UNIVERSITY of STRATHCLYDE
INTERNATIONAL PUBLIC POLICY INSTITUTE
CENTRE FOR ENERGY POLICY

Is there an argument to fund household energy efficiency from the public purse?

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"ENERGY AND THE ECONOMY: PUSHING THE BOUNDARIES"
02 FEBRUARY 2017 CHURCH HOUSE, DEAN'S YARD WESTMINSTER
SESSION 2: IDENTIFICATION OF AND TRADE-OFFS BETWEEN MULTIPLE BENEFITS OF ENERGY EFFICIENCY POLICY

Research Councils UK Energy For a Low Carbon Future

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Multiple benefits from household's energy efficiency

Residential energy services such as heating and lighting spaces are provided using physical energy inputs such as gas and electricity.

ENERGY POLICY – trade-offs between private and social returns

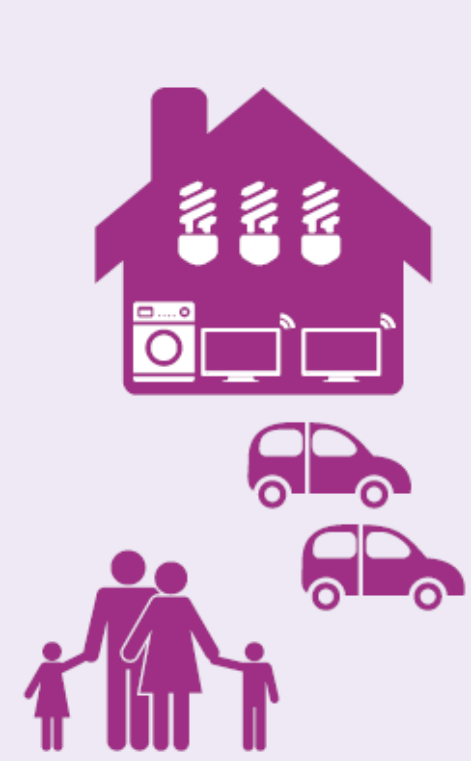
Individuals: benefit from comfort of energy services.

Society: preserve natural resources and limit carbon emissions, and make energy accessible to everybody.

BUT BOTH HAVE ALSO OTHER INTERESTS:

Individuals: consume non-energy goods and services.

Society: ensure economic development and overall welfare.



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Multiple benefits from household's energy efficiency

CAN ENERGY EFFICIENCY HELP?

Energy efficiency improvements increase the output of energy services per unit of physical energy.

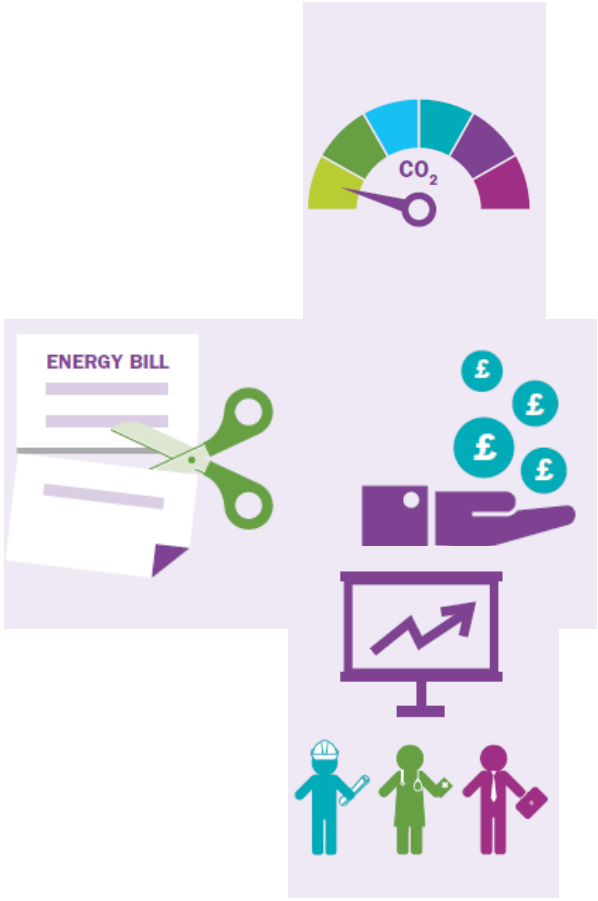
Individuals: they can achieve the same level of comfort from energy services using less input of physical energy (but there is a cost)

Society: more efficient use of energy means less use of natural resources and potentially reduced emissions.

BUT BOTH HAVE ALSO OTHER INTERESTS:

Individuals: have more disposable income to spend on other goods.

Society: higher demand for goods and services stimulates the economic system.



