The Great Stagnation: Briefing 2

Buildings: In defence of stupid growth

By Kristian Niemietz

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Summary

- Britain is not much richer today in real per-capita terms than it was in 2007: we have experienced nearly two lost decades, which is an anomaly by historic standards.
- A large part of the reason for this stagnation is that it is simply too difficult to build anything in Britain, be it residential housing, office or business premises, infrastructure, or even reservoirs. An economy which does not build things does not grow.
- This is not a new insight: the problem is extremely well-known. Governments have been publishing White Papers and expert reviews which say precisely that for over twenty years (without ever doing anything about it).
- Britain does not just have a shortage of residential housing, but a shortage of premises of all kinds, including business premises such as offices, retail outlets, laboratories for the biotechnology and life science sectors, etc. This raises the cost of doing business and lowers productivity by forcing firms into unsuitable premises.
- Britain has a nationwide housing shortage, but the shortage is systematically worse in the most productive parts of the country. This constrains Britain's growth centres, and traps people in less productive areas.
- From the mid-19th to the mid-20th century, Britain's housing stock used to grow by 1-2% almost every year. Housing affordability used to improve, and economic centres were able to expand. In the 1960s, these growth rates began to decline, until they stabilised at around 0.5% in the 1980s.
- Britain is not 'overcrowded'. In aggregate terms, Britain is almost empty. Only about one tenth of England is developed; nearly two thirds is farmland.
- 'NIMBY vs YIMBY' has become the most important ideological divide in Britain, arguably more so than 'Left vs Right', or even 'large state vs small state'. The NIMBY side is able to cooperate across traditional political dividing lines. If the YIMBY side does not learn to do the same, the NIMBY side will keep winning, and Britain will not break out of its self-imposed economic stagnation.

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About the publication

This briefing is a version of a chapter that will appear in a forthcoming IEA book, *The Great Stagnation: Why Britain Stopped Growing*, along with contributions from other authors. Each chapter presents and analyses a distinct explanation for the decline in British economic growth over the last two decades.

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Introduction

Economies can grow by mobilising more input factors, or by finding ways to utilise their input factors more efficiently, where 'more efficiently' can refer to the efficiency of one factor of production in isolation, or the inefficiency in the interplay of the factors.

This is the insight formalised in the famous Solow–Swan Growth Model in the 1950s. It has since been expanded and refined, but it remains a basic building block for our understanding of economic growth – or, more relevant for the purposes of this briefing, its absence.

Economics commentators have often treated the first of these options – mobilising more input factors, or 'extensive growth' – with some disdain. They see it as unimaginative, and unsophisticated. When writing this briefing, I asked an AI program to summarise the economic literature on growth models, and it described extensive growth as 'the brute force method', which sums up this attitude. We appear to associate extensive growth with the kind of growth we saw in the Soviet Union during the first Five-Year Plans, where the regime simply forced people to work very long hours, suppressed consumption to achieve extremely high reinvestment rates, and imported big, bulky capital goods. This method can produce growth of a sort, but it is clearly not the smart, ideas-led, innovation-led growth – or 'intensive growth' – that excites economics commentators. If intensive growth is 'smart growth', then by implication, extensive growth would be 'stupid growth'.

This briefing is a defence of stupid growth: of the economics of using more stuff that is already there, even when this does not involve the reinvention of the wheel.

Purely from an economic perspective, using more inputs may indeed seem like a simple method to generate growth. It involves neither new technologies, nor organisational innovation, nor improvements in human capital, or any of the things that are difficult to achieve on the ground. But if we switch from a pure economics to a political economy perspective, we get a very different impression. From a political economy perspective, quite often, being 'pro-innovation' is easy, while mobilising inputs is the difficult part.

At least in the abstract, 'innovation' is politically popular. Politicians like to name-drop success stories in sectors that are considered 'innovative', in the hope of being able to bask in their reflected glory (even if these successes have little to do with any government policy). At the moment, it is almost obligatory for economic policy speeches to reference AI technology, in the way that equivalent speeches from 25 years ago would have referenced the Internet.

