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Framework

I tried to put everything in terms of \$/year of ongoing benefits, typically using a \$50k/DALY figure for pricing health benefits in high-income countries. The aim is to get the right order of magnitude rather than precisely correct figures, and the project has been very "quick and dirty" -I have not aimed to meet our normal citation or evidentiary standards. Although we report \$ figures, they should not be compared directly with each other, as they represent very different quantities (e.g. hypothetical efficiency gains, transfers to low-income people, deadweight losses, or redistribution from monopolists to consumers).

Summary

Estimated importance (\$billions/year)

Cause	Low	Mid	High	Type of "importance" estimated
Criminal justice reform		12	60	Split (roughly evenly) between savings to state budgets and \$25k/yr valuation of years in prison averted
Software patent reform		10		Reduction of socially wasteful legal fees; could be many times higher if they impose significant costs to innovation
Macroeconomic policy		200		Reduction of deadweight loss associated with low capacity utilization
Labor mobility	0.3	150	3,000	Income gains to people from low-income countries
Organ donation		8		Health care system savings and QALYs for people who need kidneys
Foreign aid		30		Aid to global poor
Drug policy		30		Government revenue from taxing drugs
Minimizing negative public health impacts of recreational marijuana legalizations		3		Very tenuous DALY impacts of increased marijuana dependence
Zoning reform		25	200	Unknown combination of redistribution of rents and elimination of economic deadweight loss
Occupational licensing		20	250	Redistribution of rents in the high case, potential efficiency gains in the middle case
Defense policy		50		Savings to federal government if one believes this spending is unnecessary
Health research funding		30	150	Government funding for health research; value of health gains from research

Farm subsidies		10		Government savings and some income to developing-world farmers
Tax policy	5	150	800	Saving taxpayers time and money from eliminating returns for many; changes in the distribution or amount of gov revenue; increased economic growth if (questionable) models of tax policy impact on growth are right
Climate change		150	800	Annual US and global emissions times the marginal "social cost of carbon" (basically economic harm from climate change)
US infrastructure		50		Additional spending on infrastructure
Broadband policy		15		Redistribution of rents; could be higher if it imposes costs to innovation
Factory farming				Unquantified; depends heavily on one's beliefs about animal suffering
Improving democracy				Unquantified but believed to be in the "most important causes" range

These calculations are only meant to approach the right order of magnitude. We would guess that differences of 3-5x are typically not very meaningful.

Calculations

Criminal justice reform

See our March 2014 writeup on this topic.

A permanent 10% reduction in prison populations, which seems to be a reasonable guess for what a successful criminal justice reform effort might result in, would avert ~220,000 person-years of incarceration (per year). Using the national average of state costs per prison year (\sim \$28K, considerably higher than marginal costs), this would save governments ~\$6B per year. If you treated prison time as having a disability weight of 50% and priced a QALY at \$50k, the total annual benefit of reducing the prison population by 10% would be **around ~\$12**

billion/year. The benefits in \$ terms derive pretty equally from government fiscal savings and health-like valuations of the benefit to the prisoner of averted prison time.

A larger reduction in prison populations, assumingly no negative impact to public safety, would lead to a proportionally larger estimate of the benefits. A permanent 50% reduction, with the same calculation above, would produce total benefits of **~\$60 billion/year**.

Software patent reform

See <u>our November 2013 writeup on this topic</u>, which cites <u>Bessen and Meurer 2014</u> arguing that patent enforcement by "non-practicing entities" (NPEs) imposed direct costs of \$29 billion in 2011 and Bessen Meuer and Ford 2011 which uses stock market event studies to argue that NPEs imposed more than \$80 billion/year in costs.

There are good reasons to be skeptical of these figures. The litigation costs from Bessen and Meurer 2014 are self-reported by patent claim defendants in a survey with relatively low response rates conducted by a firm that helps companies manage risk from patent litigation, so we would expect them to be biased upward. In addition, their definition of "non-practicing entity" seems quite broad, including individual inventors and universities, and only ~60% of the litigation they cover was over software patents. Finally, the "direct costs" include ~23% going to legal fees, another 57% the authors argue constitute other socially wasteful costs, and then 20% that is considered "socially useful" (e.g. patent acquisitions and R&D). Multiplying these proportions through, it seems like you might end up with a figure about a quarter of the authors' headline number, of **costs of around \$10 billion/year**. (I prefer the direct cost study to the stock market event study because it is not at all clear that all patent litigation is socially wasteful.) On the other hand, neither of the studies models the impact of how changes in patent policies affect innovation, so if you believed that software patents were a major deterrent to innovation and growth, you might think the right number for the "costs of software patents" is significantly higher.

