

# Infinite Affluence on a Finite Planet

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**Abstract:** The decades after the Second World War have seen economic growth and prosperity on an unprecedented scale. Yet this incredible turnover of raw materials and energy into goods and eventually waste has brought our planetary systems close to their limits, as witnessed most prominently, yet not exclusively, by climate change and mass extinctions. Changing towards a greener, more sustainable and circular economy without limiting our economic wealth is attractive—yet this change does not seem to be easy or speedy enough to save the planet, its eco- and social systems, and its inhabitants. In contrast, moving towards an economy less demanding on energy and raw materials, and focusing more on the pursuit of immaterial forms of satisfaction and happiness, requires an alternative form of hedonism. By cherishing quality time rather than heaps of money, and social interactions rather than material goods, even a finite planet may allow sustainable and indeed infinite forms and amounts of prosperity.

**Keywords:** alternative hedonism; circular economy; climate change; degrowth; donut economy

## 1. Introduction

“Listen to Science” is a demand which has recently been voiced quite frequently, from the climate protesters around Greta Thunberg to the medical community facing vaccination hesitancy during the COVID-19 pandemic [1,2]. Unfortunately, listening to science is not as easy in practice as it seems to be at first. One may ask, for instance, which science are we supposed to listen to? Climatology or economics? Environmental or social sciences? Rather than representing a single body of wisdom, science is fragmented into different disciplines and thus surprisingly diverse. There are quite a few scientific disciplines, and some, if not most of them, may differ in the answers they provide to a specific question.

Indeed, if we turn to the question of saving the planet—and ourselves—from apocalyptic destruction resulting from our past and ongoing economic activities, there are no easy answers science may provide us with. Some scientists, for instance, meteorologists, take on the role of Cassandra and tell us that we urgently need to reduce our carbon dioxide (CO<sub>2</sub>) emissions if we want to stay within the “acceptable” 1.5 °C limit to global warming, risking our own extinction otherwise [3,4]. There are fewer than five years left on their clock before we reach this 1.5 °C “milestone”, and this is not really a lot. Their standpoint is fine, yet they do not tell us how to achieve this goal, either now, in five or in fifty years. Others try to be more pragmatic and specific [5–7]. They bank on “green technologies” and circular economies to generate infinite prosperity within our planetary boundaries, again without being specific when it comes to details and policies to implement them. Still others, such as the Club of Rome, have questioned and still question if a finite planet is actually principally (cap)able to bestow us with infinite material wealth [8].

Curious as it may be, each of these scientists have a point, at least within their own discipline(s). If we turn to the bigger, more holistic picture, though, matters become considerably more complicated. We may, for instance, reduce our CO<sub>2</sub> footprint by building more nuclear powers stations, as some countries do, and then pray that there will not be any repetition of Harrisburg, Chernobyl, or Fukushima anytime soon and that we find someone desperate enough to store our nuclear waste for a few cents and a few millennia [9].



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Considering that one has less than five years left on the above-mentioned climate clock and that it may take up to fifty years for Germany to decide on a suitable repository for nuclear waste, going fission or even fusion may open up its own Pandora's Box of problems [10]. We may also simply outsource our own heavy and dirty industries and close a swathe of them at home, such as car manufacture, and, again, pray that someone else may export cars and that the millions of unemployed people resulting from this step may not riot on our doorsteps as a consequence [11]. Thinking in (complete) systems is difficult, as each of the above-mentioned threads of action is connected to another one, and pulling on one may cause a little wiggle or massive ripple someplace else [12]. Indeed, economy and ecology, despite often pulling into opposite directions, are both "eco" and intertwined not only with each other, yet also with health, social security, peace, resilience, and sufficiency, as the institutional compass of Michele Friend demonstrates and the Donut Model devised by Kate Raworth nicely illustrates [13,14].

As it stands, "listening to science" is therefore a great idea, yet complicated in practice as we first need to choose whom to listen to. At the same time, we also need to refrain from pulling on one specific thread prematurely, as politicians often tend to do, and without considering the entire net first. Thus, let us take a more inter- or even multidisciplinary stand. Let us listen to science and society in its many facets and see if we can devise a preliminary working model for (almost) infinite wealth on a finite planet.

