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**An Introductory Guide to the
Economics of Sustainable
Tourism**

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Abstract:

Sustainable travel is possible, even if current evidence seems to suggest otherwise. Today's problem is that too many travelers go too far too often within a limited area, our planet. When demand rises and supply is bounded by nature, technology may come to our rescue. If not, social reorganization must. To make travel sustainable the requirement is that we balance demand with supply. To understand sustainability of travel, we should thus understand demand for it and supply of it. This article outlines the sources of the demand and the limits to supply. We discuss how policymakers may strike a balance in reaching sustainable levels of tourism by finding the right prices.

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1. Introduction

There do exist sustainable paths of traveling. It is a bold statement since current evidence may suggest otherwise. Today, humans leave visible, permanent marks everywhere they go and the world we have in common appears exploited and overused. Mount Everest is congested, the beaches of Borneo are polluted, and Inca roads to Machu Picchu are being trampled into oblivion. Travelers invade African wildlife territory. Backpackers disturb the tranquility of small Nepalese towns. Snowmobiles, watercrafts, and four-wheel-vehicles threaten life even off the beaten track. National parks have been paved with asphalt and are flooded with cars, invaded by on-wheel explorers. Air travel has increased and contributes to global warming. Standing at the doorstep of a new century, many people feel there are ample reasons to be worried about the state of the planet. The alarming idea is that we are consuming our environment. Yet, in spite of the current evidence some economists believe that future travel can become sustainable.

It is a good thing since travel is a blessing, socially. Travel is key to welfare and prosperity. If we had been born two generations ago, we may not have come to learn ways of conduct and paths of thoughts much different from those of our own country. Today, we do. Diffusion and cross-pollination of ideas start with the greetings between strangers. So, we celebrate the disappearance of barriers to travel.

Today's problem of travel, however, is that too many travelers are going too far too often within a limited area, our planet. The World Tourism Organization estimates that there were 25 million tourist arrivals in 1950. In 1999, the number had ascended to 664 million¹. When all of us can claim legal access to limited natural assets as scenery, solitude, and fresh air we each have an incentive to gain access to these assets before another person does. There may be overuse: Trails are worn down by thousands of hikers. Water sources are polluted or emptied. True adventure becomes harder to find as everybody searches for it.

When demand rises and supply is bounded by nature, technology may come to our rescue. Ingenious devices may relieve us from unpleasant changes in our way of life. If not, social reorganization must. Sustainability is also social, not only a technical, problem. It is within the reach of society to rearrange custom, habit, and activity to solve social problems.

On the one hand, the leave-no-trace idea is admirable, but it is practically impossible. Fundamentally, travel leaves traces. Thus, recently a term has been introduced to capture the effects on nature of travel in particular and economic activity in general: ecological footprints. Going places entails transforming natural qualities into human satisfaction. On the other hand, old ideas of nature as a mine or an adversary to conquer are out-dated as civilization has overcome the question of survival. Sustainability is a middle position, allowing usage but demanding care; balancing depletion with restoration. Below, we will study details of the idea of sustainability and discuss how to use it to approach practical policymaking.

In economics, we use demand and supply as a tool for analysis. The board of a demand curve and a supply slope is a powerful analytic device. Using it, we may better understand the relationship between what we seek and what we have to give up to attain it. The demand curve is a simple heuristic of a complex conglomerate of human desire. It is a projection of general willingness to abstain into a depiction of the trade-off between travel trips and sacrifice of alternative use. The sacrifice may be measured in whatever units we deem convenient, practical, or feasible. For transparency and interpretability, economists most often use money. The supply curve shows the resource cost. It shows how much we must give up of something to acquire something else. In this context, the supply curve will capture the amount of resources we must take from other usage in order to produce tourist travel. To make travel sustainable we must find the natural intersection of the two

¹ Source: World Tourism Organization.

curves. It is no little task. Below, we will see that there are daunting issues, especially those concerning future generations. After all, they are not even here to reveal to us their priorities. But to understand the sustainability of tourism travel we must first understand why we want it and how we may get it at the expense of other things. In short, we must understand the demand for travel and the supply of it.

In this article we do not attempt to deliver a condensation of the sustainability discussion. Rather, we purport to present an introduction to the intuitive, and essential, elements of sustainability. We do it without presupposing technical knowledge.

A large literature emerged on sustainability in the wake of the report by the World Commission on Environment and Development (WCED, 1987) – the Brundtland Report. It would exhaust all reasonable space to give a fair treatment of all issues that have been raised and scrutinized. In stead, we will mention relevant studies as we encounter different concepts.

This article is structured as follows. The next section presents demand side issues, and the subsequent section deals with the concomitant supply side matters. Then we go on in section four to study how policymakers may balance needs and possibilities over time, and go deeper into what sustainability really is. In the final section, we make some concluding remarks and suggest a few practical policy steps towards sustainability.

