Newsletter

NUMERO 23 - NOVEMBER 2026



Events to come

- November 17, 2026: Afterwork with **FMI**
- November 27, 2026: AMSE **Career Day**
- December 8, 2026: **Sciences Echos lecture** «How industry lobbies create doubt?» by Mathis Preti
- December 18, 2026: Workshop on «**Constraints, Agency, and Adaptation**»
- January 26, 2027: **Sciences Echos lecture**, «Do Some People's Jobs Cause Other People's Unemployment?» by Morgan Raux
- February 4, 2027: **Sustainable Finance** Conference
- March 11 and 12, 2027 : *Les Rencontres MALIA* (Machine Learning et *Intelligence Artificielle*)
- April 5, 2027: Announcement of the **Carine Nourry Thesis Prize** winner
- April 15–16, 2027: Seminar on **European Economic Integration**
- April 28–30, 2027: Spring School and Conference in Applied Econometrics Using **Stata**, France
- May 21, 2027: **Intergenerational Mobility & Migration** Workshop
- May 24–25, 2027: AMSE **Public Economics** Conference, formerly known as *Journées Louis-André Gérard-Varet* (LAGV)

Visiting Researchers



Paolo Santini is a Researcher at the Institute for Employment Research (IAB) in Germany. His research covers labor markets, employment relations and migration, with a particular focus on trade unions. Date of visit: until August 2027. Location: IBD



Steffen Wagner is a Professor of Applied Statistics at Berliner Hochschule für Technik. His research interests lie in statistics, AI, and data science. Date of visit: until February 2027 Location: IBD

Outline

AMSE members in the spotlight **2-3**

RESEARCH PERSPECTIVE
AI is changing economics. Is it changing economics departments? by Avner Seror **4-7**

RESEARCH HIGHLIGHTS
The defanging effect of education and autocratic survival, by Raouf Boucekkine and Paolo Melindi-Ghidi **8-9**
The unequal diffusion of honesty and dishonesty in workplace networks, by Romain Ferrali **10-11**
Measuring the driving forces of predictive performance: application to credit scoring, by Sullivan Hué **12-13**
Parenthood and gender differences in French GPs' labour supply responses to declining physician density: panel fixed-effects evidence, by Alain Paraponaris, Julien Silhol, Bruno Ventelou **14-15**

AMSE SCHOOL
Graduation ceremony: congratulations to the AMSE Class of 2025-2026! **16-17**

PORTRAIT
Pierre-Henri Bono, Senior Research Scholar, Centre for Political Research (CEVIPOF) at Sciences Po by Léa Dispa **18-19**

AMSE members in the spotlight



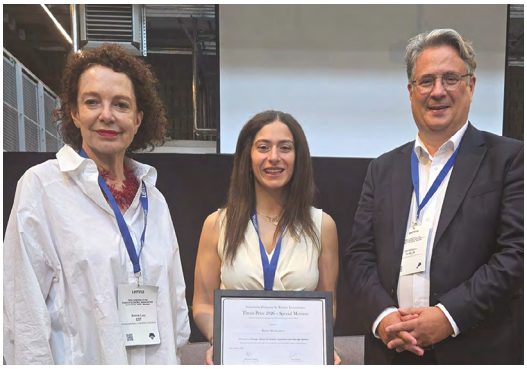
RAOUF BOUCEKKINE ELECTED TO THE IEA EXECUTIVE COMMITTEE

Raouf Boucekkine, Professor at Aix-Marseille University and researcher at AMSE, has been elected to the Executive Committee of the International Economic Association (IEA). It promotes contacts and mutual understanding among economists worldwide through scientific meetings, joint research programmes and international publications on current issues. Raouf Boucekkine will have special responsibility for Africa.



MARION DOVIS ELECTED TO THE AFSE BOARD OF DIRECTORS

Marion Dovis, Professor at Aix-Marseille University and researcher at AMSE, has been elected to the Board of Directors of the French Economic Association (AFSE) for the 2026–2030 term. Board members meet several times a year to set AFSE's strategic direction, organise the annual conference, serve on the PhD Thesis Prize committees and oversee the scientific content of all AFSE-supported events.



SPECIAL MENTION FOR KARINE MOUKADDEM AT THE AFSE THESIS PRIZE

Karine Moukaddem, a former AMSE PhD student and now a postdoctoral fellow at UCLouvain, received a special mention in the French Economic Association (AFSE) Thesis Prize. Karine defended her thesis, entitled "Dynamics of Change: Essays on Gender, Aspirations and Marriage Markets", in July 2025 under the supervision of Patricia Augier and Marion Dovis.



ALAIN TRANNOY AWARDED THE ÉDOUARD BONNEFOUS FOUNDATION PRIZE – INSTITUT DE FRANCE

Alain Trannoy, Professor at EHESS and researcher at AMSE, received the Édouard Bonnefous Foundation Prize – Institut de France for his body of work, on the nomination of the Political Economy, Statistics and Finance section. Each year, the prize honours works or authors that defend humanist values.



TANGUY LE FUR AWARDED THE 2026 CARINE NOURRY THESIS PRIZE

The 2026 Carine Nourry Thesis Prize has been awarded to Tanguy Le Fur (University of Lille, CNRS, IÉSEG School of Management). His article "Fighting for Resources: A Unified Growth Model of the Great Divergence", co-authored with Etienne Wasmer, was published in the *Journal of Economic Growth*.



ALICE FABRE AND CO-AUTHORS RECEIVED THE 2026 HICKS-TINBERGEN AWARD

Alice Fabre, Professor at Aix-Marseille University and researcher at AMSE, has received the 2026 Hicks-Tinbergen Award with her co-authors David de la Croix, Frédéric Docquier and Robert Stelter. Their paper, "The Academic Market and the Rise of Universities in Medieval and Early Modern Europe", published in the *Journal of the European Economic Association* has been recognised for its outstanding contribution.



SÉGAL LE GUERN HERRY AWARDED A MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIP

Ségal Le Guern Herry, researcher at AMSE, has been awarded a Marie Skłodowska-Curie Postdoctoral Fellowship (MSCA European Fellowship), one of the most competitive European distinctions for early-career researchers.

As part of this fellowship, he will spend 12 months at the University of Oxford, working with Niels Johannesen, Director of the Centre for Business Taxation on his research project "Capital Gains Taxation in a Globalized World".

AI is changing economics. Is it changing economics departments?

By **Avner Seror**, CNRS Researcher at AMSE.

> **“If machines can increasingly execute the path between question and answer, the human contribution shifts towards two decisions: what is worth asking, and whether an answer is worth believing, pursuing or building on. Call this judgment.”**

Artificial intelligence is changing economics in at least two ways. The first is visible in our journals and seminars. AI has become an object of economic analysis. The second transformation is happening inside our own offices, where AI is becoming an input for economic research. Economists have moved quickly on both fronts.