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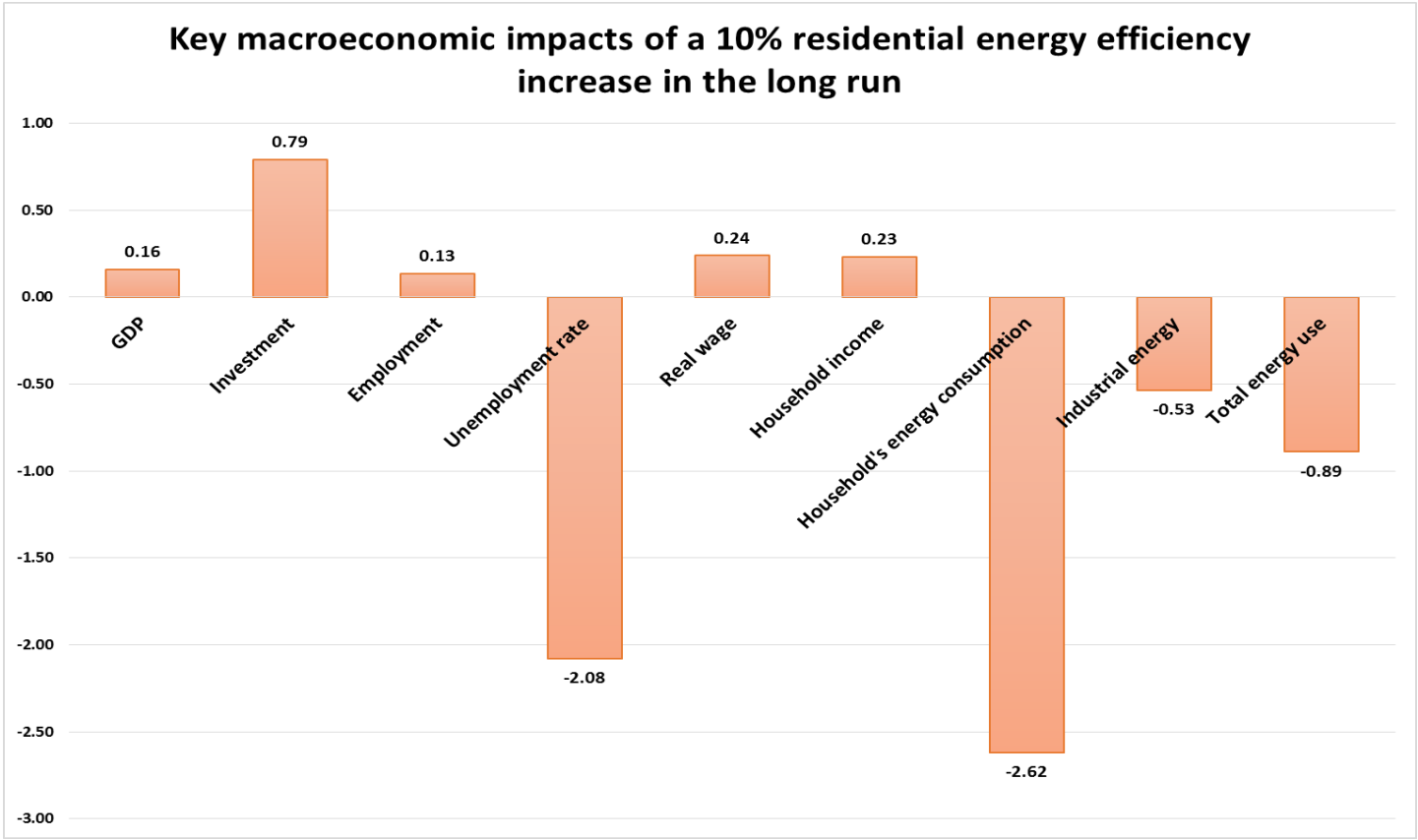
What if UK households could heat their homes using 10% less physical energy?



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That is great, but who is going to pay for it?

Ideally a Government would be able and willing to pay if:

Social returns are higher than social costs. This happens when:

a) the energy efficiency programme deliver in terms of reducing energy use without sacrificing comfort;
b) the energy efficiency programme triggers a net economic stimulus.

