"Protected profit" and value sharing to boost non-interfering investment, employee ownership and democratic businesses

Journal of Participation and Employee Ownership

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Received 15 December 2024 Revised 3 July 2025 Accepted 9 September 2025

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Abstract

Purpose – Employee ownership (EO) and profit sharing have numerous benefits. Employee Ownership Trusts (EOTs) are proliferating, but EO could grow faster by harnessing "non-interfering", risk-sharing investment. Companies with common ownership (such as EOTs) are at risk, longer-term, from inadequate equity, which could lead to under-investment, slower growth or demutualisation. Other private businesses are also held back by substantial gaps in non-interfering, risk-sharing investment.

Design/methodology/approach – Existing financial instruments do not meet these challenges. We design a viable alternative, balancing the needs of entrepreneurs, workers and investors.

Findings – "Protected profit" sharing between workers and investors achieves this balance: guaranteed "base" pay is capped at a pre-agreed average level; profit-sharing pay and payments to loans, bonds or shares are all agreed fractions of "protected profit" (= revenue – non-pay costs – base pay costs). This aligns interests between workers, entrepreneurs and investors, and together with restricted voting rights, solves the principal-agent/risk-control problems, allowing reward-/risk-sharing equity investment.

Practical implications – Sharing protected profit allows sustainable employee/trust (or entrepreneur) control, while increasing liquidity, reducing the risk of "degeneration" and expanding the range of firms that can transition sustainably to control for/by employees. It also enables private firms in general to attract capital, boosting productivity and growth.

Social implications – Our mechanism removes the "need" for exorbitant executive pay (a driver of inequality), is compatible with Islamic finance and will catalyse business, thus civic, democratisation.

Originality/value – "Protected profit" sharing prevents whoever controls a company from unilaterally raising wages at the expense of investors, while protecting and incentivising everyone in the firm.

Keywords Equity, Employee ownership, Profit sharing, Secondary market, Democratic business, Preference share

Paper type Conceptual paper

Introduction

A growing body of research (Birchall, 2017; Blasi *et al.*, 2017; Fakhfakh *et al.*, 2012; Kruse *et al.*, 2010; Lampel *et al.*, 2018; Michie *et al.*, 2017; Mygind and Poulsen, 2021; Nuttall, 2012; Pérotin, 2017; Rosen, 2023; WPI Economics, 2023) suggests that organisational performance can be significantly and synergistically boosted by combining:

- (1) Employee share ownership (ESO)
- (2) Profit-sharing or collective performance-related pay and
- (3) Participatory, "democratised" management, with worker voice or representation.

In the UK, the combination of all three factors, including a significant element of ESO, is called employee ownership (EO). The UK Government has promoted EO as a distinct policy



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Journal of Participation and Employee Ownership Vol. 8 No. 3, 2025 pp. 99-119 Emerald Publishing Limited e-ISSN: 2514-765X pol. 10.108/JPEO-12-2024-0033

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objective since 2012, when it accepted recommendations in the Nuttall Review (Nuttall, 2012). The Finance Act 2014 codified certain elements of the UK's existing employee trust model of EO in the form of the employee ownership trust (EOT) and defined tax incentives to move to majority ownership of a trading company by an EOT (Karch, 2016; Pendleton *et al.*, 2023). Since 2014, thanks to this comparatively simple EO structure and the incentives in the Act, the UK EO sector has expanded rapidly to more than 2,470 firms, with ca. 360,000 employees (as of 2025; Employee Ownership Association); in 2023, it had a turnover exceeding £40bn (WPI Economics, 2023).

Almost all the UK's new EOT-controlled companies have relied on vendor finance (deferred consideration) to finance the change of ownership. Despite the growth in employee-owned businesses (EOBs) in the UK, the reliance on this form of financing may be holding back the development of the EO sector. This is because some potential owners may not be prepared or able to wait to receive deferred consideration because of their health, age or concerns over the risk of not getting paid in full (credit risk). Moreover, while an EOT majority shareholding helps address credit risk, because trustee voting influence helps ensure the trust gets the cash it needs from the trading company to pay the deferred consideration, a trust without a controlling shareholding is more likely to have to pay in full, up-front (or relatively quickly), for shares it buys.

In addition, some businesses will require equity investment to develop. Currently, EOT ownership is less suited to capital-intensive firms or "growth" firms requiring equity fundraising or a large amount of reinvestment (Mason, 2019) because to benefit from the tax breaks, the model requires that the EOT maintain at least a controlling equity ownership stake (Pendleton *et al.*, 2023). In theory, EOT ownership could lead to under-investment, due to the difficulty of investors (including workers) realising their (re-)investments, with the further risk that firms may experience pressure to "degenerate" back to traditional ownership or be sold (Major and Preminger, 2019).

Firms that have value (based on future earnings potential and/or assets), but that are currently unprofitable, are unlikely to be able to convert to an EOT: the workers might first have to agree to salary sacrifices and/or job losses; and the vendor is likely to delay the sale till the firm is profitable and thus has more value, making it harder for the workers to buy it, even though converting to EO sooner would likely boost performance (WPI Economics, 2023). Hybrid share schemes – e.g. majority *collective* ownership for tax breaks combined with minority *individual* ownership – only partially mitigate these problems and are less common than "pure" (100%) EOT ownership, perhaps in part due to their added complexity (Pendleton *et al.*, 2023) [1].

We propose that "non-interfering" equity investment can address these issues. It would enable former owners to be paid more quickly for their shares, thus potentially widening the pool of business owners willing to use an EOT as a business succession solution, while also allowing EOT minority shareholding, but without loss of control, if the non-EOT equity was normally non-voting. It would facilitate the conversion of firms that are currently unprofitable but have great potential, such as tech start-ups. And it could boost the development of EOBs by reducing payment outflows to vendors, as well as subsequently.

Common existing forms of EO, across multiple countries, have problems to varying extents regarding insufficient equity investment and "degeneration" risks (Major, 1996; Major and Preminger, 2019), which also stem from *insufficient recognition and liquidity of equity* – e.g. workers not being able to sufficiently recoup time, money, inventiveness, risk-taking, stress and "sweat equity" ploughed back into their firm:

(1) Employee Stock (or Share) Ownership Plans (ESOPs) in the USA may be over-reliant on extremely generous tax breaks (Rosen, 2023), but they also have the added problem of repurchase liability: buying back workers' shares when they retire or leave (Baker et al., 2015; Rosen, 2023). This can be particularly challenging in companies that grow (in value) "too much". Having to buy back large numbers of shares from every generation of workers reduces profits otherwise available for reinvestment. The repurchase problem can be smoothed out over time, by "rollover" ESOPs (Ellerman et al., 2022), which

allow more regular, predictable and conveniently-timed wealth "retrieval" by longer-employed workers – but this could also paradoxically increase the total capital "leaving the firm" (depending on the strictness of the legal obligation to repurchase, and the discretion and timelines allowed to the company). Depending on the repurchase delays and optionality allowed (Clough *et al.*, 2025), a rollover ESOP could (similarly to a regular ESOP) also have trouble coping with rapid growth in a company's value: having to buy back shares at a high price could bring the company's value down again – penalising worker-owners whose efforts had led to the growth – disincentivising such efforts in the first place.

- (2) Individual *currency*-denominated (as opposed to *share*-denominated) internal capital accounts or ICAs (Ellerman, 2020b), like those in Mondragon worker co-ops (Barandiaran and Lezaun, 2017), do not typically reflect "true", "full market" value (unlike US ESOPs, which need annual fair market valuations), increasing the risk of "degeneration" away from control by/for workers. This is despite interest payments and periodic revaluations of particular assets, because these capital accounts reflect net asset value (ICA Group, 2015) rather than the "internally synergistic" full value of the firm, as a "living whole". Typically, the full value is greater than the sum of its parts, or more conventionally, it is the inflation-, risk- and projected growth-adjusted present discounted value of the company's predicted future dividend stream (using a discount rate encompassing its aggregate level of risks). Significant (behaviour-distorting) "internal equity gaps" can therefore arise relative to a "reasonably realisable" market price: from the ICA valuation process, which can often be over-conservative (Major and Preminger, 2019), from synergies between separately valued assets, from intellectual property, from the debatable, uncertain "value" of unenforceable "good will" (Ellerman, 1982, 2020a, 2021), and – crucially – because there is no provision for external equity investment or liquidity, e.g. trading chunks of accounts externally.
- (3) Past setbacks have amply illustrated the risks of having workers *directly* owning a majority of a company's *voting* (ordinary) shares, for example, UK bus company EO (Spear, 1999) and botched privatisations in Eastern Europe (Ellerman, 2001), including so-called "vodka capitalism" when oligarchs bought up shares from cash-strapped workers for a pittance, building vast business empires on the cheap. In ESOPs and EOTs, the trust acts as a safeguard against shares, or indeed the entire company, being sold substantially below market value. There are further tax disincentives too, such as the need to repay capital gains tax relief if a UK EOT-owned company were to be sold. Also, workers do not normally use their wages or savings to purchase shares: they are typically paid for out of future profits.
- (4) Theoretical concerns have been raised about the "naked in, naked out" common ownership structure of EOT organisations (Ellerman and Gonza, 2024; Karch, 2016; Major and Preminger, 2019; Mason, 2019). In the "pure" 100% version of an EOT, currently the majority, as mentioned above, workers own no shares individually: when they leave, they leave with no equity; they in effect abandon all their past efforts and innovations, with no ongoing financial recognition. Since most EOT firms are only a few years into their "EO journey", it is not yet clear whether these concerns will materialise; nonetheless, in theory, they could cause:
 - a "naked-out" disincentive to plough profit back into the firm (this can be
 mitigated by the extra trust layer of governance, legally bound to pursue the
 overall (long-term) interests of employees including past and future workers, if
 the rules so require, though based on anecdotal evidence we believe very few trusts
 are bound to consider future workers),

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an inter-generational risk that longer-serving workers (e.g. the "first cohort" who "paid" the original owner/s for the firm) may resent newer "free-riders" [2] (Ellerman and Gonza, 2024) who started after "financial freedom day" [3], especially if the transition is paid off early, through the efforts of the first cohort, or if the value of the company rises "too much".