This is not just lip service. Britain really has multiple overlapping industrial policy programmes, with billions of pounds behind them, which aim to promote innovation.[1]

[1] For example, UK Research and Innovation, which the government describes as 'an executive non-departmental public body' that acts as a 'national funding agency investing in science and research' has an annual budget of £9.2bn (UKRI 2025).

This is not a comment on whether any of these programmes actually do any good. The point is merely that at the policy level, measures to support innovation are popular, and politically easy.

In contrast, reforms aimed at mobilising existing input factors are often wildly unpopular, to the point of being considered politically impossible.

Internationally, a good example is attempts to raise the retirement age. This is usually primarily intended to stabilise the finances of the pension system, but it also has the effect of increasing labour supply among older age groups (an economic input factor). Despite its obvious benefits, it is one of the most difficult and controversial reforms a politician could touch, and in some places (e.g. France or Greece), it is a graveyard for political careers.

Another good example is attempts to increase the flexibility of the labour market in order to reduce unemployment, such as relaxing employment protection against dismissal or freezing minimum wage levels. This is usually primarily intended to help the unemployed themselves, but what is good for the unemployed is, of course, also good for the economy as a whole, since it enables it to make better use of its potential labour force. Still, such measures are also remarkably politically challenging, even – or especially – in places with chronically high unemployment (e.g. France or Spain).

A third example is welfare reforms that aim to reduce welfare dependency, getting people off benefits and into work. Those are usually primarily fiscally motivated, but, again, there is a positive economic effect as well, as it leads to an increase in labour supply. Such reforms *can* be popular when the political mood is ripe (e.g. the ‘workfare’ reforms in America in the 1990s). But there are also examples of governments feeling pressured into humiliating U-turns (e.g. the UK in 2025), or even losing elections over welfare reforms (e.g. Germany in the mid 2000s). The political difficulty is that opponents will often frame such reforms as ‘an attack on the most vulnerable’, which, whatever the actual policy content, is terrible political optics.

The list goes on. The point is that politically, it is far easier to set up yet another ‘innovation hub’ or yet another ‘industrial policy taskforce’ – even when serious amounts of money are being committed – than to pass the kinds of reforms that mobilise dormant or underused inputs. So we should not treat intensive growth with disdain.

The famous Paul Krugman quote that ‘Productivity isn’t everything, but in the long run, it is almost everything’ is obviously correct, and unarguable. The purpose of this briefing is not to dispute Krugman’s insight – quite the opposite. The point is merely that this is not an ideological battle which needs to be fought in Britain. The British economy is not a Luddite economy which deliberately tries to kill off productivity growth. It is, however, an economy which systematically restricts the use of some of the key input factors that a prospering economy requires. This is particularly true of energy, infrastructure, finance and buildings, both residential and commercial. We will leave energy and infrastructure to others, while noting that Tyler Goodspeed has already alluded to the role of finance in the previous briefing in this series. In this briefing, we will look at the rationing of building land.

The thesis of this briefing is that Britain has stopped growing, because the British economy is rubbing up against physical capacity constraints. We are trying to squeeze a twenty-first-century economy into the physical built-up environment we have inherited from the previous two centuries, and we refuse to expand that capacity to anything like the degree that is required.

If there is one enterprise in the country which encapsulates the state of the country as a whole, it is Heathrow Airport. In the late twentieth century, Heathrow used to grow at a phenomenal rate. But then at some point around the mid 2000s, its capacity constraints started to bite, as it became harder and harder to fit in more aircraft movements. Heathrow's growth rate began to slow down, even in absolute terms, and more so relative to other international hub airports. Heathrow illustrates the limits of 'smart growth'. Maybe there is some additional scope for 'smart growth' at Heathrow: maybe Heathrow would benefit from new management techniques, a better trained and more highly skilled workforce, more modern equipment, using AI technology to improve logistics, etc. But at the end of the day, planes have to land somewhere, and there is only so much activity that an airport – no matter how 'smart' – can fit into two runways. The easiest and most effective thing that Heathrow could do is the unsophisticated, unimaginative thing of putting more tarmac on the ground. Heathrow needs 'stupid growth'. And so does Britain as a whole.