The first transformation is familiar - economists studied automation and technological change long before large language models. Generative AI didn’t prompt these questions, but has made them more urgent. Humlum and Vestergaard document rapid adoption in Danish workplaces, but essentially no average effect on earnings or working hours two years after ChatGPT. But AI is also creating less familiar economic objects. In a recent paper, Bergemann, Koh and Morris ask how mechanism design should work when the agents themselves are artificial intelligences. Their AI agents may have unknown preferences, unknown capabilities and private information. A more capable model may pretend to be less capable; an imperfectly aligned agent may need to be disciplined; several agents may help monitor one another. Problems of alignment and control can then be expressed in the language of screening, incentives and mechanism design.

Yet the second transformation may have greater consequences for economists themselves, as AI enters research production.

Garicano, Li and Wu open their recent book, Messy Jobs, with a provocative story. A student claims that with new AI tools, she could complete a PhD in days rather than years. The student has a point. If AI makes literature searches, coding, data analysis, formal modelling and writing much cheaper, what remains scarce? Research is a path from question to answer: search the literature, design the study, build



Avner Seror

Avner Seror is a CNRS Researcher. He obtained his Ph.D in economics from the Paris School of Economics in 2018. He joined AMSE as an Assistant Professor in 2019. His work focuses on identity, religion, institutions, and political economy.

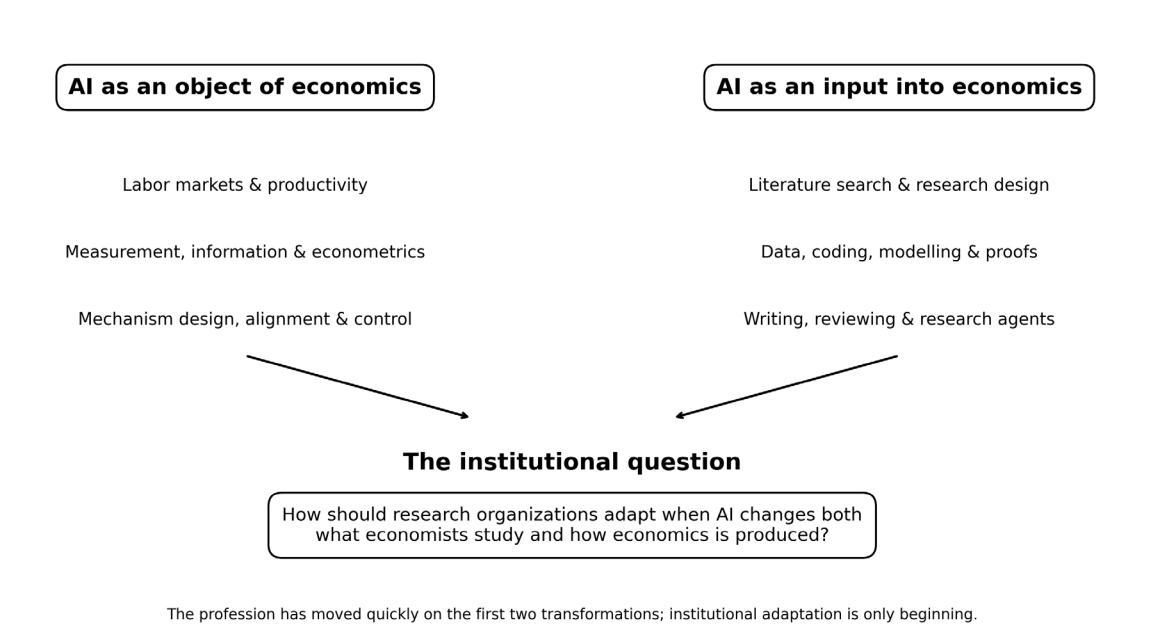


Figure 1: Two AI transformations in economics.

the model or data, run the analysis, prove the result, write the paper, respond to criticism. AI is moving rapidly into the middle of this chain. The cost of this "middle stage" work is falling.

That doesn't mean human researchers will disappear, but it does change where they stand to contribute most. As I argue in a recent essay, if machines can increasingly execute the path between question and answer, the human contribution shifts towards two decisions: what is worth asking, and whether an answer is worth believing, pursuing or building on. Call this judgment.

We can already see the consequences of cheaper execution. Gartenberg, Hasan, Murray and Pierce report that submissions to Organization Science rose by 42 percent after the release of ChatGPT. In their data, AI-generated writing accounts for most of the increase; heavily AI-generated submissions are more likely to be rejected, and AI-generated referee reports are narrower and lower-quality. Their summary is apt: current incentives are pushing the system towards "more rather than better." Kusumegi and coauthors similarly argue that scientific institutions will have to adapt.

This is not mainly a problem of detecting who wrote a sentence. That distinction will matter less as AI becomes more capable and is better integrated into research workflows. A more useful question is where human judgment entered the process. Replication packages reveal how results were generated, but not how the research itself was generated: abandoned ideas, rejected specifications, failed proofs, or moments when a researcher accepted or rejected a machine's suggestion. AI creates a problem of attribution, but it may also make provenance cheaper to record because human-machine research already leaves a digital trace.

This brings us to the institutional question, which might be the most critical. So far, universities have mainly treated AI in research as an individual technology. Each researcher experiments with different models, prompts, agents and workflows. PhD students learn independently. Some people discover useful ways to verify machine output; others rediscover the same failures. We are accumulating AI-related research capital, but mostly privately. That is unusual. Research institutions have always accumulated knowledge collectively.



A good economics department is not simply a collection of people producing papers at adjacent desks. It contains seminar cultures, standards of proof and identification, habits of criticism, mentoring practices, knowledge of datasets and literatures and institutional memory.

This is where Messy Jobs becomes especially useful. Garicano, Li and Wu define an autonomy threshold: the point at which AI can deliver a finished output without a human to check or own it. AI crosses that threshold most easily when tasks are clean: separable and verifiable. Substitution becomes harder when tasks are messy: entangled, dependent on local knowledge, hard to verify, or reliant on human relationships.



Research departments are "messy" in precisely this sense.

Ideas emerge from seminars, arguments at office doors, comments on unfinished models, PhD supervision, coauthor disagreements and conversations over coffee. Much of what makes a research environment productive is tacit and relational. AI can augment that environment, but it cannot simply be a substitute for it. More importantly, that environment should shape how AI is used.

This suggests a different institutional response. Instead of mainly writing rules about where AI is permitted or prohibited, research groups could develop a collective human-AI research technology. They could pool effective workflows, compare failure modes, develop shared verification practices, decide where human judgment should remain explicit and experiment with provenance. The objective is not uniformity. It is collective learning, and a research ethic that protects human judgment and creativity. This matters for comparative advantage. If frontier AI becomes widely accessible, access alone won't make one research institution distinguishable from another. What can make that distinction is the quality of the questions a community generates, the standards by which it judges answers and trains its students, the way it combines humans and machines and the speed at which useful practices become organizational rather than private knowledge.

The relevant unit of AI adoption may therefore increasingly be the laboratory or department, not only the individual researcher. Economics already gives us the language for this transition: production function, substitution and complementarity, scarcity, incentives, information, organizational capital and mechanism design. We are applying those concepts to workers, firms and AI agents. We should now use them on ourselves. The question is no longer only what AI will do to economics. It is what economics departments will choose to become with AI.