The EOT model is deliberately restrictive: over 50% of the company's "ordinary share capital" (voting or variable yield, internally set) must be held *collectively* in trust for the firm to be eligible for tax breaks, which helps prevent abuse of the tax measures, as well as reducing the credit risk. Yet it could be beneficial, for example, for more capital-intensive firms, to enable more flexibility over the fraction of a company's legally-defined equity (variable-yield securities) an EOT would need to hold to qualify for tax breaks: perhaps the main criterion could be *maintaining control* on behalf of employees (while also disallowing potential "back-door" routes that could subvert this).

The disconnect between finance and EO has been pointed out many times (Major and Preminger, 2019; Mason, 2019). As Hall and Gorman (2019) note, EOBs

need greater awareness of the benefits of external finance and how it can help fund growth, diversification and ultimately a more robust and sustainable business. . . . The employee ownership sector can struggle to raise finance. The result is missed opportunities — for [both] finance and employee ownership — on a potentially large scale. . . . Many EOBs are wary of external finance, but this could lead to EOBs missing out on opportunities to grow or diversify their businesses.

This report also notes research showing a "powerful demand by EOBs for finance opportunities. Just over half of participants reported a current unmet need for finance, while four out of five reported that they will have an investment need in the next three to five years" [4].

These issues are clearly linked to broader, more fundamental problems in the UK and global economies, including huge, stubborn equity gaps for SMEs: in the UK, these gaps have been estimated at £12bn to £53bn in total in 2021/22 (Adeyoola *et al.*, 2023; Brandily *et al.*, 2023; Kacer and Wilson, 2023; Wilson *et al.*, 2018, 2019), and as much as €266bn (11% of GDP) in 2018, and €701bn for the EU as a whole (Fi-Compass, European Regional Development Fund, 2019). A key cause is the reluctance of entrepreneurs to cede control or to accept "interference". This under-investment results in poor productivity (Fry *et al.*, 2024; Van Reenen and Yang, 2024; Zenghelis *et al.*, 2024) and particularly affects SMEs (including EOBs) (Owen *et al.*, 2023), many of whom carry a heavy debt burden. A large number of other studies recognise the need to optimise both investment and rewards in firms more generally (Hwang *et al.*, 2019).

Specifically, there is a lack of risk-sharing but "non-interfering" investment compatible with maintaining an employee-owned company's independence. Such investment could facilitate EO companies to compete with faster-growing firms with "standard" ownership structures, which have far superior access to capital. For example, by 2024, the market capitalisation of Amazon (ca. \$1.8tn) had grown in only 30 years to almost the entire net worth of the US ESOP sector (after 50 years), while net growth of ESOPs appears to have plateaued (Blasi *et al.*, 2024). Moreover, if EOT companies could access risk-sharing capital on terms consistent with maintaining their independence, this would also make capital accessible to other (non-EOT) companies wishing to maintain their independence, more broadly alleviating under-investment, low productivity and sub-optimal growth.

Finally, as the growth of EOTs is currently supported by generous tax incentives, it would be wise to future-proof the EOT model against changes to taxation, such as reductions in capital gains tax relief or tax-free bonus allowances.

By providing a workable solution for facilitating risk-sharing investment in employee-owned/controlled firms, we can also bridge other equity gaps and optimise investment and rewards more generally, as the problems solved are generic and fundamental, in effect applying to all firms. The proposal we present in this article will therefore help to bring *all* firms (potentially) within "target range" of becoming significantly employee-owned or controlled on behalf of their employees, and, if wanted, run democratically by their workforces.

Some claim we already have a vibrant supply-side finance "ecosystem", awash with money, with all the institutions, networks and diverse tools needed: "mezzanine" finance, shareholder agreements, "growth" shares, all manner of share options, and multiple credible "exit" routes for realising value; we merely need to "re-educate" entrepreneurs (including employee-owners) on the "demand" side, to seek out equity finance and accept the compromises that entails. However, for the purposes of investing in EO (or indeed entrepreneur-controlled) firms, existing risk-sharing financial instruments have numerous shortcomings, which we will outline next.

Shortcomings of existing reward/risk-sharing financial instruments

Ordinary shares

External equity aversion of entrepreneurs: most entrepreneurs and EOBs resist outsiders taking equity stakes (Bora *et al.*, 2024; Hall and Gorman, 2019; Mason and Kwok, 2010; Owen *et al.*, 2023), fearing erosion of control or independence. Other contributory factors include cognitive barriers (e.g. unfamiliarity), excessive optimism (making borrowing seem more attractive), paperwork and reluctance to share both information and "hard-earned wealth".

Risk-control dilemma and investor reluctance: dividends on ordinary shares are completely discretionary – whoever controls the company determines the dividends (and can reduce profits and distributable reserves, thus the ability to pay dividends or buy back shares, simply by raising pay). Minority shareholders in effect face a double principal-agent problem (Fama and Jensen, 1983; Jensen and Meckling, 1976): how to ensure employee-owners (or entrepreneurs) act in investors' interests (Flammer and Bansal, 2017), if the latter do not even control the company? How also to ensure the company is run competently, indeed imaginatively, is innovating sufficiently and is heading in a good direction – and what recourse exists to correct this, if it is not?

Furthermore, investors may not easily be able to sell shares in unlisted companies (i.e. their *liquidity* is poor), so are likely to prefer to *lend* money (with known, fixed interest payments, an agreed repayment date and collateral to secure the principal being repaid, i.e. insufficient risk-sharing and long-term sustainability for our purposes). They may also, of course, wish to "spread their bets" and diversify, e.g. via mutual funds.

Another well-founded worry is that top executives often succeed in "capturing" firms, awarding themselves bloated remuneration at the expense of shareholders (Baker *et al.*, 2019).

Interests between investors and those who control the firm may still be somewhat alignable if the expectation is that the investors will eventually be paid off by the company being sold at as good a price as possible. However, in the case of an employee-owned firm, conversely, the hope is that it will <u>not</u> be sold – that EO (or control on behalf of employees) will be *sustained* long-term, not sacrificed to pay off investors.

Tax incentives are another factor which may help somewhat to align interests between workers/entrepreneurs and investors: in many jurisdictions, e.g. the UK, the rate of income tax plus National Insurance (social security) often exceeds the rate of corporation (profit) tax plus capital gains tax, making it more attractive for entrepreneurs (including worker-owners or trusts acting for them) to plough back money (instead of raising their own pay), to boost the earning power, thus value, of the firm. But the efficacy of this depends on numerous factors, such as the type of scheme, the fraction of external ownership, the details of tax rates and available tax breaks, and of course, the immediate preferences, needs, financial constraints and (involuntary in many cases?) short-termism of workers, which may pile on pressure against enough reinvestment to align interests sufficiently.

"Core capital deferred" shares (CCDSs, "mutual capital instruments"). These are used by UK mutual building societies and some Australian mutuals. However, voting rights are restricted (one-member-one-vote, not one-share-one-vote) and (just like ordinary shares) dividends are still completely discretionary (e.g. Nationwide CCDS prospectus), which in smaller, riskier companies could further put off investors – making CCDSs even less attractive than ordinary shares.

Executive share options (to help protect investors owning ordinary shares). These are widely "sold" as a solution to the principal-agent problem, but are very "top-down", focussing on incentivising relatively few key top managers and executives. These individuals will likely experience strongly diminishing returns to income and wealth, thus reduced incentives (per currency unit received) and weakened alignment with shareholders – providing poor value for money. Meanwhile, incentivisation of the wider workforce is missed, with much stronger returns on income and wealth, as well as significant potential to harness untapped collective intelligence (Malone and Bernstein, 2022). Partly to compensate for diminishing returns and partly because of abuse of power, executive options tend to be exceptionally expensive and top executives are widely thought to be grossly overpaid (Baker et al., 2019). This approach is therefore not really affordable, useful or desirable for small businesses or EOBs, especially those which seek to maintain an element of democracy and equality (compressed pay differentials) within the organisation. Share options still have to be paid for (at their "strike" price), and the price gain pocketed is typically *taxed* (as income) – both of which could be problems for unwealthy workers (although there are ways round this, such as the company paying the tax, or, if a buyer can be found, selling some shares to pay for the others and/or the tax). More importantly, at the end of it all, investors are still vulnerable to unilateral or arbitrary pay rises reducing profits (thus company value and share price).

