The Forest of Dean Biosphere

Cultural and Economic Resilience

Research and Recommendations Paper

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This document is a research and recommendation paper offering background and context for the Forest of Dean's prosperity indicators.

The prosperity indicators presented in this document are intended to operate as a place-based evidential framework for a Forest of Dean District UNESCO Biosphere. They are designed to demonstrate how the Forest of Dean District sustains cultural continuity, economic viability and environmental stewardship simultaneously, and how these dynamics contribute to long-term resilience. Furthermore, the indicators can be used to provide a solid evidence base as the biosphere proceeds. The individual prosperity indicators can be found in an additional document. (Nomination under development).

Further information and regular updates are provided through the biosphere webpages

Forest of Dean's UNESCO Biosphere Bid - Forest of Dean District Council

Prosperity Indicators as Evidence of Cultural and Economic Resilience in a Living Biosphere

Introduction

The prosperity indicators presented in this document are intended to operate as a **place-based evidential framework** for a Forest of Dean UNESCO Biosphere. They are designed to demonstrate how the Forest of Dean sustains **cultural continuity, economic viability and environmental stewardship simultaneously**, and how these dynamics contribute to long-term resilience. Furthermore, the indicators can be used to provide solid evidence base as the biosphere proceeds (Nomination under development).

In a biosphere context, indicators serve a specific evaluative purpose: they provide evidence that a place is capable of **adapting to economic, social and environmental change without loss of function, identity or viability**[1]. This requires assessment of underlying capacities and risk factors, not simply outputs or sectoral performance at a point in time.

The indicator framework therefore focuses on **conditions**, **local interdependencies** and **adaptive capacity**, rather than short-term performance measures alone.

Economic Structure and Resilience in the Forest of Dean

Economic data drawn from the **Economy section of Inform Gloucestershire**[2], with specific reference to the Forest of Dean District profile, shows an economy characterised by:

- a high proportion of **Small and Medium-sized Enterprises (SMEs) and microbusinesses**;
- comparatively high levels of **self-employment and locally rooted enterprise**;
- sectoral strengths in **manufacturing, engineering, construction, agri-food and land-based industries**; and
- a **visitor economy** closely linked to landscape, heritage and outdoor activity.

At the same time, this economic structure coexists with two persistent structural challenges: **external ownership in key sectors** and **weak workplace containment**. A significant proportion of higher-paid employment opportunities are located outside the district, resulting in net out-commuting for professional and managerial roles. This pattern reduces the proportion of earned income retained locally, reduces time spent in the district by

[1] UNESCO Man and the Biosphere Programme, *Statutory Framework of the World Network of Biosphere Reserves*; see also Holling (1973), Walker et al. (2004).
[2] gloucestershire.gov.uk/media/p13gri1w/2023-gloucestershire-full-evidence-base-final.pdf

residents and therefore weakens multiplier effects, even where headline employment levels appear stable.

Similarly, while many Forest-based enterprises are locally owned, parts of the visitor economy, utilities, retail supply chains and service provision are externally controlled. This allows economic activity to take place within the district without a commensurate level of local value capture, reinforcing leakage and limiting reinvestment in local services, workforce development and infrastructure[3].

This combination, i.e. **locally embedded production alongside externally captured value and labour flows**, is characteristic of rural and post-industrial districts and has important implications for resilience[4]. Business performance and continuity in the Forest of Dean are therefore shaped not only by productivity or market access, but by workforce stability, service accessibility, transport reliability, environmental quality and the degree to which value generated locally is retained within the district.

Economic literature on **regional resilience and endogenous development** demonstrates that SME-dominated, place-anchored economies derive resilience not from scale, but from **adaptive capacity**: the ability to reorganise activity, substitute local supply chains, collaborate across firms and retain value when external conditions change. These capabilities are shaped by social capital, institutional density, skills availability, infrastructure reliability and cultural attachment to place. All of these factors affect the Forest's ability to mitigate leakage and improve workplace containment over time.

The indicator framework is designed to make these **structural conditions explicit, measurable and governable**, rather than treating them as background characteristics beyond policy influence.

Indicators as Economic Risk and Resilience Measures

Conventional economic indicators such as Gross Value Added (GVA), employment or business counts are limited in their ability to capture **economic risk and leakage** in dispersed rural districts[5]. They tend to register impact only after capacity has been eroded (e.g. following labour shortages, service withdrawal, loss of local ownership or infrastructure failure) rather than identifying the upstream conditions that produce vulnerability or resilience.