> **“The question is no longer only what AI will do to economics. It is what economics departments will choose to become with AI.”**

References

Bergemann, D., Koh, A., Morris, S. 2026, «Mechanism Design for Alignment and Control», arXiv preprint, 2609.01595.

Garicano, L., Li, J., Wu, Y. 2026, *Messy Jobs: The Work That AI Cannot Reach*, Upriver Press.

Gartenberg, C., Hasan, S., Murray, A., Pierce, L. 2026, «More Versus Better: Artificial Intelligence, Incentives, and the Emerging Crisis in Peer Review», Organization Science, 37, 3, 795-812.

Humlum, A., Vestergaard, E. 2025, «Large Language Models, Small Labor Market Effects», NBER Working Paper, 33777.

Kusumegi, K., Yang, X., Ginsparg, P., de Vaan, M., Stuart, T.E., Yin, Y. 2025, «Scientific Production in the Era of Large Language Models», Science, 390, 6779, 1240-1243.

Seror, A. 2026, «A Case for the Human in Science: What the Researcher Contributes, and How to Reward It, in the Age of AI», HAL preprint, hal-05685141.

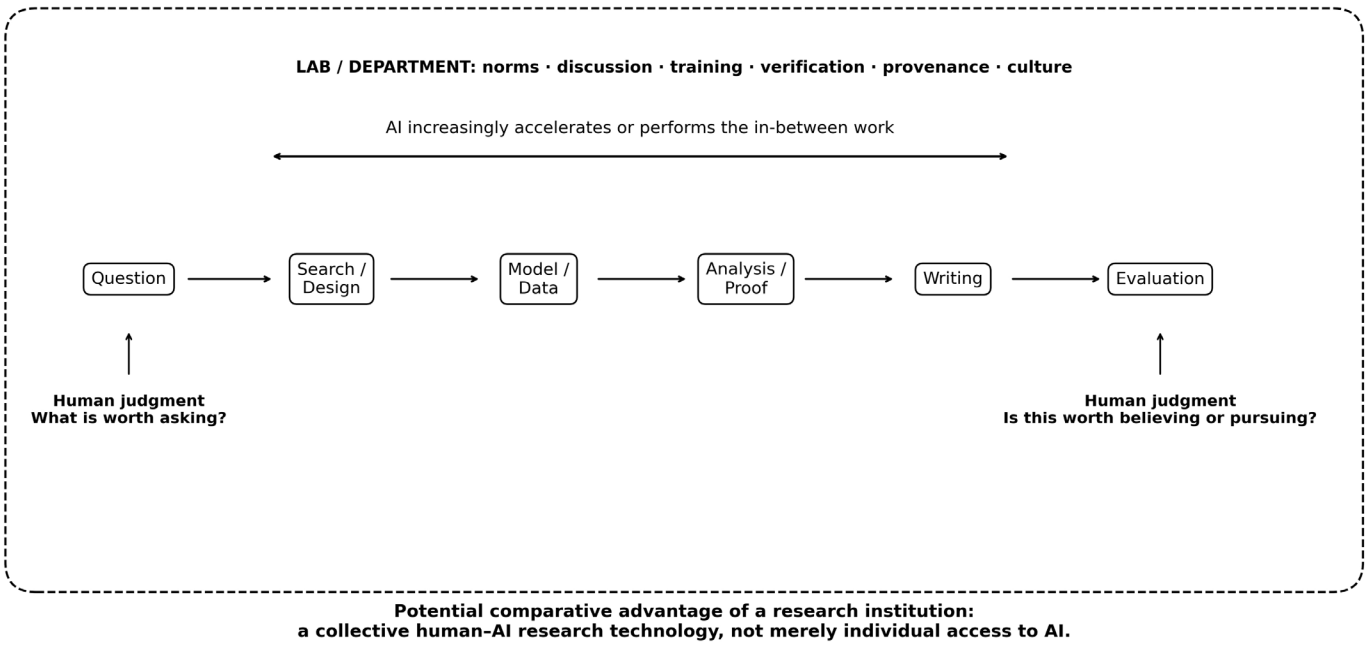


Figure 2: Research production when execution becomes cheap.

The defanging effect of education and autocratic survival

Raouf Boucekkine, Rodolphe Desbordes, **Paolo Melindi-Ghidi**, 2026, *World Development*, 200, 107294.

> **“In highly autocratic regimes [...] higher levels of education are associated with a greater likelihood of non-violent campaigns.”**



Raouf Boucekkine

Raouf Boucekkine is Professor at Aix-Marseille University. He holds a Fundamental Research Senior Chair at the Institut Universitaire de France (2026–2031). He earned his PhD from Université Paris 1 Panthéon-Sorbonne in 1993, then held professorships at Universidad Carlos III de Madrid and UCLouvain. He later directed IMéRA (2015–2020), and served as Associate Dean for Research at Rennes School of Business (2021–2024). His work explores growth theory, development, demography, epidemiology, sustainability, and game theory.



Paolo Melindi-Ghidi

Paolo Melindi-Ghidi has been an Associate Professor at Aix-Marseille University since 2023. He obtained his PhD in economics at UCLouvain in 2012. After postdoctoral positions at UCLouvain, AMSE, and the University of Strasbourg, he taught at Paris Nanterre University from 2017 to 2023. His research interests lie in environmental economics, population economics, and political economy.

RESEARCH PROGRAM

This paper contributes to the modernization theory of democracy, which postulates that economic development and education foster democratic transitions. This theory has given rise to an abundant literature, in particular on the empirical side, but no compelling evidence of direct influence from modernization has been produced. After decades of research, the theory is now considered more or less as a «murky paradigm» lacking clear causal mechanisms. In this paper, we aim to open this black box by identifying a specific channel, education's «defanging effect», through which education undermines autocratic regimes. We argue, in line with the recent political science literature on civil resistance, that education decreases the effectiveness of autocratic repression by 'defanging' it. More broadly, our research program focuses on how structural factors, particularly education, interact with political institutions to produce regime change, moving beyond reduced-form correlations to testable mechanisms.

PAPER'S CONTRIBUTION

The central innovation here is the «defanging effect» of education. Educated citizens are more likely to engage in non-violent resistance (protests, boycotts, strikes) rather than violent rebellion. Non-violent campaigns are difficult for autocrats to repress without triggering a backlash, such as a wave of sympathy from civilians, dissent among supporters, loyalty shifts in the armed forces, and international condemnation. This weakens the regime's security apparatus and creates a paradox: education makes countries richer but also makes autocracies more vulnerable.

