

### **Appendix C:** test of sample selection bias

Most of the observations are lost due to item–nonresponse in the ICT–expenditure variables. An item–nonresponse analysis shows that these observations might not be missing at random. I estimated a binary probit model with the incident of item–nonresponse as dependent variable. Explanatory variables were sector affiliation, the natural logarithm of the number of employees and its square as well as regional affiliation. In particular, large firms are significantly *less* likely to report ICT–expenditures. The incidence of not responding to the ICT–questions might hence be correlated with the level of ICT–expenditures so that a classical sample selection bias problem occurs that leads to inconsistent parameter estimates. I tested for the presence of sample selection by estimating Tobit models with sample selection (e.g. Greene 1995, Sect. 27.3). The correlation between the ICT–expenditure equations and the item–nonresponse equations was insignificantly different from zero so that evidence is given that the observations are missing at random. In my test for sample selection the explanatory variables in the ICT–expenditure were the same as in the “full” specification that includes all three sets of explanatory variables as discussed in the main text. The item–nonresponse equation was specified by sector dummy variables, the natural logarithm of the number of employees and its square, regional affiliation and a set of dummy variables indicating the hierarchical position of the survey respondent in the firm. The latter variables are my “exclusion restrictions” as they are termed in econometrics (the non-response behavior of respondents differs with their position but it does at the same time not have an effect on ICT–expenditures).