Growth shares. "Growth shares" get around some of these issues by allowing the holder to participate in *growth* in value of the company, but only *above* a fixed "hurdle", often having negligible value below the hurdle price (avoiding both income tax and dilution of existing shareholders). An increase in share price above the hurdle price is taxed as capital gains, but only if the shares are sold (and typically at a much lower rate than income tax). In effect, growth shares are supposed to act as a type of tax-efficient, free-at-the-point-of-award option but can be rather complex and costly to implement: for example, regular challengeable valuations are needed, different employees can have different participation fractions, different hurdle prices, perhaps depending on when they started, or different minimum tenure periods (to qualify for any gains), or different non-compete clauses or other terms and conditions to encourage their loyalty. This all makes them rather hard to trade unless there is a "liquidity event", usually a sale of the company (again, not wanted for EOBs). For a more detailed discussion and critique, see HM Revenue and Customs (2015). For a simpler (and more tradable) way to incentivise workers, more broadly, to grow company value over the longer term, see the section "Added-value sharing".

Preference shares. Preference shares are paid their dividends (or their share of residual assets) *before* ordinary shares get any. There are many variants, spanning most of the spectrum between pure debt, "dequity" (debt-equity hybrids) and "full" equity. Key parameters include redeemable vs. perpetual, fixed vs. adjustable or variable dividends (e.g. index- or profit-linked), obligatory vs. optional dividends, non-cumulative vs. cumulative (if a dividend is missed, it must be added to the next), voting vs. non-voting, convertible (to ordinary shares) or not and so on.

Fixed, obligatory dividend preference shares are not particularly helpful for promoting risk-sharing external or internal (e.g. worker-owned) investment: they impose a *constant* interest burden on the company, irrespective of its success, weakening it financially because the interest rate is likely to be high to compensate investors for risk (including lack of collateral). Making the dividends optional will give more financial headroom and flexibility to the company, but — without any "upside" benefit to investors — will reduce the shares' attractiveness to them, so this variant is not likely to be much help promoting *risk-sharing* investment either.

Participating (performance-related) preference shares. The dividends of these shares "participate" in the performance of the company (Ellerman, 1989), making them the most reward/risk-sharing variant. They can be "non-interfering", if they are non-voting (or below a 25% minority stake). Again, if the performance metric is standard profit, this is all too easy to

reduce, at the expense of investors, simply by raising pay unilaterally. Thus, simple profitsharing preference shares in companies controlled by/for their workers are unlikely to be attractive enough to many investors, and will not do the risk-sharing job required, without additional protections (introduced below).

To avoid unilateral pay rises being used to "rip off" investors, Net Value Added (NVA = profit *plus pay*; see below) could be used as the performance metric instead (Ellerman, 1989; Major, 1996, 1998; Major and Preminger, 2019; McCain, 1977, 1999). Ellerman (1989: 63–66) suggests a "base" fixed interest component, then a NVA "kicker" (geared to NVA), however, it is worth pointing out that capital does not "have to eat", whereas workers do, so we believe this is precisely the wrong way round: it is actually workers that typically need base pay to actually survive (see below), not investors, who are generally cushioned by diversified "spare" wealth. Furthermore, any fixed interest payment may place a serious (and unnecessary) burden upon the firm, while workers may not earn enough to survive on, and may be forced to leave, again harming the firm. Also (as Ellerman points out), there is a crucial difference between annual measures of profit or value-added, and the actual cash available for payouts. The first depends on the profit-and-loss account (i.e. earnings minus costs from the *current* accounting year, hostage to depreciation schedules and the precise timings of particular payments). The second, by contrast, depends on the overall balance sheet (i.e. accumulated profits, losses and investments, etc.), and distributable reserves. The annual profit or NVA may formally require a large dividend payment, but the firm may not be able to afford it or may need the money for reinvestment (or paying off the original owner/s, e.g. if deferred consideration is financing a transition to EO). We address this further, below (via part-payment using new securities).

Shareholder agreements. In theory, trust between investors and those controlling the company can be somewhat improved by shareholder agreements, intended to protect minority shareholders or hands-off equity investors – for example, by placing limits on pay. However, these agreements (contracts between all the parties) are typically highly customised, cumbersome and costly to set up, thus hard to understand and modify, and yet harder to trade (although they can be drafted to be transferable), reducing liquidity, thus attractiveness. The conventional wisdom is that, ideally, they should be limited to firms with less than twenty shareholders – thus, they are far from a generally-applicable model for promoting easily-tradable, external, risk-sharing investment in firms controlled by/for their workers.

"Mezzanine" finance. To share in risk and performance, mezzanine finance bolts together various loan instruments with different collateralisation, interest rates (perhaps performance-related) and convertibility (to shares). It is also customised, cumbersome and complex: non-standardised, hard to understand and harder still to trade (there are few secondary market options). Worse still, the principal (amount invested) still needs to be *repaid* or – even worse for an external-equity-averse entrepreneur (Mason and Kwok, 2010) or employee-owned firm – turned into shares. Moreover, the rate of return is dependent on problematic metrics: either the interest rates are fixed, and cripplingly high for unsecured components, or they depend on performance measures easily manipulated downwards (such as profit – by raising pay), or measures like sales or turnover which ignore significant costs, risking "bleeding out" the firm in bad years.

We contend, therefore, that *new* financial instruments are required to help bridge the notoriously stubborn investment gaps and inequalities discussed above, especially for EOBs—or at least new variants of existing instruments, fixing their key weaknesses. An "ideal" investment model for firms controlled by/for their employees should:

- (1) Ensure retention of that control with minimal (unwanted) outside interference,
- (2) Enable long-term financial stability and optimal growth, through the sharing of success and risk (i.e. have *variable* yield rather than high fixed interest),
- (3) Be *perpetual* (non-repayable) or have no fixed repayment date, if desired,

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- (4) Assuage external investors' fears of not having "sufficient" control, recognising their time constraints for information/meetings/voting and give decent returns reflecting risk,
- (5) Allow equity participation by workers, recognising and incentivising "sweat equity", innovation and entrepreneurialism,
- (6) Facilitate liquidity (easy saleability of shares, etc.), partial "exits" and diversification,
- (7) Help finance conversions to EO that do not rely on vendor finance,
- (8) In the case of EOTs, automatically recompense first-cohort workers, especially if "financial freedom" day is reached quicker than planned.

Starting from the debt end of the spectrum, and moving in a series of logical, natural steps towards equity, we construct such instruments from first principles. In the process, we identify a "sweet spot" where we believe the interests and needs of worker-entrepreneurs (employee-owners) and investors overlap well, in a win-win manner.

From value-added sharing loans to "protected profit"-sharing equity

"Participating" value-added sharing loans

An entrepreneur is likely to prefer a low-interest loan without collateral and without any pressure for repayment. Lenders, however, will typically want the principal repaid within an agreed period and will demand collateral or charge a high interest rate to cover the risk of default (on top of the "market" interest rate for the opportunity cost of the money itself plus inflation).

A compromise between these two positions might be to make the rate of return dependent on the *success* of the company. No interest would have to be paid if the company made a loss, but it would pay "decent" interest when it could afford it. However, what is to prevent the workers/entrepreneurs, in a good year, from raising their pay, thereby artificially lowering profits, thus returns to the lender? In other words, a simple link to *traditional* profit, without additional safeguards, is subject to manipulation by whoever controls the company.

Ideally, we need a simple mathematical formula that links "interest" to profit *plus pay*, so that raising wages (thus lowering profit) will not affect the interest. The accounting quantity equal to *profit plus pay costs* is called Net Value-Added (NVA), defined in terms of "inputs" as:

Total company revenue – total *non-pay* costs

where total non-pay costs = costs of raw materials + bought-in goods and services + utilities (energy, etc.) + rent + (other) interest + depreciation charges + expenses [5].

Value-added is the financial value the company adds to its inputs through the efforts of its workforce. The depreciation term is to account for gradually using up machinery, etc., over time and building up a fund to replace it; if it is not included, we get *Gross* Value-Added (GVA) [6].

There are, however, still "back-door" ways to reduce NVA. Two obvious "fiddles" might be to inflate expenses or depreciation charges. In the UK at least, HMRC (tax authority) expense and capital allowances could be used, letting tax inspectors (as well as work colleagues) "police" things. There may be issues with HMRC's "full expensing" (intended to encourage investment), or asset write-off times not always being realistic (Adam and Miller, 2023), but they could still be a standard starting point, adjustable with lender/investor agreement. Expenses could also be included in pay costs or capped at an agreed level.

Other abuses might include the purchase of items at inflated prices from family or friends. This could be forbidden by the loan contract, but rigorous and knowledgeable accountants and *insiders* within the firm are well-placed to monitor, spot and report above-market prices being

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paid – a classic principal-agent problem (Fama and Jensen, 1983; Jensen and Meckling, 1976). Reputations and future renewal of the loan on favourable terms would provide other longer-term incentives to keep value-added, thus "interest" payments up. Finally, free-riding: the worker-entrepreneurs might conceivably reduce their efforts or hours if they are unable to increase their own pay. But that would harm their own long-term interests, as it would likely reduce the value of the firm. Entrepreneurs and other workers would anyway have strong incentives to prevent one another free-riding.

So, a simple value-added sharing loan could work as follows: calculate NVA, plug all the back-door methods for artificially reducing it, then set the "interest" on the loan to an agreed fraction of NVA. So, if, for example, the NVA in a given financial year was £1m and the "Value-Added Fraction" was 1%, then the "interest" that year would be £10k (= $1\% \times £1$ m).