2. Demand for Tourist Experiences: Why Do We Travel and Where?

The lure of travel lies in an array of novelty and variation such as physical satisfaction, scenic stimulation, and challenges from unknown – possibly uncontrollable – surroundings. Hearing unintelligible syllables uttered by friendly-looking but oddly dressed people are great fun. You may be happy to hear the threatening – yet enthralling – sounds of a rattlesnake. Psychologists say human motivation is built upon those two factors: novelty and variation. To understand the relationship between the underlying cognitive needs and the resulting economic behavior confer with Scitovsky's (1976) excellent classic treatment. Traveling offers easy access to both novelty and variation. Moreover, as social animals we also treasure relative positions. Tales from far-away places, exotic temples, and strange animals are trophies that people may use as indicators of status. Status signaling is a popular activity, and Frank (1999) argues that it results from a basic biological need to tell others about your capability.

A dominant theme of world history has been man's battle with necessity and subsistence; see e.g. the broad treatments of Diamond (1997) and Landes (1998). As Westerners have overcome this challenge, demand for travel has soared – and our priorities have changed along with it. Economists have possibly detected – and heatedly discussed – the existence of an environmental Kuznets-curve that depicts a U-relation between environmental quality and material standards of living. The literature on this relation has already grown large; see Grossman and Krueger (1995), Kahn (1998) and Selden and Song (1994). The idea is that the worst environmental quality will occur midway through a society's economic development towards the post-industrialized technologically advanced level. Earlier, humans accepted a clouding of the sky since cheap clothes and larger harvests more than compensated for the inconvenience. Now, freedom from want has made nature valuable to us, so we clean up. In the demand for nature quality lies a willingness to pay for the pristine valley and the untouched slick-rock. People are interested in partaking in activities outdoors, and this interest – and time to indulge in it – expands with income; see Røed Larsen (2001). This interest may entail acceptance of maintenance and clean-up costs. If this is so, the environmental Kuznets-curve uncovers preferences and preference formation processes that contain hope for sustainability. According to this

line of thought, as they grow wealthier societies will move environmental priorities upwards on the agenda.

Let us examine the psychological origin of tourist travel. People's demand for travel has roots in the perennial need for stimulation. People leave from Port Boredom and embark on voyages to Excitement Island. Their tickets read Novelty Thrill Cruise, a tempting escapade when the daily life has lost some color. Life is a journey, not a destination, so we will keep on moving. Scitovsky (1976) demonstrates how the search for challenges is deeply rooted in fundamental biological needs. Recently, the activities arising from that need have been allowed to expand since people have gotten rich enough to afford them. But the question is: How can we continue to supply stimulation?

3. Supply of Stimulation: Travel and Its Substitutes

Planet earth is a commons, and destinations are many, but not infinite in number. Nevertheless, limitations on the 'where' can be alleviated by changing the 'how'. Economic history abounds with examples on how scarcity of resources led to ingenious inventions to handle the emerging problems. Physical relocation often requires a locomotion vehicle. Fortunately, the vehicle and its fumes are subject to improvements; see for example a recent study by Di Pascoli, Femia and Luzzati (2001). In the future, there may be teleconferences and electronic presence devices that will make some tourist travel and stimulation mobility superfluous. There may be electronic stay-at-home entertainment as a substitute for away-from-home fun. Novelty acquisition in cyberspace, electronic books, and in 3-D surround Mozart concerts can take over some demand for physical relocation. Such innovative technologies can transfer the mining of novelty from an exhaustible ore to a renewable source. Moreover, there is also a great unknown in the travel equation: Outer Space. Dennis Tito was quite recently the first tourist in space, and surely not the last. The vastness of space travel may alleviate, even put a stop to, the pressure tourist travel represents on Earth. However, the opportunity to go out in space may not be available for a long time, and people may not want to go. In the meantime, we must concern ourselves with tending to the qualities here.

The technology factor is important, though. We know little about the nature of future travel opportunities. One hundred years ago, we would have known that man had learned how to extract energy out of coal and gasoline to support transportation by muscle, wind, and current. But we would not have been able to foresee two-story airplanes, cruise-ships the size of towns, and cars crossing continents in days. Neither can we today foresee all facets of future travel. There may be hydrogen cars, magnetic trains, and space tourist resorts. Yet, there is great danger in trusting technology. The environmental relationships are highly complex, and some may be irreversible, see e.g. Nordhaus (1991), Portney (2000), Schneider (2002), and Lovejoy (2002). Tourism travel has consequences for and impacts on involved aspects of biodiversity, extinction, and global warming. Some actions may be regrettable, and not for us to start over with. Wilderness life is a topic acutely affected by hiking, camping, mountaineering, general tourism travel, and economic activity. Skonhoft and Solem (2001) show how wilderness land in Norway is decreasing and the development displays no signs of environmental Kuznets Curve relationships. Thus, safe-not-sorry precautionary strategies may be preferred to business-as-usual skeptical or technology-will-save-us optimistic ones.