We proceed in two steps. We first build a simple game-theoretic model where education decreases the effectiveness of repression (defanging effect), and where the autocrat decides about education (through dedicated public spending) and repression expenditures, either sequentially or simultaneously. In the sequential case, the autocrat may over-invest in education, inadvertently triggering regime collapse. This occurs especially where autocrats are particularly preemptive, that is when the wedge between the autocratic and democratic remuneration of human capital is large enough. In the simultaneous case, the autocrat fully internalizes the threat and is prepared to limit education to avoid revolutions. Empirical evidence, however, shows that autocracies often invest heavily in schooling in the first instance.

Second, we empirically test the validity of this defanging effect of education using data from 161 countries over 1950–2019, including data on both non-violent campaigns (NVC) and violent campaigns (VC). We show that education becomes increasingly associated with non-violent campaigns as levels of autocracy rise. More precisely, the empirical analysis finds that in highly autocratic regimes (as defined by the neopatrimonial rule index in the V-dem database), higher levels of education are associated with a greater likelihood of non-violent campaigns, while no comparable relationship appears for violent campaigns. But the story does not end with how movements emerge. Our findings show that non-violent campaigns substantially increase the likelihood of regime change, especially democratization, and are considerably more effective than violent campaigns in bringing about political change.

FUTURE RESEARCH

Future research could usefully examine why autocracies overinvest in education, including autocratic learning and information manipulation; how different types of education (humanities vs. STEM) affect resistance; and how education interacts with natural resources and income shocks. It could also use more granular data on campaign tactics and regime responses to better understand the defanging mechanism.

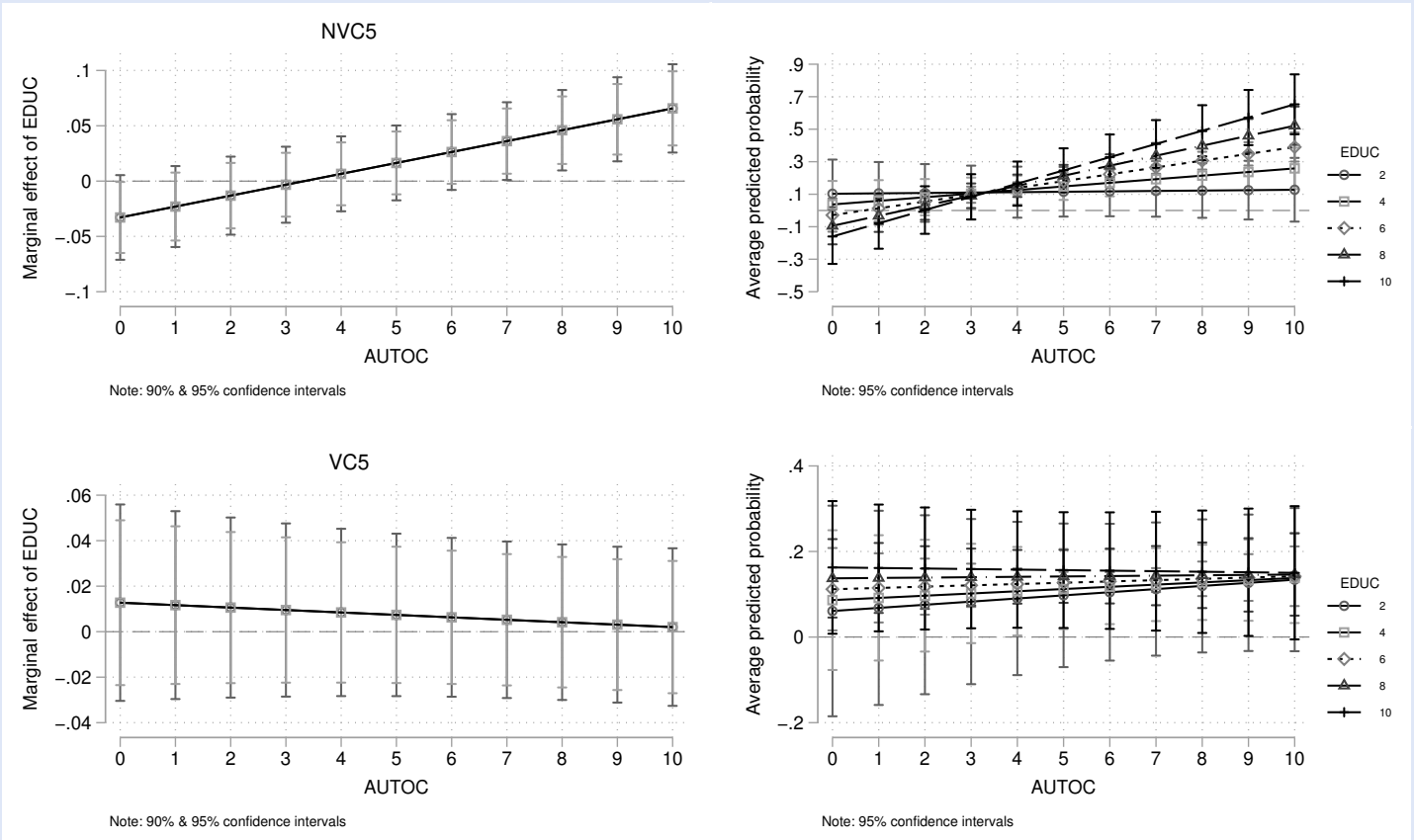


Figure: Marginal and predicted effect of education, conditional on autocratic levels.

Notes: NVC: non violent campaigns; VC: violent campaigns. Average predicted probability is calculated holding other variables fixed at their means.

The unequal diffusion of honesty and dishonesty in workplace networks

Romain Ferrali, 2026, *Management Science*, Volume 72, Issue 3, 2006-2021.

> **“Dishonesty spreads: when an honest clerk works alongside a dishonest one, her probability of behaving dishonestly the following month rises by 4.9 percentage points. Honesty does not spread: given the same interaction, the dishonest clerk is no more likely to turn honest.”**



Romain Ferrali

Romain Ferrali joined AMSE as an Assistant Professor in 2021. He obtained a PhD from Princeton University in 2018. Before joining AMSE, he was a Postdoctoral Associate at New York University Abu Dhabi. His research interests lie in network analysis, formal theory, and structural estimation, related to political economy and development.

RESEARCH PROGRAM

Unethical behavior is costly to organizations. Managers can curb it through ethical codes and training, by selecting ethical employees, or through relationships that promote ethical behavior. Peer relationships are the trickiest lever: they can spread both honest and dishonest behavior.

Which spreads faster matters, because peer interactions also carry things managers value, such as information and productive behavior. If honesty spreads faster, peer interactions are an unmixed blessing. If dishonesty spreads faster, any benefit from such interactions will come at a cost, that of increasing misconduct, and firms will need to employ costlier tools such as screening and monitoring.

Laboratory experiments suggest that dishonesty spreads more easily than honesty. However, lab results depend on design choices (the mechanism isolated, the size of the incentives to cheat), which is problematic when estimating the relative size of two effects. Field settings fix incentives and norms at their natural levels and enable us to ask which mechanism drives diffusion, and hence which policies will work.