This is not an original thesis. It is a variation of the argument made in 'Foundations: why Britain has stagnated' by Southwood et al. (2024), who explain:

> [T]he most important economic fact about modern Britain [is] that it is difficult to build almost anything, anywhere. This prevents investment, increases energy costs, and makes it harder for productive economic clusters to expand. This, in turn, lowers our productivity, incomes, and tax revenues. […]
>
> Britain's economy has stagnated for a fundamentally simple reason: because it has banned the investment in housing, transport and energy that it most vitally needs. Britain has denied its economy the foundations it needs to grow on.

Southwood et al. describe Britain as a place which gets a lot of the difficult things right, and then ruins it all by getting the simple, basic things wrong. Although coming from a very different place, the Labour Growth Group reaches fundamentally similar conclusions (McVitie 2026):

> The state […] rations the factors of production and ordinary life. Energy, land, housing, infrastructure, skills, care and capital become scarce or expensive in ways that more capable states have avoided. Rationing creates positional rents. Those who own scarce assets, hold regulatory licences, occupy protected market positions, control professional processes or dominate essential markets profit from the scarcity. Costs rise for households and productive firms.

They do indeed.

Residential housing

Pointing out that Britain has a housing shortage feels like a statement of the trivially obvious. For over twenty years, successive governments have been commissioning expert reviews and publishing White Papers saying precisely that (if only to shelve them and do nothing about it – see Niemietz (2024: 31–34)). IEA authors have been making that point since at least the late 1980s (Evans 2025 [1988]). It was an original insight then. It is not anymore. It has since become the conventional wisdom.

But conventional wisdoms can be right, and this one is. Britain really does have one of the lowest levels of housing supply in the developed world, and probably *the* lowest if we choose realistic benchmarks.

For a start, Britain has fewer housing units per 1,000 people than most other developed economies, and we are talking about large magnitudes. Matching the EU average on this measure would require the construction of an additional 3.4 million homes in England alone. Matching the housing stock of German-speaking Europe would require the construction of closer to 5 million, and matching the housing stock of France would require the construction of not many fewer than 9 million additional homes in England (based on OECD 2022).

But this measure does not capture the full extent of the shortfall. If we split a large family home into four self-contained studio flats, we have quadrupled the number of housing units, but we have not created any additional housing space. Ideally, we would adjust those figures for differences in floor space. On this, data are patchier, but from what we know, British homes are, on average, significantly smaller than their counterparts elsewhere in the developed world (Niemietz 2024: 12–14). Thus, if we expressed 'housing supply' as the amount of residential floorspace per capita, Britain would almost certainly be at, or very close to, the bottom end of any realistic comparison group.

It has not always been this way. In the nineteenth and early twentieth centuries, Britain was unusually highly urbanised, even when compared to other countries that we think of as major industrial powers of the period. From the mid nineteenth to the mid twentieth century, the British housing stock used to grow at rates between 1 and 2 per cent per annum almost every year, net of demolitions (Watling 2023), outstripping population growth. At the peak, which was the inter-war building boom, the British housing stock grew by almost 3 per cent per annum.

In the immediate post-war period, Britain still had a higher level of housing supply than most of Europe (Watling and Breach 2023: 19–21). From then on, however, Britain fell steadily behind. House-building rates dropped continuously until they stabilised at around half a percentage point in the 1980s, roughly where they still are today.

The obvious consequences followed. The most common measure of housing affordability is the ratio of house prices to annual incomes (Niemietz 2024: 14). There are different versions of this measure, which produce slightly different figures, but they all point in the same direction.

From the mid nineteenth to the mid twentieth century, Britain experienced about a hundred years of slowly but steadily improving housing affordability. In the inter-war period, an average-income earner could buy an average-priced house with not much more than four years' worth of income. This downward trend was, however, not resumed in the post-war decades. From the 1950s to the 1990s, we see fluctuations, but no systematic trend in either direction. Then between the mid-1990s and the late 2000s, housing affordability drastically deteriorated, taking us back to where we last were in the 1880s.

