

Basic income for sustainability

Paper for the BIEN Congress 2021, Glasgow.

Yoram Krozer, Jos Oude Elferink, and Jolien van de Werff, PvdA Duurzaam

Amsterdam, 13/07/2021

We are grateful for comments by Johan Horeman, FNV Amsterdam.

Abstract

This paper links the ideas about basic income and sustainable development. Given market and policy failures with respect to common goods, in particular maintaining availability of environmental qualities, more communities' activities are necessary. Applications of basic income complement market and public services. These applications for circular economy, smart cities, sustainable innovations and quality incentives in the Netherlands are underpinned. Estimates with € 1000 income guarantee indicate that such applications provide € 8.8 billion additional benefit. After subtracting all costs of labour net benefit of more than € 2.1 billion can be attained, taking into account a possibility that 5% of labourers choose for the basic income rather than higher wages. Introduction of the basic income is possible in a short term if present social assistance in the Netherlands is delivered as an entrepreneurial income. Robust basic income is attainable when all adult citizens benefit based on reciprocity between recipients and providers. Erasing various tax exemptions doubles net income from low wages along with fair basic income, thereby mitigate rivalry on the labour market.

1. Introduction

This paper discusses applications of basic income for sustainable development. Two questions are addressed: what costs and benefits can be expected when basic income is applied for sustainable development and what arrangement can deliver a robust basic income for this purpose. A few definitions help to misunderstandings. Sustainable development is defined as maintaining availability of common goods with particular attention to environmental qualities; basic income is considered a regular income transfer to every individual citizen not based on the wage labour; robust means it withstands temporary economic setbacks; and arrangements refer to public policies that contribute to 'broad' welfare.¹

The sustainability is addressed only on the fringes of debates about basic income. Besides remarks in the debates, a literature review that detected 1,168 scientific publications about the basic income until 2018 found only 8 references to sustainable development;² all of the are found in the collected papers about fairness across generations.³ More recent publication underlines importance of this debate with regard to many regional arrangements in the United States of America (USA) where social protection is low compared to wages.⁴ Another one by the Finish authors reflects on the environmental impacts of basic income with reference to the experimental basic income in their country. The authors estimate that the basic income reduces environmental impacts because low-incomes consume less but the authors do not assess the beneficiaries' consumption before, during and after that experiment.⁵ Such assessment is instrumental because low-incomes spend large part of their income on basic goods, which are usually material-intensive, thereby usually cause larger environmental impact per income than labour-intensive services. Our paper focused on applications of basic income that contribute to sustainable development.

The arrangements called basic income can be floors of income for unemployed, income guarantees in times of low income and universal basic incomes for every resident, which can be based on rents of private funds, or transfer of public tax-income. For all cases, the International Labour Organisation of the United Nations recommends a few criteria: an adequate and predictable basic income that is inclusive across societal groups and based on broadly supported, legal arrangements.⁶ In our paper, an income guarantee with elements of universal basic income is pursued based on public financing in line

with those recommendations. It is based on adaptations of the social assistance in the Netherlands which are widely considered as generous income floors.

Public arrangements of the basic income depend on the political decisions but the preferences of electorates differ from the programs of political parties. The electorates in high-income countries (OECD), which are recipients of a basic income, largely adhere a basic income for fair livelihood of all citizens as more than 50% of all citizens support this idea with spread from 35% to 80% across those countries;⁷ this support is even higher in the European Union (EU). However, nearly all political parties hesitate, or object it. Main arguments on the right-side are that the tax transfers are unaffordable and impede regular jobs, whereas the left-wing arguments are that the basic income invokes ‘moonlight works’ which undermine waged labour and that public services provide better work and decent living. In result, programs for basic income are pushed to marginal political parties though the encouraging initiatives and arguments multiply. Although empirical findings on the effects of basic income on labour are scarce studies on mid-income and low-income countries suggest that the basic income can increase the waged jobs due to entrants on the labour market, in particular women, and acquisition of skills for more qualified jobs.⁸ The income floors in those countries are low compared to ones in the countries in North-West Europe often called the ‘welfare states’ where generous social assistance is assumed to replace waged labour, although the empirical basis for this assumption is thin,⁹ and a lot depends on the income distribution and tax systems which vary across the welfare states.¹⁰