PAPER’S CONTRIBUTIONS

We study the call center of a large roadside and health assistance company in the MENA region. Clerks service customers’ claims (say, a flat tire) by dispatching providers from the firm’s network (say, a tow truck). The only serious form of dishonesty clerks can engage in is collusion with a provider: steering claims toward the provider in return for a kickback. We do not observe kickbacks; instead, we build a carefully validated proxy from a backup of the firm’s internal software, flagging clerks who steer unusually large revenue toward a provider.

We reconstruct clerk interactions from co-staffing on the same market at the same hour. Because software assigns staffing without regard to clerks' behavior, co-staffing provides a natural experiment. We can thus estimate two causal effects: that of a dishonest peer on an honest clerk's probability of turning dishonest, and that of an honest peer on a dishonest clerk's probability of turning honest.

The paper makes three contributions. First, we provide the first field estimates of these two effects. Dishonesty spreads: when an honest clerk works alongside a dishonest one, her probability of behaving dishonestly the following month rises by 4.9 percentage points (Figure). Honesty does not spread: given the same interaction, the dishonest clerk is no more likely to turn honest. This confirms the experimental evidence and implies a tradeoff: the benefits from peer relationships come at a price, that of spreading dishonesty.

Second, we identify the mechanism. Peer effects peak during clerks' second and third months in a market and only operate when providers are well established, with a clear reputation. This is more consistent with information transmission (junior clerks learning from seniors which providers are willing to collude) than with conformism or complementarities. Our field evidence thus lends external validity to experimental work focusing on information.

Third, we identify a feasible policy for curbing dishonesty. Such counterfactual analyses exist for productivity or absenteeism, but the interventions they consider, such as isolating the worst-behaved employees in the network, involve tracking everyone's behavior. While this is affordable where productivity is at stake, it is often prohibitive when addressing dishonesty. Simulating policies with our estimates, we find that a cheaper alternative, screening new hires for honesty, performs remarkably well: in a high-turnover environment such as ours, dishonest clerks are frequently replaced by honest ones, and sparse networks limit contagion. We show that turnover, usually seen as a cost, can also prevent moral decay.

FUTURE RESEARCH

Our policy analysis is constrained by the problem that motivates it: dishonesty is costly to measure. This raises two questions.

How can we conduct a proper cost-benefit analysis of interventions against dishonesty? Any such policy should price in its implementation cost (screening new hires takes effort and is imperfect) and its impact on downstream outcomes, first and foremost productivity. We take a first step by distinguishing between a feasible intervention and an infeasible one; settings that also measure productivity, and the cost and quality of dishonesty measurements, would enable us to take things farther.

Can heterogeneity salvage peer relationships, acting as a tool to combat dishonesty? Our results show that on average, peer interactions spread dishonesty. But some employees may act as "moral beacons" whose presence deters their peers from misconduct. Placing them strategically could turn peer relationships into a firewall instead of a liability.

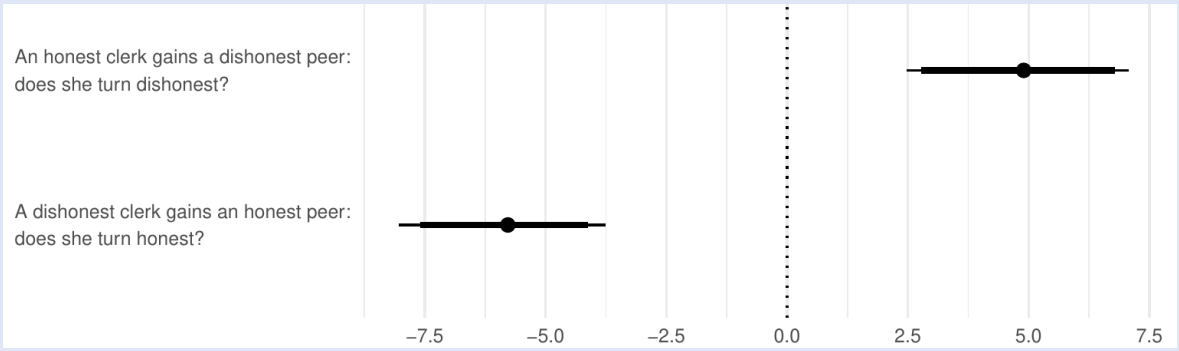


Figure: Effect on the probability of switching behavior next month (percentage points)

Note: When an honest clerk works alongside a dishonest one, her probability of behaving dishonestly the following month rises by 4.9 percentage points. The reverse does not happen. Dots are point estimates; bars are 90% and 95% confidence intervals. Gaining a dishonest peer makes an honest clerk more likely to turn dishonest. An honest peer makes a dishonest clerk less likely to turn honest. This effect does not survive our robustness checks. We read it as zero, and conclude that honesty simply does not spread.

Measuring the driving forces of predictive performance: application to credit scoring

Sullivan Hué, Christophe Hurlin, Christophe Pérignon, Sébastien Saurin, 2026, *Management Science 0(0)*.

> **“To fill this gap, we develop Explainable Performance (XPER), a general methodology designed to identify the drivers of the predictive performance of regression and classification models.”**



Sullivan Hué

Sullivan Hué joined AMSE as a post-doc in 2021 and became an Assistant Professor in 2022. He obtained his PhD from the University of Orléans in 2020 and was a post-doc at the University of Orléans in 2020-2021. His research focuses on financial econometrics, machine learning and sustainable finance.

RESEARCH PROGRAM

Credit scoring is a core activity of financial institutions, aimed at assessing borrowers' creditworthiness to achieve an efficient allocation of credit. To this end, banks and fintechs increasingly use machine learning algorithms, which generally achieve higher predictive performance than traditional econometric models. The predictive advantage, however, comes at the cost of interpretability, as the relationships captured by these black-box models cannot be directly interpreted. This lack of transparency is a critical issue in credit scoring, where banking supervisors and internal model validation teams need to understand why a model performs well or poorly, and to identify its key drivers.

To address this issue, the explainable artificial intelligence (XAI) literature has developed post hoc methods to explain how machine learning models produce their predictions. Yet explaining predictions is not equivalent to explaining predictive performance. A feature may influence a prediction while reducing predictive accuracy and therefore misleading the model. To fill this gap, we develop Explainable Performance (XPER), a general methodology designed to identify the drivers of the predictive performance of regression and classification models.

PAPER'S CONTRIBUTION

XPER builds upon the Shapley value framework to decompose predictive performance among model features. More precisely, it decomposes the difference between a performance metric and a benchmark corresponding to the performance metric that we would obtain on a hypothetical sample in which the target variable is independent from all model features, i.e., a fully mis-specified model with irrelevant features. For instance, for the area under the receiver operating characteristic curve (AUC), this benchmark is 0.5, corresponding to random classification. In this case,

XPER decomposes among the model features any improvement or deterioration in discrimination ability relative to the random-classification benchmark.

