

SPEECH

AI and monetary policy

Dinner speech by Philip R. Lane, Member of the Executive Board of the ECB, at the Closing Conference of the European System of Central Banks Research Network on Challenges for Monetary Policy Transmission in a Changing World (ChaMP)

Rome, 6 July 2026

Let me begin by congratulating everyone involved in the ChaMP research network on a remarkably successful research programme: it has delivered many new insights regarding the transmission of monetary policy and has been directly influential in our policy discussions in recent years.^[1]

In these dinner remarks, I would like to focus on one topic in particular: the implications of artificial intelligence (AI) for the monetary policy stance.^[2]

A natural benchmark analysis is to view AI as permanently increasing productivity, boosting incomes. If households and firms quickly internalise the permanent nature of the productivity shock and incorporate future increases in incomes into their spending decisions, the advent and adoption of AI could put upward pressure on inflation via this demand mechanism already early on during the transition phase.^[3]

Yet, assuming that households and firms know precisely the nature, size and persistence of future productivity shocks is hardly realistic. A more sluggish consumption response can also be rationalised if the level of lagged consumption is an important determinant of the benefits of current consumption, as in “habit formation” models.^[4] Consumers also face great individual-specific uncertainty about the income implications of the AI transition, providing a further reason to be slow to adjust consumption.^[5] It is more plausible to posit that households and firms will learn about the income and employment impact of productivity shocks over time in a concurrent manner and will only slowly adapt spending to it.^[6] In this event, the upfront inflationary effect would be strongly diminished.

More generally, within the span of macroeconomic outcomes originating from different degrees of incorporating productivity and income gains into spending decisions, the inflationary effects of the AI transition will depend on a range of factors.

One factor in determining the income, distribution and demand effects is whether the technological boost from AI will be labour-augmenting or capital-augmenting. Technology is often modelled as labour-augmenting: more can be produced with the same number of workers. This effect boosts labour income for workers, with the scale depending on their bargaining power and on institutional factors. Conversely, if AI is capital-augmenting, income increases will accrue to capital owners, rather than workers, thereby

increasing inequality of labour and capital income.^[7] An increase in income and wealth inequalities could limit the extent to which demand expands across all sectors of the economy and thereby dampens the inflationary tendencies associated with AI-driven productivity gains.^[8]

A second factor is the scale of investment required to integrate AI into the economic value chain. Here, substantial computing power is likely required both in building AI foundational models and in implementing AI in business settings. Building the required computational infrastructure requires a substantial upfront increase in capital expenditures.

A third factor is that the expansion in AI-related compute involves a substantial increase in energy demand and, until energy supply catches up, puts upward pressure on energy prices.^[9] This dynamic is likely to add to inflationary pressure during the AI adoption phase.

The geographical distribution of AI activity is likely to be relevant for the impact on demand at the regional or national level. If AI activity turns out to remain concentrated in the United States and China and the AI supply chain remains heavily Asia-focused, then the increase in European investment and energy demand will be relatively muted. In this scenario, Europe would still face some upward inflation pressure from the effect of increased global demand on commodities and goods, especially in relation to products used as inputs into AI production. In contrast, if there is strong technological diffusion to Europe, then these demand-boosting channels will operate more powerfully in the euro area. This is especially true if technology diffusion can only be realised with some degree of local capital investment.

We can translate the competing propositions about the degree of anticipation of the macroeconomic effects of the AI transition into implications for the natural rate of interest, defined as the real rate of interest that aligns desired savings and investment. In one direction, sustained optimism about the income and productivity gains from AI would boost investment and reduce savings, putting upward pressure on R^* . In the opposite direction, the more households and firms are uncertain about the trajectory of the AI-induced income path and the distribution of income gains across regions and income groups, the less an increase in R^* would materialise. In particular, precautionary savings could increase due to uncertainty about the displacement of labour or about constraints to financing AI-related investment.

The time profile of R^* also depends on the trajectory of technology adoption. Under one scenario, AI follows the typical S-shaped pattern, where adoption proceeds slowly in its early stages, accelerates during a phase of widespread implementation, and eventually plateaus as the technology matures. This profile means that AI permanently raises the level of productivity but does not permanently increase the growth rate of productivity.