"Value-added surplus"- or "protected profit"-sharing loans

There is still a risk, however, that value-added sharing could inadvertently "bleed a firm out", in situations where it was consistently making a loss (i.e. where the actual pay costs *exceeded* the NVA). To prevent this, we can also make *pay* itself dependent on NVA (calculated in terms of inputs), which further aligns interests between worker-entrepreneurs and lenders/investors. In practice, most people require a certain minimum pay to survive and pay their bills, below which they will be forced to look for another job (which could harm the firm and reduce its earning power). Capital is generally more flexible than workers and better placed to absorb financial shocks, with more patient time horizons (Buffini *et al.*, 2017). To meet these constraints and to be realistic about the different flexibilities of labour and capital, we propose a further step: split each worker's pay into two components, (1) *guaranteed* "base" pay, capped below a pre-agreed average level (averaged across the workforce, both weighted by hours and unweighted), for example, a multiple (say 2-fold) of the legal minimum wage and (2) *variable* profit-sharing pay, a share of the profit remaining.

More exactly, we subtract from Net Value-Added the total guaranteed pay costs (including National Insurance/Social Security, pension and any health insurance — both employees' and employer's contributions), to obtain the "Value-Added Surplus" (or "surplus", for short), which we also more intuitively call "protected profit": equivalent to pre-profit-sharing profit (these terms are all interchangeable). We then give each worker an agreed fraction of the surplus as their profit-sharing pay (= surplus \times their personal "Pay Surplus Fraction"). Optionally, this could be smoothed over two years to make it more predictable (e.g. they get half their profit-sharing pay based on last year's surplus and half based on this year's). Because the surplus is only known after the end of the financial year, the monthly payment should be a conservative estimate, with the balance paid (preferably spread out over ensuing months) once the exact figure is known.

As for the value-added sharing loan: we now make the (variable) interest equal to an agreed "Surplus Fraction" of the *surplus* (*i.e. protected profit*), instead of Net Value-Added. In other words, workers get paid their guaranteed ("survival") pay *before* the lender gets paid any interest. The lender gets nothing in bad years, but a decent return in good years, if the scheme parameters are tuned sensibly. Crucially, the firm is better protected from being inadvertently "bled dry" by interest payments, and going bust.

These value added or "protected profit"-sharing loans may at first sight seem more complicated than standard fixed-interest loans, but they are not without precedent (other types of "participating", profit-sharing or performance-related loans). This scheme offers numerous advantages to both parties, including potentially higher returns to the lender when times are good (and hopefully, overall), but cushioning the firm from payments when times are bad (it does not help the *lender* if the firm goes bust, as its scrap value is likely to be well below its "living value" as a well-functioning, intact, internally synergistic entity). Everyone is positively incentivised, and interests are well aligned.

The principles underlying this basic model elegantly and intuitively address some of the key issues left largely unsolved by current financial instruments. However, firms face a very

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extensive range of particular circumstances. In the following section, we offer details of variations that can easily be applied without deviating from these core principles – chiefly, a move towards making "protected profit"-sharing a <u>perpetual</u> equity (as opposed to a <u>repayable</u> debt) instrument [7].

Repayment

When repayment time comes, if the company wants to extend the loan, terms can be renegotiated, based on recent and predicted performance, or it can shop around.

Alternatively, a natural step might be to convert the loan into something more permanent, or owned by more lenders, or more equity-like (with a claim on residual assets). This takes us onto the next logical, "evolutionary" stages of "protected profit" sharing.

Securitisation: "protected profit"-sharing bonds

To reduce their exposure to a single company, the lender could "securitise" the loan, splitting it into redeemable bonds with more or less the same terms and conditions, and sell them to other investors. Or the company itself could issue such bonds directly (or via an intermediary). The basic idea is the same as for the "protected profit"-sharing loan. But now the lender is diversified, and the loan becomes *tradable* securities. Their "interest" is still a pre-agreed fraction of Value-Added Surplus (protected profit after deducted guaranteed base pay costs). The bonds would still have to be bought back by the company on their expiration date, at face value. Or they could be extended, with a renegotiated Surplus Fraction. In the event of the company being sold or wound up, the bonds, redeemable at face value, would take priority over preference or ordinary equity shares.

Perpetual "protected profit"-sharing bonds

Another obvious natural step towards equity is to make the bonds *perpetual*, so they do not need to be redeemed or renegotiated at specified times. Perpetual bonds would perhaps be more of a risk for bondholders, but this could be reflected in their Surplus Fractions. If the company did better than expected, the holders of perpetual bonds would be protected from their Surplus Fractions being lowered at some future point – as could happen at renegotiation time with *fixed-term* bonds. Perpetual bonds thus allow their holders to better share in any upsides of their investment. The bonds would be tradable; workers or other investors could be potential buyers, as could a trust implementing EO.

In the event of liquidation, perpetual bonds would still need to be paid off as close to face value as possible. In the UK, for the purposes of EOT tax breaks, they would be classed as ordinary share capital (Corporation Tax Act 2010, ss.158-161, s. 1119) due to their variable return set by *internal* company performance.

(Normally) non-voting "Protected Profit"-Sharing Preference Shares (PPSPSs)

The final natural, logical step towards an equity-like security that does not compromise worker-entrepreneur or employee benefit trust control, is to convert "protected profit"-sharing perpetual *bonds* into (normally) non-voting, "protected profit"-sharing preference *shares*. Only one significant change is involved, namely the securities now get a share of any *residual assets* in the event of winding up the firm, after all loans and bonds are repaid.

Furthermore, the "interest" is now called a "dividend", albeit still non-discretionary (compulsory) and still calculated by the same formula, Surplus Fraction \times surplus and must (in the UK) be paid *after* corporation tax (unless paid to another *company* – to avoid double-taxation).

But unlike ordinary shares, the shares have no normal voting rights. Instead, they are protected (better, we would argue) by the protected profit (surplus)-sharing mechanism closely aligning interests (and preventing unilateral pay rises). To further protect investors,

"extraordinary" voting rights could be triggered whenever scheme parameters are to be changed, or a new share or bond issue would dilute existing shares by more than an agreed fraction.

Another optional scheme parameter could be to have *temporary* "emergency" voting rights, triggered, for example, by loss-making over more than an agreed number of years (until the firm was consistently profitable again). As well as reassuring investors, this might benefit workers too, by allowing investors to help reset the direction of the firm, if it was struggling, and inject further business wisdom or expertise.

There are several further optional features we would like to discuss, all of them sensible modifications to help in specific situations.

Depreciation schedules

It is worth pointing out that with "protected profit"-sharing preference shares, reducing Net Value-Added (thus surplus) by increasing depreciation charges is not "ripping off" investors: it would be equivalent to *reinvesting* more in the firm, which should benefit both worker-entrepreneurs *and* investors over the longer term. Furthermore, although reducing NVA by raised depreciation charges would reduce short-term returns to investors, it would also involve *cutting* the profit-sharing *pay* of entrepreneurs and workers. The scheme still aligns interests on this front. Depreciation schedules could also be consensual, protected as discussed above.

Ordinary shares as a further cash-flow buffer

Having spare Value-Added Surplus (protected profit) "headroom" allocated to ordinary (or even "deferred") shares with *discretionary* dividends may be wise, in case cash flow is tight. The shares could be held individually or in a trust.

Part-paying dividends and profit-sharing pay with more "protected profit"-sharing shares If cash flow or reserves are inadequate, or more reinvestment is needed (or the original owners of the company still need to be paid off), part of both dividends and profit-sharing pay can be paid via newly-issued "protected profit"-sharing shares (or bonds), *in lieu* of money, at a price set by a pre-agreed pricing multiple \times dividend (for example, price $= 10 \times$ dividend). This is based on the formula for the present discounted value (PDV) of the future dividend stream of each share [8], which simplifies to the dividend D divided by T, an inflation-, risk- and projected-growth-adjusted target rate of return. If, for example, T is 10%, then PDV $= D/T = D/0.1 = 10 \times D$. So the pricing multiple is $10 \times D$. This can also be thought of, loosely, as a payback time, in years. Alternatively, independent "market price" valuation could be used, as is required, at least annually, with US ESOPs (Rosen, 2023).

To keep worker and investor interests tightly aligned, the fraction of dividends and the average fraction of profit (surplus)-sharing pay paid with new shares should be comparable (or "geared" together at an agreed ratio). Top-end pay could be recompensed with shares ahead of lower pay.

Because new shares are likely to incur income tax, it will be advantageous (where possible) to combine the new shares into existing shares of the same class, by multiplying their Surplus Fractions by (new total no. of shares)/(previous total no. of shares). This should be straightforward for reinvesting *dividends*, and resembles normal reinvestment of profits for ordinary shares (but also protecting the investors' future earnings on the *extra* money invested). However, this is not really feasible for new shares in lieu of *pay*, although, depending on local tax rules and individual circumstances, much of the income tax may still be avoidable by using tax-advantaged schemes. In the UK, Enterprise Management Incentives (EMIs) are suitably flexible and generous.

Minimum capital stakes

To further align interests between workers and investors, each worker should (eventually) own a significant capital stake in the firm: a pre-agreed *minimum* number of "protected profit"-

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sharing securities, within a specified number of years of joining (perhaps worth an agreed fraction of pay). For the workers, this could recognise some of their "sweat equity" – the "above and beyond" efforts they have made as employees – while also serving as an incentive to develop the firm and contribute funds to do this. Also needed are protections/barriers/vetting/minimum hold times so that poor, cash-strapped or spendthrift workers don't offload individually-owned shares to oligarchs (say) at a huge discount (as has happened in the past). This can be accomplished by a trust holding shares on behalf of workers, and by the trust (or company) running an internal market to help put a floor under the share price.