When we say that Britain has 'a housing shortage', this does not mean that Britain has less housing now than, for example, in the 1970s. In absolute terms, housing supply has roughly kept pace with population growth, and even slightly outpaced it.[2] However, Britain is now a much richer country than it was in the 1970s, and we know empirically that as countries grow richer, people demand more housing space. When that extra housing space is not provided, people will bid up the price of whatever housing space is there.

So far, so obvious. We are keeping this quite superficial, because we know that the reader has come across versions of this argument many times before. What might not be so obvious, though, is why a housing shortage should reduce economic growth. If we think of housing as a consumer good, it is not immediately clear that it should. In an economy which rations the supply of apples or pears, people will consume fewer apples or pears than they otherwise would, and pay more per unit. But there is no reason why GDP growth should be any lower as a result. It just means that, at least for consumers who value apples or pears, these GDP figures will no longer translate into higher living standards at the same rate as they did before. Similarly, an economy which rations housing could be an economy which appears rich and productive on conventional measures, but where people live in much more crammed and crowded conditions than these macro figures would imply. (The most famous real-word example of such an economy is probably Hong Kong.)

The difference is that rationing the supply of apples or pears would do no more than reduce the consumption of apples or pears: it has no wider implications for the structure of investment and production. The economy remains otherwise fundamentally the same, just with fewer apples and pears in it. In contrast, an economy with strictly rationed housing supply is not simply the same economy just with less housing space. Imagine an alternative Britain which had retained the pre-war land use planning policy, and where the housing stock had continued to grow at the pre-war norm. That alternative Britain would not simply be the actual Britain plus more housing space and more modern living comfort per person (although that would, of course, be desirable enough). It would be a Britain with a very different economic geography, and a very different economic structure.

[2] Then again, we have also seen an increase in single households, single-parent households, and a tendency for people to move out of their parents' home at a younger age – a trend which abruptly came to a halt in the late 1990s, and has since been partly reversed. Household formation is in part endogenous to the housing stock, since people will squeeze into whatever housing stock there is, even if this is not their preferred living arrangement.

Britain's housing shortage is a nationwide problem, but with huge differences in degree. It is not evenly distributed across the country; it is, on the contrary, systematically worse in the most prosperous and productive parts of it. The Housing Affordability Ratio (HAR) – median house prices divided by median annual full-time gross earnings – for England as a whole is 7.6 (ONS 2026). This is bad enough, because it is far above the historic norm. However, in Oxford, Cambridge, Bath, Brighton and (obviously) London, that ratio exceeds 10. This systematically reduces incentives to move from relatively less productive to relatively more productive parts of the country. It means that as the country's economic geography changes, the housing stock cannot change with it, which will then stifle that very change in economic geography. As Southwood et al. (2024) point out in the aforementioned Foundations essay:

> [B]efore the 1940s, British cities grew as their industries did. People moved, in their millions, around the country. People moved to places where wages were higher […]
>
> Since the introduction of the British planning system in 1947, there has been very little increase in housing supply when better jobs make an area more desirable. Instead of extra homes being built, workers competing for scarce housing are forced to bid up the price of existing homes. This means that many of the income gains go to existing landlords and landowners, and that many people cannot move to better jobs at all. […]
>
> Since the supply of homes in successful cities is tightly constrained, the growth of our most successful companies and sectors within those cities is constrained as well. […] It is inconceivable that Britain could have had the Industrial Revolution if it had banned workers from moving to the coalfields of South Wales and Yorkshire and the textile factories of Lancashire. It is not an exaggeration to say that Britain could be forgoing its role in another industrial revolution today […] by making the corresponding mistake.

One example which the authors single out is Cambridge (Southwood et al. 2024):

> Under the liberal system of the nineteenth century, late twentieth century Cambridge's huge success in life sciences would have led to both taller buildings and many new suburbs, connected by new train lines, trams, tubes, and roads. It would likely have a population of at least a million today.