In contrast, an alternative scenario is that AI improves the innovation process, thereby shifting the economy to a permanently higher productivity growth rate. To the extent that productivity growth translates one-to-one into output and consumption growth, in the former scenario R^* would eventually fall back to the level prevailing before the technological transformation, as the consumption growth path turns lower again once productivity gains abate, while in the latter scenario it would remain at a permanently higher level.^[10]

Under either scenario, it might be expected that the investment rate turns out to be quite volatile. One source of volatility is that there may be demand complementarities in implementing innovations, with each innovating sector benefiting if other sectors are also innovating.^[11] Financial market sentiment towards AI-related investment may also be subject to waves of optimism and pessimism, in light of the wide range of views on the long-term impact of AI. Indeed, multiple equilibria may exist, with the transition to a high-capital equilibrium self-validated by optimistic expectations that generate a financing feedback loop.^[12] In the transition to the high-capital equilibrium, investment initially surges and the interest rate is high, but the interest rate subsequently falls sharply as capital becomes abundant and income mainly accrues to high-saving capital owners. At the same time, this mechanism is inherently fragile: a loss of confidence can trigger a self-fulfilling crash.

Finally, if AI production opportunities remain concentrated in the United States and the AI adoption rate is higher in China than in Europe, there is a scenario in which investment declines in Europe, with investors reallocating capital both to the United States and China.^[13] Especially if overseas AI capital can still boost European productivity through licensing arrangements, this scenario could still generate high incomes in Europe, but with relatively little domestic investment, entailing downward pressure on R^* in Europe.

Some elements of this scenario are consistent with the high allocation to US technology stocks in euro area equity portfolios, the high level of European imports from the United States of intellectual property products and the increasing substitutability between Chinese and European products across a range of middle-tech and high-tech sectors.

Given these different mechanisms, the net effect of the AI transition on R^* remains uncertain.

So far, I have focused in this discussion on the implications of the AI shock for monetary policy. Taking a broader perspective, it is also important to recognise the possible amplifying impact of AI in relation to other cyclical shocks that can hit the economy. Let me outline three (possibly inter-related) examples: (a) an energy shock; (b) a financial shock; and (c) a recession shock. The energy intensity of AI means that a persistent upward shock to energy prices could limit the rate of progress in building new AI models and also curtail the AI adoption rate. The capital intensity of AI production and AI adoption means that a tightening in financial conditions would also have an adverse impact on AI-producing and AI-using sectors.

Finally, by offering a substitute for labour, AI could intensify labour shedding during a recession.^[14]

Clearly, there are potential feedback loops across these three channels. For example, a persistent energy shock that altered the economics of AI production and adoption could also lead to repricing of AI-related equity and debt in the financial system, which would be further amplified if it turned out that any downturn in the economy triggered a larger-than-anticipated correction in the labour market and thereby also reduced consumption. It also follows that a more resilient energy system reduces these risks, such that an increase in the importance of the energy-intensive AI sector reinforces the logic of an accelerated transition to a renewables-dominant energy system.^[15]

In conclusion, I have provided an overview in these remarks of the different channels through which AI may affect macroeconomic dynamics and the monetary policy stance. Given the many uncertainties surrounding the strength and timing of the various mechanisms, a data-dependent approach is best suited to assessing the overall impact of AI on the appropriate monetary policy stance. This will be a major challenge for monetary economists and monetary policymakers in the years to come.

1.

Delivered on behalf of Mr Lane by Philipp Hartmann, Deputy Director General Economics.

2.

The views expressed here should not be interpreted as representing the collective view of the Governing Council. This speech draws on Lane, P.R. (2026), "[AI and the euro area economy](#)", keynote speech at ECB-SAFE-RCEA International Conference on the Climate-Macro-Finance Interface (3CMFI), Frankfurt, 23 March. See also Hartmann, P. and Maver, V. (2025), "[Implications of Artificial Intelligence for Monetary Policy – A First Conceptual Assessment](#)", *SUERF Policy Brief*, No 1080, 30 January. The [BIS Annual Economic Report 2026](#) also provides a complementary discussion of the implications of AI for monetary policy.

3.

See also Goolsbee, A.D. (2026), "[Remarks at the Hoover Institution Monetary Policy Conference 2026](#)", Stanford, 8 May.

4.