"Normalising" Surplus Fractions

To avoid too much Value-Added Surplus "headroom" being used up by profit-sharing pay and dividends (or allocations to securities), above an agreed threshold total fraction (e.g. 75%), the firm can automatically allocate the rest of surplus to ordinary shares, giving them each the appropriate Surplus Fraction (= total fraction of surplus remaining/total no. of ordinary shares). Then, when the total of all the Surplus Fractions (for both profit-sharing pay and all securities) exceeds 1, all of them should be divided ("normalised") by this total, when doing calculations for pay and dividends or "interest". The average Pay Surplus Fraction (both weighted by hours and also unweighted) must also now be capped close to its current value, to prevent overall pay being increased unilaterally, at the expense of investors. This modified mechanism is equivalent to "slices-based" sharing, where the dividend per bond or share is set equal to a pre-agreed fraction of average profit-sharing pay (Major and Preminger, 2019). This is a more flexible mechanism to keep interests aligned, with actual pay + dividends rarely in danger of exceeding Net Value-Added. The simplest method, originally suggested by Roger McCain (McCain, 1977, 1999), is to make the dividend per share equal to a pre-agreed fraction of average total pay, which we modify to make the (pre-tax) dividend (or profit allocation) per share equal to an agreed fraction of the average (protected) profit-sharing pay costs per FTE worker (to allow for reasonable guaranteed "base" pay to be paid out first). Equivalently, we divide the surplus into equal "slices", allocating one to each share, and up to p slices on average per FTE worker, for profit-sharing pay costs, where p is a pre-agreed limit. Some workers may get more slices than others, so long as the *average* across the firm stays below *p*.

This scheme automatically adjusts the proportions of Value-Added Surplus going to capital and labour, as both change during the course of new investments or ploughing back earnings, and growing or shrinking the workforce (Major and Preminger, 2019).

Over the longer term, the company and investors can re-negotiate p (or the cap on the average Pay Surplus Fraction), if it is either too high to secure more investment, or too low for the purposes of recruitment and retention of workers with the skills and knowledge required. (Renegotiation should still leave everyone better off, if the total "cake" of value-added is grown sufficiently in the process, so that *actual* surplus per share and per worker both increase, even if their *fractions* of surplus do not; this is discussed further in Major and Preminger (2019).

"Added-value" sharing, to incentivise workers to participate in growth in value of the firm To further align long-term interests, particularly in "growth" firms, rises in value can be shared with workers achieving this (Flammer and Bansal, 2017), by giving them *free* "protected profit"-sharing securities representing a pre-agreed fraction of any *sustained* rise in the share price beyond that caused by reinvestment, or increases in surplus fractions (Major and Preminger, 2019), i.e. a rise in (share price/surplus fraction) that persists over three valuations (each at least two years after the previous, say). Added-value sharing is also a simple, cheap alternative both to "growth shares", typically complex and costly to implement (HM Revenue and Customs, 2015) and share options, which require employees to find the money to buy the shares at the option price. Income tax may be payable on free shares, unless issued via a tax-advantaged scheme such as a UK SIP (all-employees, same-terms) or EMI (more flexible).

Perhaps governments could even be persuaded to accept tax "in kind", in the form of profitsharing securities? Otherwise, when workers cannot afford tax, the company should pay it, or it could be funded by buying back or selling some of the new shares.

Recompensing employees who pay for an EOT to buy a company

EOTs are popular because of their relative simplicity, and because they allow vendors to create a "friendly buyer" for their firm, at a reasonable price, initially more or less still under their control (although continued control is now being curtailed), maintaining their legacy and local jobs of their wider employee "family". We have already outlined potential theoretical common ownership-related issues with "pure" EOTs. One of the great, under-utilised strengths of UKstyle EOTs (Pendleton et al., 2023), is that a hybrid individual-and-collective version can also be set up, at the cost of a little more complexity. That is, some of the shares can also be held indirectly for particular workers (as individuals), via another trust (including as part of various tax-advantaged schemes), such as a different EBT (Employee Benefit Trust). Shares can also be held *directly* by individual workers. More than 50% of the "ordinary" (variable-yield or voting) share capital still has to be held by the EOT for it to qualify for all the generous tax breaks, but it is always an option to forgo these to allow greater incentivisation or recognition of past efforts. With a hybrid EOT, workers do not have to "leave with nothing" (not so "naked out"). When they exit the firm, workers can take their individual shares with them or sell them back to the firm (or to someone else). Indeed, they could transfer or sell their shares while still working in the firm, if the scheme rules allowed. As long as the EOT continues to hold over 50% of the "ordinary" (variable-yield) share capital (including profit-sharing securities), the tax breaks continue.

This offers another (partial) way to recompense workers employed during the "pay-back" period, who helped "pay for" the firm (via lower *de facto* bonuses and, potentially, even salary sacrifices). Ordinary shares might work, but their dividends are discretionary, set by the directors (i.e. ultimately determined by the trustees of the EOT), with the drawbacks discussed above—including reduced liquidity. "Protected profit"-sharing bonds or shares would be fairer (and "cleaner"), because of the formulae and rules protecting their dividends (including explicit recognition for any being reinvested), making them more attractive and consequently easier to trade. So workers could be recompensed via new "protected profit"-sharing securities (*pro rata*) for "their" share of the profits used (thus bonuses forgone) to pay off the vendor's deferred consideration (or any loan that allowed the EOT to purchase the company).

If the company was sold to the EOT at a discount compared to its "realistic" market price (best other offer), it is probably fairest if the EOT ends up owning (as common ownership) at least that fraction of the company's equity that was (arguably) "given to the workers for free". And to retain all the tax benefits of EOTs, the individual holdings would need to be kept below 50%, if this was deemed to be in the workers' interests. Holding normal, ordinary shares would allow the EOT more flexibility and resilience (value-added "headroom"). However, the use of "protected profit"-sharing shares in the trust might reassure the vendor that profits are better incentivised, hence their deferred consideration is more likely to be paid. This might allow them to step back sooner from being a trustee or director (HM Revenue and Customs, 2023) and, crucially, might increase their chances of launching the EOT to start with.

Paying "impatient" vendors more quickly

In theory, an "exiting" entrepreneur could simply convert their ordinary shares to "protected profit"-sharing preference shares, then retire and "relax" and live off the dividends. While this would mean a loss of tax breaks, it might avoid potential disincentives stemming from theoretical common ownership weakness in EOTs, as well as costs and time associated with their set-up. If he/she needed the money, the retiree would have to find a way to sell some shares, which should become easier as patient institutional investors start to invest in SMEs more generally, including via "protected profit"-sharing securities.

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If there were several vendors, but one of them needed their money quickly, he/she could convert their shares to "protected profit"-sharing preference shares (PPSPSs), sell them (e.g. to an EO promotion fund or other institutional investor), and the rest of the firm could be converted to an EOT the "usual" way, paid for using deferred consideration for the rest of its value, coming out of future profits remaining after the dividends to those PPSPSs. Alternatively, the company could issue PPSPSs to institutional investors, or via a crowdfunding platform, and use the proceeds to pay the impatient vendor. If the new investors ended up owning less than 50% of the company, EOT tax breaks would apply.

Conclusion: ownership and investment

By closely aligning the interests of investors and workers, our model of "protected profit"-sharing constitutes a robust *collective* solution to the principal-agent problem (Fama and Jensen, 1983; Jensen and Meckling, 1976) and thus solves the risk-control dilemma (Major and Preminger, 2019). It therefore has far wider applications, beyond the EO sector, and should appeal both to entrepreneurs (who can retain control/avoid outside interference) and investors (whose interests are protected even without "normal" control or voting [9], and their associated time costs).

Protected profit sharing, with a cap on average guaranteed pay, will thus help bridge the equity (and debt) investment gaps that hold back the wider economy, including EOBs. In the process of boosting *investment*, protected profit sharing should also catalyse more firms to *convert* to EO, increasing the number, size range and type of organisations that transition, thus helping to spread the benefits of ownership and economic and workplace democratisation.

We progressed from first principles, in a logical sequence from fixed interest loans to reward/risk-sharing value-added sharing loans, then to "protected profit"-sharing loans with a cap on average guaranteed pay, and thence to bonds, perpetual bonds, and finally to (normally) non-voting "protected profit"-sharing preference shares. Two big constraints have been satisfied: the practical need for a sufficient *guaranteed* "safety net" component of pay to feed, clothe and house workers and their families, and the need for variable profit-sharing pay to be somewhat *predictable*, vs. the need not to make the firm a hostage to "bleeding out" from excessive dividends or pay. Our practical solution is:

- (1) To share the "value-added surplus" (or "protected profit", i.e. profit after subtracting agreed guaranteed base pay costs) between labour and capital (as protected profit-sharing pay and protected profit-sharing dividends, respectively) and
- (2) Depending on reserves, cash flow and re-investment needs, to also allow part-payment of coupled fractions of both dividends and (top-end) pay via new protected profit-sharing shares (or to avoid income tax liability, equivalent increases in Surplus Fractions of existing shares).

