

The Saved Hours Doctrine

Productivity, AI and the Question of Who Captures Time

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Abstract

Public debate about artificial intelligence and work often begins with job loss. This paper argues that an earlier question should be made visible: when AI increases productivity, can it take hours before it takes jobs? The paper introduces the concept of saved hours: human labour time made technically unnecessary for maintaining a defined baseline of output after a demonstrated productivity increase. Saved hours are not automatically free time. They may be captured as profit, output, lower prices, state capacity, wage progression, labour displacement, intensified work, or reduced working time. The paper develops a simple measurement model, distinguishes saved hours from time dividends, and identifies capture mechanisms including metric capture and algorithmic management. It then uses China, Singapore, the United States, the European Union, Greece and Denmark as case tests for different institutional pathways. The central claim is that AI governance should not only measure jobs lost or GDP gained. It should also measure hours saved, hours captured and hours returned.

Keywords

artificial intelligence; productivity; working time; labour policy; automation; algorithmic management; public sector; time use; four-day week; saved hours

1. Introduction

The standard labour question around artificial intelligence is whether AI will take jobs. That question matters, but it is not the first measurable question. Before a job disappears, the hours inside the job may already have changed.

AI systems can reduce the time needed to draft documents, summarise information, translate routine material, prepare reports, classify tickets, answer customer queries, process invoices, write code, search case material or complete administrative tasks. Where the same baseline output can be produced in fewer human hours, a productivity surplus has appeared before the employment contract itself has necessarily changed.

This paper calls that surplus saved hours.

The core proposition is narrow. AI does not automatically create unemployment or freedom. It may create a technical reduction in the human time

required for a task, workflow or sector at a defined output baseline. The distribution of that saved time is then an institutional question.

The existence of saved hours is technical. The distribution of saved hours is political.

The purpose of this paper is to make that distribution problem visible. If AI policy measures only jobs lost, GDP gained or firm-level productivity, it may miss the earlier capture of labour time. Where saved hours exist, they can disappear into higher output expectations, platform targets, monitoring systems, public-sector throughput, state capacity, wages, prices or profit before they are ever visible as time.

2. Conceptual Model

The model begins with a deliberately simple relationship:

$$O = H \times P$$

where O is output, H is human labour hours in a defined period and P is output per human labour hour. This is a conceptual identity rather than a sector-specific production function.

For a constant baseline of output, saved hours can be defined as:

$$S = H_0 - H_1$$

where S is saved hours, H_0 is the old number of human hours required for the baseline output and H_1 is the new number of human hours required for the same baseline after a productivity increase.

The required productivity multiplier for a shorter working period is:

$$P^* = H_0 / H_1$$

The three expressions can be read as the output identity, the saved-hours delta and the break-even productivity multiplier.

For example, if a worker previously worked 37 hours per week and a society or firm wanted to reduce the working week to 20 hours while maintaining the same output, the break-even productivity multiplier would be $37 / 20 = 1.85$. If productivity rises above that threshold, the model produces a surplus.

The model does not claim that every job can be compressed in this way. It does not account by itself for coordination costs, quality control, demand limits, fatigue, sectoral differences, regulation, care work, physical work or presence-bound services. It is a first-pass visibility equation. Its function is to identify whether a measurable time surplus exists before asking who captures it.

3. Definitions

Saved hours are human labour time made technically unnecessary for maintaining a defined baseline of output after a demonstrated productivity increase.

A time dividend is the portion of saved hours converted into reduced required working time for humans.

Capture is the institutional allocation of saved hours to time, wages, output, profit, prices, state capacity, displacement, service quality or work intensity.

Metric capture occurs when saved hours disappear because the definition of acceptable output expands after productivity rises.

These distinctions matter because saved hours can exist without becoming free time. A firm may use the gain to produce more. A state may use it to process more cases. A platform may use it to raise targets. A worker may receive higher wages but not fewer hours. A consumer may receive lower prices. A public service may reduce waiting time. All of these are possible capture pathways.

The time dividend is narrower. It exists only when productivity gains are converted into less required human labour time.

4. Output Definition and Metric Capture

The saved-hours model depends on a baseline. But in many modern jobs, output is not fixed.

A factory can count units. A delivery platform can count deliveries. A call centre can count calls. But in law, care, teaching, software, administration, management, design, analysis and public service, output can be redefined.

If AI reduces the time required for a task, management may expand the definition of acceptable output. A legal review becomes legal review plus deeper risk mapping. A lesson plan becomes lesson planning plus individualised feedback. A public case file becomes case file plus additional documentation. A software task becomes software plus more tests, edge cases, reporting and features.

In such cases, AI may save time at the task level while the institution captures that time by redefining output.

Measurement is therefore not neutral. Whoever defines output can capture saved time before it becomes negotiable.

5. Uneven Compressibility

Saved-hours analysis must distinguish between compressible, assistable and presence-bound work.

