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Abstract

This paper analyses why many citizens believe that the current social and economic system is far from optimal, but do not vote for a change in the desired direction in election processes. There is an increasing erosion of central political parties, and new populist parties are appearing at both extremes of the political spectrum. They are good at attracting angry and disappointed voters but are unable to offer consistent concepts that can produce a social economic system with efficiency, social inclusion and environmental sustainability. Since populist parties agree on what they do not want, and not where to go, both right-wing and left-wing parties are able to cooperate against the prevailing system.

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Karl Aiginger

Political rebound effects as stumbling blocks for socio-ecological transition

Lecture at the Arrow Symposium 2013 (WWWforEurope Lecture)

1. Introduction and outline

Many people share the belief that the current socio economic system – albeit better than any alternatives applied in reality so far – has serious flaws. While people want less inequality (and poverty) and more stability (from climate to financial system), inequality is persistent and chances to limit global warming are fading away. Even if progress is made in these fields the economic policy is going into the direction warranted at slow pace and with persistent backlashes. We underpin the necessity for change by recalling a policy agenda presented by Kenneth Arrow ten years ago calling for more equality, less pollution and more financial stability. Then we ask why people seem consistently to vote against their own interests e.g. in questions of income equality. One reason for this may be that more equality is often connected with a bigger government. The public sector however is costly and outrageous inefficient, so that the benefits of more equality are feared to be over-compensated by higher taxes. As alternative for the inability of the society to pursue an agenda socially and individually beneficial is we propose "political rebound effects" – rebound effects are known in ecological science; if policy goes into one direction for some times, the benefits of the policy decreases and the costs increase making the pursuit of the goal less attractive. This rebound is exacerbated by lobbying effects for the status quo and inefficiency of governments. We complement the paper with some success lines (e.g. that absolute poverty is decreasing and ecological awareness is rising – albeit slowly and erratically). Finally we report about a European research project addressing the necessity of transition, its feasibility and stumbling blocks.

2. The knowledge about the necessity for change

To demonstrate the knowledge of the necessity for radical change we recall three points of a policy agenda Kenneth Arrow presented in 2002 on a conference at Stanford University to an audience of economists from the US, Europe and Japan, as well as experts from OECD, US government and the European commission.

Three main points he addressed were

- increasing dispersion of income (specifically concentration at the top)
- global warming (with a critique of the absence of a national wide policy in the US and some applause for grass route movements in California and New England),
- deregulation of financial markets (with a critique of the repeal of the Glass-Steagall Act and the warning that misreporting and manipulation will be revealed only if the companies failed as in the Great Depression in the thirties of the last century).

More than a decade after Kenneth Arrow emphasized these points we have to register that (i) the dispersion of income has further increased within most countries, (ii) greenhouse emissions are rising to an extent that it has become very improbable to limit global warming to two degrees (up to 2100; an extent considered as the maximum increase our system could endure), and (iii) that there was a "Great Recession" exactly triggered by an instable financial system, including manipulation and misreporting.

The question arises why economic policy if warned by one of the best known economists and not contested by academic and policy experts from OECD, EU and US government did not pursue a policy limiting inequality, curbing pollution and stabilizing the financial system. Out of the many answers possible I want to concentrate on two hypotheses, where the first has been raised already by Arrow and the second reflects my own research (as an economist in favour of a pro active policy approach but deeply disappointed by the inefficiency of government interventions).

Hypothesis 1 originates indirectly from *Kenneth Arrow* (2004[1]). In democracies it is possible that people - repeating and even in the long run - vote against their own interests[2]. Even if a rather large majority of an electorate wants less dispersion of income, no political party may pursue this as its defining goals; or the party explicitly or implicitly favouring redistribution, may lose elections. This puzzle can be extended to other objectives, even if the majority wants to curb emissions, parties in favour of stricter policies may not exist or not win; and even if the majority wants a stable financial system this may be no policy issue or the party preventing regulation may succeed.

Hypothesis 2 is to some degree complementary. Governments in principle are commissioned by voters to support long term goals, but are inefficient to support these goals in a consistent policy. Governments fail to reach their own goals (or those commissioned by the voters, specifically social and ecological goals. This happens *despite a share of government* in economic activity of 50% in Europe and 40% in the US. We present seven examples of government inefficiencies and summarize some of the inefficiency as a "political rebound effect".