4. The Challenge to Policymakers: Balancing Demand with Supply

To reach a sustainable level of travel the ultimate question is the coordination of desire with possibility; demand for travel with supply of it. Demand is what our dreams are made of. Supply is what nature and human knowledge can provide for us. Some of demand is changeable since it is

socially constructed; some is not since the need for stimulation is genetically inherent. Some supply is non-renewable since it is a gift from nature; some supply is renewable since it is organic or made of knowledge. The trick is to identify these different factors and to accommodate them to a mode of travel that is agreeable and sustainable. The balancing involves not only the letting wants of the present population meet the possibilities facing the present population, but also making sure the correspondence may continue into the future. In principle then, present prices shall signal present and future scarcity, carrying capacity, and sustainability issues. In practice, market prices do not. There are many phenomena that are known to contribute to market failure, for example the presence of externalities, public goods, market power, asymmetrical information, and natural monopoly production structures. In addition, since the future is not here to bid, the market auctions never hear the voices of their preferences. Naturally, only by accident will current bidders represent future bidders. Thus, there may exist wedges between current market prices for tourist travel and the socially optimum intergenerational prices. In other words, even if getting the prices right – the so called Pigou correction after Pigou's (1920) contribution – in principle is sufficient to ensure sustainability, in practice we may err on either side. Most likely, there is a status-quo bias so we underestimate the value future generations may put on species, natural splendor, and environmental amenities. To counteract that bias and to safeguard specific natural phenomena, it may be wise to implement precautionary policies.

The intergenerational concern is a key issue in sustainability; see e.g. Asheim et al. (2001), Le Kama (2001), and Weitzman (1998). There is consensus that one generation cannot – should not – take precedence over another. In today's world, we – the current generation – are representatives for the future. As representatives of our collective effort, governments have a duty to be forward-looking, although how remains a question. Free-market supporters want markets left alone. Interventionists support doing something rather than nothing, in an effort to correct markets. The truth probably lies somewhere in the middle. Free markets spur creative innovation, but governmental intervention can encourage apt substitutions. In managing tourism travel, there is a potential urgency. We may not have the luxury to await the final proof of global warming. We may not have the opportunity to reverse processes set in motion by an invasion of the commons by tourists. Thus, precaution is needed, and policymakers worldwide are beginning to accept the premise. Wilderness trails now come with limited access, prices go up for utilization of vulnerable areas, scenic wonders are increasingly protected, extinction-endangered species are looked after, and environmental levies are put on a range of goods that may harm the environment.

There are many definitions of sustainability. So far in this exposition, we have relied on an intuitive understanding of the concept. We shall be more precise. Pearce and Atkinson (1995) discuss the content of the concept and how to measure it. Basically, sustainability requires that we use up only so much as we create. The opportunities available to our generation should continue to be available to the next. The *Hicks-Page-Hartwick-Solow* rule states that the value of net change in the total capital stock must be equal to or greater than zero. In this meaning of sustainability, capital entails environmental amenities, nature attributes and assets, physical capital (e.g. factories) and human capital (knowledge). The sum of all capital or means available to a generation shall not be smaller than the preceding generation. Put differently, sustainability requires that welfare should be non-decreasing over time.

Balancing demand and supply will be hugely difficult. Some potential travelers are not even born yet. Included in demand must be some account of what an option is worth and the value of existence, even to people who might never hear or might never have heard of the opportunity. Your grandchild may never have the opportunity to see the wild canine native to Norwegian forests, because road construction and other human activity resulted in the extinction of the wolf. What would he have been willing to pay or to sacrifice for that opportunity had he known about it? Notice that in asking about the willingness to sacrifice we do not have to limit ourselves to a monetary measuring rod. The answer must not necessarily be restricted to money. The willingness to abstain or the acceptance to

give up can be measured in or thought of in terms of whatever feels natural, convenient, or comprehensible. It is key, though, that we realize that resources are scarce and therefore always have alternative usage. Since we cannot have all we want, we must prioritize or economize. We ought to give high priority to what is dear to us.