XPER offers several advantages. First, because it builds upon the Shapley value framework, it is theoretically grounded and inherits the Shapley axioms. Second, XPER is both model- and metric-agnostic: it can be applied to any fitted econometric or machine-learning model and to any performance metric, including the AUC, R^2, information criteria, and economic performance measures. Third, XPER can be computed globally, to identify each feature's contribution to overall performance, or locally, to measure its contribution for a particular observation. Fourth, we propose both exact and approximate estimation procedures for low- and high-dimensional settings, respectively. Finally, XPER does not require the model to be re-estimated for different feature subsets, thereby avoiding potential specification errors and substantially reducing the computational burden[1].

We apply XPER to a proprietary database of auto loans to explain the performance of a credit-scoring model used to predict defaults. The results show that a small number of features account for a surprisingly large share of predictive performance and, importantly, that the features driving performance can differ substantially from those identified by standard feature-importance methods designed to explain predictions (see Figure 1).

We also show that local XPER values can be used to detect heterogeneity across borrowers. This information can then be used to estimate group-specific models rather than a one-fits-all model, leading to higher predictive performance.

XPER can also be used in several other ways. For instance, we show through Monte Carlo simulations how it can identify the source of overfitting by considering two situations, an improper control of the bias–variance trade-off and a shift in the distribution of a feature, which generate different patterns of XPER values.

FUTURE RESEARCH

Future research could extend XPER beyond predictive performance, for instance to identify the features responsible for lack of algorithmic fairness in machine learning models, an issue of growing importance for financial regulators. Another potential extension is to develop inference methods for XPER values in order to assess their statistical significance.

[1] The XPER Python package is available to compute XPER values.

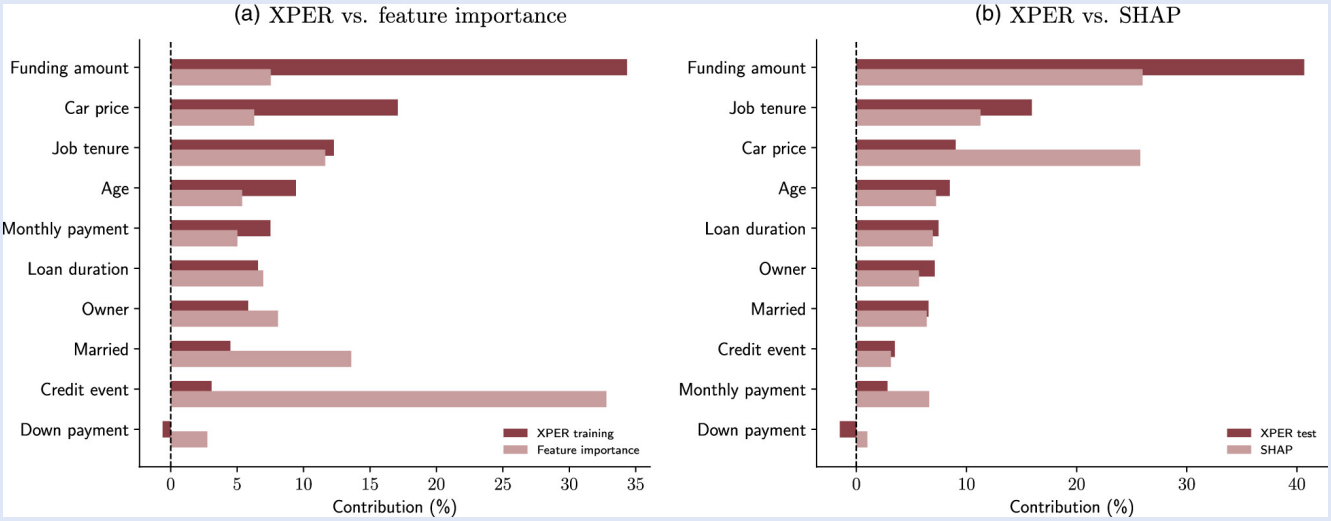


Figure 1: XPER vs. Other Feature Contribution Methodologies

Note: This figure compares the XPER values for the AUC with (a) the XGBoost-based feature importances and (b) the average absolute SHAP values.

Parenthood and gender differences in French GPs' labour supply responses to declining physician density: panel fixed-effects evidence

Alain Paraponaris, Julien Silhol, **Bruno Ventelou**, 2026, *Health Policy*, 173, 10572.



Alain Paraponaris

Alain Paraponaris received his PhD from EHESS in 1998, when he joined Université de la Méditerranée as Associate Professor and INSERM as a researcher. He became Professor at AMSE in 2015. His research in health economics focuses on healthcare provision, hospital regulation and the economics of ageing.



Julien Silhol

Julien Silhol is an Insee administrator, economics researcher and former mathematics teacher. He currently serves as Head of the Student Path Unit at the French Ministry of Higher Education and Research. He obtained a PhD from AMSE in 2023 and is currently an Associate member.



Bruno Ventelou

Bruno Ventelou joined AMSE as a CNRS Researcher in 2005. He obtained his PhD in 1995 at EHESS Paris. He taught at ENS Cachan between 1994 and 1998 and was a researcher at OFCE Paris between 1998 and 2003. His research interests include health economics and macroeconomics.

RESEARCH PROGRAM

The supply of primary care is declining across France. General practitioners (GPs) face multiple constraints: they must maintain equal access to quality healthcare while fulfilling expanded roles in care coordination and prevention, all within a work environment strained by a decline in the number of trained doctors and an increase in healthcare needs due to population aging. The research program ROSAM (Raréfaction de l'offre de soins et adaptations des médecins généralistes—Scarcity of Healthcare Supply and Adaptations by General Practitioners), funded by the French Institute for Public Health Research (Institut pour la Recherche en Santé Publique, IReSP), was set up to analyse how self-employed GPs adapt to this challenging health system environment. The present study, forthcoming in Health Policy, is part of the ROSAM research project.

PAPER'S CONTRIBUTIONS

Given the declining number of general practitioners in certain areas of France (not all rural, incidentally), a key question arises: do established physicians adjust their practice to address the challenge of access to care? This paper, based on French panel data covering nearly 2,900 private-practice general practitioners monitored between 2010 and 2017, shows that physicians do indeed increase their activity when the number of locally available doctors falls. Specifically, a 10% drop in the number of general practitioners in an area is associated with a rise of approximately 1.8% in income from private practice, reflecting a significative increase in their labour supply. However, this adjustment appears to vary by gender: while male physicians increase their activity (+2.3%), no significant change is observed among female physicians on average. Yet, econometric

analyses reveal that this difference is largely explained by family responsibilities. Among physicians with no dependent children, men and women respond in very similar ways to a decrease in the number of doctors in their area (+2.4% and +1.8% respectively, for a 10% drop). These results suggest that the disparities observed between male and female physicians stem less from gender itself than from the distribution of family responsibilities, particularly during the years when children are young. They also demonstrate that, while self-employed GPs can partially offset the departure of colleagues by working more, this capacity to adapt remains limited and depends heavily on their family situation. Policies aimed at ensuring access to care must therefore combine an effective geographical distribution of physicians with measures that facilitate a better balance between professional work and family life.