[1] For the exact wording see section 3.

[2] Opinion survey show that even in the US the majority of the population wants a lower dispersion of income.

The two hypotheses – albeit coming from very different angles of the socioeconomic research – may work together. People do not vote in their own interest since they know about long-run government inefficiency. They may be afraid that inefficient government interventions would raise taxes so strongly that the positive net gain of redistribution or ecological sustainability is overcompensated by a larger tax burden.

3. Conundrum 1: The majority votes against own economic interests

"*... Tax policy could mitigate the trend towards inequality. Nevertheless this topic is not in the political agenda ... The pressure to repeal the estate tax is especially indicative ... the estate tax should be one of the most popular taxes imaginable. It touches only two percent of the population ....*" *Kenneth Arrow* (2004, p. 208).[3]

To put this into another perspective: How can it happen that the median income in the US has been declining since the seventies while GDP per capita has more than doubled (+112%, real terms); yet there is no revolt in the direction of a party calling for limits of income dispersion. On the contrary tax reductions for rich people were enacted by US government, and the Tea Party increasingly influences the political agenda. And the poverty rate has further increased in the US (from 12% to 15%), since Kenneth Arrow presented his agenda. The same holds for the Gini measure of inequality. And it is well known that the lion's share of GDP growth in the last decade has been pocketed by the top 1% of incomes (*Atkinson – Piketty – Saez*, 2011).

Most economists now believe, that unequal distribution reduces growth – so that equity and efficiency minded agents should join forces. We may wonder about the underlying cause why inequality increased (whether globalization or technology trends are the cause of increasing income dispersion), but the evidence for increasing inequality and the explosion of top incomes is now beyond doubt.[4] We may discuss to which extent increasing income spreads are responsible for the financial crisis (*Acemoglu*, 2011; *Aiginger – Guger*, 2013; *Palley*, 2011; *Stockhammer*, 2011). But still no country has the agenda of shifting distribution back to the levels of the seventies (which by the way was a period of much higher growth). Political scientists are called to explain why some severe and aggravating problems are not reflected in the political agenda. [5]

[3] Arrow adds another example: "*The fact that the interests of a very small group can get a majority even if it is at the costs of a broad majority has a parallel in agriculture. The political power of farmers is inversely proportional to the relative size of the population, as far as I can see, a rather interesting generalization for which I know no explanation*".

[4] Even the OECD changed its position after Angel Gurria became Secretary General after long years of US dominance. "Divided as we stand" is now the analytical message. Critique of rising inequality (within countries) is less replicated in the policy recommendation, but at least reported in the analytical part beyond doubt.

[5] One strand of literature blames the voting system (lower representation of low income earners, franchising; lobbying). Economists explain lower preference for redistribution in the US with higher upward mobility (low income earners expect to have higher incomes soon (*Alesina - Perotti*, 1996).

4. Conundrum 2: Inefficiency of government despite of unprecedented size

Governments are surprisingly unable to reach long run goals despite a share in economic activity of 50% in GDP in most European countries and a share of 40% in the US.

Inefficiency 1: Climate change is ignored, fossil energies subsidized

It is known that climate change will increase the global temperature up to 5 degrees by the end of the century (with very high probability), and if this happened it would be irreversible (*Stern*, 2007; *IPPC*, 2013).

Nevertheless US economic policy and the majority of the business community welcome each new source of fossil energy (be it shale gas or oil resources becoming accessible due to deep water exploitation or the arctic ice melting). Reinventing manufacturing may be a sensible agenda for the US, but focussing on energy efficiency, renewables and skill-intensive industries would increase incomes faster in the long run than enjoying a cheap domestic energy source (involving new environmental risks) and increasing the surplus in energy-intensive industries. *Zachmann, Cipollone* (2013) shows that higher energy prices do not increase overall competitiveness, but only shift industry structure towards energy intensive industries. Coal is the energy source the use of which has increased fastest between 2000 and 2010 and subsidies for fossil energy are still much higher than subsidies for renewables.[6] But the subsidies for alternative energy – albeit lower in absolute size - and the costs for the "Energiewende" are increasingly criticised and will be curtailed not least under guidance of the European Commission.