So, when contemplating the trade-off between today's needs and tomorrow's possible needs, we must attempt the heroic act of estimating and projecting future preferences. The true answer – not known by anybody but an unborn – is a factor of the intergenerational demand. We struggle to get prices – or rather, priorities – right. Prices represent needs, desires, and wants. But prices also represent possibilities, available resources, knowledge, and technology. Price travel too low and nature's carrying capacity is threatened. Price travel too high and welfare is hindered. Open access and zero pricing is in general a big problem in environmental issues; see e.g. Wilen (2000). In tourism matters, open access may be especially acute because of the threat to wildlife, biodiversity, and local habits. Aircraft operate the skies and emit discharges directly into the atmosphere without much of a penalty. Cruise ships sail the oceans at equally low social price, but not without social costs. Western tourists populate South Sea beaches, climb Himalaya mountains, and enter Brazil jungles at little cost. Obviously, a good that is free will be consumed vigorously. Equally obviously, international taxes on tourist activities that bring the private cost up to the social cost will be difficult to agree upon, let alone implement. In fact, international agreements on environmental issues unfortunately seem far away.

Moreover, not only do free-market advocates oppose Pigou (i.e. price correcting) taxes. Protests are heard from the other side as well. Activists, environmentalists, and ecologists react against pricing nature. Often, the objections are founded in metaphysical belief systems or on moral grounds. The worry is understandable, but misplaced. Prices are only an instrument society uses in order to make sure its position is the best among all available positions. Remember, that refusing to use prices, or refusing to prioritize your needs, is a position (reflecting an implicit price) all the same. But if that random position, reflecting a refusal to extract knowledge from information, is far from the optimum, the welfare of this and future generation may suffer. Unfortunately, we do not have the luxury of declining to make a stance. Opinion on sustainability is not a matter of invitation. Philosophically, any position taken, even that of waiving hands or shrugging shoulders, is a position with benefits and costs to society. Thus, we should make as informed choices as possible, and in the search for the better strategy, we must make use of intellectual tools like prices, probabilities, estimates, and even guesstimates.

5. Conclusion: Steps Towards Sustainability

Society's goal is to balance pleasure with possibility; to achieve correspondence between individual choices and collective consequences. At its disposal lies a spectrum of policy tools: access limitation, use constraint, preservation and protection, subsidies and taxes, permits, standard requirements, clean technology enforcement, property rights, incentive schemes, and education. The question is how to use the instruments in a way that you and I, all countries, present and future generations will agree upon. It is a formidable task, as demonstrated by the disagreements over the Kyoto protocol. Preferences and values differ. Scientific judgment is uncertain. Attitudes to risk vary. Beliefs about future technology remain only beliefs, and are subjective. However, policies have been implemented in the form of environmental taxation, standard requirements, and in many other ways.

Tourist travels soar while the area within which we can travel is finite. Until now it has remained mostly free of charge. Maybe it should not be. Ever since Hardin (1968) popularized the exposition of the tragedy of the commons, a large segment of the populace has understood that a free good may become over-consumed. People accept high-traffic charges when they use telephones in peak hours. They retain their willingness to travel even in high season when prices on air travel and hotel charges

increase. The ideas that something scarce is dear and should be priced accordingly, and that something free may be overused, are intuitive. Thus, we may price travel more and still have popular support. Congestion in parks, on beaches, and on trails is a function of price. Too low a price yields too much use. The resulting behavior affects nature quality. There is growing acceptance for the position that the earth is nothing but a large commons, and it may be in danger of exploitation and – in this context – over-travel. A part of the solution is putting a price on use of sought-after, but hitherto non-priced nature attributes.

Nobel laureate Robert Solow pointed out that one step towards sustainability may be the least glorious: Keeping accounts, see Solow (1992). In other words: putting prices on assets and effort. He claimed that the world we travel must be valued and priced. If nations, he hypothesized, put this in practice by looking at their natural assets in the same way as they look at other – say financial – assets, they have the potential to create a mind-shift. Green domestic product per capita is one measure that arises from deducting for asset depreciation. The idea of exactly that, an environmental national product, has caught the attention of economists, statisticians, and national accounting agencies, see Alfsen and Sæbø (1993), Asheim and Weitzman (2001), Kuik and Gilbert (1999). But it is difficult in practice, as Aaheim og Nyborg (1993) point out. Less ambitious, and more feasible, is pricing the use of specific tourist targets. But even getting the price right for a visit to Yosemite or a trip to Bali is complicated. Estimates of trail depreciation, congestion effects, and wildlife disturbance when a hiker makes it to the top of Half Dome are fraught with errors. However, at the heart of sustainability lies the challenge that concentrated and concerted effort in the long run will pay off.

People say that only an economist can believe that the start of a solution to such a hugely important question lies in prices and account books. It sounds dull. How can small print in national accounts save trails in Yellowstone and African elephants? The means do not seem sufficient for the ends. Yet if the 'red and black' of account books affect millions, why would not a green column do as well? By counting the elephants, we can save them. We will repair, restore, and clean up. We will price travel and usage of the commons. Sustainability boils down to finding and enforcing the right level of usage of a common world.

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