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Capital cycles and prospects for eco-efficient enterprises in Ukraine

One important source of industrial pollution is the capital equipment that supports national economic activity. Capital stock, such as electricity generation plants, factories, and transportation infrastructure, is expensive and once built can last for decades. Such capital also presents important and conflicting constraints on policy-makers attempting to reduce industrial pollution. On the one hand, attempts to reduce emissions too quickly may create a drag on the economy if they force the premature retirement of capital. On the other hand, delaying reductions may raise the cost of future actions because the facilities built today can still be polluting decades from now.

Speaking about the prospects for eco-efficient enterprises in Ukraine, we have to gain an understanding of the actual patterns of capital investment and retirement, or "capital cycles." This paper provides some insights into the differing patterns of capital investment across enterprises and sectors, and what factors spur environmentally benign investments.

In reality, external market conditions often drive an enterprise's decision whether to invest or disinvest in large pieces of physical capital stock, and an enterprise often invests in new capital only to capture new markets. In the absence of policy or market incentives, expected equipment lifetimes and the availability of more efficient technologies are not significant drivers of capital stock decisions. With regular maintenance, capital stock often lasts decades longer than its rated lifetime, and the availability of new technology rarely influences the rate at which enterprises retire older and more polluting plants. As an extreme example, most Ukrainian power plants are at least 30-40 years old, their amortization terms have passed long ago, but only a small fraction of all those plants built in a mid of the 20th century will be retired within the next 5-10 years.

The retirement of older facilities often provides the opportunity for low-cost deployment of new, emissions-reducing technologies. Low energy prices, hidden subsidies and various exemptions from the soft environmental regulations may delay the retirement of older plants. Therefore, policy-makers should avoid regulations and other rules that discourage capital retirement. Moreover, policy-makers should pursue policies that shape long-term patterns of capital investment.

While policy may only make small perturbations in near-term decisions regarding the composition of national capital stock, over the long term, policy may significantly shape the market forces and opportunities perceived by enterprises. Government-sponsored development of new policies such as a cap-and-trade program may have a profound effect on the direction of long-term investments in new capital stock. Overall, the dynamics of capital investment and retirement suggest that policy-makers can set ambitious long-term sustainable development goals, but should allow enterprises a great deal of flexibility in the timing with which they will respond to them.