Carroll, C.D., Overland, J. and Weil, D.N. (2000), "[Saving and Growth with Habit Formation](#)", *American Economic Review*, Vol. 90, No 3, June, pp. 341-355.

5.

Carroll, C.D. and Toche, P. (2009), "[A Tractable Model of Buffer Stock Saving](#)", *NBER Working Paper Series*, No 15265, National Bureau of Economic Research, August.

6.

See the discussion in Coenen, G., Karadi, P., Schmidt, S. and Warne, A. (2019), "[The New Area-Wide Model II: an extended version of the ECB's micro-founded model for forecasting and policy analysis with a financial sector](#)", *Working Paper Series*, No 2200, ECB, pp. 33-34, drawing on Edge, R.M., Laubach, T. and Williams, J.C. (2007), "[Learning and shifts in long-run productivity growth](#)", *Journal of Monetary Economics*, Vol. 54, No 8, pp. 2421-2438.

7.

In this vein, see Minniti, A., Prettner, K., Venturini, F. and Bloom, D. (2026), "[AI and the distribution of income between capital and labour](#)", *VoxEU column*, Centre for Economic Policy Research, 3 March. They explore the income effects of AI and highlight the importance of policy interventions, such as education and taxation, to ensure equitable outcomes in an economy increasingly shaped by AI technologies and automation.

8.

See Carroll, C.D. (1998), "[Why Do the Rich Save So Much?](#)", *NBER Working Paper Series*, No 6549, National Bureau of Economic Research, May, for an exploration of why wealthier individuals tend to save a larger portion of their income compared with lower-income households, emphasising the role of "habit formation" and consumption inertia.

9.

See Burian, V. and Stalla-Bourdillon, A. (2025), "[The increasing energy demand of artificial intelligence and its impact on commodity prices](#)", *Economic Bulletin*, Issue 2, ECB. In the polar scenario, where the electricity demand of AI-driven data centres is fully met with natural gas, gas prices could rise by around 9 per cent in Asia and Europe, and by 7 per cent in the United States by 2026, with AI-driven data centres accounting for around 2 percentage points of the increase. For the United States, with its stronger AI industry, Bogmans et al. simulate scenarios according to which US electricity prices could increase by 8.6 per cent by 2030 due to AI. See Bogmans, C., Ganpurev, G., Gomez-Gonzales, P., Melina, G., Pescatori, A. and Thube, S. (2025), "[Power Hungry: How AI Will Drive Energy Demand](#)", *IMF Working Papers*, Vol. 25, No 81, International Monetary Fund, April.

10.

For a discussion of the potential impact of AI on potential output and the natural rate of interest, see Lenzu, S. (2026), "[Artificial Intelligence and Monetary Policy: A Framework and Perspective on Cyclical Transmission, Structural Transition, and Financial Stability](#)." Federal Reserve Bank of New York *Staff Reports*, No. 1192.

11.

See Shleifer, A. (1986), "[Implementation Cycles](#)," *Journal of Political Economy*, Vol. 94, No 6, pp. 1163-1190.

12.

Caballero, R.J. (2026), "[Speculative Growth and the "AI bubble"](#)", mimeo, MIT.

13.

On cross-country differences in terms of AI adoption speed, see Filippucci, F., Gal, P., Laengle, K., Schief, M. and Yildirim, M.A. (2026), “[AI meets trade: Global linkages and the cross-country distribution of the gains from AI](#)”, *OECD Artificial Intelligence Papers*, No 57, 18 March. While countries that are late adopters of AI technology may benefit from importing cheaper goods from foreign early adopters, they may also suffer from competitiveness losses on international markets due to less efficient domestic production technologies, triggering adverse production and income reallocation.

14.

See Gopinath, G. (2024), “[Crisis amplifier? How to prevent AI from worsening the next economic downturn](#)”, speech at the AI for Good Global Summit, Geneva, 30 May.

15.

See also P.R. Lane (2026), “[Analytical perspectives on energy supply shocks](#),” Dinner remarks at the Centre for European Reform, London, 13 May.

CONTACT

European Central Bank

Directorate General Communications

- > Sonnemannstrasse 20
- > 60314 Frankfurt am Main, Germany
- > [+49 69 1344 7455](tel:+496913447455)
- > media@ecb.europa.eu

Reproduction is permitted provided that the source is acknowledged.

Media contacts

Copyright 2026,
European Central Bank