Macroeconomic policy

See our May 2014 writeup on this topic.

The financial crisis and ensuing global recession appear to have cost the global economy something around \$20 trillion dollars (<u>reference</u>, summing the domestic and international figures). If you assume that preventing 50% of that harm is possible with better policy and that the baseline risk is ~2%/year, then the expected "importance" is **~200 billion \$/year**. The 50% and 2% figures are based on little, though they seem likely to be the right order of magnitude.

Immigration policy

See our May 2013 writeup on this question.

<u>Clemens 2011</u> reviews the literature on the potential impact of liberalizing labor mobility. We would summarize the literature that goes into the Clemens 2011 review as suggesting that full liberalization of border restrictions, with billions of people moving, might lead to global GDP gains between roughly 10% and 40% (but larger and smaller estimates are present in the literature). Models that (more plausibly) assume roughly 10% as much migration as predicted under full liberalization, with hundreds of millions more migrants than at present, predict single digit percentage increases in global GDP. A 5% increase in global GDP would be worth **~\$3 trillion/year**, so it may be appropriate to consider the "importance" of labor mobility to be in the low trillions of \$/year (primarily accruing to people who move from low- to high-income countries). Note that we do not have much confidence in the outputs of these models.

The models that generate trillions of dollars a year in gains rely on the developed world population increasing by 30-50% due to migration, which seems fairly unrealistic, even in the long term. More realistic medium-term changes would have smaller impacts:

- Efforts to facilitate legal migration through information sharing and coordination, potentially modeled on the efforts of CITA. It is difficult to accurately assess the potential of such approaches, but it seems plausible that a foundation might be able to facilitate tens of thousands of additional labor migrants from low- to high-income countries, which would translate into hundreds of millions of additional \$/year flowing to people from low-income countries (assuming \$10k/year/person in additional earnings).
- The US Congressional Budget Office (CBO) projects that the Comprehensive Immigration Reform bill passed by the Senate in 2013 would have increased the US population by 16 million in 2033, on top of a baseline projection of ~20 million net immigrants by then, and a current immigrant population of ~40 million (i.e. going from 60 million to 75 million immigrants in 2033, or 16.5 to 19.5% of the population, which would be higher than at any point since 1860). Many of those immigrants would be skilled, so it's not clear how to estimate the wage gains that they experience--or translate from wages to utility in a comparable way for low-income workers--but we might assume that on average migrating caries \$10k/year in earnings benefits. This translates to overall gains of ~\$150 billion/year in 2033, which is ~1% of the current US GDP (by comparison, the CBO projects a 3% GDP increase in 2023 and a 5% increase in 2033 as a result of the bill). Although the bill appears unlikely to pass this year, it seems to represent a plausible US policy path that would carry benefits in the low hundreds of billions of \$/year for future migrants.

Increasing the supply of organs for transplantation in the U.S.

See our writeup on this question.

With a waiting list of 100,000 people (for kidneys) and savings of roughly \$100,000 (for the health system) and 3.5 QALYs (for the recipient) per kidney transplant (Matas and Schnitzler 2003), clearing the waiting list for kidneys through transplants might conceptually save around \$10 billion and 350,000 QALYs. The benefits of closing the list only occur once, so for comparability with other figures, spreading the benefits out over ten years gets \$1 billion and 35K QALYs/year. In 2010, about 34k people joined the kidney waiting list, while 17k people received a kidney, so getting kidney transplants for everyone who needs them might get *ongoing* benefits of \$1.7 billion + 60k QALYs/year. Combining, filling the need for kidneys looks like it would save ~\$2.5 billion/year and ~100k QALYs/year. Pricing the QALYs at \$50k roughly triples the overall benefits to **~8 billion \$/year**.

