

## Appendix A

We report three further tests to support our main finding. First, we address the concern over the heterogeneity of SMEs in each locality and the demand for bank credit and credit quality. In our specification, we use locality (and/or locality-time) fixed effects as controls for demand, leaving functional distance to capture the organisational structure of the banks. The underlying assumption is that SMEs, in each locality, have similar demand for bank credit and similar credit quality, and view local branches as providers of a perfectly substitutable goo (bank credit). This assumption can, be violated if SMEs with stronger demand for bank credit and better credit quality can self-select into areas of bank branches with shorter functional distance. If so, the effect of functional distance on SME lending might be driven by SME-bank specific loan demand.

The literature has well documented that the SME borrowing-relationship is characterised by ‘experiential’ rather than ‘search’ goods, and that high switching costs is due to significant asymmetric information problems. It is therefore reasonable to argue that SMEs, have a preference toward certain types of bank branches that are located in the more competitive areas. It can also be argued that better performing SMEs are more creditworthy and are more likely to choose preferred bank branches. Motivated by these arguments, we conduct two exercises to test the extent to which our result on functional distance is attributable to the self-selection of SMEs into preferred branches. First, we use the interaction between the locality HHI (HHIBRANCH as a measure of local competition) and functional distance. HHI is measured as the sum of the share of the branches of a specific bank in a locality of total branches of all banks in the locality. The results are shown in Table A1, column 1. As seen, the estimated coefficient on the interactive term is not statistically significant but the estimated coefficient on functional distance remains significant.

Second, we introduce the interaction term between a dummy variable indicating the region with a high proportion of high growth firms and functional distance. The dummy variable takes a value of unity for the regions that have a higher proportion of high growth firms than the median during 2010-2012 and zero otherwise. A high growth firm is defined as a firm of 10 or more employees that grows either its staff or turnover by an average of more than 20 per cent per year for three consecutive years (variable GROWTH20, source *Office for National Statistics*). Most high growth firms in the U.K are SMEs (Anyadike-Danes et al., 2009). Since our sample begins in 2013, the motivation is that a region with a higher proportion

of high growth firms will be an area with a higher proportion of better-quality SMEs matched to preferred branches. The results are shown in Table A1, column 2. Again, the estimated coefficient on the interactive term is not statistically significant but while the magnitude is smaller, the negative relation of functional distance on SME lending remains. Putting these results together, the concern that functional distance for bank-loan supply would be contaminated by SME bank-specific loan demand is unwarranted.

Finally, we address the concern over the endogeneity of the branch location of banks. If the banks' decision to locate a branch is driven by an anticipated change in the demand for bank credit in a locality, the estimated relationship between functional distance, which is constructed according to the distribution of bank branches prior to our sample period, and the change in SME lending during the sample period would be explained by an anticipated demand effect. To handle this concern, we conduct pair-wise correlations between the number of bank branches per capita (BRANCH\_PC) at regional level in 2013, the number of SMEs per capita (SME\_PC) at regional level during 2013-2016, and the share of SMEs turnover in total non-financial firm turnover (TURN\_SHARE) at regional level during 2013-2016. Table A2 shows that these correlations are not significant at the 10%, which suggests that banks do not distribute their branches according to the development of SMEs at the regional level.

Table A1. Dependent Variable  $\Delta SME_{b,l,t}$ , 'p' values in parenthesis

Variable	1	2
SHARE_AREA (The ratio of branches of bank (b) over total number of branches of all banks in locality (l) (%))	-.1175*** (.001)	-.1124*** (.000)
SHARE_AREA_TOTAL (The ratio of branches of bank (b) in locality (l) over the total number of branches of the bank (b) in the UK (%))	.0614 (.861)	-.0072 (.982)
LDIST	-1.1086** (.0048)	-.4859** (.05)
LDIST*HHIBRANCH <sub>t</sub>	0.0000 (.736)	-
LDIST*GROWTH20	-	-.6415 (.155)
Location dummy	YES	YES
Bank dummy	YES	YES
Quarterly dummy	YES	YES
The postcode area where the outstanding shows as zero included (YES/NO)	YES	YES
N	3834	3834
R-sq	0.1085	0.1093

Table A2: Pairwise Correlations

Variable	BRANCH_PC	SME_PC	TURN_SHARE
BRANCH_PC	1		
SME_PC	-.0182	1	
TURN_SHARE	.1257	.3618	1