## 2. The Four Horsemen

The first voice we need to listen to is pretty depressing, being an almost religious voice predicting the end of the world in form of the four horsemen of the Apocalypse bringing the plague, war, famine, and death, among other nasty things. After COVID-19, Ukraine, and Gaza, this is nothing new. In fact, one may even go that far and say that the ancient Biblical Plagues are already upon us again, as climate change simultaneously brings flooding, draughts, storms and other extreme forms of weather, forest fires, poisoned water, toxic algae blooms, starvation, and diseases. This is something we are witnessing almost on a weekly basis. Amazingly, the scientists behind the Club of Rome already warned us back in 1972 that economic growth must be limited, and if not, that we may destroy our own planet by reckless industrial activities within just a few decades [15]. There is hardly any doubt that mankind can actually do this and that this is happening today at accelerated, exponential speed [16]. Besides consuming unprecedented amounts of non-renewable energies and materials, our modern economy is also churning out unbelievably large piles of waste and rubbish, often thanks to aggressive advertising, fast-changing fashions, and built-in obsolescence [17]. Interestingly, additional "side-effects" of "living in the fast lane" have also emerged since the 1970s, some of them not foreseen at the time. Social injustice, for instance, has rapidly increased within countries and globally since the neo-liberal economic turn of the 1980s heralded by politicians such as Ronald Reagan in the US and Margaret Thatcher in the UK. At the same time, fear of missing out (FOMO), modern communication technology and always-online culture has led to exhaustion, blurred boundaries and burnouts. Such telepressure and technological overload are taking a massive toll on persons' individual and social health. This "fast life" often goes hand in hand with new patterns of individual behaviour, some of which are detrimental. Yet this could be changed easily, and we shall return to these burnt-out work-life conflicts later on in Sections 4 and 5.

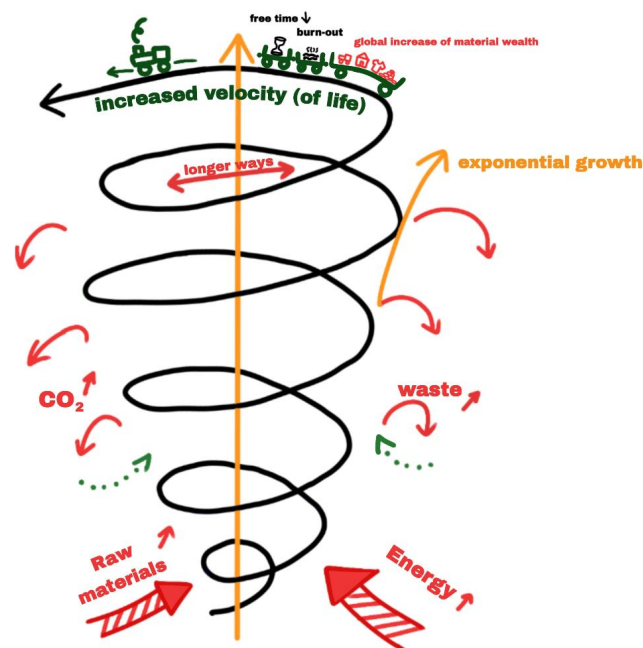
Thus, one example may suffice here to make the case. Each person living in Europe today, shockingly, throws away around 80 kg of perfectly good food per year, whilst famine is rampant elsewhere [18]. This is indeed something one could change easily and without any major loss of comfort. Here, we may need to listen to ethics, yet as so often this is inconvenient [19].

Then again, how can we stop accelerating our consumption of energy and materials if the official aim is indeed economic growth? In the EU, for instance, this has been outlined by the Lisbon Strategy in 2000, and is usually set as a target at around 3% per year, and a lot higher elsewhere [20] "It's the economy stupid" is a catchphrase famously ascribed to former US president Bill Clinton, despite the fact that his Vice Al Gore (not to be confused

with algorithm) has been fighting against economic exploitation of the planet for decades and still is today [21,22]. Consumption is not a vice, neo-liberal economists tell us, à la Friedrich August von Hayek and Milton Friedman, it is a necessity if we want to keep our global economy afloat and social unrest at bay. In other words, turning meals into manure is one of our duties as good citizens, or as Clinton's successor as US President, George W Bush, allegedly put it when asked what the average American could do in response to 9/11, "go shopping" [23,24]. If not, farmers and grocers, among others, would become unemployed and go for a rematch of the 1525 German Peasants' Revolt, as some of them indeed have threatened already at the recent demonstrations in Brussels and elsewhere [25,26]. The same obviously also applies to fast fashion, cars, and the many other little and entirely unnecessary goods we buy, hoard, and throw away every day. "Going shopping" is not just funny or fun, it fuels consumption and the economy and thus keeps it and consumer-oriented societies stable.

