

5 Results

Museum visits

The full estimation results are presented in Table 2. These are both the estimation results of the multinomial logit equation estimating the probability of owning a museum pass or other type of discount pass, and the count model explaining the total number of museum visits. The results show that students and low-income respondents have a larger probability of possessing another type of discount pass. Furthermore, older people, high-income people, highly educated people and people with highly educated parents more often possess a museum pass. As these characteristics are commonly seen as drivers for cultural participation, these results are as expected.

The possession of a museum pass has a positive and significant effect on the number of museum visits, taking account of differences in individual background characteristics. From these results we computed that museum pass holders make 3.0 times as many museum visits than in case they would not have possessed a discount pass. 3.0 is the exponent of the estimated coefficient of 1.101. The 95%-confidence interval of this ratio is 2.1 to 4.3. Other characteristics which strongly influence the number of museum visits are the visitors' age, education level and region. Possession of other types of discount passes does not have a significant influence on museum visits, whereas the uncorrected results in Table 1 show that they visit a museum 1.6 as often as museum visitors without a discount do. All of this difference can be explained by differences in background characteristics.

Table 2 Estimation results

	Effect on museum visits	Effect on probability of owning the museum pass	Effect on probability of owning other type of discount pass
Discount pass:			
museum pass (reference: no discount pass)	1.101***		
other type of discount pass	-0.051		
Female (reference: male)	0.096**	0.097	-0.036
Age: 20-24 (reference: 15-19)	-0.056	-1.293**	-0.954***
25-29	-0.475***	-1.847**	-1.768***
30-34	-0.429***	-0.630	-1.687***
35-39	-0.198	-0.895	-1.504***
40-44	-0.257**	-1.021	-1.615***
45-49	-0.161	-0.847	-1.513***
50-54	-0.226*	-1.110*	-1.714***
55-59	-0.169	-0.693	-2.435***
60-64	-0.058	0.536	-1.412***
65-69	-0.084	0.618	-0.958**
70-89	0.152	1.051	-1.123**
Type of Household:			
with partner without children (reference:	-0.021	-0.695***	0.105

	Effect on museum visits	Effect on probability of owning the museum pass	Effect on probability of owning other type of discount pass
with partner and children	-0.049	-0.654**	0.233
single with children	-0.118	-0.441	0.189
other	0.116	-0.207	-0.083
Gross household income per year:			
€12.500 - €20.000 (reference: < €12.500)		1.045*	0.137
€20.000 - €26.200		0.869	-0.193
€26.200 - €32.500		1.146**	-0.269
€32.500 - €38.800		1.172**	-0.671*
€38.800 - €51.300		0.808	-0.749*
€51.300 - €65.000		0.983*	-0.473
> €65.000		1.718***	-0.419
won't say		1.180**	-0.378
Education level:			
higher professional (reference: university)	0.03	0.011	0.222
senior general secondary / pre-university	-0.086	-0.825**	0.417
secondary vocational	-0.233***	-0.993***	0.026
pre-vocational	-0.173*	-0.811**	0.552
lower pre-vocational	-0.309**	-0.655	0.198
won't say	0.095	0.839	0.487
Highest education level parents:			
higher professional (reference: university)	0.014	-0.896***	-0.166
senior general secondary / pre-university	-0.040	-0.847**	-0.601*
secondary vocational	-0.075	-1.013***	-0.303
pre-vocational	-0.055	-0.728**	-0.445
lower pre-vocational	-0.127	-0.943***	-0.788**
won't say	-0.148	-1.504***	-0.667**
Students (reference: non-students)		-0.368	0.661**
Constant	0.431*	-0.922	-0.093
Dummies for 40 regions	included	included	included
Number of observations	2052		

Based on the estimation results and the fact that museum pass holders made 5.0 million museum visits in 2012, we estimate that pass holders would have made 1.7 (=5.0 million visits/3.0) million visits if the museum pass would not have existed. This implies that 18 percent of the 20 million museum visits per year in the Netherlands are made because of the existence of the museum pass.