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[3] Based on regional and rural economic development analysis of ownership and value capture (Pike; CLES), supported by local multiplier evidence (NEF) and Inform Gloucestershire district profiling

[4] *Based on regional resilience and endogenous development literature identifying characteristic patterns of local production, external value capture and labour outflows in rural and post-industrial districts (Martin; Bristow; Pike; Rodríguez-Pose).*

[5] **"A New Rural Development Paradigm for the 21st Century"**
(OECD Publishing, 2016)

In the Forest of Dean District, this limitation is particularly acute. Weak workplace containment means that increases in employment do not necessarily translate into increased local spending power or service viability. External ownership in parts of the economy allows turnover and visitor numbers to rise while profits, decision-making and reinvestment flow elsewhere. These dynamics increase exposure to external shocks and reduce the buffering effect that local economic circulation would otherwise provide.

The prosperity indicators address this gap by focusing on domains that economic evidence shows to be **material to business performance, continuity and risk**, including:

- **community strength, participation and safety**, which influence workforce retention, informal problem-solving capacity, service resilience and the overall attractiveness of the Forest as a place to live and work;
- **access to care, housing and connectivity**, which directly affect labour supply, recruitment costs, productivity and workplace containment;
- **local ownership and value retention**, which determine multiplier effects, business-to-business demand and the extent to which economic activity strengthens the local economy rather than leaking out;
- **natural capital condition and stewardship**, which underpin sustainable land-based enterprise, tourism and wellbeing-related economic activity and shape long-term sectoral viability.

These are critical considerations. In SME-dominated economies with significant out-commuting and external ownership, weaknesses in these areas translate directly into **higher operating costs, reduced resilience, lower investment confidence and increased exposure to external volatility**[6]. They also limit the effectiveness of conventional growth interventions by allowing value to dissipate rather than compound locally.

The indicators therefore function as **measures of economic infrastructure and economic effectiveness**, capturing forms of capital and circulation that determine whether activity taking place in the Forest of Dean District **strengthens local prosperity or merely passes through it**. By doing so, they support more accurate appraisal of economic resilience and provide an evidence base for interventions that improve value retention and workplace containment over time.

[6] Evidence from SME economics, rural development and regional resilience research shows that in SME-dominated, commuting-oriented economies with external ownership, weaknesses in labour stability, services and value retention translate into higher operating costs, reduced resilience, lower investment confidence and increased exposure to external volatility (OECD, 2016; Pike et al., 2017; Bristow & Healy, 2018)

Cultural Resilience as an Economic Driver

A defining feature of the Forest of Dean District economy is the persistence of **cultural continuity alongside economic adaptation**[7]. The district's history of common rights, parish governance, volunteering, cooperative practices and strong place identity has repeatedly shaped how economic activity reorganises in response to structural change.

Economic research on **social and cultural capital**[8] shows that places with strong shared norms, trust and collective capacity experience:

- lower transaction costs for firms,
- greater labour-market attachment,
- stronger informal coordination during disruption,
- reduced dependency on centralised or external provision.

In rural and post-industrial contexts, these effects are particularly pronounced, because informal networks often substitute for missing infrastructure or thin markets.

Indicators relating to participation, stewardship, community ownership and pride in place therefore serve as **economic resilience indicators**, not cultural embellishments. They capture the capacity of the Forest's economy to **retain skills, sustain enterprise and adapt without fragmentation**.

Multipliers, Value Retention and Economic Effectiveness: Supporting Residents and Business

The framework is further underpinned by empirical evidence on **local multipliers** and **value retention**. Research on local multiplier effects, including the New Economics Foundation's LM3 methodologies[9], demonstrates that expenditure circulating through locally owned enterprises, local supply chains and community infrastructure produces **higher retained value and greater economic stability** than equivalent spend captured by externally owned or extractive models.

In economies such as the Forest of Dean's (characterised by local ownership, SME density and place-specific skills) multiplier effects are amplified by[10]:

- proximity between businesses and workforce,

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[7] Forest Economic Partnership; Forest of Dean historical and cultural analyses (e.g. Standing; Gale & Rowlands); Forestry England Forest Plan

[8] See Fukuyama (1995) on trust and transaction costs; Putnam (2000) on social capital and labour-market attachment; Ostrom (1990, 1996) on collective capacity and informal coordination

[9] Local Multiplier 3 (LM3) - NEF Consulting

[10] Local multiplier research demonstrates that in SME-dominated, locally owned economies, proximity, reliance on local services and cultural attachment significantly increase retained value and economic effectiveness (NEF, 2002; Pike et al., 2017; OECD, 2016; Hudson, 2010)

- reliance on local services and infrastructure,
- cultural attachment that supports local spending and reinvestment.

