# A model-based analysis of the impact on labour market supply from enhanced tobacco control strategies in Denmark

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## BACKGROUND

It is well-established that smoking is associated with a high morbidity and mortality risk, and interventions targeting smoking prevalence reduction are among the most cost-effective preventive strategies. However, there is only limited evidence between smoking prevalence and labour market supply.

## AIM

This analysis aims to estimate the potential impact on the number of extra labour supply full-time equivalents in 2035 from the following enhanced tobacco control strategies in Denmark:

1) Continuation of current policies.
2) Smokefree generation 2012.
3) Only 5% smokers in 2030.
4) Only 5% smokers in 2035.

**Fig 1**. Estimated smoking prevalences until 2035 compared to continuation of current policies.

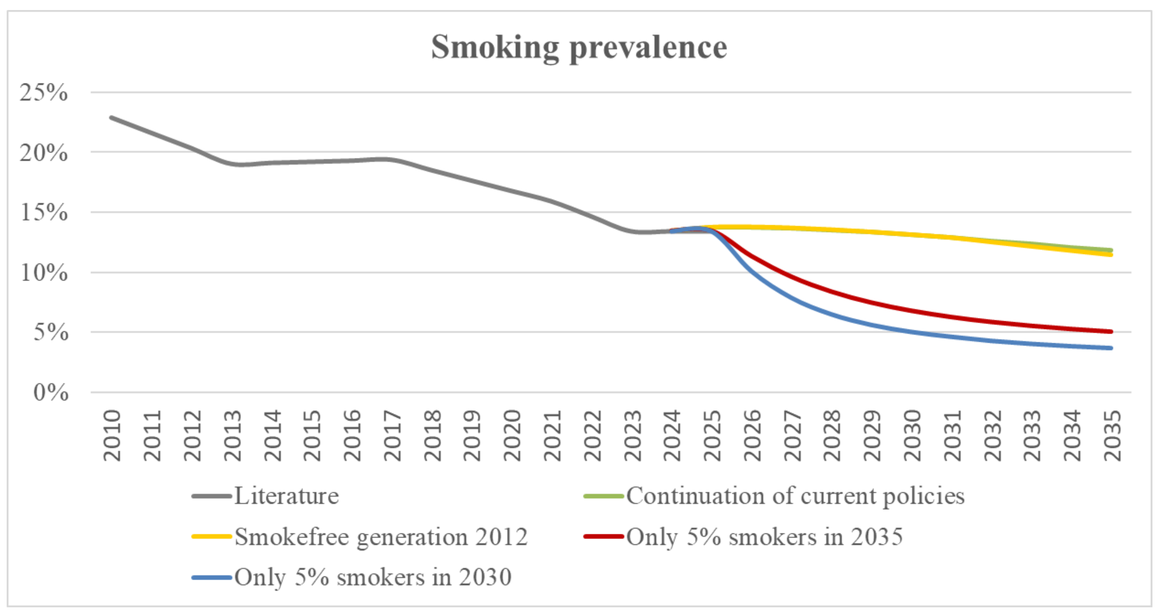
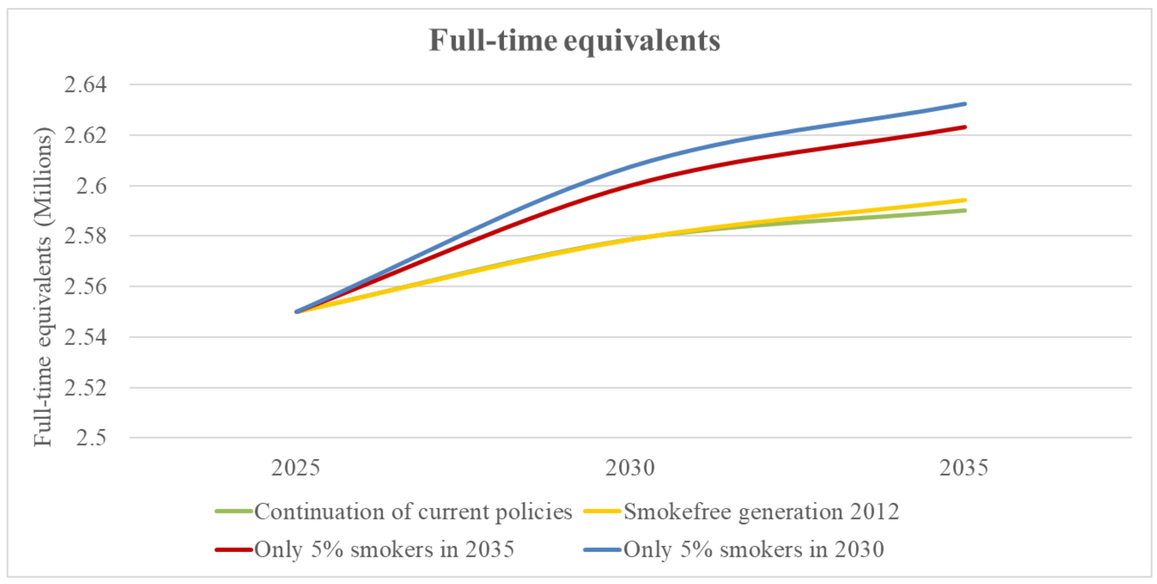



**Fig 2**. Estimated number of extra full-time equivalents until 2035 compared to continuation of current policies.




## METHODS

The analysis is based on a Danish replication of the Smokefree Generation Model[1] that was designed to inform policy decisions in the UK. The model is a dynamic cohort (Markov) model adapted to predict the impact on the Danish labour supply. The primary outcome is the number of full-time equivalents where one full-time equivalent equals the total hours of one full-time worker. The population is divided into never-smokers, smokers, and former smokers with smoking cessation either within the last 10 years or over 10 years ago based on data from the Danish National Health Survey 2023[2]. All projected outcomes in the model are obtained from evidence of the relationship between smoking status, health risks, and employment relevant for the Danish context. The population projections in the model were calibrated against Statistics Denmark's population projections.

## RESULTS

The analysis shows that enhanced tobacco control strategies (strategies 2-4) may increase labour supply by between 4,163 and 38,246 full-time equivalents (0.2 – 1.5%) in 2035 compared to continuation of current policies (strategy 1) (Fig. 1-2 + Tab. 1).

**Tab 1**. Main results in 2035.

| | Smoking prevalence | Full-time equivalents | Difference |
|---|---|---|---|
| **Continuation of current policies** | 11.8% | 2,590,049 | Ref. |
| **Smokefree generation 2012** | 11.5% | 2,594,212 | 4,163 |
| **Only 5% smokers in 2030** | 3.7% | 2,632,459 | 38,246 |
| **Only 5% smokers in 2035** | 5.0% | 2,623,282 | 33,233 |

## CONCLUSION

In conclusion, this analysis shows that there is an association between enhanced tobacco control strategies and the labour supply in Denmark. Short term effects on labour supply are higher when focusing on smoking cessation rather than smoking initiation.

*References: [1]GOV.UK, Modelling for the Smokefree Generation Policy (2023). [2]Jezek et. al., The Danish National Health Survey 2023 (2023).*