With an average 10,000 items in each modern Western household, however, overconsumption is close to reaching its peak and limits [27]: peak, because the pleasure we may gain from material goods tends to saturate, at least if we listen to the voice of psychology [28,29], and limits, because physics tells us that we cannot store stuff indefinitely in a finite basement or garage—the latter is primarily used these days to hoard goods, not to protect cars from the elements, anyway.

Just to be clear on that sticking point, if the entire population of our planet, which currently stands at around 8 billion (with an upwards tendency) aspires to live the American lifestyle—not just the one of today but also of tomorrow—then our demand for energy and materials will simply explode, and not even the moon will be enough to cover our material needs here on Earth. In mathematical terms, an annual increase of 3% does not result in a "little extra" year by year, it triggers rapid growth ( $1.03^{\text{years}}$ ) and doubles our economic activities every 20 or so years. This is quite a significant number since the demand for raw materials and energy, and the waste produced, will also increase considerably in parallel, as illustrated in Figure 1. As the American economist Kenneth Boulding succinctly put it, "Anyone who believes that exponential growth can go on forever in a finite world is either a madman or an economist" [30]. And this does not even address the more social and individual distortions which will follow suit.



**Figure 1.** The traditional economic model requires a steady growth associated with increased turnover of materials, energy and waste. The individual and social costs are likely also to be considerable and debatable.

### 3. Decoupling One Day

For certain, no one wants to bump into one of the horsemen, although one may doubt if they may still find a white, red, black, or even pale horse to ride on if and when it comes to it. Maybe they will use an SUV instead. Or maybe it is time for our economy to undergo a distinct change of colour. Some economists, in cahoots with natural scientists, engineers, and politicians, thus tell us that our dreams of exponential prosperity on a global scale may still come true, as long as we do a “Green Deal” with our planet, i.e., use renewable energies and, regarding materials, think circular and recycle, rather than stick with the traditional linear flow from the pit to the bin [31,32]. We may, for instance, “decouple” economic growth from energy and material consumption, not only relative, i.e., the latter increases slower than the former, but also absolute, i.e., the economy steams ahead, whereas the appetite for steam actually goes down, as shown in Figure 2 and discussed again in Section 6. Listening to statistics, and despite some undeniable progress in some countries, there is no evidence that we have sufficiently accomplished decoupling yet in the fields that really matter, let alone on a global scale. Quite the contrary, the economies of the Global South are gathering enormous steam these days, as also mentioned in Section 6, and meeting the 1.5 °C target within the next five years is as elusive as ever [33]. There are also some inherent pitfalls on the way to a green “decoupling”, such as rebound effects à la Jevon’s Paradox, whereby savings (of energy, materials, emissions) are not simply saved, but—thanks to the savings made and freed resources now available—stimulate additional consumption [34]. The latter may even outpace the initial consumption—before the savings were made—in a form of an “overshoot”. This is reminiscent of the lady in a recent German TV advert for discounted electricity naively floating the idea that “the more discounted electricity you consume the more savings you make”.

