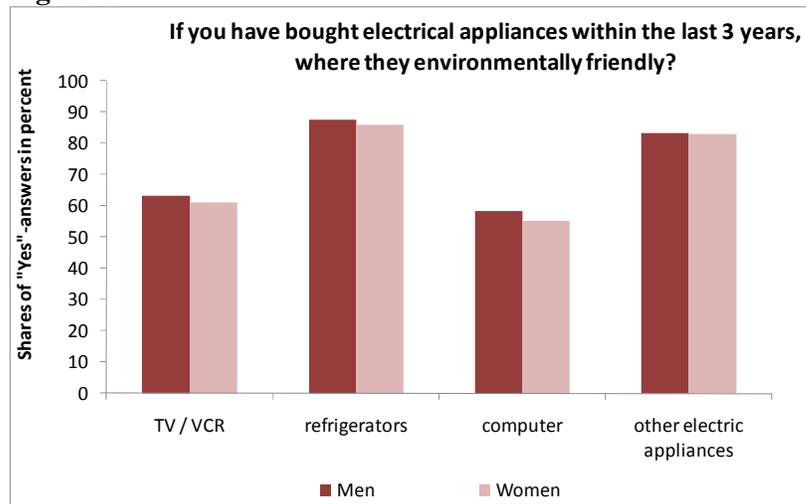
<sup>6</sup> The gross annual income of employed women in 2007 was on average 59% of the comparable earnings of men (including part time). The gross annual income of year-round full-time women reached 78% of the comparable earnings of men. S: STATISTICS AUSTRIA, Allgemeiner Einkommensbericht 2008, Vienna, 2008.

<sup>7</sup> The differences for TV/VCR, Refrigerators and Computers are statistically significant at a level of 0.00 (Chi-square test). The difference for other electrical equipment is not significant, according to Chi-square.

buying power or different buying preferences (like the aforementioned larger IT-affinity of men) play a significant role when purchasing these products.

19. If women acquire electrical appliances at all, they choose eco-products to about the same extent as men (Figure 4): Looking at the group of computer equipment, it shows that women - although much less likely to buy IT products (21.2%) than men (34.2%) - pay but only slightly less attention to energy efficiency and durability (55.2%) than men (58.3%).

**Figure 4**



S: Statistics Austria, Environment, Micro Census "Environmental conditions and behaviour 2007".

20. The eco-buying behaviour difference is therefore determined not just by the environmental attitudes of women and men, but also by non-environmental factors, including gender aspects: The gender role allocation of care work within the household, purchasing power and personal preferences show a definite impact on the environmental behaviour when buying goods. Considering these factors, a reduction of the differences in the environmental purchasing behaviour by gender is shown.

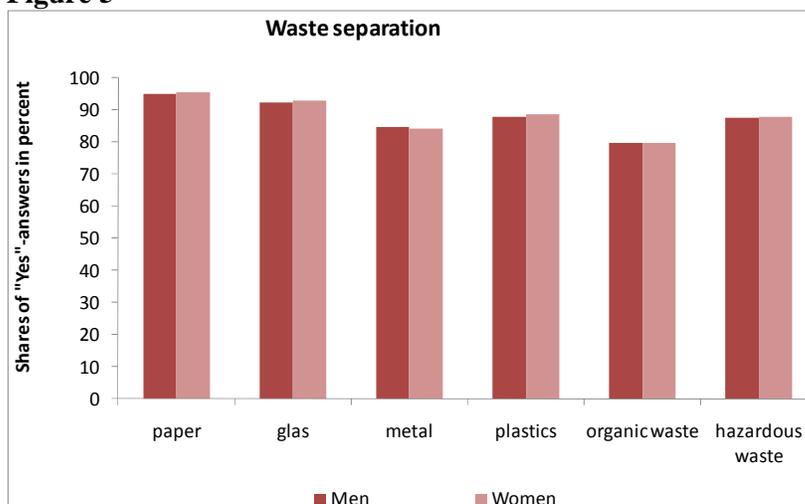
#### **IV. WASTE SORTING AND RECYCLING**

21. The willingness to sort waste was reported as very high in the survey on the environmental issues and there were no marked differences by gender in the details of the sorting and recycling activities<sup>8</sup>). 95.6% of women and 95.0% of men said that they dispose of waste paper separately; glass was recycled by 92.9% of women and 92.4% of men respectively; least often organic waste was collected (79.8% of women and 79.7% of men). Only 1.6% of female and 1.9% of male respondents stated that they do not sort or separate waste at all (Figure 5).

22. It must be noted that the micro-census asked, whether the categories of waste are sorted at least sometimes, but it does not quantify the extent of waste separation. The data thus show, for example, how many people bring at least some of their waste paper to waste collection places, but not what volume of waste paper is collected effectively. For example, almost 80% of the respondents reported that they dispose of their organic waste separately; on the other hand the Federal Waste Management Plan for 2004 estimates a collection rate of about 52% of the total organic waste volume of households.

