

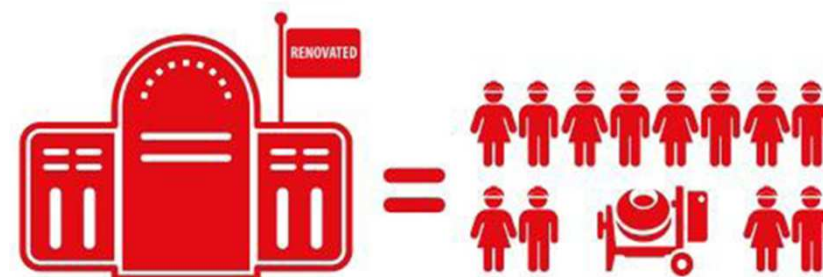


# **Sigurd Naess-Schmidt**

**Copenhagen Economics**

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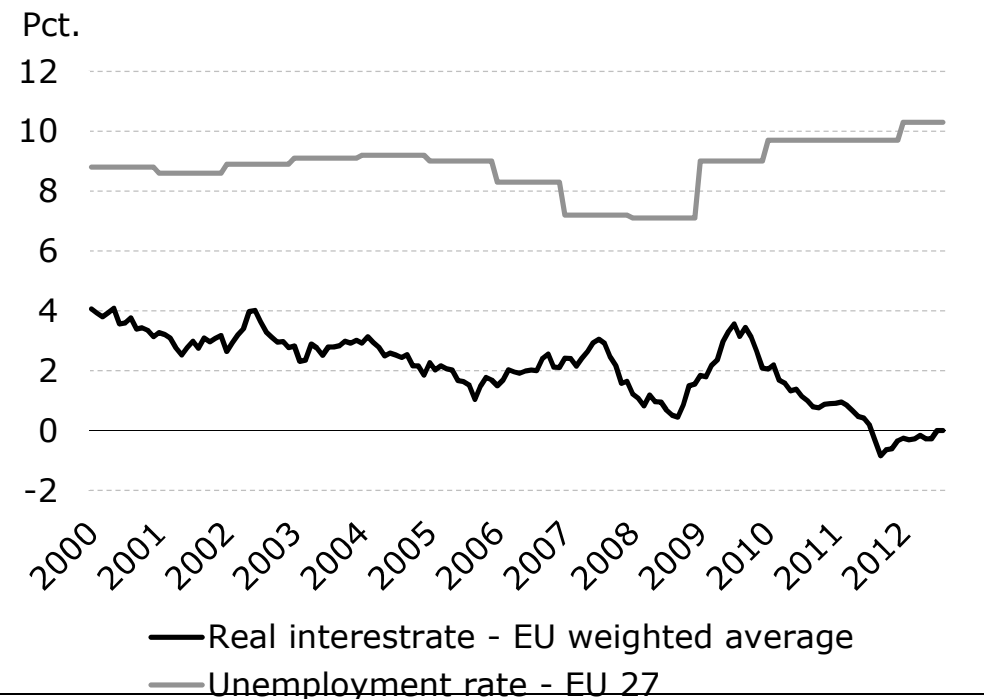
# Multiple benefits of energy efficient renovation of buildings - Impact on public finances



## Energy efficient buildings: why right now?

- Substantial evidence that energy efficiency of building is a no-regret option:
  - Cost of investments is lower than the value of benefits
  - This is true globally and also in the EU
- BUT
  - Energy efficiency can also bring substantial co-benefits
  - ...and improve public finances
- Now is the time to do it
  - Unemployment is (too) high, so the capacity is there
  - Borrowing costs for investments at record low levels