This sounds high at first blush, but <u>total healthcare spending on end-stage renal disease</u> <u>patients is pushing \$50 billion/year, and dialysis costs Medicare ~\$25 billion/year</u>, so it does not seem implausible.

Advocacy to improve or increase U.S. foreign aid

See our writeup on this question.

The US spends \$30 billion/year on foreign aid. If we spent as much of our GNI on aid as the UK does, it would be \$90 billion/year - a difference of \$60 billion/year. Between the conceptual possibility of increasing aid and the possibility of improving the allocation of existing aid, it seems reasonable to classify the "importance" of this topic as **~\$30 billion/year**. However, this issue seems to be more important than the raw \$ figures suggest because:

- I would guess that aid probably has a couple *x* multiplier effect on income through health or economic growth channels, leading to larger eventual gains in low-income countries, though, of course, some people think that multiplier is negative.
- Even absent a significant multiplier, declining marginal returns to income generate a strong prima facie case that \$ transferred to low-income people should get an "importance" leg up compared to work that's focused on U.S. causes because \$ just help poor people more in utility terms.

Accordingly, if all the \$/year figures in this document were to be treated equally, I would want this classified as a hundreds of billions of \$/year issue, even though the actual amount spent on aid is in the tens of billions of \$.

Factory farming

See our writeup on this question.

It is extremely difficult to figure out how to estimate the importance of the treatment of animals on factory farms in \$/year terms, and I don't have a real estimate. A couple datapoints that may be helpful in building towards one:

- More than a billion animals (especially chickens) are being raised on factory farms at any given time.
- The American Meat Institute <u>reports</u> that in 2009, meat and poultry sales totaled ~\$150 billion.

Drug and alcohol policy reform

It is difficult to estimate the importance of drug and alcohol policy in \$/year terms, but we have a few different angles on the question:

- The Drug Policy Alliance (DPA) <u>states</u> that the U.S. spends ~\$50 billion/year on "the war on drugs"
- <u>A paper on the costs of alcoholism</u> that I haven't read closely claims that it causes 80,000 premature deaths/year in the U.S. and costs the government ~\$100 billion/year, mostly going to criminal justice issues.
- The Global Burden of Disease website estimates the annual burden of alcohol and drug abuse in the U.S. as ~3.5 and ~2 million DALYs respectively. If you price a DALY at \$50k, that suggests a ~\$100 billion/year cost of drug abuse and ~\$200 billion/year cost of alcohol abuse.

Overall, it seems appropriate to estimate the costs of drug and alcohol abuse in the U.S. in the low hundreds of billions of \$/year. However, it is not clear that plausible policy reforms would have benefits on that order of magnitude. DPA <u>claims</u> that drug legalization would yield annual tax revenues of ~\$50 billion if currently-illegal drugs were taxed at rates comparable to those on alcohol and tobacco, and that legalizing and taxing marijuana in California would raise \$1.4 billion/year. Based on those claims, it seems more appropriate to think of drug and alcohol policy reform as a **tens of billions of \$/year** problem.

Minimizing negative public health impacts of recreational marijuana legalization

We believe that the U.S. is likely to adopt some form of recreational marijuana legalization in the next decade or two, and that <u>doing so in a way that protects public health could be fairly</u> <u>important</u>.

For a discussion of some of the alternatives to fully commercial legalization, see <u>RAND's report</u> to the Vermont legislature (which we funded).

Some data:

