

Missing Markets for Innovation: Evidence from New Uses for Existing Drugs

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For large classes of potential inventions, it is either not possible or not profitable for firms to enforce intellectual property rights. In this paper, we show that these missing incentives yield quantitatively significant underinvestment in research and development. We develop a simple model that defines large classes of inventions for which intellectual property rights are necessary to incentivize private investment, but are either unavailable or unenforceable in practice. We identify an empirical setting—research into new therapeutic uses for existing drugs—in which there is sharp variation in the enforceability of intellectual property rights on otherwise comparable inventions over time. This variation allows us to test two claims central both to our model and to the design of innovation policy more generally—that intellectual property rights create private incentives for innovation only when they are enforceable, and that incentives are increasing in the duration and enforceability of these rights. We show that when intellectual property rights become unenforceable, research investment and commercialization nearly cease. The welfare consequences of inadequate incentives for the development of new uses are large, in terms of both missed therapeutic opportunities and dollars of forgone social value. Our estimates suggest that 280–800 new uses for existing drugs would have been developed under counterfactual policies. Measures of the value of these uses drawn from existing literature suggest that the social cost of this particular missing market is on the order of several trillion dollars.