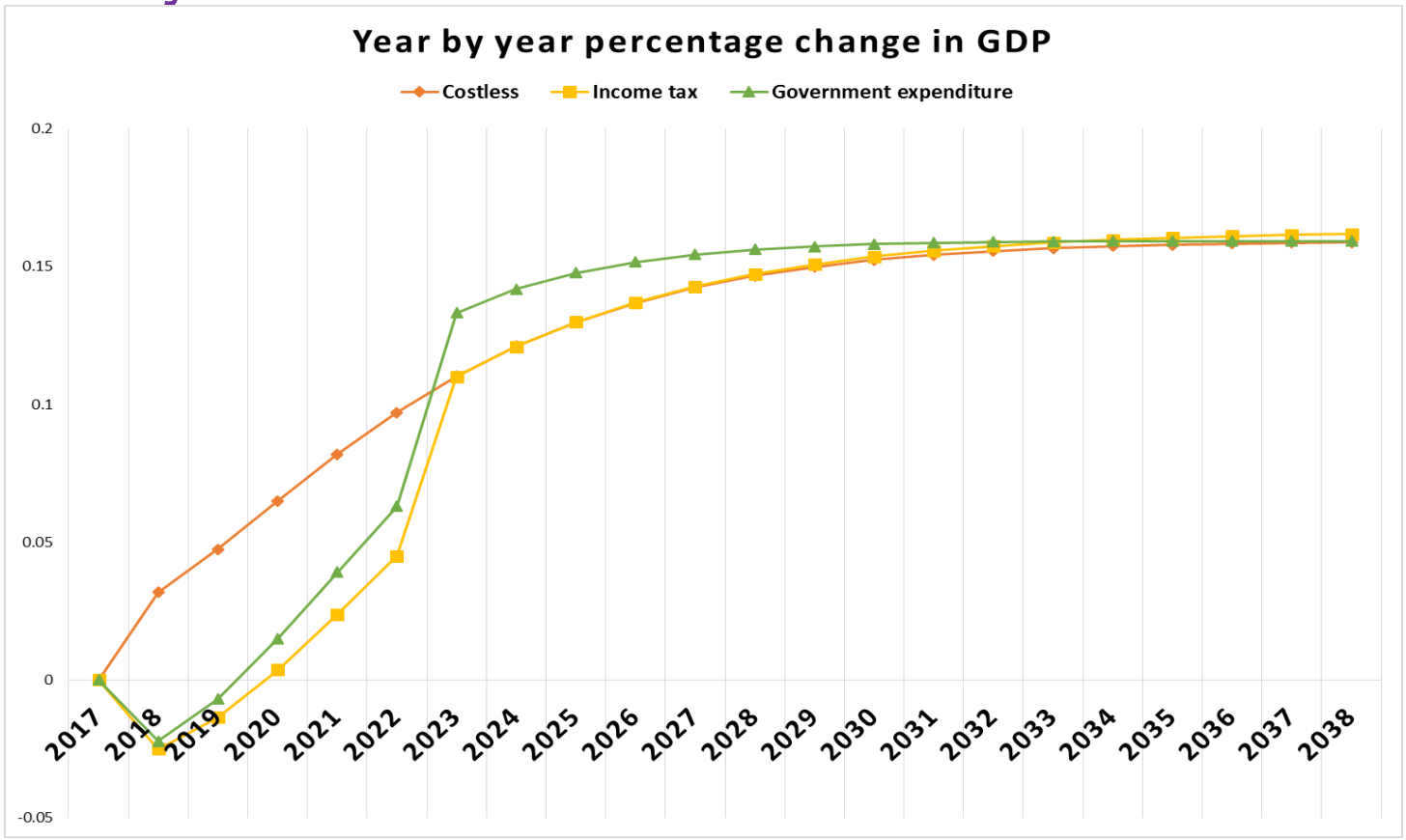
How would the Government pay (i.e. where does the money come from?):

Government spending re-allocation: the Government reduces expenditure on other items to fund households' energy efficiency improvements.

Taxation: The Government rises taxes on income to fund the energy efficiency improvement intervention.

Both this solutions are temporary until the intervention is payed (our analysis: after 5 years).

Impact on GDP of an energy efficiency improvement funded by the Government.



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Is this worth doing?

Both solutions deliver in terms of energy reduction however:

There is **a trade-off across different time periods** in terms of economic expansion.

GDP expansion and all other impacts will come after 3 years but the Government (and public) may want to see results faster than this.

So the Government may think that it can get a better expansionary effect and the reduction in energy use from other policies.