- There are about 18 million past-month users of marijuana.
- <u>12% of those users have met criteria in the past year for cannabis dependence</u>. However, as discussed below, we wouldn't necessarily interpret this survey data at face value. The criteria for cannabis dependence are quite broad, and seem to us to include possible cases that don't represent morally relevant harm. More so, these criteria seem to be inconsistent with the high disability weight associated with it; hence, we've ended up with our own estimates of "morally relevant dependence" and "disability weight for morally relevance dependence" (below).
- Under full commercial legalization, prices will plummet, <u>likely to below 10% of their</u> <u>current levels</u>, <u>maybe to 1% of current prices</u>.
- Commercial legalization would probably be irreversible, because <u>commercial</u> <u>producers will likely have lots of political power and profit motive</u>. Accordingly, it may be important to get policy right before the industry develops. On the other hand, it should be possible to move from non-commercial to commercial legalization in the future.
- It's hard to estimate how commercial legalization, as opposed to non-commercial legalization, would affect consumption. In <u>their book on marijuana legalization</u>, Kleiman et al cite RAND research to suggest that price effects would likely be enough to fuel a doubling in consumption, while non-price effects of legalization could increase consumption by another 5-50%. I don't feel confident about this at all, but I think it's reasonable to model commercialization (relative to a non-commercial legalization that kept prices roughly constant) as doubling consumption (i.e. **another 18 million monthly users**). I think this could pretty readily be 2x too high or too low. My general impression is that if total prevalence doubles, we should expect the dependent population to roughly double as well.
- For context, <u>42 million US adults currently smoke cigarettes</u>, <u>down from roughly</u> <u>double that rate in 1965</u>. So a doubling in marijuana use due to commercial legalization doesn't seem radically out of line with the past trajectory of tobacco.
- The <u>Global Burden of Disease gives cannabis dependence a disability weight of</u> <u>0.329</u>, which seems too high. Based on that figure and the numbers above, doubling the prevalence of marijuana dependence would cost something like 18 million * 12% * .329 = 710,640 DALYs per year, which would translate to ~\$35 billion/year at \$50K/DALY. That DALY weight figure seems much too high though. Some data that might help develop a more realistic DALY weight:
 - Apparently <u>1.4 million people met criteria for abuse or dependence of cocaine,</u> while marijuana accounts for <u>4.2 million people</u>, so 3x as many, while marijuana accounts for <u>about 50% more treatment admissions than cocaine</u>. So cocaine admissions are ~2x more than marijuana relative to prevalence of dependence. However, typical marijuana admissions are for younger people than cocaine (more likely to be sent to treatment involuntarily).
 - In terms of <u>days of use by educational attainment</u>, marijuana looks more like cigarettes or cocaine than alcohol.

- <u>This article</u> tries to make the case that marijuana dependence is a real problem, but acknowledges that it's less severe than other kinds of dependences. There's <u>a related interview</u> with some psychologists that's interesting.
- Table 1 from <u>this paper</u> summarizes survey data from the 2012 National Survey on Drug Use and Health finding that, amongst past-month marijuana users:
 - 8% "tried to set a limit but failed to keep it."
 - 7% "tried to cut down but failed to do so."
 - 11% had "problems with your emotions, nerves, or mental health that were probably caused or made worse by marijuana."
 - 7% continued to consume marijuana even though it "was causing you to have problems with your emotions, nerves, or mental health."
 - 3% had physical health problems as a result, 1% kept consuming marijuana even though they thought it was causing physical problems.
 - 8% said that marijuana caused them to have serious problems at home, work, or school, such as: "neglecting their children, Missing work or school, Doing a poor job at work or school, Losing a job or dropping out of school."
 - 7% said they regularly consume marijuana and then did something where being intoxicated might have put them in physical danger.
 - 6% continued marijuana use even though they thought it caused problems with family or friends.
- Based on the list of figures above, I'd guess that maybe ~7% of monthly users (1.25 million people) are marijuana dependent in a highly morally relevant sense.
- Based on the survey questions used to estimate dependence, I'd give it a much lower disability weight than the GBD did - with great uncertainty, I'd guess at a disability weight of something like 0.05.
- This SAMHSA data on treatment admissions says that in 2012 there were 1.8M admissions, 17% marijuana (i.e. ~300K marijuana treatment admissions/year), 52% of marijuana admissions referred by criminal justice/DUI source. But according to Table 2.6 the the 50% admissions from criminal justice isn't especially unusual meth is 47%, alcohol is 39%. Marijuana is a bit of an outlier in that ~50% of admissions are for under-21 year olds, who might plausibly be forced into treatment involuntarily by parents or school systems. Overall, I'm somewhat inclined to say that the 300K marijuana treatment admissions/year are "artificially" inflated by ~2x (by youths and the justice system), so perhaps there are around 150K/year "serious" admissions. You could justify a 0.05 disability weight by assuming that the only costs of dependence are ~0.5 DALYs for each "serious" admission.