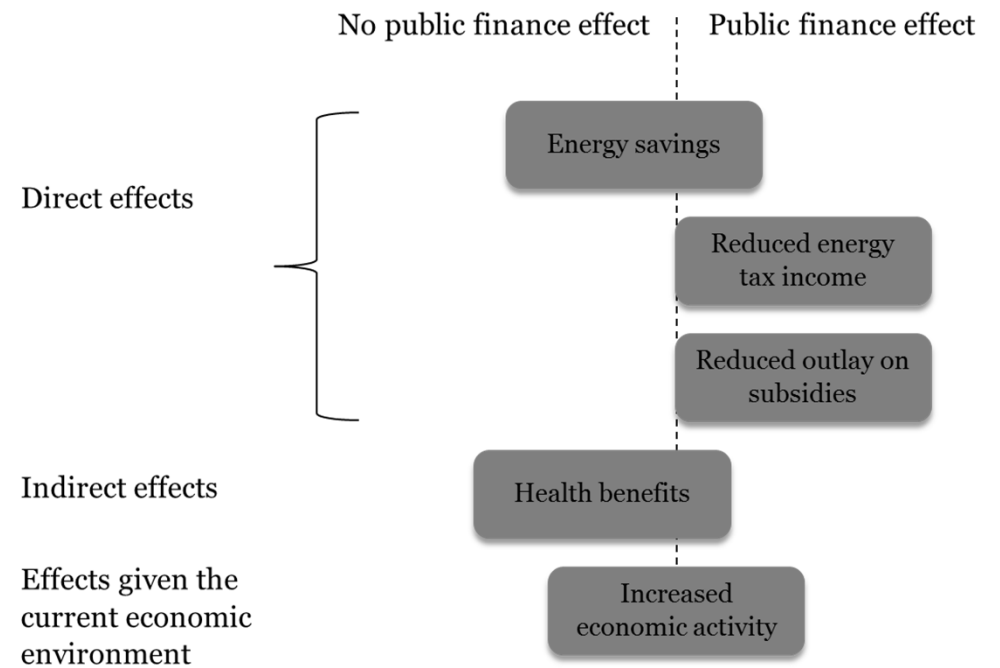
### Unemployment high and rising, financing costs all time low



# The multiple benefits of energy renovation in buildings

- Energy savings provide
  - Direct and indirect benefits to society at large
    - Value of energy savings exceed investment costs
    - Reduced air pollution and better indoor climate leads to better health outcomes, higher productivity and welfare
  - Improvement of public finances
    - Direct impact of energy savings leads to loss of tax revenues
    - This is however more than offset by:
      - Reduced costs of energy in government run and owned buildings
      - Lower costs of government subsidies to energy consumption and deployment which could help fund e.g. research in low carbon technologies including EE.
    - Higher taxes and lower social expenditure from higher activity: a temporary but important additional contribution in coming years

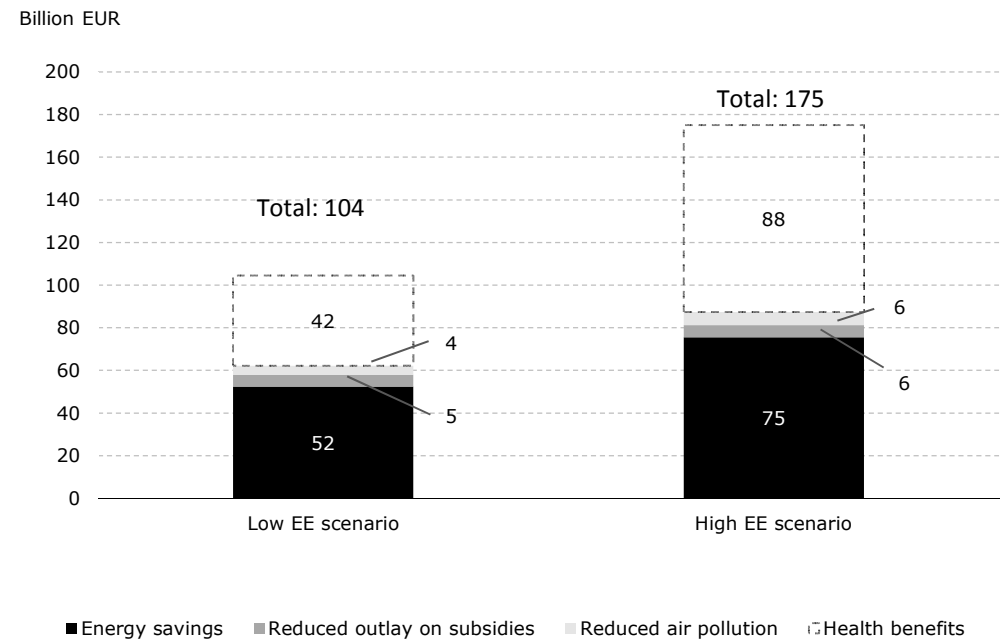
## The benefits of energy renovation



## Measuring the benefits by 2020

- The study looks at two scenarios for energy savings based on analysis done for EU Commission:
  - Conservative assessment of cost-effective emissions fully paying for themselves without any co-benefits (“Low EE”)
  - More optimistic scenario (“high EE”)
- Scenario results
  - Low EE:
    - Net benefits from energy saving around € 50 billion, other benefits adds up to a total plus € 100 billion
  - High EE
    - Up to € 175 billion.