We assume that high basic income has a replacement impact in the Netherlands which increases the costs of social assistance and reduces tax-income and we neglect the income distributions and taxation that depend on the details about basic income. This paper is focused on the applications of basic income for sustainable development, which is useful in many countries. This proposition is presented in a memorandum by PvdA Duurzaam, which is a working group on sustainable development of the social-democratic party in the Netherlands. The argumentation is derived from debates and publications of BIEN, Basic Income Association in the Netherlands (Vereniging Basisinkomen), Basic Income think tank (Denktank basisinkomen), PvdA network group basic security (netwerkgroep basiszekerheid), Federation Nederlandse Vakbeweging (FNV trade union) Amsterdam and the expert meetings of PvdA Political Cafe, Café Volt, Teach-In Basic Income and others, as well as scientific publications on basic income. After justification of the basic income for sustainable development and several illustrative applications with the costs and benefits, possible arrangements are outlined and conclusions are drawn.

2. Basic income for sustainability

Introduction of the basic income for sustainable development refers to economic debates about policies for the common goods. A common sense in the economic thinking is that markets operate efficiently if private interests can set prices of goods but fail when the price setting cannot be reached because the goods are too precious to be priced, or contrary to the because nobody is interested in the purchases. For example, love, friendship, care and suchlike ‘moral goods’ are priceless because considered too important for the market transaction and many people consider negotiations about the moral goods as unethical.¹¹ Contrary to those, infections, fires, pollution and other harming impacts of an activity on other interests are often not priced because hardly anybody wants to pay for the prevention of such ‘external effects’; willingness to pay is observed only in the utopian ideas about timeless and frictionless transactions in which external effects are priced through the market transactions.¹² For convenience, we neglect the issue of moral good, considered individual preferences that are satisfied by the voluntary activities without payments. It is focused on the prevention of external effects, in particular ones that undermine availability of environmental qualities.

If markets fail to prevent harmful environmental qualities, authorities are assumed to prevent them through regulations that impose full liability on those that cause harms or tax all harms, referred to as

the 'polluter pays principle' in policies.¹³ Although this principle is widely acknowledged for more than hundred years, policies fail because provide entitlements for harmful private interests,¹⁴ or ignore harms when preoccupied with administrative processes¹⁵. For example, an estimate based on the authoritative reports shows that about USD 2,750 billion financial support was provided in 2015 to the interests that harm environmental qualities; this support encompassed USD 1,300 billion for fossil fuels, USD 430 billion for intensive agriculture, USD 520 for useless infrastructure, USD 500 billion for the unregulated mining.¹⁶ In the EU in 2012, the support for fossil fuels exceeded € 180 billion despite policies on climate change, of that nearly € 11 billion in the Netherlands;¹⁷ for understanding of this magnitude, the latter policy support is nearly as large as global annual average profit of the Royal Dutch Shell during last decade which implies that the profit is largely determined by policies. Erasing of this policy failure along with shifting the tax burden from labour to energy, materials, space and pollution fosters sustainable development.

If markets and policies fail, communities can pursue resolutions for pressing problems. They can be successful if the community interests create arrangements that define new courses of actions despite hinderance by incumbents.¹⁸ Successful community activities were also experienced with respect to the basic income in the Netherlands during the economic crisis of 1980s. Many young people used the unemployment assistance meant to seek a job for experiments in the sustainable agriculture, sharing economy, new media, renewable energy and other novelties. While these inventors were detested by the elite as "walkers with broken shoelaces" and were hindered by the representatives of employers and employees in regulatory commissions, many local authorities turned a blind eye on regulations and supported those inventions, which laid foundations for the creative sector, renewable energy, circular economy and other businesses promoted as engines of the Dutch economy twenty years later. However, despite calls for basic income arrangements were unsuccessful.