Indicators that track local ownership, community capacity, service resilience and stewardship therefore provide insight into **economic effectiveness**, not simply economic volume. They help distinguish between activity that generates transient output and activity that strengthens long-term local prosperity.

Deep Dive: Why the Prosperity Indicators Support Forest-Based Business Performance

- **Improved local income retention strengthens demand for local firms**
  Index of Multiple Deprivation (IMD) income domain evidence shows that where earned income leaks out of the district through out-commuting or external ownership, local spending power is weaker. Improving workplace containment and local value retention increases effective local demand, supporting turnover and business-to-business sales for Forest-based firms[11].
- **Stronger workplace containment reduces recruitment and turnover costs**
  Inform Gloucestershire commuting data shows that reliance on out-commuting for higher-paid roles weakens labour stability. Indicators that improve access to housing, care and connectivity support workforce retention, reducing hiring costs, productivity loss and skills churn for employers[12].
- **Local ownership and supply-chain depth increase multiplier effects for SMEs**
  Evidence from local multiplier analysis shows that locally owned firms trading with other local firms experience higher retained value per pound of turnover. Indicators that support local ownership, procurement and service resilience increase the likelihood that business revenue recirculates locally rather than leaking out of the economy[13].
- **Service resilience lowers operating risk and hidden business costs**
  Where service provision (care, transport, local facilities) is fragile, costs are displaced onto employers through absenteeism, reduced working hours and operational

[11] IMD income domain evidence and commuting data show that income leakage weakens local spending power in commuting-oriented districts, while local multiplier analysis demonstrates that improving income retention increases effective local demand and SME turnover (MHCLG IMD Technical Report; ONS Journey to Work; OECD, 2016; NEF LM3)
[12] Commuting data shows that reliance on out-commuting weakens labour stability in rural districts, while SME and rural labour-market research demonstrates that improved workplace containment and access to housing, care and connectivity reduce recruitment costs, turnover and productivity loss (Inform Gloucestershire; OECD, 2016; OECD, 2019; CIPD, 2020)
[13] Local multiplier analysis demonstrates that locally owned firms trading within local supply chains retain more value per pound of turnover, while ownership structure and procurement practices shape whether revenue recirculates or leaks from the local economy (NEF, 2002; NEF, 2013; Pike et al., 2017; CLES, 2018)

disruption. Indicators that strengthen community and service resilience reduce these indirect costs and improve day-to-day business reliability[14].

- **Environmental stewardship protects place-dependent competitive advantage**
  For sectors reliant on land, landscape, reputation or place identity (including manufacturing, agri-food, construction and tourism), environmental degradation increases regulatory risk and erodes market position. Indicators that manage natural capital protect long-term sector viability and investment confidence[15].
- **Predictable operating conditions improve investment decisions**
  Businesses invest where future costs and risks are legible. By tracking upstream conditions (labour stability, service access, environmental limits and local demand) the indicators reduce uncertainty, supporting longer-term capital investment rather than short-term extraction[16].
- **Overall effect: higher economic effectiveness, not constrained growth**
  The indicators do not limit business activity; they improve the **effectiveness with which economic activity translates into retained value, stable labour supply and lower risk**, particularly in SME-dominated, place-anchored economies like the Forest of Dean.

Alignment with UNESCO Biosphere Objectives

UNESCO Biospheres are explicitly intended to demonstrate how conservation, development and learning are integrated in practice. This requires evidence that economic activity[17]:

- contributes to local benefit,
- operates within environmental limits, and
- is supported by governance arrangements capable of adapting over time.

[14] Evidence from rural development and labour-market research shows that fragile care, transport and local services displace costs onto employers through absenteeism, reduced working hours and operational disruption, while resilient services improve workforce reliability and reduce operating risk (OECD, 2016; OECD, 2020; ONS, 2019; Bristow & Healy, 2018)
[15] Environmental economics and regional development research demonstrates that environmental stewardship underpins place-dependent competitive advantage, while degradation increases regulatory and investment risk; managing natural capital therefore protects long-term sector viability and investor confidence (Porter & van der Linde, 1995; OECD, 2018; Dasgupta Review, 2021; Natural Capital Committee, 2017)
[16] Investment research consistently shows that businesses invest where operating conditions and future risks are predictable, and that uncertainty drives short-term extraction rather than long-term capital formation; tracking upstream conditions therefore improves investment confidence (Keynes, 1936; World Bank, 2013; OECD, 2016; Bristow & Healy, 2018; Froud et al., 2006).
[17] UNESCO (1995) Statutory Framework of the World Network of Biosphere Reserves; UNESCO (2017) MAB Programme Roadmap; UNESCO biosphere reserve technical and periodic review guidance

The prosperity indicators provide this evidence by showing how the Forest of Dean District economy already functions as a **working landscape**, in which enterprise viability is linked to community capacity, environmental stewardship and cultural continuity.