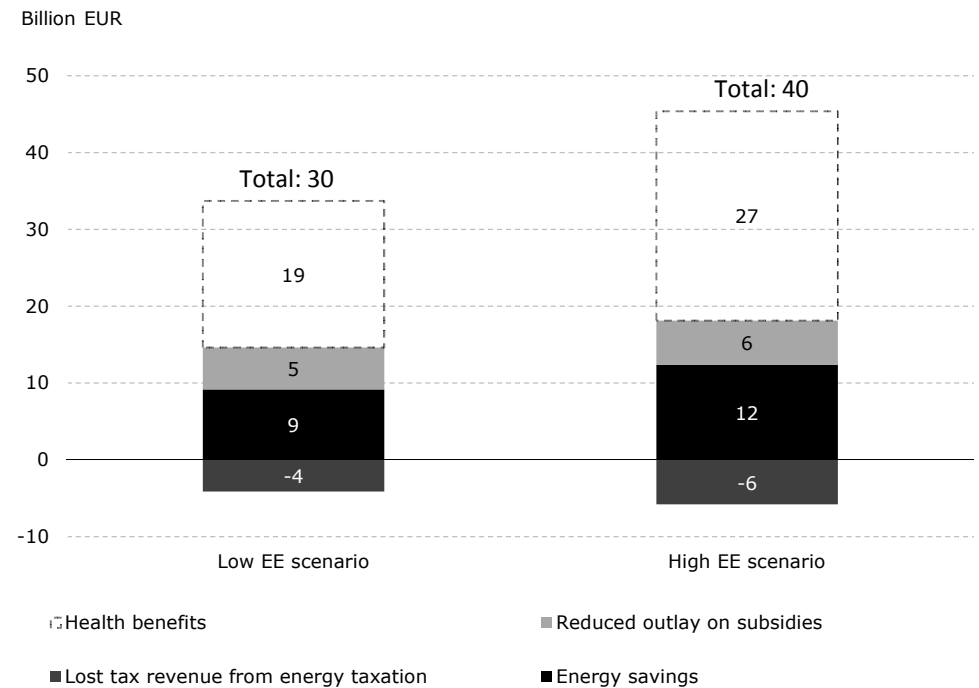
## Quantified benefits to society 2020



# Public finance benefits 2020

- Low EE
  - Reduced energy bill in public buildings, lower public spending on health care expenditure and less need to subsidise energy consumption and deployment may in total save nearly € 34 billion per year
  - The total revenue gain is close to € 30 billion per year
- High EE
  - The net effect may reach € 40 billion

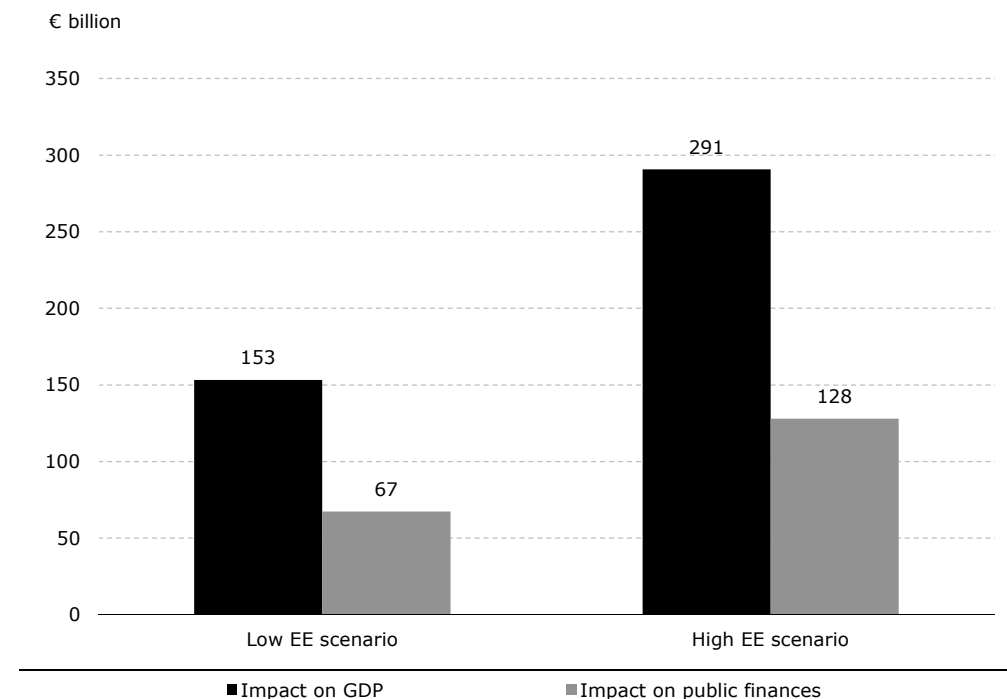
## Benefits to public finances



## Weak economy is background for additional benefits

- Boosting energy efficiency in buildings will require up front activities for long term gains
- Now is the perfect time given far too many idle hands and extremely low borrowing costs
- OECD and other estimates suggest that this may well continue to 2016-2018
  - Deep recessions takes time to unwind!
- Using standard economic multipliers based on OECD studies we conclude:
  - Accumulated GDP effect may attain € 150 to 300 billion range up 2017
  - Net public revenue gains may reach nearly € 70 to nearly € 130 billion range
  - This effects stops when economy is back on track: **jobs in energy renovation will continue to grow but will not then be net additions to total jobs**