3. Application of basic income

Herewith, the basic income can be considered an arrangement for the communities' benefits. The basic income is particularly beneficial for communities when it involves individual capabilities in labour-intensive services because markets and policies usually fail to deliver such activities; the markets turn costly individual capabilities into mass production of gadgets, whereas policies turn into totalitarian controls of individuals. Herewith, applications of basic income in four fields of activities are estimated. Obviously, these are only illustrations of many more possible applications in various areas of social life. While the applications can be pursued in many countries, the presented costs and benefits are based on the situation in the Netherlands. These applications of basic income in the ascending order of individual capabilities are: circular economy, networking in cities, sustainable innovations and artistic expressions.

Circular economy

Carpentry, confection and other crafts are labour-intensive and individual capabilities obtained mainly by education and training. In the Netherlands, about 770,000 craftsmen generate a turnover of € 110 billion per year based on various services. Despite demands for supply of artisanal products and maintenance services, this craftsmanship has a low status and has been crowded out by disposables; for example, a Unilever assessment is that time-to-market of new products is globally reduced by half every ten years.¹⁹ The Netherlands is no exception. Craft education and training are not popular and has a low status as the incomes for skilled craftsman in small and medium-sized enterprises are low and profits for the self-employed craftsmen are uncertain. An income guarantee against the disappointing income can foster economy of the crafts, thereby render more attractive education of young people and training for the upgradation of skills. The capabilities are necessary in repairs which are indispensable services for the circular economy, it means keeping useful products in circulations. If such basic income for

entrepreneurs, workers and students in crafts and repairs provides income security, the manufacturing industry can compete with the designs for long-life products and guarantees in services which reduce materials disposal. As the market for circular economy in the Netherlands is estimated to exceed € 7.3 billion per year, of it 23% for repairs,²⁰ the basic income for crafts in circular economy can yield € 1.2 billion per year, excluding benefits of better designs, less material consumption and waste.

Smart cities

Cities live thanks to the networking of numerous volunteers in sports, care, education, and others activities in communities, which generate tacit knowledge of the participants. However, such networks rarely create jobs because insufficient scale of market operations and policies that invoke bureaucracy, whilst volunteers cannot deliver continuity. The tacit knowledge in the communities can be enhanced by basic incomes for the volunteers in communities, which contributes to the modernization of urban economies called ‘smart’ cities. An application is in offices. While the average commuting distance in Europe approximates 50 kilometres both ways during nearly two hours a day, growing by 7% annual average, it dilutes the knowledge networks in communities because imposes longer travel time and reduces density of housing, along with more accidents, pollution and other external effects. The basic income enables small-scale facilities for telework and communication within communities, which increase the intensity of knowledge networks and decrease those external effects. An estimate of the facilities for telework and communication that are distributed in communities indicates that 10% to 15% of the annual commuting travels can be reduced through such distributed offices. More effective use of workplaces and less commuting intensity save € 3.5 – € 5.8 billion per year, depending on assumptions. The higher number is estimated based on the difference in the scale of teleworking between Denmark and Netherlands in 2010’s, which is before the impacts of COVID-19 on teleworking.²¹ Besides those financial benefits of telework, this application of basic income fosters local tacit knowledge for liveable cities and reduces the harms of commuting.

Sustainable innovations

Many inventions originate in the inventors’ experimentation during education and free time, which means outside the domains of markets and policies. While this experimentation generates a chance of a successful invention, many years of efforts are needed for development of an invention into product that can be produced and is attractive for sales to customers, which is innovation. Inventors deemed promising can obtain policy support, but many cannot recover high costs of that innovation process, even though their inventions are attractive to some customers which can be customers that pursue social responsibilities. The sustainable innovators have even higher costs because integrate unpriced ethical values into their products which can be at odds with the market demands for the polluting incumbents. Although authorities often praise the sustainable innovations, they also impede them when support rival incumbents. The basic income provides opportunities for longer experimentation which enables to meet the unpriced, ethical qualities. It creates a level playing field for sustainable innovators which generate benefits for businesses. An estimate is done for the Netherlands using 3.2% Dutch share in international trade. Given that share, the turnover of Dutch companies on the global ‘cleantech’ market should be minimum € 6.8 billion per year,²² but it is actually about € 4.6 billion per year, measured in 2010.²³ A basic income combined with other support for sustainable innovations can generate additional € 2.2 billion income. Besides this direct benefit, a larger cleantech business reduces environmental impacts and encourages companies’ social responsibilities, which are considered a competitive advantage.