Inefficiency 2: Impotency to regulate/stabilize the financial sector

Instability stemming from the financial system has been documented for hundreds of years, and has received new support in today's lecture by *Kenneth Arrow* (2013). The Great Depression had inspired regulation and the separation of investment banking from commercial banking. In the last twenty years we experienced the repeal of the separation, the creation of shadow banking and hedge funds. High profile mathematicians calculated dynamic risk of investment papers with static risk models, neglecting cumulative risks. But cumulative risk and imperfect knowledge are exactly two of the reasons why banks have to be regulated.

Five years after the start of the Financial Crisis regulation has returned: rules for higher own assets (in general and for systemically important banks) were established, more transparency and firewalls requested. But at the same time the concentration rate of the financial sector further increased. And the new rules are extremely complicated; Basel 3 is hundreds of pages long. A well-known cartoon shows a banker announcing, that the *"new financial regulation rules completely changed .... the method by which bankers have to circumvent regulation"*.

[6] According to reports by the "Süddeutsche Zeitung" Commissioner Oettinger ordered the deletion of figures that fossil energy plus atomic energy receive large subsidies from the most recent report (Meltwater 15.10.2013).

We do not need more detailed rules, but a few rules addressing the main problems. And we need rules binding all actors including "shadow banking" and offshores in tax shelters. We need strong penalties for all institutions and people who create new "weapons of mass destruction" or help with tax evasion or money laundering. Penalties not only for the direct actors but for all people who help create and proliferate risky products and tax evasion (see the US demands from Swiss banks [7]).

A financial transaction tax would be an unbureaucratic instrument to reduce (very) short-run transactions which have multiplied over the last decades. There is fierce opposition to every attempt to levy a miniscule tax on papers traded hundreds of times per day; taxing millisecond transactions is declared to destroy the repro market, to balloon interest rates on the money market - without explaining why the extremely short-run transactions are necessary for financing the real sector, and why this multiple (of short run transactions relative to environment output) had to increase over the past ten years. The short-run transactions furthermore distort competition insofar as agents with high-speed access benefit from any new information, while firms and individuals can buy or sell only after the price has changed.

Summarising, the *financial sector dominates the real economy and together the financial sector plus the real economy dominate government.*

Inefficiency 3: Inability to set up a tax system that bosses pay more than secretaries

Tax systems have become more and more complicated. In many countries top income earners, with the help of legal loopholes or illegal tricks, pay a lower effective tax rate today than their secretaries. And multinational firms successfully shift profits and costs from country to country and finally to offshores or tax shelters and pay lower taxes than SME's.[8]

Summarising, the tax burden of 40% to 50% is currently distributed by a very complex system in a way that *medium-income earners pay higher taxes than top incomes (in contrast to the "Buffett Rule"), and small and medium-sized firms more than multinationals firms.*

Inefficiency 4: Inability to eliminate gender gaps and other forms of discrimination

We know that women have on average the same abilities as men (or are even better in steering complex organizations or culturally diverse work forces). They acquire the same (or more) formal skills, but their capabilities are underused in management and economic policy.[9]

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[7] The US is now demanding from the Swiss banking system in cases of transfers of untaxed money not only information about accounts of US citizens, but also the name of all the agents which helped to set up the account.

[8] Simple rules of transparency would stop high income earners making use of the most frivolous tax evasion schemes. Transparency is part of the game in Sweden, a high tax country in which everybody pays taxes, and would be ashamed and castigated if not. Morale standards, based on a protestant ethic, empowered by strict rules and above all transparency seem to make the difference. "Good institutions" or trust are the terms used in growth theory.

[9] Specifically in countries in Europe which have the largest problems, Greece, Spain, Portugal, Cyprus, France, Italy: women are very rarely in political and management positions (*Aiginger*, 2013). Nobody cares about using this resource, which would stimulate growth and reduce budget deficits.

The inheritance of differences in incomes and in education persists. The life expectancy depends on education, on the income of parents and the birth place. These are inefficiencies from the economic point of view and inhuman from the perspective of society.

Summarising: *Governments are not only inefficient in limiting income differences, but also at eliminating gender differences and inequality of opportunities.*

Inefficiency 5: Outrageous privileges of clubs with high prestige and historical claims

The military sector is large in the US. Different types of security services have been multiplied since September 11 watching emails and personal behaviour of US citizens and worldwide.