Britain's post-war planning system was not designed to constrain housing supply, let alone to choke off growth in innovative and productive industries. But in practice, that is what it has done, and what it continues to do. With this in mind, we can now refine the relationship between extensive growth and intensive growth – or 'smart growth' and 'stupid growth' – alluded to in the introduction, specifically for the British case. Britain does not face a choice between intensive and extensive growth. Rather, in the British case, extensive growth is what would enable intensive growth. We need stupid growth not as an *alternative* to smart growth, but in order to *enable* smart growth. We need to do the simple, unsophisticated thing of putting bricks on top of other bricks, because this is what would enable the modern miracles of AI technology and life sciences to happen on a much bigger scale.

Commercial and business premises

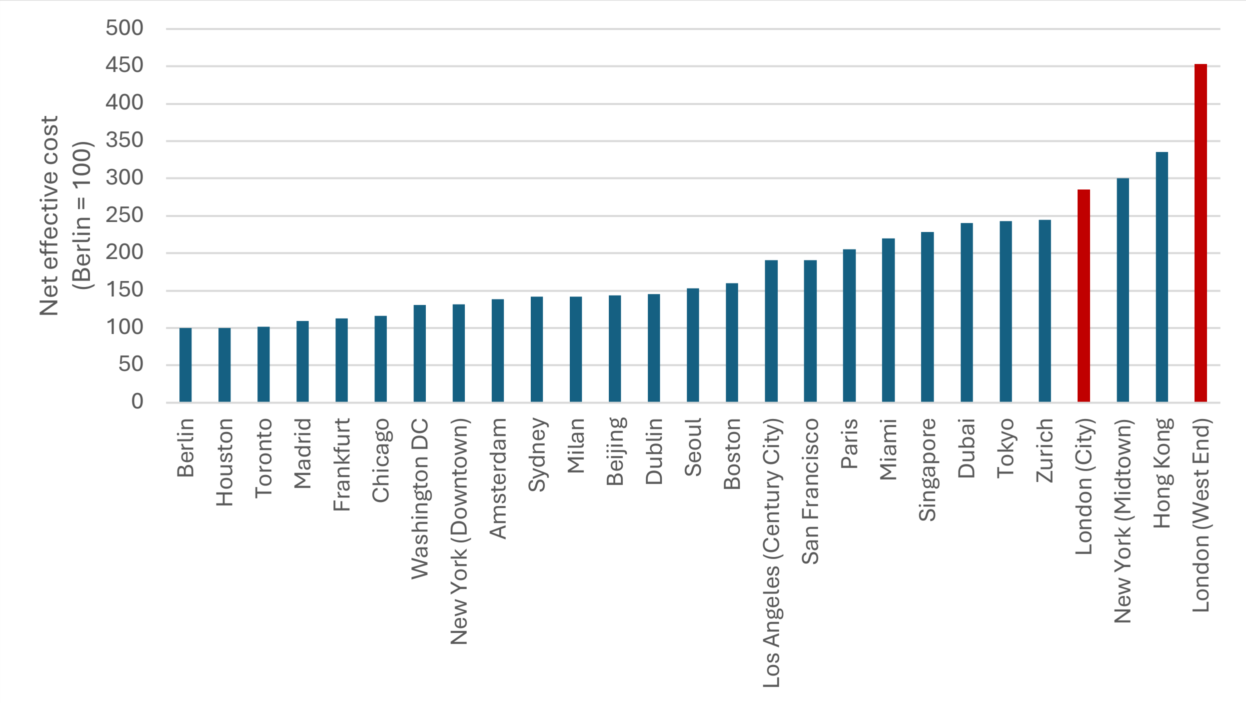
We have thus far used the terms ‘housing shortage’ and ‘housing crisis’ because they are widely used and widely understood. But those are unfortunate terms, because they imply that there is a specific, narrow shortage of residential housing. In reality, what Britain has is a shortage of premises for practically all purposes, across the board. Britain has a shortage of business premises for offices, retail outlets, science laboratories, hospitality venues, GP surgeries, and just about everything else.