Quality incentives

Product qualities depend on so called ‘creative business’ that usually generates creativity from the arts. However, markets and policies usually fail in fostering arts because artists deliver one-off services.

Although the deliveries of art services involve many hours of work the payments for these services are low and the results are insufficiently appreciated because criteria for the artists qualities are absent and esthetical preferences disputable while results are costly compared to the mass production. In effect, many artists live on the edge of subsistence though they are sources of profits for others in media, advertising, design and commerce. In the Netherlands, nearly all 100,000 statistically registered artists by early 2000's – more recent data is not found – work for the incomes far below the level of social assistance and have to do additional works for coverage of their expenditures in the art works and living. In effect, many creative capabilities are not utilized. Basic income enables the artists to execute their capabilities and reduce the costs of arts because the art services are partly paid. In turn, better art services enable designers, architects, and other users of the arts to improve qualities of their services for mass consumption. In the Netherlands, the economic value of the performing arts, museums and literature is estimated at about € 33.5 billion by 2010, which is excluding payments for the popular arts, films and architecture. After deducting all costs in the executing arts, the welfare gain from the consumption of arts is estimated to be about € 1.9 billion per year.²⁴ This application of basic income would provide those benefits along with positive effects of the art services on product qualities for consumption.

4. Costs and benefits

Table 1 summarizes those applications of basic income for sustainable development in the Netherlands. It shows that a large number of people can be involved in those applications with annual € 8.8 billion direct social benefits; the indirect benefits on productivity and welfare are excluded. An issue is whether those benefits exceed the costs of those applications, given that the basic income must be funded and provide decent living while prevent distortion of wages in labour. A simple calculation is made for the situation in the Netherlands. A monthly basic income of € 1000 is assumed per person that justified application. This is similar to present social assistance, and it is median of various proposals for the basic income in the Netherlands from € 500 to € 1,500 euros per month.

Table 2 indicates the social costs of funding that basic income. The starting point is about 1 million unemployed that are eligible for the social assistance of € 12,000 income per year paid by taxes on the waged jobs. The annual total costs are € 12 billion. This total is generated by 7 million jobs with average wage of € 35,000 per year taxed 20% per wage. These costs are indicative for the present situation in the Netherlands by early 2020s; they are shown in the first line in the table. When the basic income is introduced, some people may obtain the basic income instead of wages, which means an increase in the expenditures along with a fall in tax – income. As there are no experiences about replacement of labour by basic income, we assume that some people choose for a lower basic income; for example, those with heavy jobs or nearly retired. Assuming that 5% of all waged income is replaced by the basic income, the additional costs are about € 6.7 billion a year. This situation is shown in the second line in that table. Compared to the initial situation, those applications of basic social generated about € 2.1 billion a year direct benefits; it is without considering the indirect benefits for the labour markets as lower absenteeism on jobs because people are less sick and better performance due to higher motivation.

This case illustrates net social benefits of the basic income. If the basic income is more attractive more people leave the waged income, which implies that the tax-incomes fall alongside higher costs of basic income; for example, nearly 8% shift from waged labour to basic income generates net social loss because of lower tax-income combined with higher expenditures. Therefore, the basic income renders a fragile balance between the social expenditures on basic income and the tax-income carried by wage earners. This fragility needs mechanisms similar to the social insurances with a capital stock that can buffer temporary imbalances, or another mechanism that reduces the fluctuations in the social costs and benefits; for example, linking of the basic income to a percentage of minimum wages. Note that the replacement of waged labour is mentioned whilst the basic income also provides benefits to businesses

if low profits are generated. Hence, the business income should also be considered but this is excluded for the sake of simplicity.