Europe forfeits the cost advantages of merging 28 defence systems. They are estimated to be lie between 30 bn € or 120 bn €. This is the amount Europe would need to fight youth unemployment by installing a guarantee that all young people get employment or training.

If asylum seeking people die between Syria and Italy, the Italian government calls for the European Commission to pay the extra costs of supervising the Mediterranean Sea instead of asking (i) how and why Italy spends 1.7% of GDP on its military forces [10] (ii) what Europe has done to improve economic conditions in its neighbouring countries or (iii) whether there could be an industrial park in Sicily connecting European technology with African labour force (like the industrial park between North and South Korea or industrial zones like those jump starting China's return to an economic power house).

Greece and Portugal "enjoy" the highest military expenditures. Germany and France made it a condition of their approval for bailing out Greece that Greece did not reduce the imports of weapons.[11] Ship-owners are exempt from taxation in Greece. Churches successfully defend tax *privileges, they own banks and industrial conglomerates* (e.g. in Cyprus) supporting money laundering and tax evasions (as do many state owned banks everywhere).

Inefficiency 6: Inability to shape technology in the direction of societal need

Large car producers are unable or unwilling to produce a zero emission car for ordinary people and complain that electric cars would need frequently recharging. A newcomer (Tesla) is able to supply an electric car for the luxury class, which has 400 PS need to be reloaded after 500 km only. The incumbent car firms lobby for the postponement of deadlines for emission reduction since emission free technologies are not available and boost profits by increasing the size, weight and horsepower of the existing fleet. And they get it!

[10] While expenditures on research and development stagnate at 1.3%.

[11] Greece and Portugal "enjoy" the highest military expenditures. Germany and France made it a condition of their approval for cheap credits to Greece that Greece did not reduce the imports of German weapons. The European parliament recently recommended increasing defence efforts instead of suggesting exploiting the fruits of cooperation between 28 former national defence systems (European parliament being usually the institution more sensitive to public opinion as compared to the Commission or Council).

Inefficiency 7: Inability to foster education, innovation and healthy life styles

Education is mainly a public good predominantly supplied in public schools (if schools are private ore charter schools there are strict rules). Nevertheless in many countries a quarter of young people cannot read adequately. Schools neither teach healthy life styles nor entrepreneurship. Health systems are better able to repair hips than prevent health problems pro actively.

Let us stop with the holy number of seven inefficiencies and present my conclusion:

Summarising*, everything the Chicago School predicted about the self correcting forces of markets was wrong; unfortunately everything they said about government inefficiency and (hostage taken) regulators was correct.*

5. Why big government is that inefficient: political rebound effects

If government commands nearly half of the resources in industrialized countries and taxes amount to 40% or 50% of incomes, it should be able to fulfil the most pressing needs expressed by the electorate. While there is a large literature about government inefficiency, I will in this section only refer the dynamic aspect of inefficiency – the inability to pursue a goal consistently over a long time. I concentrate on a phenomenon which I call – with some analogy to a similar problem in ecological economics - political rebound effects.

In ecological economics rebound effects denote the following phenomenon: to reduce emissions of the energy sectors, government induces a programme to boost energy efficiency. Increasing energy efficiency however makes energy-intensive goods cheaper; therefore the demand for energy-intensive goods increases (also driven by higher incomes). This "rebound" neutralising the positive effect of higher energy efficiency on the ecological system.[12]

Political rebound effects:

Any success of a specific government policy – like increasing the supply of renewable energy – leads to reactions of the providers of the old technologies, along two lines: an incremental improvement of the old technology plus lobbying against the new one. Since new technologies have high starting costs, low budgets for marketing and lobbying, the old technology bounces back (for a period long enough to destroy the momentum for renewable).

Forces driving rebound effects are the following:

- Lock in position: *Geels* (2014) mentions three types: economic lock in positions (sunk investment in competence, factories, infrastructure), social lock in positions (cognitive routines, life styles, alignment between social groups) and political lock in positions

[12] The rebound effect could be prevented if the taxes on energy are raised continuously so that efficiency gains are not reflected in lower prices but in lower taxes e.g. labour. But this strategy is not followed.

(vested interests, existing regulations and incentive structure). The vested interests groups negatively affected by a reform, may be teachers, medical doctors, incumbent monopolies, automobile clubs or civil servants afraid to lose jobs. They all mobilize against the reforms which have set-up costs and no lobbies.

