Complementarities in the Diffusion of Personal Computers and the Internet: Implications for the Global Digital Divide

This paper studies the cross-country diffusion of personal computers (PCs) and the Internet, and examines how the diffusive interactions across these technologies affect the evolution of the global digital divide. We adopt a generalized diffusion model that incorporates the impact of one technology’s installed base on the diffusion of the other technology. We estimate the model on data from 26 developing and developed countries over the period 1991-2005. We find that the co-diffusion effects between PCs and the Internet are complementary in nature and the impact of PCs on Internet diffusion is substantially stronger in developing countries as compared to developed ones. Further, our results suggest that these co-diffusive effects are a significant driver of the narrowing of the digital divide. We also examine the policy implications of our results, especially with respect to how complementarities in the diffusion of PC and Internet technologies might be harnessed to further accelerate the narrowing of the global digital divide.

Key words: IT penetration; IT diffusion; digital divide; global IT; diffusion model; co-diffusion