"Protected profit" sharing, together with the other incentives and safeguards discussed above (such as minimum capital stakes, added-value sharing and restricted/"emergency" voting rights), achieves a *collective* solution (distributed across the *entire* workforce) to the principal-agent and risk-control problems. Pay differentials can thus be far lower than currently often prevail between top executives and other workers, with much stronger, more cost-effective and fairer incentives (and less diminishing returns "requiring" bloated executive remuneration). Our model is thus a *general* mechanism for bridging multiple investment gaps (Adeyoola *et al.*, 2023), whether they be for SMEs, start-ups, scale-ups, tech companies, high growth companies — or employee-owned companies (our original purpose). Indeed, because the mechanism is general, it should help attract investment into *any* viable company.

Summary of the benefits of "protected profit" and value sharing

(1) Dividends (or variable "interest") are obligatory, in some form, if there is a profit: either as cash or as new shares or an equivalent increase in the "Surplus Fraction"

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allocating pre-tax profit per security. The scheme rules protect investors from unilateral pay rises reducing profits: e.g. the cap on the average guaranteed part of pay, and the simple, robust formula sharing the remaining profit ("surplus" or "protected profit").

- (2) The profit-sharing pay component incentivises workers, further aligns interests and reduces "bleed-out" risks.
- (3) Coupled (geared) fractions of top-end pay and dividends can be part-paid with new shares at an agreed pricing multiple or a fair price (or an equivalent increase in Surplus Fraction, in the case of dividends). This allows reinvestment, further reduces "bleed-out" risks, keeps interests aligned and avoids "rip-off" of investors (including worker or entrepreneur shareholders), while low-end pay is protected (to feed and house families). Capital is in some senses "spare", reflecting "stored" past efforts, and so naturally tends to have a later claim on a company's income, as can top-end pay.
- (4) If the total of the Surplus Fractions of securities and profit-sharing pay exceeds 1, all Surplus Fractions are normalised (divided) by that total. The sharing mechanism now automatically self-adjusts to changes in the workforce and investment. The average pay Surplus Fraction is then capped at or near its current level to protect investors from pay being pushed up at their expense, without their agreement.
- (5) The scheme's simplicity and protections improve attractiveness, tradability and liquidity (while reducing the pressure to sell to realise a return). A secondary market could develop with internal trading days and opportunities for external investors including employee trusts, impact investors [10] (Armeni *et al.*, 2023; Kelly and Kahn, 2022; Lyon and Menter, 2024), development banks, pension funds (PLSA, 2023), patient capital funds (Buffini *et al.*, 2017), sovereign wealth funds, private equity (Rosen, 2024), venture capital, business angels, crowdsourcing, the new Private Intermittent Securities and Capital Exchange System (HM Treasury, 2024), even governments themselves reducing the temptation to sell the *entire* firm. Organisations that currently *temporarily* fund EO *transitions* may well be tempted into becoming more patient, longer-term investors, holding protected profit-sharing securities well beyond the transition period, while earning dividends from them, making their money back that way rather than by selling their stake, or the firm and with *less overall effort and cost* (marketing, due diligence, negotiation, transaction costs, etc.).
- (6) The proposal creates excellent incentives to boost productivity, reinvest surpluses and raise new capital to grow firms, as workers and investors (including workers themselves) can fully recoup their efforts, innovations, risk-taking and forgone money, with minimal free-riding or "horizon" problems.
- (7) Debt-to-equity conversions are straightforward, facilitating "de-leveraging" and improving balance sheets.
- (8) The improved tradability of "protected profit"-sharing securities reduces any repurchase liabilities and resulting compromised cash-flow and unnecessarily lost value, enhancing incentives to reinvest.
- (9) Islamic finance forbids usury or fixed-interest debt, and encourages partnership, including sharing profit and risks where possible (Ul-Haq *et al.*, 2022), creating further opportunities to apply "protected profit"-sharing.

Our model should enable fairer, simpler transitions to EO (or control for/by employees) than current mechanisms, many of which are rarely easily applied, despite (in some cases) their simplicity (on paper). Moreover, many transitions may currently rely too much on external

incentives (tax breaks), which cannot be counted on in the long term, whereas our proposal internalises and strengthens incentives within the ownership structure itself. The ability to attract risk-sharing capital without losing (or diluting) control will enable EO or workercontrolled firms (as well as entrepreneurs, family-owned firms and other SMEs and privatelyheld companies) to grow optimally, which will be especially significant for capital-intensive or rapidly-expanding companies. Our "protected profit" and value-sharing model does this by providing a robust, long-term, collective solution to the principal-agent and risk-control problems, through closely aligning interests, and structuring in mutual self-policing (and backstops against incompetence). By enabling workers to be offered "protected profit"sharing pay or securities in exchange for salary or bonus sacrifices, depending on their individual levels of risk tolerance (Kimball et al., 2009), it also increases the options for EOBs that are struggling, or struggling firms that would like to transition to EO, perhaps as part of turning themselves around – again widening the pool of firms that could potentially become employee-owned. By enabling worker-owners to diversify *outside* their own EOB, "protectedprofit" and value sharing enables them to spread risk, via other investors buying into and benefitting from EO (Armeni et al., 2023; Lyon and Menter, 2024).

Protected profit sharing can also be applied to the risk-sharing funding of new start-ups, as well as scale-ups, and equity investment in SMEs (Bora *et al.*, 2024; Haldane *et al.*, 2024) and private (unlisted) companies in general. Over-leveraging (excessive debt) can also be tackled using this form of profit-sharing, by converting debt into "protected profit"-sharing loans or securities. Finally, protected profit sharing can facilitate a massive injection of much-needed capital from pension and mutual funds, etc. into *private* companies (Brandily *et al.*, 2023; PLSA, 2023), including in the EO sector. UK pension funds control multiple trillions of pounds (Adeyoola *et al.*, 2023; Kakkad *et al.*, 2023), yet rarely invest in small or EO companies; furthermore, in the UK only a small fraction of these trillions are invested in "home" (UK) companies, unlike in many other countries (Brandily *et al.*, 2023; Hwang *et al.*, 2019; PLSA, 2023). Protected profit sharing is also potentially a useful mechanism to help implement redistribution via wealth taxes [11], to help reverse growing inequality and the threat this presents to civic democracy.

Ultimately, "protected profit" and value sharing will reduce the allure of buyouts of employee-owned businesses (e.g. as an "exit" strategy to extract or recoup equity) and will increase the range of organisations that transition to EO, enabling the sector to grow faster and maybe even out-compete mainstream capitalism. Thus, our model should help spread the benefits of shared ownership more widely, and "pre-distribute" wealth more equally, helping to reduce inequalities at source, by removing the purported need for excessive executive pay. Finally, while EO does not require democratic structures, it is a very suitable ownership form for such structures and benefits from them. Thus, our proposal can help in efforts to democratise the economy, which also strengthens civic engagement and reinforces political democracy (Timming and Summers, 2020).

Acknowledgments

The authors are very grateful for critical suggestions, encouragement and other contributions from numerous colleagues in the field over many years, in particular Graeme Nuttall OBE (who has patiently made a great many key contributions, without necessarily agreeing to all the content), James de le Vingne and colleagues at the Employee Ownership Association. Also Andrew Harrison at Co-ownership Solutions, Paul Cantrill and colleagues at Cwmpas, Anna Morgans, Bethan Cousins, Mike Owen and colleagues at Banc, Richard O'Brien at Triodos Bank, and two anonymous referees.

Notes

- 1. Some 30% or more of UK EOTs are hybrid (Guy Major, unpublished; dataset of over 2,000 EOTs, out of over 2,200 non-worker co-op EOBs; evidenced by Companies House and internet searches).
- 2. Somewhat mitigable by tying bonuses to length of employment, salary level and hours worked.

4. A survey of Wales-based EOBs (Guy Major, unpublished) suggests ca. 20–30% could potentially be interested in "profit- and risk-sharing, but non-interfering" investment (85 EOBs, >85% response rate).

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5. The equivalence of these two formulae for NVA can be seen easily, since: $Profit = total\ company\ income - total\ non-pay\ costs - total\ pay\ costs$, thus: Profit + total pay costs = total company income - total non-pay costs.

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- 6. GVA is *not* an appropriate metric as the workers could end up "eating the firm".
- 7. It must be noted that tax rules and debt v. equity biases vary between countries. In the UK, "participating loans" with variable, results-dependent interest, where the lender itself is a company, are still treated for tax purposes as loans, so "interest" is deducted from profits. Provided the "interest" is paid to another *company* and doesn't increase "punitively" when the borrowing firm does badly ("ratchet" loans), i.e. if interest goes down in bad years, they are treated for tax purposes as loans, i.e. receiving "interest" not dividends or distributions. So, the "interest", although variable, is still deducted from the borrower company's profits before calculating its corporation tax: Corporation Tax Act (CTA) 2010 s 1000(1)F, s.1015(4) Condition C, and s.1032, "Special Securities": variable, results-dependent interest is *not* a *distribution* (i.e. subject to corporation tax) provided the lender is another company. However, if the lender is an individual human, the variable loan "interest" paid to them is treated as a dividend distribution, and corporation tax needs to be deducted first.
- 8. The PDV of a *perpetual* income stream from an annual dividend D is an infinite series, with each year's dividend discounted by $(1+r)^n$; r is the target rate of return, n is the no. of years till that dividend is received: like "compound interest in reverse". As *n* tends to infinity, terms tend to zero. "Telescoping": multiply by (1+r), subtract the two series, cancel out all terms apart from the first (biggest) term, *D*, in the second series:

PDV =
$$D/(1+r) + D/(1+r)^2 + D/(1+r)^3 + \dots + D/(1+r)^{n-1} + D/(1+r)^n + \dots$$
 (1)

$$(1+r)PDV = D + D/(1+r) + D/(1+r)^{2} + D/(1+r)^{3} + \dots + D/(1+r)^{n-1} + D/(1+r)^{n} + \dots (2)$$

Subtract (1) from (2) to get the far simpler

$$((1+r)-1)PDV = D$$
, so

$$r PDV = D$$
, thus $PDV = D/r$.