Multiplying the estimates that ~1.25 million people are marijuana dependent and that the disability weight of marijuana dependence might be ~0.05, we get a cost of doubling dependence of **~62,500 DALYs/year, or ~\$3 billion/year**. This is an order of magnitude smaller

than the estimate derived from the public dependence prevalence figures and GBD disability weight, and overall I'd classify it as a very low-confidence estimate.

This calculation focuses on dependence rather than IQ effects or traffic accidents because I suspect that the magnitudes of the former impacts are much larger than the latter, but I'm not particularly confident in that judgment. I don't focus on arrests because I assume that legalization is going to happen and approach the question from the perspective of asking about different legalization options.

Zoning reform

Our writeup on this topic is <u>here</u>.

Because zoning is largely a local matter, it is difficult to get a national figure on the costs of different zoning rules. Some relevant data points:

- Ryan Avent <u>argues</u> that the DC Height Act imposes a regulatory "shadow tax" that amounts to \$1.4 billion/year.
- According to a report by the real estate website Zillow, the total value of SF metro housing stock is ~\$1 trillion, NY is ~\$2 trillion, total US is ~\$25 trillion. Spreading housing construction costs over 50 years gets something like \$500 billion/year nationwide (which fits well with the US Census report that private residential construction nationwide is ~\$350 billion/year, with another ~\$300 billion/year of private nonresidential construction). NY+LA+SF is ~20% of the value of national total housing stock, so maybe ~\$100 billion/year of construction.
- <u>A paper by Ed Glaeser et al.</u> estimates that zoning and other regulatory constraints impose shadow taxes of ~10% in NY, ~30% in LA, and ~50% in SF (table 4). It is not clear whether this accrues to landowners or represents an estimate of foregone trade from addition construction (I believe it's something closer to the former, but the paper is not terribly clear on where the additional money goes). These figures are calculated by comparing average house values with construction costs, with the idea being that on average the cost of a house should end up equalling the average cost of new construction.

Based on these figures, it appears "shadow taxes" imposed by zoning and other forms of land use regulation add up to **~\$25 billion/year**. It is not very clear how we should understand the welfare impact of this figure, which seems to manifest as a combination of artificially inflated land values and limitations on further construction (i.e. deadweight loss).

The larger question is to what extent zoning and other local land use policies represent a barrier to economic growth, as some commentators, such as Ryan Avent and Ed Glaeser, have argued. The San Francisco Bay Area has a population of around 8 million and median family income of around \$70,000/year, relative to a U.S. 2010 median family income of ~\$50,000/year, and presumably some (but not all) of that difference is due to higher productivity. The real estate

website Zillow <u>estimates</u> that median rent in the Bay Area is \$1400/month higher than the national median rent, while the U.S. Census <u>estimated</u> roughly half that gap in 2011. (These seem to be average figures rather than for new entrants, who presumably pay substantially more, given the wide prevalence of rent control in the region.) Roughly splitting the difference between the estimates, we might estimate that people pay \$10k/year extra to live in the Bay Area, and we could take that as our estimate of the productivity increase from moving to the Bay (on the theory that if the productivity difference made up more of the \$20K difference in median incomes than that, more people already would have moved to experience the gains, driving up rents further). This doesn't account for the fact that the Bay Area may be a nicer place to live (and therefore more expensive) than the median American locale even in the absence of zoning constraints, but I think that's broadly canceled out by using average instead of marginal housing cost figures, and <u>it's not clear how much amenities like that matter if supply is not constrained by regulation</u>.

If we assume that moving to the Bay Area would increase productivity by \$10k/family, the question is how many people would move if housing costs dropped. It is difficult to estimate what the demand curve for housing looks like, but <u>a 50% increase in Bay Area population</u> (which is the kind of growth that the Sun Belt experienced over the last 20 years) doesn't seem out of the question. Such an increase would, by assumption, produce productivity gains of ~\$40 billion/year. Assuming (arbitrarily) that the Bay Area represents 20% of the potential national gains, we might suggest that relocation to more productive cities might bring wage gains as high as **\$200 billion/year**. This seems likely to overestimate the potential real gains, since it's basically assuming a 20% productivity boost and ~7% of the population relocating to higher productivity cities. (As a reference, ~2% of the population moved across state lines in 2012, so getting to ~7% would likely be a long process.)