- Hostage taken regulators and advisors: Government needs advisors, since most reform issues are complex and need intrinsic knowledge. These very advisors may come from vested interest groups - namely regulators previously working in firms to be regulated and later expecting to return. Economic ministers may have (past or future) business relations with the financial system, energy ministers to oil companies.
- At the start of a reform process those projects are done which are easy to implement and which have high rewards. After these are done costs increase and benefits decrease.
- Firms using the old technology fight back by increasing the productivity e.g. of gasoline-driven cars, they are interested that their investment and knowledge is used as long as possible.

In sum all these effects lead to the danger that the new technology or the change demanded by voters will run into difficulties, economically and politically. Stressing the political side we would like to call the phenomenon "political rebound effects", in technology oriented literature it is called "valley of death". The new technology cannot reduce costs quickly enough, while the old technology makes quick productivity gains by incremental innovations, lobbying is intensified and regulatory capture takes place.

Political rebound effects for environmental issues are well described in literature and to be seen in the breakdown of efforts for an international climate policy, for the German "Energiewende", for a green industrial policy, and probably for the electric car soon.

Pessimism about net gains

As far as the quest for lower dispersion of income is concerned, political support is highest if a large segment of the population suffers absolute poverty (not being able to fulfil basic needs like food, housing). If absolute poverty is reduced, the argument gains that differences in wages reflect efforts, skills and that incomes can be raised by individual strategies. The group which has to pay for redistributive policies feels the increased tax burden and starts to lobby against redistribution[13]. They have also the power to boost their incomes by increasing working time, and prices (if they are entrepreneurs). Firms may shift parts of production abroad or looking for new workers not included in redistributive policy. Voters seeing that redistributive efforts do not work, but increase tax burden of others ("the middle class") are disappointed and voting behaviour will be shaped by other issues.

[13] An alternative to finance redistributive reforms would be to cut government expenditures. Even if intended, lobbying effects often prevent such reduction of government expenditures, so that finally redistributive efforts are paid by tax hikes.

Government inefficiency and not voting for its own long-run interests is therefore related. People may not vote in their own interest because they do not believe that this will raise their net incomes (welfare) since governments are inefficient or taken as hostage by vested interests. Government may intend to reduce taxes on low incomes at the start, but during the process of implementing a tax reform which reduces dispersion, vested interest will start to counteract. Tax reductions for low income initially intended to be financed by cutting government expenditures and red tape are finally paid by higher taxes e.g. on consumption.

Finally the voters originally in favour of reducing taxes for low incomes correctly expect that the effect of lower taxes on their net income is smaller than the effect of larger government expenditures plus its negative impact on jobs. Voters with interest in lower taxes for low incomes then may split themselves between left-wing parties favouring redistribution at any cost or a right-wing populist party with a xenophobic agenda or abstain from voting. [14]

Summarising, whenever a policy starts to work in a specific direction (lower income dispersion, more sustainability, etc.), agents interested in the status quo will innovate a little bit, but above all use their large cash reserves or political networks to multiply lobbying efforts. The resistance to reforms increases and easy first round benefits may at that time be reaped. If lock in positions have not been removed, and cost of a new technology or organisational reform do not decrease quickly the impetus from reforms will decline. Political rebound effects including government inefficiency have to be taken into account in designing reforms.[15]

6. Progress achieved and upcoming rebound effects

In this section we first indicate fields of economic policy where some remarkable progress had been achieved over the past one or two decades. Then we mention areas where the situation is not improving or political rebound effects are very likely or even visible.

6.1 How economics changed life for the better

There is definitely some progress in achieving societal goals and where economic policy and knowledge of economists have helped to increase welfare over time.

[14] Two more arguments can be made why people do not vote for redistribution despite of the survey evidence that they favour lower income dispersion (as they do even in the US). The first is by *Alesina - Perotti* (1996) who argues that low-income voters in the US do not favour redistribution since they expect to move up the hierarchy soon. I do not really believe this argument, and new evidence shows that upward mobility is also rather low in the US. The second argument is that the party favouring redistribution is usually also the party favouring big government (and opposing to efficient public management or streamlining public expenditures). Then the net gain of a redistribution policy may be zero or negative (income gain by transfers is compensated by a higher tax rate e.g. higher value added tax - the most common tax to finance redistribution or large public expenditures).