- 9. To solve the "in/competence" part of the principal agent-problem, protected profit-sharing shares could have "emergency" voting rights, triggered by consistent loss-making.
- 10. Databases of over 50 potential institutional buyers of EO and "alternative enterprise" securities have already been compiled, e.g. by Transform Finance (North America) and Better Society Capital (UK), and these are far from exhaustive.
- 11. Governments could side-step the contentious need to value private (unlisted or "close(d)") companies by instead taking a percentage equity stake every few years, using protected profit sharing both to defend their earnings and improve liquidity and their ability to sell these stakes on.

References

- Adam, S. and Miller, H. (2023), Full Expensing and the Corporation Tax Base, IFS Green Budget -Chapter 10, Institute for Fiscal Studies, London, available at: https://ifs.org.uk/sites/default/files/ 2023-10/Full-expensing-and-the-corporation-tax-base.pdf
- Adeyoola, T., Depledge, A., Devonshire, J. and O'Neill, J. (2023), "Start-up, scale-up", in Making Britain the Best Place to Start and Grow a Business, Labour Party, London, available at: https:// labour.org.uk/updates/stories/start-up-scale-up-making-britain-the-best-place-to-start-and-growa-business/

- Armeni, A., Lyon, C. and Menter, J. (2023), *Alternative Ownership Enterprises: An Introduction for Mission-Oriented Investors*, Transform Finance, New York, available at: https://www.transformfinance.org/alternative-ownership-enterprises-report
- Baker, D., Dietrich, B., Kornfeld, J.L., Lifson, S. and Rosen, C. (2015), "Repurchase obligations and distribution policy issues", in Rosen, C. (Ed.), *Don't Do that. Common Mistakes in Operating an ESOP and What to Do about Them*, National Center for Employee Ownership, Oakland, CA, pp. 43-66.
- Baker, D., Bivens, J. and Schieder, J. (2019), Reining in CEO Compensation and Curbing the Rise of Inequality, Economic Policy Institute, Washington, DC, available at: https://www.epi.org/ publication/reining-in-ceo-compensation-and-curbing-the-rise-of-inequality/
- Barandiaran, X. and Lezaun, J. (2017), "The Mondragón experience", in Michie, J., Blasi, J.R. and Borzaga, C. (Eds), *The Oxford Handbook of Mutual, Co-operative, and Co-owned Business*, Oxford University Press, Oxford, pp. 279-294.
- Birchall, J. (2017), "The performance of member-owned businesses since the financial crisis of 2008", in Michie, J., Blasi, J.R. and Borzaga, C. (Eds), *The Oxford Handbook of Mutual, Co-operative, and Co-owned Business*, Oxford University Press, Oxford, pp. 570-584.
- Blasi, J.R., Freeman, R.B. and Kruse, D.L. (2017), "Evidence: what the US research shows about worker ownership", in Michie, J., Blasi, J.R. and Borzaga, C. (Eds), *The Oxford Handbook of Mutual, Co-operative, and Co-owned Business*, Oxford University Press, Oxford, pp. 211-226.
- Blasi, J., Scharf, A. and Kruse, D. (2024), "Employee ownership in the US: some issues on ESOPs overcoming the barriers to further development", *Journal of Participation and Employee Ownership*, Vol. 7 No. 1, pp. 26-45, doi: 10.1108/jpeo-11-2022-0028.
- Bora, N., Cottell, M., Karmakar, S., King, B., Nyamushonongora, K. and Sengul, S. (2024), *Identifying Barriers to Productive Investment and External Finance: A Survey of UK SMEs. An Analysis of the 2023 Finance and Investment Decisions Survey*, Bank of England, London, available at: https://www.bankofengland.co.uk/quarterly-bulletin/2024/2024/identifying-barriers-to-productive-investment-and-external-finance-a-survey-of-uk-smes
- Brandily, P., Distefano, M., Shah, K., Thwaites, G. and Valero, A. (2023), *Beyond Boosterism:**Realigning the Policy Ecosystem to Unleash Private Investment for Sustainable Growth,

 Resolution Foundation, London, available at: https://economy2030.resolutionfoundation.org/

 reports/beyond-boosterism/
- Buffini, D., Armstrong, L., Davenport, J., Denny, K.L., Hodgson, T., Hok, T.L., Lynch, M., Marshall, F., Mitra, A., Murray, F., Murray, S., Norwood, D., Paterson, S., Rathi, N., Score, T., Welton, S., Williams, G., Wilson, N. and Woodford, N. (2017), *Patient Capital Review. Industry Panel Response*, HM Government, London, available at: https://assets.publishing.service.gov.uk/media/5a82f16b40f0b62305b95264/PCR Industry panel response.pdf
- Clough, B., Fischer, M., Langlois, T., Rosen, C. and Rusch, K. (2025), Creating a Sustainable ESOP Distribution Policy, National Center for Employee Ownership, Oakland, CA.
- Ellerman, D.P. (1982), Economics, Accounting and Property Theory, Lexington Books, Lexington, MA.
- Ellerman, D.P. (1989), "The democratic worker-owned firm: a new model for the East and west (revised book)", available at: https://www.ellerman.org/wp-content/uploads/2016/06/ DEMOFIRM.pdf
- Ellerman, D.P. (2001), "Lessons from Eastern Europe's voucher privatization", *Challenge*, Vol. 44 No. 4, pp. 13-37.
- Ellerman, D.P. (2020a), "Fallacies of corporate analysis", *Challenge*, Vol. 63 No. 3, pp. 133-155, doi: 10.1080/05775132.2020.1723289.
- Ellerman, D.P. (2020b), "On some alleged 'problems' and alleged 'solutions' in democratic firms", *Journal of Participation and Employee Ownership*, Vol. 3 Nos 2/3, pp. 135-147, doi: 10.1108/jpeo-04-2020-0012.
- Ellerman, D.P. (2021), "The property fallacy in capital theory and corporate finance theory", *Putting Jurisprudence Back into Economics*, Springer, Cham, pp. 63-76.

- Ellerman, D.P. and Gonza, T. (2024), "A critical analysis of different forms of employee ownership", *International Review of Applied Economics*, Vol. 39 No. 1, pp. 261-276, doi: 10.1080/02692171.2024.2435408.
- Ellerman, D.P., Gonza, T. and Berkopec, G. (2022), "European Employee Stock Ownership Plan (ESOP): the main structural features and pilot implementation in Slovenia", *SN Business and Economics*, Vol. 2 No. 12, p. 186, doi: 10.1007/s43546-022-00363-7.
- Fakhfakh, F., Pérotin, V. and Gago, M. (2012), "Productivity, capital, and labor in labor-managed and conventional firms: an investigation on French data", *ILR Review*, Vol. 65 No. 4, pp. 847-879, doi: 10.1177/001979391206500404.
- Fama, E.F. and Jensen, M.C. (1983), "Separation of ownership and control", *The Journal of Law and Economics*, Vol. 26 No. 2, pp. 301-325, doi: 10.1086/467037.
- Fi-Compass, European Regional Development Fund (2019), *Gap Analysis for Small and Medium-Sized Enterprises Financing in the European Union*, European Investment Bank, available at: https://www.fi-compass.eu/library/market-analysis/gap-analysis-small-and-medium-sized-enterprises-financing-european-union
- Flammer, C. and Bansal, P. (2017), "Does a long-term orientation create value? Evidence from a regression discontinuity", *Strategic Management Journal*, Vol. 38 No. 9, pp. 1827-1847, doi: 10.1002/smj.2629.
- Fry, E., Pittaway, S. and Thwaites, G. (2024), *Life in the Slow Lane: Assessing the UK's Economic and Trade Performance since 2010*, Resolution Foundation, London, available at: https://www.resolutionfoundation.org/publications/life-in-the-slow-lane/
- Haldane, A., Besley, T., Charrie, A., Evans, V., Soddu, R., Pagden, E., Nicolaou, J. and Charnley, B. (2024), "Accelerating regional growth: a study on spatial disparities in business finance", Levelling-Up Advisory Council, available at: https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2024/mar/Accelerating-Regional-Growth-march-2024.pdf
- Hall, E. and Gorman, D. (2019), "Capital partners why it's time for finance and employee ownership to talk, ownership at work", available at: https://ownershipatwork.org/wp-content/uploads/2021/01/Ownership-at-Work-Capital-Partners-1.pdf
- HM Revenue and Customs (2015), *Employment-Related Securities. Research Report 372*, HM Revenue and Customs, London, available at: https://assets.publishing.service.gov.uk/media/5a74b3b9ed915d502d6ca47a/HMRC_research_report_375_ERS.pdf
- HM Revenue and Customs (2023), *Closed Consultation. Taxation of Employee Ownership Trusts and Employee Benefit Trusts*, HM Government, gov.uk, available at: https://www.gov.uk/government/consultations/taxation-of-employee-ownership-trusts-and-employee-benefit-trusts/taxation-of-employee-ownership-trusts-and-employee-benefit-trusts
- HM Treasury (2024), Private Intermittent Securities and Capital Exchange System (PISCES)