5. Arrangements

The Netherlands is a high-income country with well-developed arrangements for social assistance based on market transactions and state transfers. Therefore, we prefer improvements of some arrangements vested in the past above design of a new system. This reformistic approach to the basic income can be attained within a reasonable period of time; say a few years. The social assistance for retirement and income after lay-offs are market-based because paid mainly by employers and employees based on collective agreements between their organisations. These arrangements are excluded from the basic income. The social assistance for children (*kinderbijslag*), elderly people (*AOW*) and unemployed (*bijstand*) are paid by the state mainly based on direct taxes on wages and income from capital. Though different arrangements are found across countries the basic elements of this system are similar in all welfare states because derived from “Social Insurances and Allied Services” report by the Government of United Kingdom in 1942, better known as the ‘Beveridge report’. Herewith, we focus on the unemployed assistance.

While the social assistance for children and elderly are politically undisputable and payments are unconditional, the right for unemployed assistance is often a charity and it is bound to many conditions. In exchange for this assistance, the unemployed are obliged to seek jobs, accept job propositions or obligatory works, report all volunteer activities, additional income from activities or help, as well as all changes in household, large purchases, off-days and suchlike. Moreover, all capital must be consumed, for example a house and other properties. The entrepreneurs that fall short of income during some time must prove that they are not insured and cannot obtain a loan; they can obtain the unemployed assistance if stop with the entrepreneurial activities and consumed all properties, which disables a restart after a while. These legal obligations are controlled by municipalities with limited scope for deviations, which increase dependency on public expenditures rather than foster creation of jobs and businesses. Hence, there is all reason to introduce the basic income as replacement of the unemployed assistance.

However, policies are focused on the cuts in expenditures. Present unemployed assistance per person in the Netherlands is about € 1170 a month, linked to the gross minimal wage. The annual state expenditures are in total about € 11 billion, nearly 20% of that total is used for the execution by the state which covers mainly controls of the obligations mentioned above.²⁵ Most political parties pursue lower expenditures through exclusions of various social groups; for example, the exclusions of entrepreneurs, young adults, people with some savings and temporary income and foreigners. Meanwhile, the right-wings parties also pursue tougher controls, whereas the left-wing ones oblige unemployed for training and jobs at minimum wages, or even below that. No doubt that many unemployed want a job and basic income is considered an inferior solution to a decent job because of lower income, less social contacts and other benefits. Nevertheless, many unemployed wish a fair basic income for individual activities. This choice is undoubtedly better situation compared to most countries in the world without any social benefits, but turning the unemployed assistance into the basic income provides further improvement.

An introduction of the basic income is feasible in the short term when the beneficiaries can choose between being available for a waged jobs or individual entrepreneurial activities with fall back on the unconditional unemployed assistance in times insufficient income. A major advantage of such fall back is that bankruptcies can be avoided which prevents huge social harms and bureaucracy. However, it is not a basic income in the sense of income guarantee of obligations cannot be dismissed by the municipality though allowed temporarily. Legal changes are also needed for the robust basic income. A few principles can accelerate this introduction because broaden political support.

For a robust basic income, the basic income should be valuable for all individuals in the society, and provide reciprocity between various interests. The former requires that all have an interest in paying

and receiving the basic income. This means that the basic income is available for every individual, adult citizen whose income fall below the poverty line defined in the Netherlands by the unemployment assistance linked to the minimum wage. Hence, all low-incomes below that poverty line should be entitled, including entrepreneurs and craftsmen, persons who were rich but lost income and people with capital possessions but low income, irrespective whether the income is obtained from wage, profit or inherited; in this sense it is universal. The reciprocity in basic income justifies the transfers of tax-income for the basic income. This implies that the applicants for the basic income should indicate contribution of their individual activities to the common good in community whether it is developing of individual capability, or participating in paid or unpaid entrepreneurial, social and cultural activities for the common good; in this sense, the activities can be considered social entrepreneurship. Contrary to the present regulations, ‘hanging around’ does not pay whereas the activities with a contribution to common good deliver the basic income. Meanwhile, that reciprocity principle also implies that the providers of basic income are committed to remove barriers for such social entrepreneurship and if requested to support the initiatives.