<sup>8</sup> The differences are not statistically significant (Chi-square test).

**Figure 5**



S: Statistics Austria, Environment, Micro Census "Environmental conditions and behaviour 2007".

23. So, the behaviours of women and men with regards to waste separation and recycling is very homogeneous. No differences in the degree of waste separation were detected from the results in this part of the micro-census.

## V. PUBLIC AND PRIVATE TRANSPORT

24. With the micro-census survey on "environmental conditions and behaviour" in 2007 the topic of mobility in Austria was also covered in detail. Here, the gender-specific behaviour related to the daily choice for means of transport was examined. The respondents were asked how often (daily, several times a week, several times a month, rarely or never) they used public transport (train, bus, tram, underground) or cars (as driver = driving it themselves, or as passenger).

25. The mobility behaviour of women and men shows clear differences;<sup>9</sup> women used public transport more often (17.9% daily, 12.6% several times per week) than men (15.9% daily, 9.6% several times per week). On the other hand men, as shown in Figure 6, travel by car more often (76.0% daily or several times per week) than women (64.4% daily or several times per week).

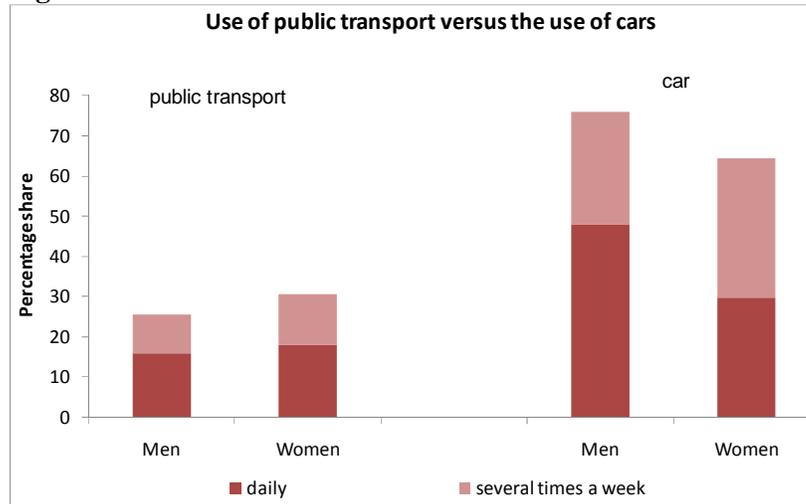
26. In fact, the *ages* of respondents showed a significantly stronger influence on the choice of means of transport than *sex*. Persons below 20 years and groups of older people stood out by having different user behaviors. Respondents below 20 years of age used public transport most frequently and were slightly below average car users (of course primarily as passengers). The same was true for people aged 70+ years, who took far less than average advantage of cars. After this age, independent car-use decreased strongly with increasing age.

27. The age groups of 30-40 year olds and 40-50 year olds used a car most often (as drivers or passengers). Nearly 70% of women and nearly 80% of men in this group drove their car by themselves. The difference between men and women was lowest for this age-group (just under 10% age points). From the age of 60 to 70 years, women barely drove a car by themselves (10.1% daily, 27.0% several times per week); from the age of 70+ years, these values decreased again severely (2.7% daily, 8.7% several times per week). The widest gender difference was

<sup>9</sup> The differences are statistically significant at a level of 0.00 (Chi-square test).

found in these two age groups. There was one female driver for two male among the 60-70 year olds. This ratio increased to one women to four men for people aged 70+<sup>10</sup>.

**Figure 6**



S: Statistics Austria, Environment, Micro Census “Environmental conditions and behaviour 2007”.

28. Women are less likely to drive a car by themselves (27.8% daily, 20.8% several times per week) than men (45.7% daily, 23.3% several times per week) and were on the other hand more frequently passengers in cars (2.8% daily, 25.1% several times per week) than men (3.1% daily, 13.1% several times per week).

29. Additionally the influence of the factors “employment” and “education” were analyzed:

(a) The criterion “employed” resulted in a greater car use (as driver) for both women and men; as well as to lower behavioural differences between the sexes. So the difference between female (68.8% daily or several times per week) and male employees (76.2% daily or several times per week) was less than the overall figures. In contrast, non-employed persons generally used public transport more often than employed, and between non-working women and men only small differences appeared, but were still reported as significant (Chi-square test);

(b) Higher education also resulted in both sexes in an increased use of the car as driver, although here too the difference between men and women tended to decrease with the increase in level of education.

30. If employment and education are used as proxies for income, it can be derived from the results that a higher purchasing power leads to an increased use of the car. Therefore the environmentally-friendly transport behaviour of the female respondents, which can be demonstrated by the reduced use of the car can - at least partly – be explained by factors such as their lower purchasing power and not based solely on a higher environmental awareness or a greater desire to reduce their environmental impact.

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<sup>10</sup> The differences are statistically significant at a level of 0.00 (Chi-square test) except for persons aged < 20 years (not statistically significant).