Klaas Knot: The AI adventure - how artificial intelligence may shape the economy and the financial system

Speech by Mr Klaas Knot, Chair of the Financial Stability Board and President of the Netherlands Bank, at the International Monetary Fund-World Bank Constituency meeting, Moldova, 11 July 2024.

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Innovation is everywhere. Take the wine industry here in Moldova, for example. An industry that goes back thousands of years. When I was preparing for this meeting, it was pointed out to me that recent innovations in agriculture have greatly improved wine production in your country. I was particularly amazed to hear about the use of drones to monitor the health of vineyards. And about the optimisation of grape production through automated irrigation systems and data analytics. If you want to get a literal taste of what innovation can bring, look no further than Moldova.

Since the early days of economics, we've known that technological innovation is an important driver of economic output per worker, and therefore of wealth and prosperity. That's why generative artificial intelligence is so exciting: with the emergence of incredibly capable generative models and dramatic advances in computing power, we might very well be on the verge of a new technological revolution. Studies suggest that AI can greatly increase total factor productivity across several industries, including the financial sector, healthcare, manufacturing, energy, transport and logistics. Research also shows that the use of AI can significantly improve productivity within individual companies. This may contribute to economic growth in a meaningful way.

This would be great news. At the recent IMF Spring Meetings, the talk of the town was lagging productivity growth. In large parts of the world, productivity growth has been sluggish for many years now, so a boost from AI would be very welcome.

Obviously, it's difficult to predict the impact AI will have on the economy and productivity at this juncture. We're already amazed at what ChatGPT and other generative AI models can do. But when we look back five years from now, today might very well seem like the Stone Age. I will certainly not claim to have all the answers. But we *can* make some intelligent guesses about the impact of AI, based on recent developments and sound economic thinking.

For one thing, AI will likely shake up labour markets. Although the jury is still out on the net effects, we know that the current wave of generative AI presents new dynamics. It can both replace and complement human labour. So like any other new technology, AI can create and destroy jobs. What's new about AI, however, is that it's especially the high-skilled, high-paying jobs that are vulnerable. The ultimate impact is likely to be sector specific, and will partly depend on companies' creativity, and their ability to adopt AI in a way that complements, rather than replaces, human labour. Policies and regulations can also help steer these developments. It's especially important to have social safety nets in place to support workers who have lost their jobs, as well as labour market policies to help workers stay employed. Tax policies should also be carefully assessed to ensure that tax systems don't favour indiscriminate labour replacement.

IMF research shows that several countries have tax systems in place that implicitly favour automation over facilitation. So we need to make sure that our regulatory and fiscal policies do not work against our needs.

Differences in economic structures and education levels mean that AI may have different impacts across different countries. According to the IMF, almost 40 percent of global employment is exposed to AI. Advanced economies are at greater risk, but are also better positioned to reap the benefits of AI compared to emerging market and developing economies. In advanced economies, about 60 percent of jobs are exposed to AI, due to the prevalence of jobs that revolve around cognitive tasks. Of these 60 percent, about half may be negatively affected by AI, while the rest could benefit from enhanced productivity through AI integration. In emerging market economies, overall exposure is 40 percent, and in low-income countries it is 26 percent. This means that many emerging market and developing economies may experience less immediate AI-related disruption. On the other hand, they're also less ready to take advantage of AI's capabilities. This could have a negative impact on the digital divide and income inequalities between countries. That's why emerging market and developing economies should give priority to the development of digital infrastructures and digital skills.

There are many open questions concerning AI. Instead of pretending to know the answers, my message would be this: artificial intelligence is neither the great villain nor the great saviour of our time. It's a technology that we can use to our benefit, but only if we implement the right policies and regulations.

As regulators and policymakers, we should therefore maintain a healthy balance between harnessing the benefits of innovation while mitigating the risks. When it comes to innovation, the Americans have traditionally been focused on the opportunities, with a regulatory environment that's more flexible and conducive to business innovation. Europeans tend to focus on the risks and call for regulation. But falling behind in adopting new innovations is a significant risk too, as all parts of the world should benefit from the productivity potential of AI. So I would call for a slightly more American attitude to things, and warn against stifling AI-driven innovation.

That said, welcoming and fostering innovation doesn't relieve us of the obligation to monitor the risks that come with it. And that is my focus as chair of the FSB.

This year, we are updating an FSB paper on the financial stability implications of artificial intelligence, originally published in 2017. While it's too early to say with certainty what our conclusions will be, the emerging consensus is that the risks identified in the earlier report are still there. The most important ones are concentration risk, third-party risks, possible increases in herding behaviour, and model risk, including challenges with regard to explainability.

Many of the potential risks of AI may seem new, but when you look beneath the surface, they are strikingly similar to traditional financial risks. Risks that we are familiar with. We already have frameworks to assess concentration risk, third party dependence and interconnectedness. This is good news. But potential new forms of interconnectedness in the financial system may emerge. For example, autonomous trading agents may interact to create new dynamics in financial markets. Some studies have found that AI-powered algorithms consistently learn to charge higher prices

through collusive strategies, even if there's no direct communication between them. Such interdependencies may be especially pronounced if the market for data and model providers is highly concentrated, which appears to be the case for generative AI models in particular. Although there are lots of applications out there, in practice they all seem to be based on only a handful of models, perhaps just three or four.

At this stage, the FSB's work is purely analytical. We are not currently developing policy options or coordinating across standard setting bodies or international organisations. But the FSB is ready to do what is needed to monitor these risks and implement effective regulatory frameworks.

Regulating a fast-changing, almost ubiquitous technology may sound daunting, but we have many good tools at our disposal. AI is not a new discipline – various use cases have been around for quite some time now. And as I pointed out earlier, many of the risks involved are risks we're already familiar with. They're just wearing new disguises. Although this is no reason for complacency, we can take comfort in the fact that we're not starting from scratch.

In short, I see the glass as half full. Innovation has brought us many good things throughout history, from the printing press to drones that can help improve wine production. The possibilities of AI may be endless, but humans are inventive. So I'm confident that we'll be able to put AI to good use while keeping its darker sides in check.