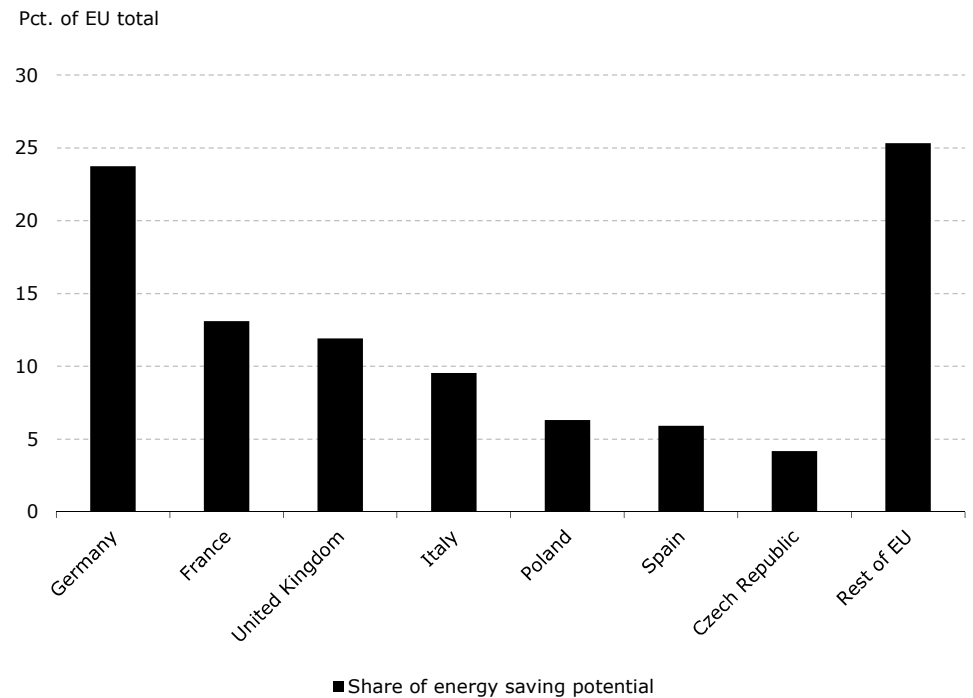
### Accumulated GDP and public finance effects, 2012-2017



## Medium/long term energy saving potential (2030)

- The study provides some insights into the distribution of energy savings potential across EU countries and associated benefits
- Potential across countries broadly follows shares of GDP
- However, the identified potential in Germany is larger than its relative size in the economy
- For health benefits and other co-benefits, distribution of benefits much more uncertain and issue to be pursued further

### Potential for EE renovations





## Dealing with key structural barriers: neutral or first round positive effects on public finances

### ● **Barrier 1:**

- Rent regulation (26% of building stock is rentals)
- *Action:* Modernise rent regulation to allow landlords and tenants to split the gains from energy efficient renovation of buildings.

### ● **Barrier 2:**

- Budget management of publicly owned buildings – do not take into account long term benefit from reduced running costs.
- Discount rates applied to assess public investments have not followed the general current trend towards lower market rates.
- *Action:* Reform budget management of publicly owned buildings to allow for a longer term focus in investments and renovation of buildings.

### ● **Barrier 3:**

- Favourable tax treatment of heating and electricity use in buildings
- *Action:* Remove/reduce tax advantages to make energy efficient renovation of buildings more attractive. Will provide direct net revenue gains to public budgets.

### ● **Barrier 4:**

- High up-front costs and challenges setting up, monitoring and evaluating performance contracts
- *Action:* Well-designed risk-sharing programmes can help government as well as private building owners to realise cost savings with very limited budget costs (e.g. Energy Service Companies (ESCO) and Energy Performance Contracts (EPC) )

## Conclusions

- Energy efficient renovation of existing buildings:
  - very attractive economic benefits in their own right
- Climate change and energy security
  - Energy efficiency is a “no-cost solution”
- Sizeable co-benefits to society
  - Improved health, productivity and other co-benefits
- Now is a perfect time to push for change and realise potential:
  - Low economic activity calls for government action to spur growth
  - EE is an option that can deliver and also boost public finances in a time of budget consolidation
  - Identified barriers require structural reform with no cost: tenants, landlords, tax payers and consumers will all benefit
  - Some countries have already started (examples in report), others recommended to follow