[15] Political science furthermore explains reform resistance by the fact that beneficiaries of new technologies are widely spread, losers of change are concentrated.

Progress 1: Learning form the Great Depression

Economic policy reacted much better to the Financial Crisis than in the Great Depression: it implemented a countercyclical monetary and fiscal policy. Central Banks used unconventional measures (like qualitative easing) if interest rates were near zero. There was international coordination, governments forfeited blunt protectionism, and prevented the bankruptcy of systemic banks (including Eastern Europe).

The combined use of these policies plus the stability of emerging economies prevented the financial crisis from developing into a crisis of the extent of the Great Depression (*Aiginger*, 2010A, 2011). On the negative side we have to mention that the reaction of public policy was not structural and future oriented (e.g. car scrapping bonuses were offered without ecological spin) [16], and that policy coordination eroded quickly, as recovery had set in.

Progress 2: Reduction of (absolute) poverty

We learned that the opening of markets and globalization – and also a worldwide financial system – can boost economic growth and reduce absolute poverty (measured by incomes above some fixed benchmark in constant dollars). The cumulative growth of the world economy since 2000 is larger than 50% and absolute. Poverty decreased worldwide: The UN development goals of halving absolute poverty and reducing hunger have been reached five years before the deadline (this could neither be prevented by the Financial Crises nor by surging food prices).

We also learned that globalisation needed a complementary domestic policy (education policy, may be also industrial policy) and that inequality or relative poverty is more difficult[17] to tackle, but let us look at the bright side of life for a moment.

Progress 3: Lower use of military force, more international coordination

Military conflicts have decreased and remain on a more local dimension today – with big powers cooperating to restrict their geographical dimension and preventing them to develop into worldwide conflicts. We realise that providing basic economic needs reduces the potential of political crises.[18]

Progress 4: Life expectancy has increased dramatically

People everywhere today can expect today to live ten years longer than their parents; our grandkids will have life expectancy at birth of 100 years in rich countries (with differences across countries and dependant on parental income and education).

[16] See *Aiginger*, 2010 C.

[17] Economic growth is a necessary condition for reducing poverty, but not a sufficient condition (specifically for reducing relative poverty).

[18] This again is no linear process. Economic growth leading out of absolute poverty may lead to the demand for more political freedom, destabilizing countries for some time (as currently in North Africa).

Progress 5: Cracking down of tax evasions

The OECD has started to promote the transparency of financial accounts and national governments realize more or less reluctantly that transparency is a welfare increasing force. International critique on profit shifting of multinationals is rising. Some governments (e.g. UK), however, are deliberating between pressing and sheltering its tax shelters (offshores).

Progress 6: Green sprouts in China

China has started an ambitious program to combat smog in the cities inter alia by starting emission trading in seven large cities. It will take the lead in the low price segment for electric cars.[19] It is pondering to install a financial transaction tax on speculative trading (Financial Times, 27.1.2014) and regulates shadow banking.

Progress 7: Decoupling of physical resources from income

Material consumption is no longer rising in Europe. Measured in tons material consumption in 2010 is about equal to consumption in 1970 (*Fischer-Kowalski et al.*, 2013) despite economic growth of 170%. Denmark can boast the best practice because it has absolutely reduced its CO2 emissions by 15% despite doubling incomes and reducing fossil energy consumption by one quarter.

Progress 8: Changing modal split in large cities

Traffic is gradually shifting to public systems (trains, subway) or to biking in some urban areas; signs of a sharing economy (using consumption goods jointly instead of buying them individually at all costs) are beginning.

Progress 9: The next generation of buildings will be different

Standards for new buildings are rising; Denmark plans to forbid the use of oil for heating in new houses and office buildings from 2014.

Progress 10: Unambitious European climate goals will be reached

The Kyoto goals of reducing CO2 emission will probably be fulfilled by the EU as an aggregate (with some help of low growth in the wake of the financial crisis). EU-2020 goals are likely to be reached in the energy sector. It is planned to set a 40% target for energy reduction in 2030 relative to 1990; (albeit without setting a goal for renewables and for energy efficiency).

[19] The high price segment is dominated by the US newcomer Tesla; it has recently gained the top position among cars sold in Norway (even if 90% are still cars powered by fossil energy). Europe will have electric cars soon, hopefully not only from the top end produced by Tesla, nor from the low end produced only by China.