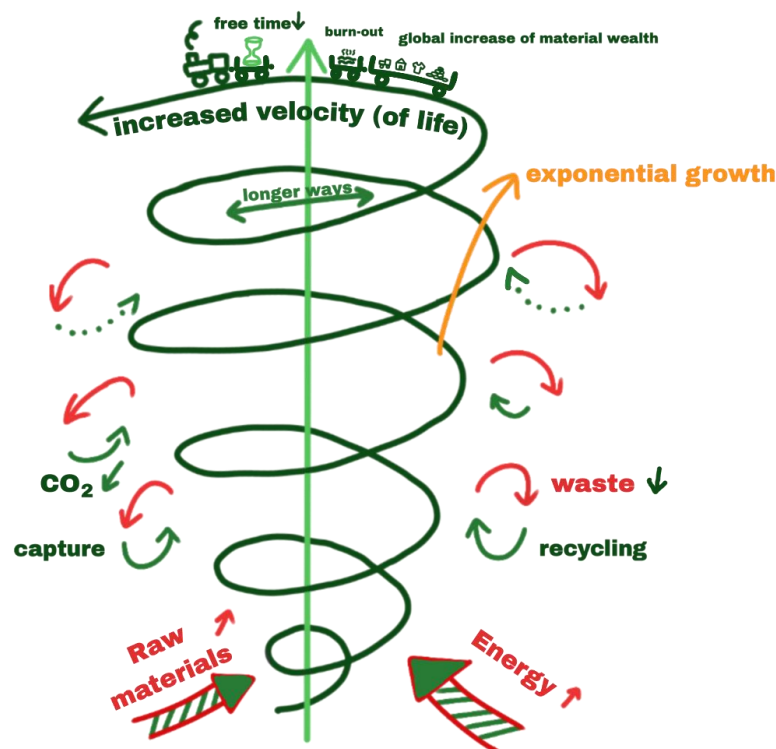
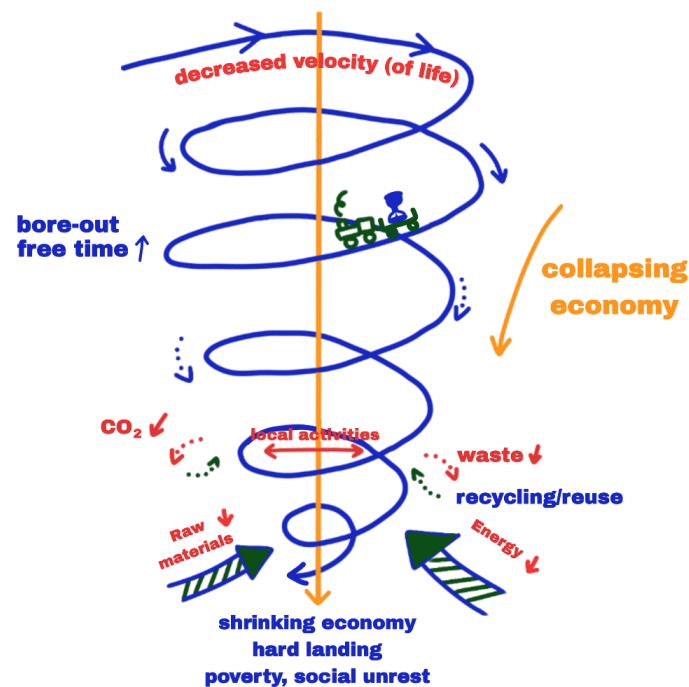


Figure 2. A traditional economy with a green touch does not change much.

Clearly, comprehensive decoupling is something quite different, and has not yet taken place, most definitely not on TV. Although we may achieve absolute decoupling one day, the clock is ticking and time is running out. Timescales are indeed an issue. Promises of climate neutrality in 2040 or even 2060 imply timeframes within which the economy of today will have doubled or even tripled, and most of today’s promisers will not remember

their promises of today by then. As for simply going “green”, it is also questionable how you can recycle one old car into two new ones or cover the housing needs of an increasing and increasingly demanding population by simply renovating the stock and without building new ones.

Thus, a “hard landing”, i.e., a shrinking economy, rather than a flying carpet, has been proposed by degrowth or post-growth economists [35]. Whether this really is the answer may be questioned once the global social consequences are considered (Figure 3).



**Figure 3.** The degrowth economy advocates for a reduction in consumption and production, aiming to decrease the overall turnover of materials and energy.

#### 4. Pursuit of Happiness First!

##### 4.1. New Values for Individual and Societal Happiness

So let us try something different. Maybe we need to briefly listen to Abraham H Maslow and his hierarchy of individual needs and (re-)consider what “wealth” in his pyramid actually means from a less economical and more human and social—and thus holistic—perspective [36]. Affluence, prosperity, and wealth are close relatives, yet not the same and can be interpreted quite differently, e.g., as financial wealth, possession of material goods, and affluence of quality time and happiness. Deciding if something is fun and thus attractive for us and the next generations (assuming we are not the last), depends vastly on us and our expectations, that is, our individual sense of life in an otherwise senseless world. Alternative hedonism accounts for this diversity [37]. It allows the pursuit of happiness in fields and ways that are higher in social interactions and lower in material goods—and thus good for us and the planet. Maybe it is therefore time to simply ignore the gross domestic product (GDP), the less-than-100-years-old indicator and oracle of economic prosperity and perceived societal welfare, and switch to other indicators more indicative of social and individual well-being, such as increases in life satisfaction or happiness. This has already been suggested in the now famous 1968 Kansas speech of Robert F Kennedy and is in essence also a reflection of the American Constitution [38]. “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness” (Declaration of Independence, 1776). And indeed, GDP, employment, and earnings are just tools to gain happiness, are they not? So why not measure the real thing in the first place as

suggested before? In fact, happiness is probably the one thing on our planet which is not limited by any planetary boundaries and thus, at least in theory, is truly infinite!