Financial effects for museums

Using the results of the previous analyses, an average entrance fee of € 9.16 and a benefit percentage of 65%, the total extra entrance fee related revenues from the museum pass are € 13.2 million in 2012. Furthermore, the total provision was € 0.7 million. The extra profits from ancillary goods are estimated to be € 7.5 million from the cafés and € 5.2 million from the museum shops. This is based on an estimated average profit margin on revenues of 54% for museum shops and a profit margin on revenues of 50% for cafés. As these numbers are weighted by museum visits, the profit margins of the large museums (with large shops and cafés) are dominant. These figures are based on the survey among museums. These margins are comparable to the margins used in other literature, which are typically around 40% for museum shops with paid staff and around 50% for shops with volunteer staff¹. As we assume that the marginal personnel costs are zero, our estimated margins are in line with these used in the literature. The average consumption in the shop for visits with a museum pass is €2.88 and the average consumption in the museum café is €4.40. These figures are based on the questionnaire among museum visitors where visitors were asked to recall their spending on ancillary goods during their last museum visits.

This leads to total benefits of €26.6 million which have to be divided between the 388 participating museums. As the museums that accept the museum pass range from the ‘superstar’ class (Frey and Meier, 2006) with more than 1 million visitors per year to very small museums with less than 5000 visitors, the financial effect is not equal between museums. The 10 participating museums with the highest revenues from the museum pass together generate 39% of the additional benefits, whereas the 100 smallest museums together generate 0.35%. However, the average contribution of around €1000 for a small museum can still be substantial for their finances as the typical budget of such a museum is also very limited.

To check the robustness of the results, the revenues are also calculated with conservative estimates of the parameters. In this sensitivity analysis, the lower bound of the confidence interval of the effect of the museum pass on museum visits of 2.1 instead of 3.0 is used (which leads to 2.4 million baseline visits) is used. Also, the profit margin for the museum shop and the museum café is set to a low value of 40%. This still yields a positive financial effect: €15.0 million, of which €6.6 million can be attributed to the entrance fees. So even without the extra sales of ancillary goods and services, the museum pass is on average profitable for participating museums. We note that this needs not be the case for every individual museum.

¹ The British Association of Independent Museums has published a retail guideline for small museums. They claim that it is normal for a museum shop to have on average 45% gross profit (Prescott, 2003). Kirk (2005) claims that museum shops operating paid staff should have a profit margin around 35-40% and museums shops operating volunteer staff have a profit margin around 45 to 55%.

6 Conclusion and discussion

Econometric analysis of museum visits shows strong benefits from the national museum pass in the Netherlands, both in terms of financial returns to museums and the total number of museum visits. The analysis explains both pass holdership and museum visits using control variables, and taking account of endogeneity of pass holdership. Without the museum pass, the total number of museum visits would be 18% lower as museum pass holders visit a museum three times more often because of the museum pass. There is also a substantial positive financial effect for the participating museums in both revenues of the museum pass income as well as the additional sales of ancillary goods and services.

The main limitation of the analysis is that we cannot be sure that all relevant control variables have been included in the analysis. Even controlling for gender, age, household type, region, household income, education level, parents' education level and students, it is still possible that there are remaining differences between people who often visit museums and people who do not. If these differences are positively correlated with both museum visits and pass holdership, the analysis may overestimate the true effect of the pass. On the other hand, it may be that non-included factors may not be correlated with both pass holdership and museum visits. To test for this, a (quasi) experiment would be needed.

An important question is whether a national museum pass would also be beneficial for museums in other countries. Possibly, the success of the Dutch museum pass is related to a high population density and a large number of museums within a reasonable travel distance. Moreover, both people and museums are concentrated in the western part of the Netherlands, facilitating visits. However, other countries (e.g. Belgium, England), or large urbanised regions within these countries (e.g. the Berlin and Paris regions), are sometimes comparably densely populated and endowed with museums as (the western part of) the Netherlands.

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