6.2 Aggravating problems and signals for rebounds

Some problems are aggravating and political rebound effects are visible.

Problem 1: Stagnant output with increasing unemployment

The economic output in Europe today is still below the output in 2008[20]. Unemployment increased to 12%, youth unemployment is 20%, and inequality is rising. Southern Europe is near social unrest and the support for xenophobic or right wing movements is mounting.

Problem 2: Energy supply and affordability defeat efficiency and renewables

Energy policy is reshifting priority (from supporting energy efficiency and increasing the share of renewable) to the old strategy of emphasising "affordable prices" and the "security of supply".

The German "Energiewende" – to phase out nuclear energy – is under pressure: the very success of the strategy – namely the surprising high share of electricity provided by renewable energies – is turned into a problem insofar as the grids for transporting energy from north to south are insufficient. The input of coal has been increased since conventional power generation is needed in times the renewable sources do not provide enough energy. And coal has become cheaper than gas since the emission trading broke down (and is not repaired).[21] Other critiques bemoan the high costs for consumers stemming from the fact that energy-intensive industries are sheltered from increasing costs which are shifted to small firms and consumers.

Problem 3: Rebound effects in car industry in Germany and emission trading

The political rebound effect has started as can be seen from the new government agenda and the lobbying effects of Germany in Brussels.

It lobbies for postponement and watering down of the emission limits for its car industry.

The European emission trading system broke down, and Australia's new government announced it would abolish taxing CO2 emissions.

Problem 4: Industrial policy preoccupied by shale gas forgets R&D and skills

Industrial policy which had announced putting sustainability on the centre stage (European Commission 2010), is now shifting its attention to keeping up with the cheap production costs in the US (low wages, low energy costs). Low wages and low energy prices are feared to support the reindustrialising of the US while reducing European market shares. This fear of a loss of "European competitiveness" can be heard repeatedly in Europe, and this despite a large trade deficit in the US and a surplus in the current account balance for Europe. True,

[20] GDP is 5% higher in the US and 20% higher in world, 50% higher in China.

[21] Coal is the energy source with the highest increase in production and consumption since 2000. Coal is shipped from the US to Europe, since the US supply of gas is increasing and no export facilities exist for gas.

energy costs are higher in Europe and have always been so; this was and in future has to be even more compensated for by higher energy efficiency, catching up the lag in R&D and improved education results instead lobbying for low energy prices. Empirical evidence shows that high energy prices increase energy efficiency and are no threat to competitiveness. They change the structure of industrial output not its size (*Zachmann – Cipollone,* 2013), *European Commission*, 2014). And countries with a larger sector of technology-driven goals are more competitive. In this sector Europe enjoys a surplus and the US a large and increasing deficit. Furthermore unit energy costs i.e. energy costs after taking energy efficiency into account are not much higher than in th US (*European Commission*, 2014.

7. Research is necessary and may support consistent policy

The need for a new policy

The successes mentioned in the last section as well as the problems remaining or aggravating call for a proactive policy, a policy different from today. To pursue a consistent policy for the three goals addressed – increasing equality, sustainability and financial stability - and given the socioeconomic laws described – huge government inefficiencies and political rebound effects - economic policy needs scientific support.

The European Commission acknowledged this necessity by tendering a large four years research program for a new growth path for Europe. A new path of development should be designed - more dynamic, inclusive and sustainable, which should analyse the need of change, the policies which make the transition feasible and analysing the blockers for success. The winning research team – WIFO with 32 European partners and a worldwide scientific as well as policy board - labelled the project "Welfare, Wealth and Work" (WWWforEurope).[22] The project partner will in total have 170 papers to produce by the end of the project. Up to now we finished about 70 milestones and deliverables.[23]

WIFO's involvement in this project is to some extent connected to Stanford University, to Kenneth Arrow and his agenda. When a US noble prize laureate - not known as a left wing extremist - addresses income distribution, climate change and the instability of the financial system as main problems of the decade to follow, I realized that something was wrong with the current mainstream agenda. We directed research at WIFO along the topics of this agenda, building for example research teams on productivity-oriented social policy and on sustainability as a driver of growth and competitiveness.

And when I asked Kenneth Arrow to join our team as a board member on January 24th 2011, it took 5 hours and 47 minutes to get his approval.