#### 4.2. *Can We Consume Less?*

So let us assume for a minute that not everyone wants to live in a castle and that many of us, like Diogenes, may prefer a vintage wine barrel under the Mediterranean sun, especially if it still half full and not half empty. As attractive as this may be, the economic implications of “going sunbathing” rather than shopping would be considerable. If we really decide to commit the ultimate economic sacrilege and put a drastic break on material consumption, i.e., stop shopping for things we do not need, then we pull on a central thread in the net which will not just cause a little ripple yet have considerable consequences for the local, national, and even global economy, as shall be discussed in more detail in the following section [39,40]. Eating locally produced apples instead of imported avocados, for instance, is not just a matter of taste, it boosts the apple economy in town and boots out labourers in South America. And spending our money in massage parlours or at hairdressers—where little is consumed or wasted apart from useless gossip—is nothing compared to buying a brand-new caravan, another ten pairs of shoes or trousers, or going on a far-away cruise or safari to cuddle rhinos and shoot termites (or vice versa).

Just imagine, if we, as individuals, really listened less to advertising and more to science, and dared to slow down or shift the focus of consumption from one day to another—something we could indeed do quite easily. We would not only fail in our duties as good citizens by no longer fuelling the traditional industries, from fashion and furniture to shoes and SUVs, we would also deprive ourselves of shopping as our favourable past-time, triggering unforeseen psychological consequences [41,42]. Since the mid of the last century, (over-)consumption has become a major part of our lifestyle, not only in Europe and the US, but also globally. No more shopping may be truly shocking! It is one thing to exclaim “how dare you”, and another to deal with the consequences of no one suddenly daring anymore. According to psychology, shopping does satisfy our basic instincts of hunting and hoarding, it provides pleasure and entertainment, can be a great group activity, allows us to show off in store and outside, and also empowers us to keep up with the Joneses next door, at least if we shop wisely and invest in objects which can also be placed where others can see them [43]. There were times when you ordered a meal just to eat something, and then there were times when you ordered a meal because it tasted good, and now there are times when you order a meal because it looks good—once photographed and posted on social media. This is indeed food for thought, and Maslow was probably right, although we may not have reached the apex of the pyramid yet.

Still, there are examples of fulfilled and mindful lifestyles quite contrary to the one(s) discussed here so far. Some aspects of the hedonistic turn are not that dissimilar to communities advocating (self-)sufficiency, for many good reasons, including as a means of sustainability, autonomy, and resilience [44,45]. The concept of “buen vivir” (or Sumak kawsay)—the sustainable “good life”—for instance, builds on the notion of self-sufficiency [46]. It takes into account the experiences gained by many indigenous cultures, from Africa and Latin America, and can also call on the moral foundations of a number of cultures and religions, including Buddhism and the Catholic Church [47–50]. Admittedly, such lifestyles cannot be transferred easily to a highly industrialized society. Thus, sufficiency and a dematerialized (economic) minimalism are still niches, and although their contributions are increasing, from food savers, second hand shops, and commons to entire biospheres with local produce, regional circular economies, and plenty of repair cafés, such changes are likely to take considerable time.

#### 4.3. *Have Money, Need Time—Towards a Quality Time Budget*

The central argument for – and against – such lifestyles is, of course, the question of personal benefits. So can we gain any clear and tangible advantages from such a hedonistic turn which may compensate for eventual material losses? Yes, not shopping,