Crucially, the indicators do not propose a new or alternative economic model. They articulate, in measurable terms, the **existing foundations of resilience**[18] within the Forest's economy and show how biosphere designation would strengthen coordination, monitoring and accountability around these foundations.

Reading the Indicators as a System

The indicators are intentionally designed to be read **as an interdependent system**, reflecting the way economic resilience is produced in practice.

For example:

- workforce stability depends on access to care, housing, transport and community support;
- business continuity depends on service resilience, informal coordination and environmental reliability;
- sectoral strengths depend on stewardship of land, skills retention and cultural attachment to place.

No single indicator is sufficient on its own. Taken together, they provide a **holistic, evidence-based account of cultural and economic resilience**, grounded in observed economic structure, established theory and measurable outcomes.

Contribution to the Biosphere Bid

By deploying prosperity indicators in this way, the Forest of Dean is able to demonstrate that it meets UNESCO's criteria not only environmentally, but **economically and culturally**. The indicators show that the Forest of Dean District possesses the adaptive capacity, governance maturity and locally embedded economy required of a biosphere, and that designation would reinforce the conditions that support enterprise, community wellbeing and long-term sustainability.

[18] This reflects the Forest of Dean's documented history of enduring local institutions, stewardship practices and place-anchored economic activity, which have enabled adaptation across successive phases of economic change (Standing; Gale & Rowlands; Forest Economic Partnership; Forestry England)

The Six Capitals Framework: Translating Place-Based Assets into Economic Resilience

The prosperity indicators are underpinned by a six-capitals framework commonly used in economic analysis that aims to integrate both supply and demand sides[19]. The framework provides a structured way to describe the full range of assets that support long-term economic performance in place-based economies, particularly where conventional financial metrics alone are insufficient. Together, **the six-capitals framework and Doughnut Economics** provide a coherent system: the doughnut defines the safe and just operating space, while the capitals identify the assets that must be sustained for the Forest of Dean to remain within it.

In the Forest of Dean District, the six capitals offer a coherent lens through which economic structure, cultural continuity and environmental stewardship can be understood as interdependent components of resilience. They enable the indicators to translate place-specific strengths into measurable economic conditions and to demonstrate how the Forest functions as a living economic system rather than a collection of isolated sectors.

The six capitals considered here are **Natural, Human, Social, Cultural, Built and Financial capital**. Each is materially relevant to business performance, workforce stability, value retention and adaptive capacity in the Forest of Dean, and each is reflected across the prosperity indicators.

Natural Capital

Natural capital refers to the condition and functionality of ecosystems, landscapes and environmental processes. In the Forest of Dean, it underpins land-based industries, construction, manufacturing inputs, tourism and wellbeing-related economic activity.

Indicators relating to natural capital condition, stewardship, species protection and tourism carrying capacity therefore function as economic risk indicators, assessing whether the environmental foundations of the local economy are being maintained over time.

Human Capital

Human capital comprises the skills, health and productive capacity of the workforce. In the Forest of Dean, it is shaped by place-specific skills as well as access to housing, care, transport and connectivity.

[19] IIRC (2013); OECD (2019); UNEP (2015).

Indicators addressing work and skills, service access and housing capture whether labour supply is stable, productive and retained locally, and whether workforce constraints are increasing operating risk for employers.

Social Capital

Social capital refers to networks of trust, participation and informal coordination that enable collective action. In the Forest of Dean, strong social capital supports SME collaboration, workforce attachment and resilience during disruption.

Indicators relating to community strength, participation, safety and governance capacity therefore measure adaptive capacity and economic resilience, not social outcomes alone.

Cultural Capital

Cultural capital encompasses shared identity, heritage, norms and place attachment. In the Forest of Dean District, exceptionally strong cultural continuity supports local ownership, stewardship practices and long-term economic commitment.

Indicators relating to heritage, participation and stewardship capture whether the cultural foundations that support value retention and sustainable enterprise remain strong and actively reproduced.

Built Capital

Built capital includes housing, transport, utilities, community facilities and digital connectivity. In dispersed rural economies, its reliability has a direct effect on labour supply, productivity and business costs.

Indicators addressing housing condition, transport access, connectivity and service resilience therefore function as measures of economic infrastructure effectiveness.