[22] Europe moving towards a new path of growth and social development, FP7, European Commission.

[23] Results can be found on the homepage: http://www.foreurope.eu/. I will mention just three policy documents here: a policy brief on new governance, another on a new strategy for the European periphery, and a paper calling for a new definition of competitiveness.

Even scientific support cannot guarantee that the long run goals of equity and sustainability will be targeted consistently, persistently and without backlashes and rebound effects. But knowing the goals, developing indicators for progress and factor of success and failures in past transition will help.

8. Summary

The current socioeconomic system in the industrialised countries is considered by a majority of people and especially the young ones as not optimal. It is instable (recurrent crises, slow growth of median income with large and rising inequality), accompanied by high unemployment and disequilibria across countries, and global warming will continue.

We concentrate on three goals – already envisaged as main goals of a future agenda by *Kenneth Arrow* (2004) namely reducing inequality, preventing global warming and spillovers from the financial sector to the real economy. All three goals are strongly supported by people according to opinion polls; none of them is reflected as central issue of the leading political parties, neither in the US nor in Europe. People do not vote for parties favouring redistribution even if the median income stagnates and all GDP growth is gained by the top 1% incomes. Voters do not flock to green parties even if the danger of an irreversible climate change becomes ever more evident. No party has a defining agenda how to reform and regulate the financial sector even if its potentially destabilising impact is known for long.

There are some arguments in political science why voters may not vote for their long-run interests, from (i) flaws in the electoral system to (ii) the effects of vested interest and money and (iii) preoccupation with short-term interests. We stressed one more: the striking inability of governments to pursue long-run goals consistently. Governments became bigger and bigger, now demanding 40% to 50% of the resources in industrialised countries (as reflected in expenditures shares in GDP), without effectively limiting income dispersion, the instability of the financial sector or climate change. People realise the inefficiency and vote for short-run issues because they do not believe governments will solve the long-run ones. The net gains of commissioning long-run goals could be even negative, if the result in small gains in the objective warranted are overcompensated by losses due to raised taxes.

Seven striking inefficiencies of big government in industrialised countries are referred to (positive effects of government in developing countries are to be acknowledged in education, physical infrastructure, preventing absolute poverty and minimal insurance). Among the reasons for insufficiency we report lock-in phenomena (economic, political, regulatory), that policies first address the easy issues and become less active if the more difficult issues come up. Lobbying of vested interests increases and old technologies fight back by incremental improvements. So reforms and technologies have to cross a "valley of death", were reforms and innovation stop due to high costs and lobbying on the one hand and lower revenues and voter's support on the other hand. Costs have already occurred, government has become bigger, but political rebound effects prevent success.

Not all interventions have failed. Government has learned from experience in the Great Depression how to mitigate the Financial Crisis of 2007/2009; the millennium goals of halving absolute poverty and hunger has been achieved earlier than planned, military interventions are decreasing and international worldwide coordination has increased, tax evasion is seen more critical and some modest ecological goals have been reached. But on the other side the past decade and the current policy witnesses severe rebound effects. Energy policy is returning to low prices and "secure" supply as main goals of energy policy, and downgrades the priority on energy efficiency and renewables. Industrial policy looks for low energy prices though it is shown that this leads to a less favourable structure of the economy (high share of energy-intensive industries, trade deficits in technology-driven sector as in the US). High-wage countries with low resources should specialise in the technology driven sectors (thus going a high road strategy).

Political science (*Rip – Kemp*, 1998, *Geels*, 2002, 2014) demonstrate that transition to a new socioeconomic (or socio-technical) system only works if a multilevel approach is used, with innovation starting in niches (research labs, grass route movement in ecology). They then have to make inroads in technical and political regimes (firms, engineers, political parties, civil society) and a changing landscape (ideology, beliefs, preferences, media, macroeconomic goals; changing preferences and priorities). Top down and bottom up must work together to remove stumbling blocks. Lock in situations has to be addressed ex ante in reform designs.

Scientific support and monitoring is necessary if long-run goals have to be reached for a longer period. The project WWWforEurope (A new growth path for Europe - more dynamic, inclusive, sustainable) - tendered by the EU Commission and resulting in a four-year research programme is such a support for a new strategy on the European level. *Kenneth Arrow* is in the scientific board and the results of the first two years are available at http://www.foreurope.eu/.

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