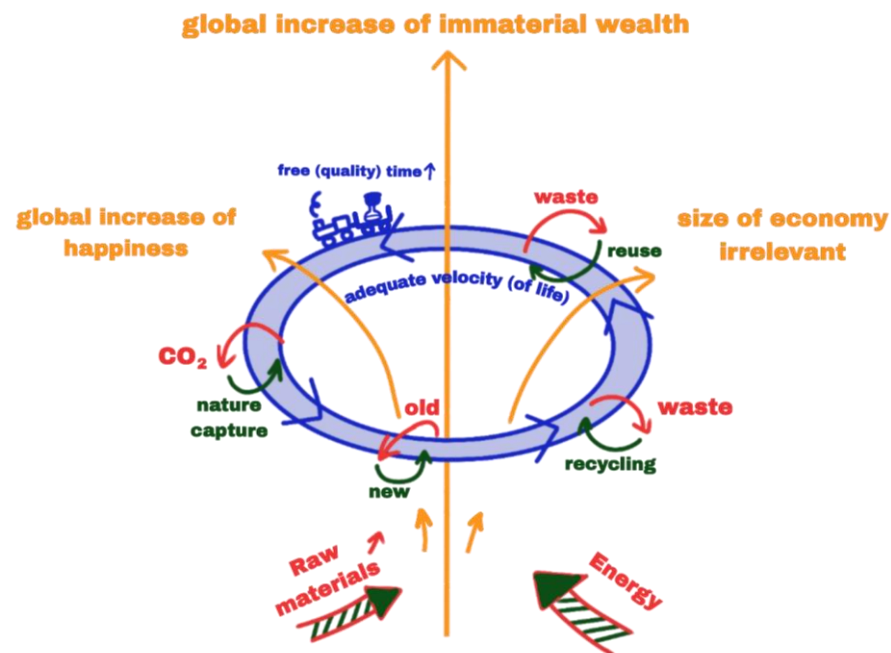
eating unphotogenic meals, and crawling around town in clothes from the last millennium may out you as either a pauper, mad(wo)man, or, even worse, as an academic. Still there is one important compensation! Idly walking around town will also out you as someone rich in the one thing truly limited in life—namely time [51]. Our days are counted, and an affluence of (quality) time, therefore, is also a kind of prosperity. Not surprisingly, some philosophers have suggested that we should value and guard our “quality time budget” similarly to our monetary budget [52].

This may sound a little esoteric. Yet remember that the concept of a “work–life balance” or the reduction in weekly working hours demanded by many trade unions aim at this already [53,54]. And this is just the tip of the ice-cream: If we were to truly enjoy our work, e.g., by being more creative and by only working certain short(er) intervals, i.e., placing our economic activities under the primary goal of our personal well-being, then climbing Maslow’s pyramid in good time(s) may become a lot easier for us. Thus, following this avenue may not only benefit the planet, but it may also be quite attractive for us individually, and far from self-flagellation, it would allow for thriving, yet somewhat different social and economic activities, as discussed in the following section.

### 5. Steady Life in a Steady-State Economy

So exactly what would such changes have in store for our economic activities? A more sustainable lifestyle would imply that we refrain from consuming excessive amounts of new (material) goods and rather reuse, repair, or recycle stuff already in our hands, using, of course, modern technology, including AI, and a lot of individual creativity. We may, for instance, turn an old bottle into a vase, an old T-shirt into a shopping bag, or an old ladder into a bookshelf. Economically, this would imply a more steady-state circular economy, i.e., less production of new goods and a shift in employment into fields dealing, for instance, with repair and original solutions to old challenges, as illustrated in Figure 4. Turning towards more labour- and less material-intensive activities may simultaneously reduce the exploitation of natural resources on the one side and less rubbish, CO<sub>2</sub> in the air and oceans, and nitrate and phosphate in the drinking water on the other. Some taxation models already demand a higher taxation of materials, energy, CO<sub>2</sub>, and waste, and lower taxes on human labour to nudge economic activities and consumption into a more sustainable direction.

Science and technology play a major role in this transition, as the field of turning modern-day waste into value is still in its infancy [55,56]. Yet this is nothing new nor something that cannot be achieved. Going down history lane, it is notable that regardless of how deep you dig in Europe and elsewhere, you will not find any piles of rubbish produced by the Celts, Romans, Medieval knights and their servants, the Swedes with their famous fish and drink, Napoleonic soldiers, or the hardworking citizens of the German Empire, who all roamed these pastures one time or another in the distant past. These masters of recycling and upcycling used renewable resources, repaired a lot, left nothing to chance or to go to waste. Even abandoned fortresses and castles were meticulously dismantled over the years, stones and other valuable parts being used for building(s) nearby. Until the mid of the 20th Century, rubbish was not considered as waste [57]. Leftovers were rather seen as a great resource once in the right place and in the right hands. The ability of a country to use rather than “manage” waste was even seen as reflection of its technological and cultural standing. Turning waste into value was a routine part of daily life, from turning clothes into paper, ash into bricks, and food waste into animal feed and compost. A lick of paint here and there, and a rubbish dump could turn into a fertile toy store for the Pet Shop Boys and, of course, girls! Listening to historians, we may rediscover a lot about the many “Rs”, from refusing certain materials, to reusing, reducing, recycling, and revaluing others. In light of new technologies, some of these old aptitudes may indeed be revisited again as a stimulus for new research and development. The Romans did already take the piss, not of each other, but for dyeing and tanning, and two millennia later, recovering phosphate from urine is as high on the agenda again as ever before.



**Figure 4.** Shifting from material to immaterial consumption may enable a steady-state turnover of materials and energy. In this case the decoupling is between consumption and life satisfaction on the one side and individual fulfilment on the other.