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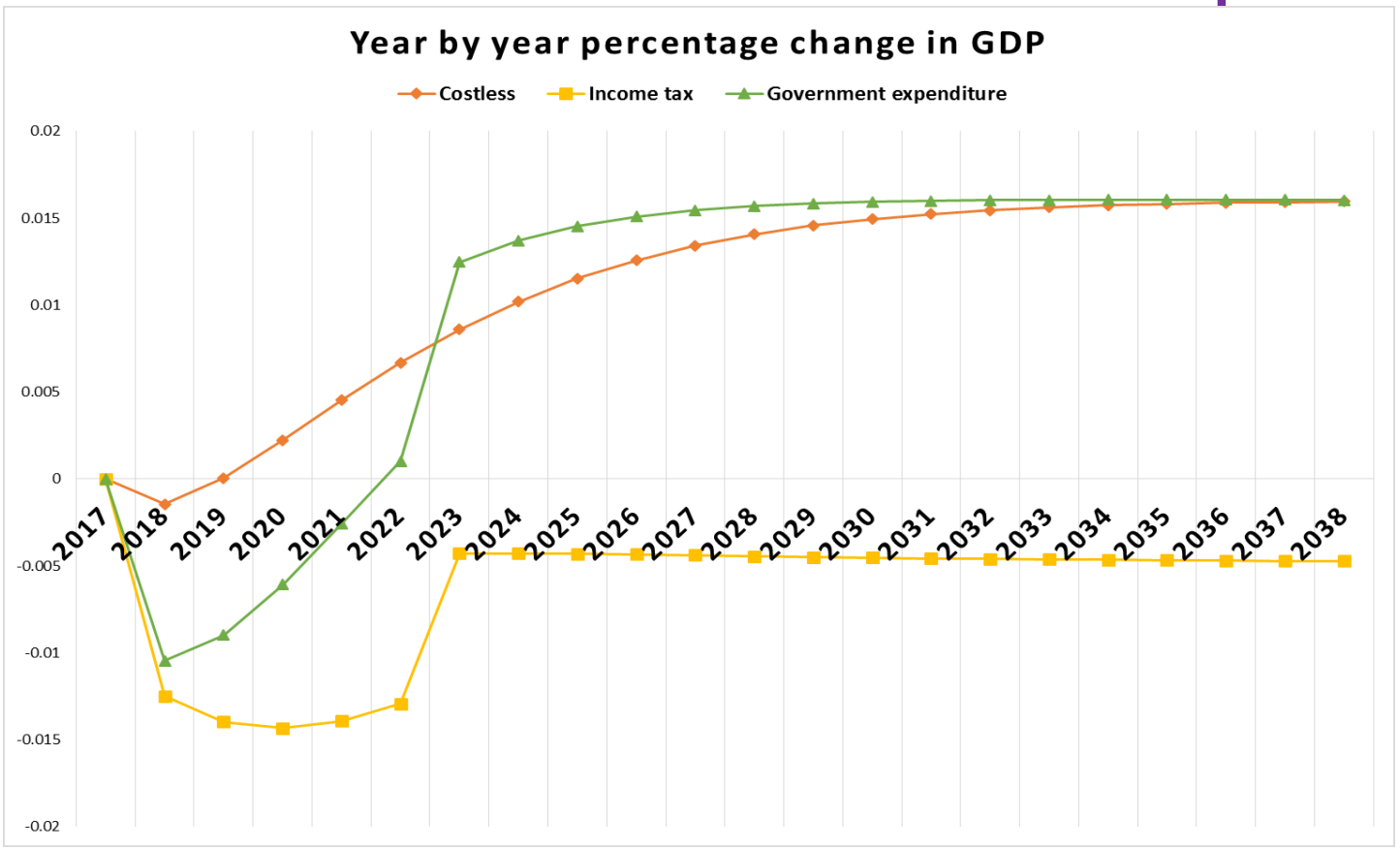
The different roles of energy efficiency policy

1. **A climate policy tool**
2. **(From above) an economic/infrastructure policy tool**
3. **Social policy**

Due to budget constraints and/or political climate, Government may decide to focus funding of energy efficiency improvements where homes are inadequately heated and/or households are considered **fuel poor.**

Impact on GDP of a targeted energy efficiency improvement in lowest household income quintile



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Is this worth doing?

Government spending temporary reallocation:

GDP starts rising in 2022, last year of payment.

In the longer term GDP expansion is **1/10** of the case where all households benefits of the energy efficiency improvement.

However the targeted group retains 80% of the disposable income boost they get when all households are more efficient (more limited income boost from economic expansion).

Income tax increase:

GDP decreases until 2023 when the income tax returns to its original level.

In the longer term GDP remains (even if marginally) below the baseline.

However again the targeted group retains 80% of the disposable income boost.

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Conclusions and general lessons

1. Energy efficiency improvements in residential energy use **can deliver** both energy reduction and GDP expansionary effects.

2. Government funded interventions **will have a positive returns** in terms of overall stimulus to the economy in the short to medium term. This implies that energy efficiency spending may be considered as an **infrastructure investment**.

3. The **larger** the base for the intervention, the **bigger** is the stimulus.

4. However, if the priority is to target only fuel poor and/or low income households, the gains in terms of **impact on incomes** and **reduction in energy spending** as a share of this can still largely be achieved in these households. However, the **economic expansion is much smaller**. This is because of the lower spending power of these households.

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Thank you for your attention

Please see the policy brief

For a more technical discussion please refer to the full paper:

http://strathprints.strath.ac.uk/59479/

(or email gioele.figus@strath.ac.uk to ask for a copy!)

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