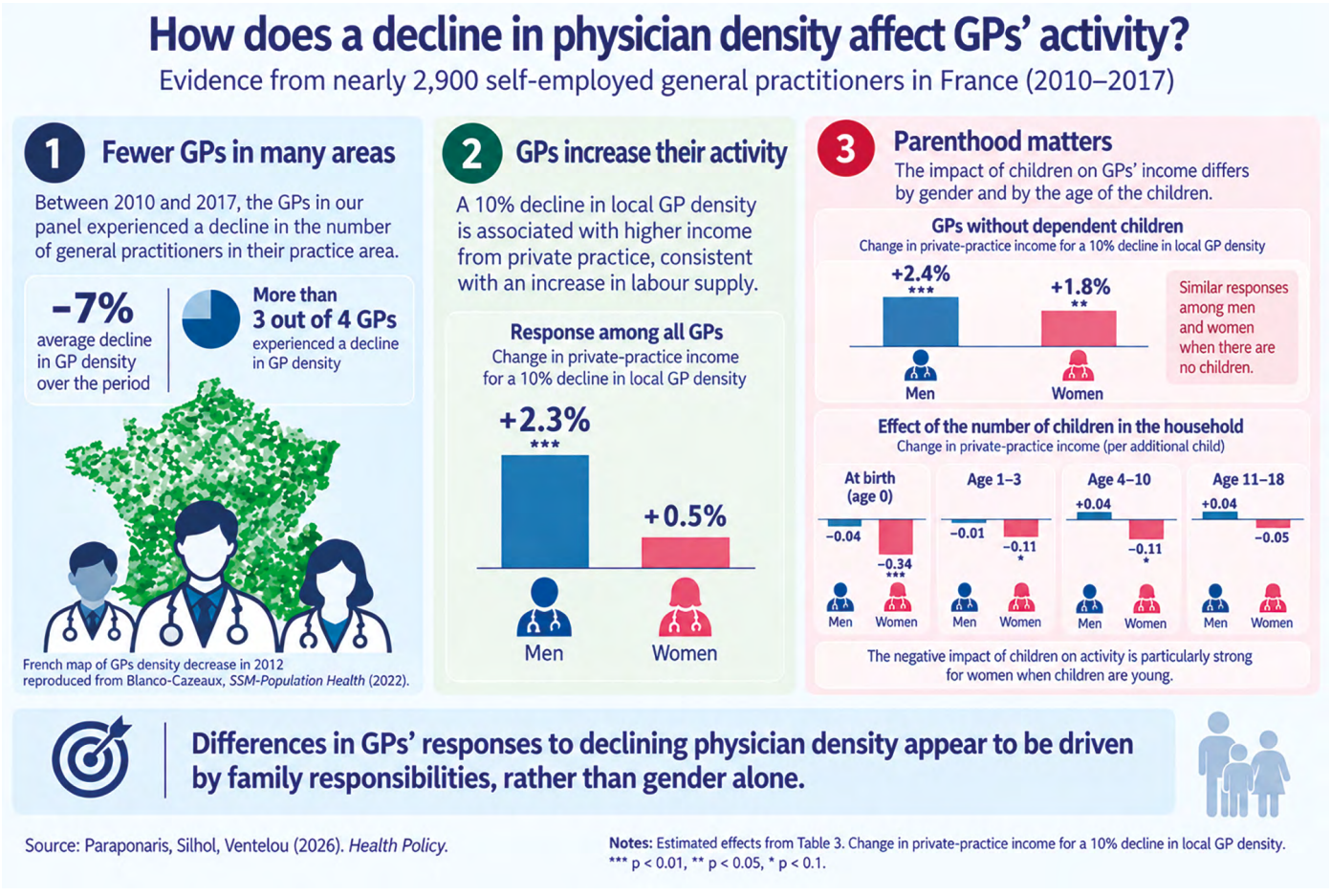
FUTURE RESEARCH

Future research could investigate more directly the mechanisms underlying the gender differences in physicians' labour supply responses. These include childcare responsibilities, partner's employment and household income differences, and the division of unpaid work within couples.

Instead of using income alone as a proxy for labour supply, it would be worth investigating whether physicians respond to declining local physician density by increasing working hours, number of patients seen, consultation length, number of working days and/or by changing the composition of the care they provide (for instance, better-paid medical acts rather than basic consultations). Last, an important question is whether increased labour supply comes at a cost in terms of workload, burnout, job satisfaction, or quality of care. Future research could therefore explore the consequences of working more in response to local shortages.

Additionally, future studies could examine whether physicians respond to local shortages not only by increasing their activity but also by changing their location, opening additional practice sites, or modifying their commuting patterns.

Future research will need to look at how health and social policies addressing the work–family balance can tackle the primary care shortage issue through more than financial incentives to locate private practice or the development of primary care teams in underserved areas.



Graduation ceremony: congratulations to the AMSE Class of 2025-2026!

By **Habiba Djebbari**, Director of AMSE Graduate School, and **Marine Boléa**, AMSE Communication Officer. With extracts from the speech by Jyotsna Puri, Director of the Policy and Programme Division at the United Nations Environment Programme (UNEP).

On Friday, October 16, AMSE celebrated the success of the 187 students in its 2025-2026 graduating class (Master's programs in Econometrics and Statistics, Economics, Finance, and, for the very first year, Business Law and Economics).

Nearly 350 people — students, families, faculty, and administrative staff — gathered on La Pauliane Campus in Aix-en-Provence for a wonderful evening, in the company of Habiba Djebbari (Director of the AMSE Graduate School) and Bruno Decreuse (Dean of the Faculty of Economics and Management).

We had the great honor of welcoming Jyotsna Puri (Director, Policy and Programme Division, UNEP) as guest speaker for the ceremony. In her address, she drew on both economics and poetry to share seven lessons with the graduates. Here are a few extracts:

" Hold on to the wonder of Miranda (in Shakespeare's The Tempest) and John the Savage's (in Aldous Huxley's A Brave New World) refusal to lead a comfortable life in this brave new world.

You (and we all) will require both in today's world!

Economics gave me life skills. And poetry. Here are seven lessons that I have learnt from them both:

1. Read long form
Because as The poet Rainer Maria Rilke says in a short poem called "Entrance."
Whoever you are:
in the evening, step out
of the room where you know everything.

2. Ask for the standard error.
Each time.
It will tell you a lot more about what the story is (not) telling you.
Or the data.

3. Know your biases.
Because often the absence of data will get interpreted as data showing absence.





4. Build your networks/relationships (because to twist Thomas Kuhn's words THAT is the science of revolutions.) Its also your super power and network economics tells us so much about them.

5. Train like a savage.
Then. Create like an artist.

6. Be a solution finder.
The HOW today is more important than the what.

7. Be impatient (and this bucks traditional economics thinking - a bit)
When it comes to ACTION, discount the future. Act TODAY.
When it comes to PURPOSE, never discount it. Act FOR the future."