Does this make us poorer and unhappy, especially when considering that “You only live once”? Probably not! Happiness does not necessarily mean to splurge money on cars, the latest fashion, and far-away holidays. Again and again, studies have shown that life satisfaction does not increase linearly with available household income or material wealth yet tends to flatten [58]. Money is not everything, but sometimes it helps, someone told me on my first day in the US. Together with other factors, such as a sense of security, a good infrastructure, intact nature, and a more humane and less burnt-out type of economy focussed on global fairness and mutual respect in trade, money does indeed help. As for a sharing economy, a sustainable YOLO approach may mean more and probably better paid jobs in sustainable fields, reduced working hours, more quality free time and enjoyable social activities, split shifts, volunteering, and perhaps more modest individual earning-spending patterns.

Earning a little less in face of spending a lot less may even be quite attractive on the microeconomic scale. As one tends to say, EUR 1.00 not spent is two earned. Indeed, receiving EUR 1.00 net in many countries requires earning around EUR 1.40 gross because of income tax and social security. Eventually, that EUR 1.00, once spent, only buys around EUR 0.80 in net value, with the remainder going for value-added tax (more on this in Section 6). Besides frustrating maths, less consumption therefore means less time required at work to refill the monetary budget—and less time in shops, garages, and at the skip. Thus, the “time budget” can be filled and the time gained spent more wisely for the pursuit of happiness, for instance, for hobbies, sports, voluntary activities, socializing, repairs and recycling, and simply for chilling in Diogenes’ barrel. Regardless, if Alex then visits you on a sunny day or not, such intense social activities are low in consumption and—hopefully—rich in personal fulfilment. Remember, the best things in life are free—although they require a lot of time to enjoy them!

As for the macro-level, economies driven by the common good might increasingly rely on shared ownership of production, such as energy collectives, and a State more inclined to provide the research, development, seed funding, and even initial—initially publicly owned—structures for future and futuristic industries in relevant and sustainable



sectors, such as solar energy, recycling, public transport, energy storage, and the hydrogen economy [59].

## 6. Counterarguments and the Way Forward—Implementation

The view held in this Perspective, despite its attraction, also faces some serious obstacles, opposition, and counterarguments. In fact, most mainstream economists today still firmly consider a departure from economic growth as a disaster in the making [60,61]. Let us therefore briefly, openly, and honestly consider some of these issues, from unemployment and technological stagnation to injustice towards developing countries and, last but not least, the very human nature which seems to be inclined to consumption as the most natural way of life for most of us human beings [62,63].

Indeed, the economic miracles witnessed in the 19th and 20th centuries, including many healthier, wealthier, and supposedly happier populations, have usually gone hand in hand with economic growth, whereas economic stagnation, especially during periods of economic depression, has traditionally resulted in higher unemployment, lower living standards, and social and political instability [64–66]. Thus, any departure from economic growth is seen by many as an anathema, an absolute no-go. The fear of unemployment and social deprivation tends to ignore, however, that in most developed countries, there is already a lack of skilled labour, that more sustainable activities also provide employment, and that a turn towards dematerialized activities may also result in economic growth [67–69]. There are also concerns about the paradox of thrift which predicts the fall of public good and services. The idea here is that less monetary spending leads to decreased economic demand and production, impacts on foreign trade and trade balances, and ultimately results in less tax revenue essential for funding, for instance, social security, education and defence. This paradox can be approached with sustainable, efficient targeted spending, that is, to cut spending on wasteful and nonessential consumption or simply being mindful. Additionally, governments could adopt new redistributive taxation and funding models, for instance by taxing material consumption, waste and excessive luxuries whilst lowering taxes on essentials, labour and income.

Similarly, long-lasting products and repairs in one area do not rule out technological advances in another. It would indeed be foolish to stop developing and selling energy efficient products able to replace older, dirtier ones, from cars to mobile phones [70,71]. On the other side, fashions, especially fast fashions, are not about technological advances [72,73]. In short, you can ride a bike and wear the same second-hand clothes and still work in Silicon Valley, and thus a more differentiated view on this (counter)argument is welcome.

