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Economic impacts of subsea cable deployment

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Abstract-

This paper provides a comprehensive empirical analysis of the economic impact of submarine cable (SMC) infrastructure, which is critical for global digital connectivity and carries almost all intercontinental data traffic. Despite their fundamental role in the digital economy, robust evidence on the economic returns of SMC investments is very scarce. To address this, we use a panel dataset of developed countries and causal identification strategies, such as two-way fixed effects models and instrumental variables exploiting exogenous variation from factors like a country's coastline length and legacy market competition. In our empirical analysis we first describe how international bandwidth (IBW) can be used as a proxy for SMC capacity and examine how it affects domestic broadband quality levels. We then quantify the impact on broadband demand, finding distinct yet robust demand elasticities for mobile and fixed services. We find that a 1% increase in IBW drives an increase in mobile broadband adoption between 0.049% and 0.081%, while the increase for fixed broadband adoption ranges between 0.056% and 0.061%. Finally, we translate these estimates into a simple cost-benefit framework using an illustrative transatlantic cable project connecting Ireland and the United States. This analysis shows that the substantial GDP spillovers overwhelmingly exceed the total private deployment costs. Our findings affirm that SMC deployments generate significant positive externalities and high social returns. While it has been argued in the previous literature that these effects are critical to developing nations lacking infrastructure, our findings indicate this effect is also applicable to advanced economies. Consequently, we argue that policymakers in coastal nations, regardless of their level of development, have a strong economic incentive to facilitate private investment by reducing regulatory barriers and transaction costs associated with, for example, cable permits and landing stations.

Index Terms- Submarine cables; Economic impact; Costs and benefits; Panel econometrics

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