A sensitive point is payment in addition to the basic income because can cause frictions with the lowest wages. Rather than restriction on the basic income, which usually involves political disputes and costly controls, it is more effective to consider this social entrepreneurship subject to usual taxation and regulations as long as these additional incomes are legal and replace the basic income above a threshold. A more important tool for the mitigation of frictions between low incomes from wages and basic income is the elimination of tax exemptions and relieves for a higher net wage, given gross wage. For the Netherlands, it is estimated that simplification of taxes can double the lowest net wages, thereby create sufficient income distance between the lowest net wages and basic income for the job incentives.²⁶ For sustainable development, it is also effective to shift a part of the direct taxes on labour into capital, in particular the energy and material intensive capital because this is most polluting. This shift is justifiable as the global income from capital grew on annual average in parallel to the income from labour until 1990s but the capital income grew twice faster from 1990s to 2019. Meanwhile those growth rates were twice higher in mid- and low-income countries compared to high-income economies which implies that the arrangements mentioned above can also be applicable to those countries.²⁷

6. Conclusions

This paper underpins the introduction of basic income as a tool for fostering sustainable development. The basic income enables to realise activities for the common good in communities that cannot be realised through markets and authorities because of deficient pricing and failing policies. Benefits of the basic income are illustrated in the circular economy due to repairs of products, in urban development through denser knowledge networks, in sustainable innovations driven by longer experimentation and in quality of products delivered by the arts; more areas can be pinpointed. Estimates for the situation in the Netherlands indicate € 8.8 billion additional income per year, excluding positive effects of the activities with basic income on welfare and productivity. This additional income is higher than the costs of basic income including changes on the labour market. The basic income can be used for contribution to common goods considered as a social entrepreneurship. For a robust arrangement, all interests below a poverty line should be eligible and enabled to contribute to the common good.

<p>Table 1. Potential yearly net benefits of exemplary applications of basic income for sustainable development in the Netherlands.</p>

Goal	Application of the basic income	Beneficiaries	Benefit in billions €
Circular economy	Craftsmen for product repairs	> 770,000	1.2
Liveable cities	Communities' knowledge networks	1,000,000	3.5
Sustainable innovation	Inventors in sustainable products	≈ 50,000	2.2
Quality incentives	Artists' work	>100,000	1.9
Total benefit			8.8

Table 2 Annual social costs and tax-income based on simple but realistic assumptions about the basic income									
	Costs of unemployed benefits			Job incomes and taxes				Budget after pay-outs	Balance
	Million un-employed	Benefit in €	Total in billion €	Jobs x million	Wage in €	All wage in billion €	20% tax		
Initial situation	1.00	12.000	12	7	35.000	245	49	37	0
Basic income	1,35	12.000	16,2	6,7	35.000	233	47	30	-6.7