Across countries and regions, residential rents and office rents are highly correlated (based on Eurostat (2024) and Savills (2025)). It would be strange if this were otherwise. If a city has a shortage of residential housing, but an excess of office space and therefore high office vacancy rates, some of those offices would be converted into residential housing (unless something blocks that conversion). So it is not surprising that, by and large, cities where it is expensive for an individual to rent a flat are places where it is also expensive for a business to rent an office. Figure 4 shows office rents in the business districts of capital cities and major economic centres, relative to the level in Berlin (although the choice of benchmark is, of course, not in itself particularly important, and the reader can substitute any other benchmark). We can see that the London markets are at the top end, just as they are for residential rents (Niemietz 2024: 14–15). We have, in fact, not even bothered to reproduce the corresponding graph for residential market rents, because residential and office rents are so closely correlated that this adds little information.

Data for other types of business premises, such as retail, hospitality venues, science laboratories, etc., is patchier, but for the same reasons mentioned above, we can reasonably expect it to be correlated.

A shortage of business premises does not just raise the cost of doing business in the UK (although that is, of course, the most obvious and immediate effect). It does not just mean that physically expanding a growing business is more difficult than it would be in a more relaxed market. It also lowers productivity by forcing business into premises that are not suitable for their business needs. The effects are not trivial. Empirical evidence from the retail sector shows that nudging retailers into less suitable buildings leads to a measurable slowdown in productivity growth (Dumitriu 2026). This effect accumulates over the years. The effect on other sectors is less well-studied, but there is no reason to believe that retail is a special case, and that productivity in other sectors does not suffer if businesses are forced into smaller or otherwise less suitable premises.

Figure 1: Office rents in 2025, Berlin = 100



Source: Based on Savills 2025.

The basic issue here is simply that economic activity needs to take place somewhere. An economy which rations the space where that can happen will be a less productive and poorer economy. We cannot put an exact number on the size of that effect, but it is safe to say that it exists, that it is not trivial, and that it gets worse the longer the problem persists.

Conclusion

Most economies that experience low growth over prolonged periods suffer from deep-seated institutional problems that are difficult to solve. Economists often say that rich countries are rich because they have 'good institutions', but most of those economists will struggle when asked to be more specific, and they will struggle even more when asked how to create those 'good institutions'. They are right in the abstract, but reforming a country's fundamental institutions is genuinely difficult, and nobody quite knows how to do it.

What makes Britain's Great Stagnation so frustrating is that Britain sorted out the most difficult things long ago. Britain has everything it takes to be a fast-growing, productive and prosperous economy. Britain just does not allow that to happen.

On most conventional indicators of economic governance, the performance of Britain's institutions is somewhere between alright and very good (Niemietz 2026: 43–44). This does not mean that there is nothing left to do in terms of civil service reform, reform of regulatory institutions, etc., it just means that whatever issues

Britain has in these areas, they cannot explain the growth malaise we have seen over the past 18 years. Britain's growth malaise is entirely a product of self-sabotage.

The story of how Britain got to this stage has been told many times (e.g. Niemietz 2024; Southwood et al. 2024; Watling 2023). Essentially, until 1947, Britain had a land use planning system under which ownership of land included the right to build on that land unless specifically prohibited, and subject to constraints to do with building safety and public health. It was a system which, by and large, respected individual property rights, if with a recognition of externalities. The new system brought in in 1947 reversed the burden of proof. From now on, property owners had to convince the authorities that they should be allowed to build on their own land.

This was not, in itself, an unusual step: it is true in most of the developed world that if people want to build something, they need a permit for it. Where Britain deviated from the international norm, though, is in the discretionary nature of that permit system. Obtaining a building permit is very different from getting a driving permit or an occupational licence. Under these latter systems, the applicant has a set checklist of criteria they need to fulfil, and once they can demonstrate that they fulfil them, they are automatically entitled to their permit. It cannot be refused on a whim. A planning permit very much can be. Over time, anti-development obstructionists presenting themselves as the voice of 'the community' learned how to game the system in their favour (Watling 2023).