Special congratulations to the top students of each programme for their outstanding achievements:

- Business Law and Economics: **Nina Attem**
- Data, Analysis, Decision, and Economic Evaluation: **Sara Sofia Otavo Peña**
- Econometrics and Data Science: **Noam Levillayer**
- Corporate Finance and Financial Engineering: **Mylène Dalmais**
- Wealth Management: **Kéo Mantez**
- Financial Modelling: **Luca Messina**
- Financial Risks and Sustainable Finance: **Enzo Delattre**
- Research (Econometrics, Economics, and Finance): **Simon Labracherie, Brayann Adjanohoun, and Anis Fezani**
- Magistère: **Orlane Bochard**

Huge congratulations to all the graduates of the Class of 2025-2026! We wish them immense success and genuine fulfillment as they embark on the next stage of their professional or academic journey.

AMSE at the Rencontres Économiques: giving young people a voice

The Cercle des économistes held its Rencontres Économiques d'Aix-en-Provence in July 2025. As part of the event, its Youth Programme brought students together in workshops to discuss the economic and social challenges that will shape the future of their generation. AMSE was well represented. Our colleague Céline Poilly mentored the students in the workshop on Work and Labour Market Integration. Jean-Luc Otondji, now a student in our M2 Research in Economics, co-led the workshop on AI, Technology and the Future. Building on the workshops, the students drew up a ten-point proposal to inform and challenge candidates in the next presidential election on young people's priorities. Their involvement reflects AMSE's commitment to bringing economic expertise into public debate.

Pierre-Henri Bono

Senior Research Scholar, Centre for Political Research (CEVIPOF) at Sciences Po.

By **Léa Dispa**, AMSE Public Outreach Manager

Can you describe your career trajectory since your time at AMSE?

In 2003, when I finished my DEA (the French pre-doctoral master's degree), I had a somewhat unusual profile for the time. I was comfortable with computers and data processing, and I could code in several programming languages. Russell Davidson, whom I knew well, introduced me to Nicolas Gravel. He offered me six months of work on data as a research assistant. Those six months turned into ten years! I worked on a wide range of projects, which gave me enough material to defend, in 2012, a thesis entitled «Housing and Public Policy» supervised by Russell Davidson and Alain Trannoy.

Over those ten years, I specialized in causal impact evaluation models. One day, Étienne Wasmer, whom I had met at a conference, asked me: «How would you like to come to Paris for two or three years to evaluate how the Grand Paris project is impacting foreign direct investment?» Coming from Corsica, I was deeply attached to the South of France. I was flattered, but I had no intention of leaving. Nicolas Gravel, who was head of the lab at the time, encouraged me: «I'll give you unpaid leave. Go and see, it'll be a great experience!» So I went off to Sciences Po. And, against all expectations, I loved Paris.

At first, I made the most of it. I found a flat just a stone's throw from the office and let myself be carried along by the buzz of Parisian life. I was also discovering Sciences Po, which I barely knew, and found it a very pleasant place to work. At the Laboratory for Interdisciplinary Evaluation of Public Policies (LIEPP), I was a research engineer with complete freedom to carry out my work within a multidisciplinary institution. Rubbing shoulders with political scientists, sociologists, historians and legal scholars turned out to be very stimulating. Another surprise: overnight, I was labelled «Sciences Po.» I was the same person, but suddenly much more visible, and the media started asking me for interviews.

I spent four years at LIEPP, at a time when political science was undergoing major changes. One day, one of Sciences Po's scientific directors told me that the Grand Paris project had lost its funding. However, he added, my profile could add a quantitative dimension to political science. That's how I joined CEVIPOF, Sciences Po's Centre for Political Research, headed by Martial Foucault.

The lab was founded in the 1960s and specializes in French politics. At the time I joined, its quantitative work relied on surveys and its qualitative work on interviews. But the lab was modernizing. More and more international researchers were joining, and a profile like mine, bringing «hard quant» methods to political science, was welcome. For five or six years, working closely with the lab's leadership, I applied my impact evaluation methods to a wide range of political topics. I worked with survey data, new material for me. Shortly after I arrived, in 2017, CEVIPOF launched its notes: short summaries of a few pages that are widely picked up by the press. It was a whole new world for me. I found political science far less harsh than economics. Seminars are more supportive, and there is not nearly as much «publish or perish» pressure.

What are you working on currently?

I'm still at CEVIPOF, as a Senior Research Scholar. I'm not a member of the Academic Senate, but I conduct my own research and have the same rights as a faculty member. I teach data analysis and econometrics, in French and English, at Sciences Po and at Sorbonne University Abu Dhabi. My students are brilliant, curious, hardworking and very pleasant,

but they are weak regarding quantitative methods. My research takes a local perspective: I analyze every type of election, but at the level of the municipality. I'm particularly interested in municipal elections and in voting differences between, say, a small farming village and a suburban town. I also study how the voting system affects voting behaviour and turnout. To do this, I've built a database tracking municipal elections since 2001 and, over the years, other historical databases. I'm currently working on voting in France's overseas territories, which will be the subject of an upcoming note.

For the past two years, I've also been working with my colleague François Purseigle on the farming world: farmers' political attitudes, farmers' protests, etc. The topic gets extensive media coverage, yet causal research on it remains scarce. It's new territory for me, and I find it extremely interesting.

Of course, I also take part in the lab's surveys. Right now, CEVIPOF is buzzing as the presidential election approaches. We are about to launch six survey waves, designed by a small team that I'm part of. Once we have the results from Ipsos, we publish an op-ed in Le Monde. I'll probably also build a small econometric model to forecast abstention. Being so closely engaged with current events is very enjoyable. It does take a lot of time and energy, though, and we couldn't do it every year. That time comes at the expense of academic publishing, and we remain researchers first and foremost.

How do you feel about your time at AMSE ?

AMSE gave me my start. That's where I learned what research really demands: meticulousness, drive, attention to detail. Those years were formative for me! Despite my special status, I was fully integrated into the lab as a researcher in my own right.

Above all, I remember the exceptional quality of the researchers. In my day, there were people like Alan Kirman, Nicolas Gravel, Russell Davidson, Alain Trannoy and so many others. At AMSE, research excellence teams up with the quality of life available in a Mediterranean and Provençal environment !



“At AMSE, research excellence teams up with the quality of life available in a Mediterranean and Provençal environment !”

“

I visualize a time when we will be to robots what dogs are to humans, and I’m rooting for the machines.

”

Claude Shannon

AMSE Newsletter
Director of Publication: Alain Venditti
Editor: Yann Bramoullé
Designer and producer : Léa Dispa
Proofreader: Marjorie Sweetko

©Aix-Marseille School of Economics - All Rights Reserved

P1 © bizvector ; © DR // P2-3 © DR // P4 © DR / Avner Seror // P 5-6 © Tanja Tepavac on Unsplash © A.C on Unsplash + // P 8 © Marif Deruffi // P 10 © DR / Romain Ferrali // P 12 © DR / Sullivan Hué // P 14 © Marif Deruffi ; DR/Julien Silhol // P 16-17 © Simon Tavares da Costa // P19 © DR/ Sciences Po / Pierre Henri Bono