Compressible tasks are tasks where AI can reduce human time without fundamentally changing the task: routine drafting, translation, summarisation, extraction, ticket classification, report preparation, standard emails and first-pass code.

Assistable but bounded tasks are tasks where AI may reduce surrounding work while the core activity remains relational, judgement-based or human: medical consultations, teaching, therapy, social work, legal advice, public casework and management conversations.

Presence-bound tasks are tied to physical presence, safety, waiting, care, monitoring or maintenance: nursing presence, emergency response, construction, transport, inspection, childcare, eldercare, infrastructure operations and night shifts.

The saved-hours doctrine applies most cleanly to tasks and workflows, not whole jobs. A doctor may save time on notes, but that does not mean the patient encounter should become five times shorter. A social worker may save time on forms, but trust cannot be automated into existence.

6. Productivity Risk

The model assumes that productivity gains can be measured. In practice, AI productivity gains are uneven and uncertain.

Some tasks become much faster. Some barely improve. Some require new verification work. Some produce errors humans must correct. Some create compliance burdens. Some shift time from production to supervision. Some raise output expectations faster than they reduce labour.

Saved-hours policy therefore requires risk allocation. If a firm assumes a 30 percent productivity gain and cuts staff before the gain is stable, the downside may fall on remaining workers as stress, backlog and overtime. If a public authority assumes that AI will reduce administrative workload and cuts budgets too early, the downside may fall on citizens as delays, errors or automated rejection.

Where productivity gains are uncertain, the policy question is not only how to share the upside. It is who absorbs the downside.

7. Capture Framework

The saved-hours framework distinguishes several capture models:

Capture model	What the productivity gain becomes
Worker time capture	Reduced required working time with stable income or stable output.
Firm output capture	Same hours, more production, faster delivery or higher throughput.
Capital capture	Higher margins, valuation, shareholder return or reduced labour cost.
Consumer capture	Lower prices, wider access or better service.
State capacity capture	Administrative, fiscal, military, welfare or surveillance capacity.
State-coordinated distribution	Industrial upgrading, social policy, public goals or national strategy.
State-mediated productivity bargain	Wages, skills, competitiveness and institutional mediation.
Measurement without distribution	Output per hour rises, but no institution converts the gain into time.
Social-dialogue capture	The gain is bargained into time, wages, staffing, flexibility or quality.
Metric capture	Output standards rise, hiding saved hours before distribution.
System intensity capture	Work becomes denser, more monitored and less slack.
Reverse time dividend	Productivity pressure is answered by more available working time rather than less.
Mixed capture	The gain is distributed across several channels.

The least visible model may be system intensity capture. Workers keep the job and the wage, but the pauses inside the job disappear.

8. Case Tests

8.1 China: productivity as state and industrial capacity

China is a useful stress test because its policy language around technology does not frame AI only as firm-level efficiency. The concept of new quality productive forces links innovation, high technology, high efficiency and high-quality development to national transformation.

For the saved-hours doctrine, the question is not whether China uses this language. It is what capture pathway this language implies. If AI or related technologies create new productive capacity, does the gain become shorter working time, higher wages, industrial upgrading, state capacity, platform control, national competitiveness or deeper labour pressure?

China's 2024 national time-use survey also shows why saved hours cannot be analysed only inside employment contracts. Paid labour, unpaid labour, training, ICT use, transport and discretionary activity form a broader time economy. A reduction in formal working time could become free time, but it could also become unpaid care, platform work, second jobs, training pressure, household labour or digital availability.

China therefore tests productivity as state and industrial capacity rather than automatic human time.

8.2 Singapore: productivity as wage and skills bargain

Singapore is a different stress test. It is a coordinated productivity state where government, employers and labour institutions often work through tripartite frameworks.

Singapore's National AI Strategy frames AI as a force for public good, national capability and broad adoption. Its Progressive Wage Model links wage progression to skills upgrading and productivity improvement.

This is not a saved-hours dividend. It is a productivity-to-wage pathway.

Singapore shows that productivity gains can be institutionally mediated without becoming shorter working time. The gain may be channelled into wages, workforce upgrading, national competitiveness, business transformation, public-sector capability or social stability.

8.3 United States: measurement without distribution

The United States is a measurement case. The Bureau of Labor Statistics defines labour productivity as output per hour worked. That statistical grammar already makes the saved-hours question legible.

If output per hour rises, the distribution question follows: does the gain become shorter working time, higher wages, lower prices, higher profit, more output, lower headcount or denser work?

BLS also notes that AI is difficult to isolate directly in productivity statistics and is captured indirectly through software, capital input, intellectual property products and productivity accounts. That supports a methodological caution: saved-hours claims should be audited against actual output, hours, quality and risk before they become political claims.