Ryan Avent has <u>argued</u> that high housing costs "carried millions of Americans from rich but costly cities to affordable but less productive ones. Not all of America's economic troubles stem from this shift. But American stagnation can't be properly understood without it. My analysis suggests that patterns of internal migration between 2000 and 2009 may have cost the American economy about 0.25% and 0.5% of GDP per year. That figure considers just the wage impact of migration – not the effect of lost innovation on growth, new firm creation, and employment. In 2010, that amounts to between \$20 billion and \$60 billion in foregone wealth. Aggregated over the previous two decades, migration may have cost the economy trillions in lost output."

Occupational licensing/rent-seeking

Steve Teles has <u>argued</u> that occupational licensing is often a form of rent-seeking that redistributes income upwards.

Kleiner and Krueger 2011 estimate that 29% of the workforce is licensed and that occupational licenses are associated with 18% higher pay. Naively multiplying, this might suggest that ~5% of all wages accrue as a result of occupational licenses, which, with <u>\$6.5 trillion in wages</u> nationally, suggests that occupational licenses may account for low hundreds of billions of \$/year in (excess?) wages. A <u>2003 essay by Dean Baker</u> argues that removing limitations on doctors, dentists, lawyers and accountants in a manner that led to a 15% increase in supply would generate gains for consumers of **~\$250 billion/year** (in his model, doctors and accountants each account for about a third of the total), with additional efficiency gains of **~\$20 billion/year** (average of high and low elasticity figures from Table 2, <u>adjusted for inflation</u>). However, the welfare gains or losses associated with the increased pay in licensed occupations depend on the extent to which licenses are serving legitimate policy goals (e.g. ensuring adequate medical care), which is a difficult question to answer in average terms.

To take the example of doctors in particular, the US <u>pays doctors 35% more than the OECD</u> <u>average</u>. With ~<u>800,000 doctors</u> making an average of about \$200k/year salary, salary cuts of 15% or transferring 30% of work to people who make half as a much would save **~\$20 billion/year**.

Improving democracy in the U.S.

This areas seems at least as important as other important areas such as macroeconomic policy. See our discussion with Larry Kramer and Daniel Stid of the Hewlett Foundation on this topic <u>here</u>. I'd call this **hundreds of billions of \$/year** (federal spending is in the low trillions of \$/year), though I have no idea what particular practical impacts one might consider to get a better picture.

Defense budget/policy

Total US defense spending is <u>around \$700 billion/year</u>. Depending on substantive policy views, one might think that those funds carry positive (international security as global public good) or negative (unnecessary and destructive wars) externalities for the rest of the world. <u>The 2013</u> <u>budget sequestration cut ~10% of the defense budget over a couple years</u>, suggesting that there are conceivable policy changes involving **tens of billions of \$/year** of military funding.

Health research funding

The National Institutes of Health budget is **~\$30 billion/year**. It has been doubled once before in the last 20 years, so changes of that order of magnitude are not necessarily implausible.

The more important question seems to be what the social returns to this sort of spending are. According to <u>our blog post on the topic</u>, "chapter 2 [<u>of this book</u>] estimates that gains [in health] from 1970-2000 were worth about \$46 trillion total, net of increased spending on health care, as against an NIH budget of ~\$35 billion per year as of 1995." Assuming (arbitrarily) that 10% of the gains in health come from research, this suggests that the gains from health research are worth **~\$150 billion/year** (an ~5x ROI). The 10% figure may be on the low end, but I believe that the \$46 trillion figure comes from a substantially higher estimate of the value of DALYs than we use in the remainder of this document (\$50K), so I think it is a reasonable guess.