Post-war Britain also introduced or expanded broad-brush development bans, declaring large tracts of land off-limits for building of any kind. Again, this is not in itself unusual: all developed countries have protected conservation areas. But where Britain deviates from most of its peers is in the use of greenbelts, a highly unusual type of land designation. Conservation areas are usually selected on environmental or aesthetic/recreational grounds: they cover land that is either rich in biodiversity or simply beautiful to look at and pleasant to spend time in. Greenbelt land does not have to exhibit any of these features. It is simply selected on the basis of location. They are large buffers around towns and cities which stop them from expanding, nothing more, nothing less. Greenbelts have grown in size over time, now covering close to 13 per cent of the land of England, most of it prime real estate (Niemietz 2024: 29).

In addition, Britain became a much more centralised country over time, especially in fiscal terms. This happened elsewhere too, but Britain went further than most, certainly for a country of its size. (In very small countries, the national government operates on the scale of a regional or provincial government elsewhere.) More than 90 per cent of tax revenue is national, and local governments mostly depend on central government grants, with very limited tax-raising powers of their own. In more decentralised settings, local authorities compete for taxpayers, and try to attract them. One easy way to do this is, of course, to permit development, both residential and commercial. Local authorities in Britain have no such incentives, because almost all tax revenue is pooled: it does not stay in the locality where the taxpayer lives.

These are all longstanding issues which we can already find in reports on the subject from 10, 20 or 30 years ago. In recent years, governments have managed to make a bad situation even worse by piling additional environmental and safety regulations on building, with even their own cost–benefit analyses showing that these measures are excessively expensive relative to the miniscule benefits they produce.

Each of these measures, in isolation, would have reduced housing supply: we know, empirically, that this is what planning constraints do, even if it is not their intention (Niemietz 2024: 30). Taken together, they have depressed building rates to a fraction of their historic long-term average. They have also ground the economy to a halt in the process. Again – all entirely self-inflicted.

The one upside of a clearly self-inflicted economic problem is that the solution is obvious. The solution to a self-inflicted problem is to stop inflicting it on oneself, in the same way that the way to stop the pain caused by punching oneself in the face is to stop punching oneself in the face.

In the British context, stagnation is a choice. It is a choice to give NIMBY obstructionists de facto veto powers. It is a choice to ration land in a country which is 90 per cent undeveloped. It is a choice to pile costs on economically beneficial activities for little gain. Choice can be unmade any time. Britain can start growing again as soon as it chooses to.

References

Dumitriu, S. (2026) How to cut the cost of the weekly shop. Planning policy makes your groceries more expensive. Notes on Growth (https://www.samdumitriu.com/p/how-to-cut-the-cost-of-the-weekly).

Eurostat (2024) 2023 Current market rents (https://ec.europa.eu/eurostat/documents/6939681/7243182/Ares%282023%298073026+Booklet_2024_rents_2023_e_Final.pdf/e9d50b9f-911c-ca5f-7161-1adc03cb7598?t=1701095269033).

Evans, A. (2025 [1988]) *No Room! No Room! The Cost of the British Town and Country Planning System* (with a new introduction and commentary by Kristian Niemietz). Occasional Paper 79 (new edition). London: Institute of Economic Affairs.

McVitie, M. (2026) An honest day: a new economic settlement for Britain. Labour Growth Group (https://www.labourgrowth.co.uk/).

Niemietz, K. (2024) *Home Win: What If Britain Solved Its Housing Crisis?* Discussion Paper 123. London: Institute of Economic Affairs.

Niemietz, K. (2026) Building a better Britain. In *Wider Ownership. A Way Forward for the UK* (ed. J. Cowpe). Independently published.

OECD (2022) Housing stock and construction. Housing market context indicators (https://www.oecd.org/content/dam/oecd/en/data/datasets/affordable-housing-database/hm1-1-housing-stock-and-construction.pdf).

ONS (2026) Housing affordability ratio in England and Wales (https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingaffordabilityinenglandandwales/2025).

Savills (2025) Global occupier markets: prime office costs – Q3 2025 (https://www.savills.co.uk/research_articles/229130/382390-0).

Southwood, B., Hughes, S. and Bowman, S. (2024) Foundations: why Britain has stagnated (https://ukfoundations.co/).

UKRI (2025) Budget allocations for UK Research and Innovation. Corporate report. UK Research and Innovation.