As for the need of developing countries to develop, there are clear indications that many of these countries have signed up to green, sustainable development, thus using this as a chance to colour their hitherto economic *Tabula Rasa* in a sustainable green rather than digging for coal, as witnessed, most impressively perhaps, in Africa, China, and the Middle East [74–79]. In these countries, we find considerable enthusiasm for energy-efficient buildings, renewable energies, re- and upcycling, and electric forms of mobility. One may even argue that given the state of the infrastructure in developing countries, it is easier to build from scratch than to deal with existing outdated infrastructure in need of a creative destruction à la Joseph Schumpeter. Nonetheless, such adventures require considerable funding, and thus this (counter)argument also needs to be addressed in earnest as money may really help in these countries, delivering benefits on a global scale.

The main obstacle to the ideas floated in this Perspective is, perhaps, human nature itself [52]. Motivation psychology tells us that most of us only react if there is an immediate danger close to home affecting us directly here and now [80–83]. COVID-19 was such a danger, yet climate change is not. Adding the historical fact that humans in almost any culture simply love to (over-)consume and to indulge into material pleasures, changing such habits will be a long-term challenge which can only be addressed in small steps at a time. There are some indications that this may happen, for instance, via the “repair bonus” in Austria, or the subsidies in Europe to renovate and sanify old(er) buildings rather than

building new ones [84]. Sustainable production-cycles of regional produce and products, holidays close(r) to home and flat-rate tickets for public transport equally nudge people into this direction, although, admittedly, these are small steps which also do not infringe much on traditional habits and cultures [85,86].

Eventually, one may also question the basis of this Perspective, namely the need for dematerialization [87,88]. In this counterargument, the hope is that technology itself will save the day. This argument is not entirely unfounded. Throughout history, technological advances have prevented disasters, from coal mining stopping the deforestation of the Middle Ages, and clean(er) oil and gas replacing dirty coal during the acid rain period of the 20th century, to today's shift towards nuclear, wind, and solar energy. Indeed, electricity from renewable sources now commands a major fraction of the energy mix in countries such as Germany, where it has reached 60% in the first half of 2024 [89]. Maybe fusion reactors, hydrogen economies, carbon capture, and other cool innovations will eventually help us to stop Global Warming without the need to cool down our economic and consumer activities. One may agree, yet not every sin of today can be captured and remedied that easily in the future. England, for instance, has lost most of its forests for its once glorious fleet and for good, and microplastics are also here to stay [90–92]. In any case, technologies take their time to emerge, and it may not be that much a question of “if” rather than “when”. Talking about time, one may also wonder how the lifestyle(s) encouraged in this Perspective can be implemented in practice. Indeed, this may be a bumpy road, and one step at a time is required to turn the current activities and attitudes towards a less damaging scenario in the future. The way forward in order to reach the scenario sketched out in this Perspective requires a concerted effort by many players to change attitudes towards consumption, and to provide the economic and especially the cultural frameworks to facilitate, implement, and live through these changes. It may indeed turn out to require economic and attitudinal creative destruction. Fortunately, there are many encouraging signs that this change in attitude may happen, from a renaissance of local communities and their (joyful) activities to countries committing themselves to free public transport, and heavy subsidies of green technologies on the one and hefty taxes on dirty ones on the other.

Yet this may not be sufficient. Currently, there is no social stigmatization of over-consumption and unnecessarily wasting resources, of dumping goods and good food, of fast fashion, big cars, and excessive holidays [93,94]. As long as someone placing a “climate-friendly folks take the bus” sticker on the bumper of his minivan is not subjected to public flagellation, the crucial step, namely changing people's attitudes by peer pressure, has not yet resulted in the significant leap required. This also applies to advertising, and indeed is increasingly becoming a matter of public debate.

## **7. Conclusions: Let's Come Together, Right Now, in Sweet Harmony**

The emerging model of a less materialistic and consumption-driven steady-state economy tries to address the riddle of infinite wealth on a finite planet by placing the individual and its genuine needs first. The actions necessary are summed up by The Beloved in their song titled “Let's come together, right now, in sweet harmony” (1993) and also form the basis of the concept of *buen vivir*. To turn the aspirations of today into the practice and practices of tomorrow indeed requires considerable and joint efforts, from redefining economic goals to remodelling economic activities, from reducing some industries to providing the funding, infrastructures and incentives for others. Unlike the *dolce vita* of the second half of the 20th century, *buen vivir* is in harmony with nature and is endorsed these days, among others, even by the Pontifex and the Catholic Church [95,96]. Eventually, this lifestyle—and the economy associated with it—requires new skills and education, new technologies, creativity and scientific innovation. It will not be easy, yet it is unavoidable. It has been done before, it can be done again. Indeed, we must listen to the many different disciplines of science and, most importantly, come together, right now, and especially in sweet harmony!

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