Financial Capital

Financial capital refers to the circulation and retention of monetary value within the local economy. In the Forest of Dean, it is shaped by ownership structures, workplace containment and supply-chain depth rather than by economic volume alone.

Indicators focusing on local ownership, value retention and community economy assess whether economic activity strengthens the local economy or allows value to leak elsewhere.

The Six Capitals as an Integrated System

The six capitals operate as an interdependent system. Human capital depends on built and social capital; financial capital depends on cultural attachment and local ownership; natural capital depends on stewardship embedded in social and cultural norms.

The prosperity indicators are designed to make these relationships visible and governable, demonstrating how economic resilience in the Forest of Dean District arises from the balanced maintenance of multiple forms of capital rather than from scale or extraction.

By mapping the prosperity indicators to the six capitals, the Forest of Dean District demonstrates that its economy already operates within social foundations and environmental limits, and that biosphere designation would strengthen coordination, monitoring and long-term adaptive capacity rather than impose a new economic model.

Doughnut Economics as a Decision and Risk Framework

Alongside the six-capitals approach, this indicator framework applies **Doughnut Economics**[20] as a practical method for structuring prosperity outcomes in a biosphere context. The doughnut is used here as a **decision and risk framework**, not as a rejection of enterprise or growth. It provides a disciplined way to test whether economic and policy choices move the Forest of Dean District towards a **safe and just operating space**: strengthening social foundations while operating within environmental limits that are economically material.

In this framework:

- the **social foundation** is expressed through the minimum conditions required for a functioning local economy and stable communities, including access to care and everyday services, safety, housing quality and affordability, skills and work opportunities, participation and community capability; and
- the **ecological ceiling** is expressed through the environmental constraints and dependencies that shape long-term economic viability in the Forest of Dean District, including ecosystem condition, biodiversity stewardship, landscape capacity, and the limits associated with transport intensity, land use and resource pressure.

Applying Doughnut Economics in the Forest of Dean District is particularly relevant because many of the district's economic strengths are place-dependent[21]: the visitor economy, land-based enterprise, and the attractiveness of the Forest to residents and skilled workers rely on environmental quality and cultural identity. Similarly, the district's SME-dominated business structure is sensitive to workforce availability, service resilience and transport access. Decisions that erode these foundations may increase short-term activity while increasing long-term operating costs, labour shortages, service withdrawal and regulatory risk. The doughnut framing makes these trade-offs explicit and therefore governable.

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[20] Doughnut Economics: Seven Ways to Think Like A 21st Century Economist, Kate Raworth (2017)
[21] This reflects the Forest of Dean's documented economic structure, in which key sectors, e.g. land-based industries, construction, manufacturing and tourism etc, are intrinsically linked to local landscape, environmental quality, skills and cultural identity (Forest Economic Partnership; Inform Gloucestershire; Forestry England)

The prosperity indicators operationalise this approach by focusing on **upstream conditions**[22] that determine whether economic activity strengthens local resilience or displaces costs into the future. For example, indicators relating to community strength, access to care, housing, connectivity and local wealth retention assess whether the area is meeting the social foundations necessary for sustained enterprise and workforce stability. Indicators relating to natural capital, stewardship and tourism carrying capacity assess whether economic activity remains compatible with ecological limits and the long-term integrity of the landscape on which key sectors depend.

In a biosphere designation, this framing supports UNESCO's emphasis on sustainable development and resident benefit by providing a transparent basis for monitoring whether economic and governance choices improve lived outcomes **without increasing environmental pressure**. It also provides a clear rationale for business and investment audiences: a place that manages social foundations and ecological constraints is reducing long-term risk, strengthening operating conditions and improving resilience across economic cycles.

Conclusion

In summary, this introduction aims to establish why prosperity in the Forest of Dean District must be assessed as a system of interdependent economic, social, cultural and environmental conditions, rather than as isolated performance metrics. The following prosperity indicators translate this systems understanding into a structured, place-specific evidence base for the Forest of Dean Districts UNESCO Biosphere nomination.

Each indicator makes visible the upstream conditions that determine whether economic activity strengthens local resilience, retains value, supports enterprise and workforce stability, and operates within environmental limits. Read collectively, they demonstrate that the Forest of Dean already functions as a living biosphere: a working landscape in which economic viability, cultural continuity and stewardship are mutually reinforcing, and where designation would enhance coordination, learning and long-term adaptive capacity rather than impose a new economic model.

[22] "Upstream conditions" are the place-specific structural factors (e.g. labour stability, service access, infrastructure and environmental limits) that shape economic resilience before conventional indicators register impact (OECD, 2016).