The United States therefore shows that measurement can identify productivity change without deciding who receives the saved hour. It also shows why saved-hours audits would need to sit between productivity statistics and labour bargaining. Official productivity accounts can show that output per hour has changed; they do not, by themselves, identify whether the resulting time surplus was returned to workers, absorbed by output expectations or captured by capital.

8.4 European Union: social dialogue and algorithmic management

Europe is the institutional bargaining case. Working time, social dialogue, platform work, algorithmic management and AI governance already sit in the same policy field.

European Commission survey material indicates that approximately one in three EU workers use AI tools at work, especially for text-related tasks, while digital monitoring and automated scheduling are also part of workplace digitalisation. Eurofound's work on working-time reduction and the four-day week shows that reduced hours, flexibility and compressed schedules are active European debates.

This makes Europe a contested case rather than a single model. Social dialogue is the bargaining pathway: it can make saved hours visible enough to negotiate over time, wages, staffing and workload. Algorithmic management is the absorption pathway: it can capture potential saved hours by monitoring, organising, directing and evaluating work through automated or semi-automated systems before bargaining is triggered.

On the evidence used here, both mechanisms are active. The paper does not claim which dominates across Europe. It treats Europe as the policy field where the contest between bargaining and absorption is most explicit.

8.5 Greece: the reverse case

Greece tests the doctrine in reverse. Where productivity is structurally weak, investment and technology adoption lag, and labour-supply pressure is high, one possible institutional response is to make more working time available rather than less.

Greek labour rules distinguish contractual working time from wider statutory and overtime limits. The standard contractual working week is 40 hours, while statutory and overtime structures allow additional work under defined conditions. In 2024, the activation of sixth-day work registration through ERGANI became a European working-time controversy.

The measure was contested by labour organisations and debated internationally because critics saw it as weakening the five-day norm, while the government framed it as a limited and registered measure for specific operational conditions. The important legal boundary is that Greece did not simply introduce a universal six-day week. It activated a framework in which sixth-day work can be registered and used under specified conditions.

OECD analysis of Greece points to low productivity, investment gaps and weak technology adoption as structural problems. The saved-hours implication is not that the sixth-day measure was caused by AI, or by productivity weakness alone. It is that time policy can move in the opposite direction when productivity does not free time.

When productivity does not free time, institutions may ask humans to supply more of it.

8.6 Denmark: measurement and public-sector comparator

Denmark is a comparator, not the main European case. Statistics Denmark's Working Time Accounts provide national measurement infrastructure around hours worked. Danish AI strategy material frames AI as a tool for public-sector improvement, productivity and responsible deployment with people and democratic values in view.

Denmark shows that strong measurement and public-sector digital capacity can support a saved-hours audit. It does not by itself guarantee a time dividend.

9. Policy Implications

First, governments and labour institutions should develop saved-hours audits. These would estimate how many hours AI or other productivity tools save in specific tasks, workflows or sectors at constant output and quality, and would mark uncertainty where gains are not yet demonstrated.

Second, productivity-sharing agreements should define how documented gains are allocated across time, wages, staffing, output, prices, profit and service quality.

Third, shorter-week pilots should be linked to actual output, quality, error rates, stress, retention and workload displacement, not only employee satisfaction.

Fourth, public-sector AI should be evaluated by burden reduction as well as throughput. A state can process more cases while making life heavier for citizens and public employees.

Fifth, anti-intensification safeguards should measure workload density, monitoring, cognitive pressure and autonomy. If every saved minute is immediately refilled, saved hours remain technical but never become human time.

Sixth, workers and their representatives need mechanisms to contest output redefinition. Without such mechanisms, metric capture can absorb saved hours before they become visible.

10. Limitations

This paper proposes a conceptual and policy framework. It does not provide a full econometric model of AI productivity. It does not estimate sector-by-sector saved hours. It does not claim that all jobs can be compressed or that task compression equals whole-job compression.

The model is strongest for tasks and workflows where output can be defined and quality can be checked. It is weaker where output is relational, qualitative, presence-bound or politically contested.

The country cases are stress tests, not comprehensive national studies. They are selected to illustrate distinct institutional capture pathways: state capacity, wage bargaining, measurement without distribution, social dialogue, algorithmic management and reverse time pressure. They should not be read as a statistically representative sample of global AI productivity governance.

The paper also does not claim that shorter working time follows automatically from AI. That is the point. Saved hours become free time only through institutional choice.

11. Conclusion

The future of work should not be measured only in jobs lost or jobs saved. It should also be measured in hours saved, hours captured and hours returned.

AI may create productivity gains. But productivity is not distribution. A society can become richer without becoming freer if productivity is not converted into human time.

The saved-hours doctrine therefore asks a prior question: before a demonstrated productivity surplus disappears into profit, output, state capacity, metrics or work intensity, can it be made visible?

If AI governance needs a jobs policy, it also needs a time policy.

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