Farm subsidies

The US spends ~\$20 billion/year on agricultural subsidies. These subsidies artificially depress food prices globally, reducing the incomes of rural farmers in low-income countries (reference), though I have not seen an overall estimate of their impact on low-income countries. Presumably only a partial reduction in subsidies would be possible, but the reduction might also have a disproportionate benefit for poor rural farmers in developing countries. William Cline estimates that free trade in agriculture would (\$2/day) cut global poverty by 200 million people, or 7%. Assuming that U.S. agricultural subsidies account for 10% of the current harms of agricultural protectionism and that the people rising out of poverty experience a 10% income gain implies that a 50% cut to U.S. agricultural subsidies would raise incomes for poor farmers in developing countries by ~\$1 billion/year, in addition to cutting U.S. government spending by **~\$10 billion/year**.

Tax policy

Our writeup on this topic is forthcoming.

The U.S. federal government raises taxes in the low trillions of \$/year, so major policy changes are likely to have impacts in the hundreds of billions of \$/year. For instance, <u>the Bush tax cuts</u> <u>worked out to ~\$150 billion/year</u>, leaving income that would have otherwise been taxed with taxpayers. The prospect of radical tax reform raises the possibility of <u>a few percentage point</u> <u>increase in GDP over the long run</u>, though the models underlying these claims are not necessarily reliable. A 5% increase in long-run GDP would be worth **~\$800 billion/year** in additional economic activity.

Somewhat smaller changes are also plausible. <u>According to the CBO</u>, the total tax expenditure for the state and local, mortgage interest, and charitable contribution deductions was ~\$200 billion in 2013; exclusions for employer-provided health insurance and pension contributions were larger. This seems to reinforce the picture that tax code changes of **~\$150 billion/year** are conceivable, though the welfare effects of such changes are not particularly clear. A <u>Brookings</u> <u>paper</u> estimates that a "simple tax return" which did not change tax law but only made

administration easier could save \$2billion/year in tax preparation fees and about twice that much in the value of time spent on tax forms, for a total benefit to taxpayers of **~\$5 billion/year**.

Climate change

See our writeup on this topic.

In 2011, the U.S. emitted ~6.7 billion metric tons of CO2 equivalent. The official US estimate of the social cost of a metric ton of CO2 in 2015 is \$37 using a 3% discount rate or \$11 using a 5% discount rate, though these estimates have been criticised, notably for their inability to model impacts of climate change on future growth. (From the US estimate document: "The SCC is an estimate of the monetized damages associated with an incremental increase in carbon emissions in a given year. It is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change.") Taking the figures at face value and multiplying, the social costs of current U.S. emissions seem to be in the ~\$150 billion/year range (splitting the difference between a 3% and 5% discount rate). The US accounts for around 20% of global emissions, so the global costs of emissions might be in the ~\$800 billion/year range. As far as I know, these figures are dollar weighted rather than applying any sort of equity weight, and much of the costs of climate change are expected to fall on people in low-income countries with the least capacity to adapt, so these costs may be worse than the pure \$ figures suggest. On the other hand, I believe these figures are trying to model the costs of marginal emissions, which are presumably increasing (i.e. the last ton emitted is presumably worse than the first), so that multiplying the total amount of carbon emissions by the marginal cost of emissions would lead to an overestimate of the total importance of climate change in pure \$ terms.

US infrastructure

The American Society of Civil Engineers (who presumably have strong incentives to support additional infrastructure construction) <u>claim</u> that the U.S. should invest an additional ~\$150 billion/year (through 2020) in infrastructure, but, at face value, it doesn't seem very plausible that this issue would be of similar magnitude to climate change or macroeconomic policy. The U.S. <u>currently spends</u> ~\$80 billion/year on highway and road construction, so **tens of billions of \$/year** seems like a more plausible assessment of the magnitude of the problem.

(There is some overlap between infrastructure and some ideas in macroeconomic policy, but we treat them separately here.)

Broadband policy

See our writeup on this topic.

The U.S. has <u>~85 million broadband subscribers</u>, who seem to pay around <u>\$15/month more</u> <u>than European broadband consumers</u>, at least partially due to natural monopolies in broadband that are not highly regulated in the U.S. This suggests that regulation that cut U.S. broadband costs to European levels (which may not be feasible) would save consumers **~\$15 billion/year**.

If one believed that net neutrality regulations were necessary in order to maintain the productive capability of the internet, the potential importance could be significantly larger.