References

- ¹ A 'broad' welfare is comprehended as satisfying individual and social demands, and aspirations for income, wealth, leisure, care and other values based on decision making across generations, sexes and races; all that given scarce resources. Based on Sen, A., (2009), *The Idea of Justice*, Penguin Books, London.
- ² MacNeill T., A. Vibert, (2019), Universal Basic Income and the Natural Environment: Theory and Policy, *Basic Income Studies*, June 2019, pages 1-5.
- ³ Birnbaum S., (2009), Introduction: Basic Income, Sustainability and Post-Productivism, Debate the Green Case for Basic Income, *Basic Income Studies*, Volume 4 (2), December 2009.
- ⁴ Hall R.P., R. Ashford, N. A. Ashford, J. Arango-Quiroga, (2019), Universal Basic Income and Inclusive Capitalism: Consequences for Sustainability, *Sustainability*, 11, 4481, pages 1-29.
- ⁵ Kallaniemi S., J. Ottelin, J. Heikonen, S. Junnila, (2020), Downscaling consumption to universal basic income level falls short of sustainable carbon footprint in Finland, *Environmental Science and Policy*, 114, pages 377-383.
- ⁶ Ortiz I., Ch. Behrendt, A. Acuña-Ulate, Quynh Anh Nguyen, (2018), Universal Basic Income proposals in light of ILO standards: Key issues and global costing, ILO, Geneva
- ⁷ Roosma, F. (2020), Public opinion on basic income: Mapping European support for a radical alternative for welfare provision, *Journal of European Social Policy*, 2020, Vol. 30(2) 190–205.
- ⁸ Mideros A., C. O'Donough (2014), The effect of unconditional cash transfers on adult labour supply: a unitary discrete choice model for the case of Ecuador, UNU-MERIT, Maastricht Graduate School of Governance, Maastricht.
- ⁹ Francese M., D. Prady, (2018), Universal Basic Income: Debate and Impact Assessment, International Monetary Fund, Washington.
- ¹⁰ Martinelli, L. K. O'Neill, (2019), [A comparison of the fiscal and distributional effects of alternative basic income implementation modes across the EU28](#), University of Bath and University of California, Bath.
- ¹¹ Tirole J., (2017), *Economics for the Common Good*, Princeton University Press, Princeton and Oxford.
- ¹² Coase, R., (1972), The problem of Social Cost, reprint in R. Dorfman en N.S. Dorfman (eds.), *Economics of the Environment*, selected readings, W.W. Norton & Company, New York, pp. 142–171.
- ¹³ Pigou, A.C. (1920), *The Economics of Welfare*, 1st Edition, MacMillan, London, p. 115-117.
- ¹⁴ Krueger A.O., (1974), The Political Economy of the Rent-Seeking Society, *The American Economic Review*, 64 (3), p. 291-303.
- ¹⁵ March, J.G., J.P. Olsen (1984), The New Institutionalism. Organizational Factors in Political Life, *The American Political Science Review* 78 (3), p. 734-749.
- ¹⁶ Krozer, Y., (2015), *Theories and Practices on Innovating for Sustainable Development*, Springer, Heidelberg.
- ¹⁷ Support for fossil fuels in 2012 in the Netherlands was: belastingvrijstellingen communale wateren, luchtvaart, heffingsvermindering energiebelasting, afdrachtvermindering scheepvaart, kilometervergoeding eigen auto en afschaffen geen bijtelling prive autogebruik - € 6.1 billion, subsidies op oliebrandstoffen – € 0,34 billion, belastingvoordeel grootverbruik elektriciteit en gas bij huishoudens en bedrijven - 4,4 miljard euro.
- ¹⁸ Ostrom, E., J. Burger, C.B. Field, R.B. Norgaard, D. Policansky, (1999), Revisiting the Commons: Local Lessons, Global Challenges, *Science*, 284, 278–282.
- ¹⁹ Ganguly A., (1999), *Business-driven Research and Development*, MacMillan Business, New York.
- ²⁰ SER, (2013), *Handmade in Holland, vakmanschap en ondernemerschap in ambacht*, Den Haag.
- ²¹ Krozer Y., (2017), Innovative offices for smarter cities, including energy use and energy-related carbon dioxide emissions, *Energy Sustainability, Society*, 7:6, pages 1-13
- ²² The global 'cleantech market' exceeded USD 499 billion (€ 372 billion) in 2010, of it 58% trade, if assumed proportional to other manufacturing, which is based on Copenhagen Cleantech Cluster, (2012), *The Global Cleantech Report 2012*, Danish Industry Foundation.
- ²³ VLM, 2012, *Milieu technologie Sector in Nederland*, Vereniging Leveranciers Milieu technologie, Zoetermeer
- ²⁴ Marlet G., Poort J. (2011) De waarde van cultuur in cijfers, Utrecht, Atlas voor gemeenten.
- ²⁵ CBS, uitgaven bijzondere bijstand naar cluster, 2020, <https://www.cbs.nl/nl-nl/maatwerk/2021/17/uitgaven-bijzondere-bijstand-naar-cluster-2020>, accessed 15-7-2021.
- ²⁶ Keller, W.J., (2019), *Makkelijker kunnen wij het wel maken*, Elsevier 11-9-2019.
- ²⁷ <https://data.worldbank.org/>