 Consultation, HM Treasury, London, available at: https://assets.publishing.service.gov.uk/media/65e6f39e7bc329020bb8c279/Consultation___Private_Intermittent_Securities_and_Capital_
 Exchange_System.pdf
- Hwang, V., Desai, S. and Baird, R. (2019), *Access to Capital for Entrepreneurs: Removing Barriers*, Ewing Marion Kaufmann Foundation, Kansas City, MO, available at: https://www.kauffman.org/reports/access-to-capital-for-entrepreneurs-removing-barriers/
- ICA Group (2015), "Internal capital accounts: an illustrated guide to the internal capital account system for worker cooperatives", Democracy At Work Institute, US Federation of Worker Cooperatives, available at: https://institute.coop/sites/default/files/resources/Internal-Capital-Accounts.pdf
- Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360, doi: 10.1016/0304-405x(76)90026-x.
- Kacer, M. and Wilson, N. (2023), Supporting Innovative Start-Up and Growing Businesses: Equity Finance Provision through the Pandemic: Interim Report, Leeds University Business School, available at: https://ssrn.com/abstract=4456252

- Kakkad, J., Madsen, M. and Tory, M. (2023), Investing in the Future: Boosting Savings and Prosperity for the UK, Tony Blair Institute for Global Change, London, available at: https:// www.institute.global/insights/economic-prosperity/investing-in-the-future-boosting-savingsand-prosperity-for-the-uk
- Karch, G.R. (2016), An Introduction to Employee Ownership Trusts: How an Employee Ownership Trust (EOT) Can Benefit You, Your Company and Your Employees, RM2 Corporate Finance, London.
- Kelly, M. and Kahn, K. (2022), "The case for investing in employee ownership", *Stanford Social Innovation Review*, available at: https://ssir.org/articles/entry/the_case_for_investing_in_employee_ownership
- Kimball, M.S., Sahm, C.R. and Shapiro, M.D. (2009), "Risk preferences in the PSID: individual imputations and family covariation", *The American Economic Review*, Vol. 99 No. 2, pp. 363-368, doi: 10.1257/aer.99.2.363.
- Kruse, D.L., Freeman, R.B. and Blasi, J.R. (2010), Shared Capitalism at Work: Employee Ownership, Profit and Gain Sharing, and Broad-Based Stock Options, 1st ed., University of Chicago Press, Chicago, IL.
- Lampel, J., Banerjee, A. and Bhalla, A. (2018), *The Ownership Effect Enquiry. Final Evidence Report*, Employee Ownership Association, London, available at: https://www.assyntcf.co.uk/wp-content/uploads/2019/08/EO-Inquiry-Final-Evidence-Report.pdf
- Lyon, C. and Menter, J. (2024), *Investing in Employee Ownership: Overview for Mission-Oriented Investors*, Transform Finance, New York, available at: https://bit.ly/EOReportDownload
- Major, G. (1996), "Solving the under-investment and degeneration problems of worker co-ops", Annals of Public and Cooperative Economics, Vol. 67 No. 4, pp. 545-601, doi: 10.1111/j.1467-8292.1996.tb01409.x.
- Major, G. (1998), "The need for NOVARS (Non-voting value added sharing renewable shares)", *Journal of Co-operative Studies*, Vol. 31 No. 2, pp. 57-72.
- Major, G. and Preminger, J. (2019), "Overcoming the capital investment hurdle in worker-controlled firms", *Journal of Participation and Employee Ownership*, Vol. 2 No. 2, pp. 133-150, doi: 10.1108/jpeo-01-2019-0001.
- Malone, T.W. and Bernstein, M.S. (2022), *Handbook of Collective Intelligence*, MIT Press, Cambridge, MA.
- Mason, N. (2019), Equity for All: How a Simple Trust Can Spread Ownership and Wealth to Millions, Ownership at Work, London, available at: https://ownershipatwork.org/wp-content/uploads/2021/01/equity-for-all-16pp-online-1.pdf
- Mason, C. and Kwok, J. (2010), "Investment readiness programmes and access to finance: a critical review of design issues", *Local Economy*, Vol. 25 No. 4, pp. 269-292, doi: 10.1080/02690942.2010.504570.
- McCain, R.A. (1977), "On the optimum financial environment for worker co-operatives", *Zeitschrift für Nationalokonomie*, Vol. 37 No. 34, pp. 355-384, doi: 10.1007/bf01291379.
- McCain, R.A. (1999), "Toward sustainable external finance for democratic enterprise", in *Research Conference of International Co-operative Alliance*, Quebec.
- Michie, J., Blasi, J.R. and Borzaga, C. (2017), *The Oxford Handbook of Mutual, Co-operative, and Co-owned Business*, Oxford University Press, Oxford.
- Mygind, N. and Poulsen, T. (2021), "Employee ownership pros and cons a review", *Journal of Participation and Employee Ownership*, Vol. 4 No. 2, pp. 136-173, doi: 10.1108/jpeo-08-2021-0003.
- Nuttall, G. (2012), *Sharing Success: The Nuttall Review of Employee Ownership, Department of Business, Innovation and Skills*, HM Government, London, available at: https://www.gov.uk/government/publications/nuttall-review-of-employee-ownership
- Owen, R., Botelho, T., Hussain, J. and Anwar, O. (2023), "Solving the SME finance puzzle: an examination of demand and supply failure in the UK", *Venture Capital*, Vol. 25 No. 1, pp. 31-63, doi: 10.1080/13691066.2022.2135468.

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Participation and

- Pendleton, A., Robinson, A. and Nuttall, G. (2023), "Employee ownership in the UK", *Journal of Participation and Employee Ownership*, Vol. 6 No. 3, pp. 194-214, doi: 10.1108/jpeo-11-2022-0030.
- Pérotin, V. (2017), "Worker co-operatives: good, sustainable jobs in the community", in Michie, J., Blasi, J.R. and Borzaga, C. (Eds), *The Oxford Handbook of Mutual, Co-operative, and Co-owned Business*, Oxford University Press, Oxford, pp. 131-144.
- PLSA (2023), Pensions and Growth: A Paper by the PLSA on Supporting Pension Investment in UK Growth, Pensions and Lifetime Savings Association, London, available at: https://www.plsa.co.uk/Portals/0/Documents/Policy-Documents/2023/Pensions-and-Growth-Jun-2023.pdf
- Rosen, C. (2023), "Employee ownership in the USA: lessons to consider in creating more inclusive capitalism", *Journal of Participation and Employee Ownership*, Vol. 6 No. 3, pp. 215-229, doi: 10.1108/jpeo-11-2022-0029.
- Rosen, C. (2024), *Private Equity and Employee Ownership*, National Center for Employee Ownership, Oakland, CA, available at: https://www.nceo.org/system/files/inline-files/Private_Equity_and_Employee Ownership.pdf
- Spear, R. (1999), "The rise and fall of employee-owned UK bus companies", *Economic and Industrial Democracy*, Vol. 20 No. 2, pp. 253-268, doi: 10.1177/0143831x99202005.
- Timming, A. and Summers, J. (2020), "Is workplace democracy associated with wider pro-democracy affect? A structural equation model", *Economic and Industrial Democracy*, Vol. 41 No. 3, pp. 709-726, doi: 10.1177/0143831x17744028.
- Ul-Haq, S., Lone, R.A. and Ashraf, N. (2022), "A theory of capitalist co-optation of radical alternatives: the case of Islamic banking industry", *Organization*, Vol. 29 No. 1, pp. 129-154, doi: 10.1177/1350508420939245.
- Van Reenen, J. and Yang, X. (2024), *Cracking the Productivity Code: An International Comparison of UK Productivity, the Productivity Institute*, London School of Economics and Political Science, London, available at: https://cep.lse.ac.uk/pubs/download/special/cepsp41.pdf
- Wilson, N., Wright, M. and Kacer, M. (2018), "The equity gap and knowledge-based firms", *Journal of Corporate Finance*, Vol. 50, pp. 626-649, doi: 10.1016/j.jcorpfin.2017.12.008.
- Wilson, N., Kacer, M. and Wright, M. (2019), "Equity finance and the UK regions. Understanding regional variations in the supply and demand of equity and growth finance for business", in *Department for Business, Energy and Industrial Strategy*, HM Government, London, available at: https://assets.publishing.service.gov.uk/media/5d4023c9e5274a4016893bc7/sme-equity-finance-regions-research-2019-012.pdf
- WPI Economics (2023), Exploring the Potential of the Employee Ownership Business Model. A Deep Dive Into the Economic, People, Societal and Environmental Benefits, Employee Ownership Association, Stanmore, available at: https://employeeownership.co.uk/common/Uploaded% 20files/Employee-Ownership-Knowledge-Partnership-Final-Report-Oct-2023.pdf
- Zenghelis, D., Serin, E., Stern, N., Valero, A., Van Reenen, J. and Ward, B. (2024), Boosting Growth and Productivity in the United Kingdom through Investments in the Sustainable Economy, Grantham Research Institute on Climate Change and the Environment, School of Economics and Political Science, London, available at: https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2024/01/Boosting-growth-and-productivity-in-the-UK-through-investments-in-the-sustainable-economy.pdf

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