Short communication

TOBACCO – PRICE – HEALTH – INTERDEPENDENCIES
(basic facts, situation framework, and perspectives)

Petr Petr [1, 2] *, Karolína Soukupová [3], Hana Kalová [2], Brigita Janečková [2]

[1] *University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences, Institute of Physiotherapy and Selected Medical Disciplines, České Budějovice, Czech Republic*
[2] *České Budějovice Hospital, Clinical Pharmacology Ward, České Budějovice, Czech Republic*
[3] *Prague University of Economics and Business, Faculty of Economics, Prague, Czech Republic* (student)

INTRODUCTION

It is well documented and broadly accepted as an unequivocal fact that tobacco smoking is related to, and responsible for, the incidence and prevalence of dangerous diseases. The main villain is lung carcinoma (Bettio et al., 2021; van Meerbeeck and Franck, 2021). The direct association and direct proportion between the incidence of lung carcinoma and the level of daily cigarette consumption is not often studied, but it is convincingly documented by Forjaz et al. (2020).

The world community has reflected, and is trying to face, those dangers, with international programmes. The best example of this is the FCTC – WHO Framework Convention on Tobacco Control (United Nations – Treaty Collection, 2005). Attempts to diminish the consumption of tobacco products, mainly cigarettes, by increasing the consumers' price through taxation, are formalised in basic EU-documents, in the form of pertinent Directives (European Union, 2011, 2020). Baert (2024) brings the broader view, showing the spectrum of behavioural taxation in the EU.

This is the expert/professional and institutional frame(work) for our attempt to assess the situation and to try to find the way to formulate sound proposals for further activities.

Is there any relation of cigarette smoking individual burden to the degree of lung cancer occurrence?

In the excellent field study mentioned above, the Portuguese researchers, Forjaz et al. (2020) proved that in regions where the daily consumption of cigarettes per proband was highest (23 M, 16 W), the rate of smokers among the population was highest (34.7%), and the age of starting smoking lowest (15, compared to 17 in other regions), the burden of lung-carcinoma death was greater than other regions surveyed. Lung cancer incidence and mortality rates have tended to decrease in many EU countries, particularly in men. These trends can mainly be attributed to reducing the per capita cigarette consumption (Bettio et al., 2021). The problems and bottlenecks of contemporary LDSCT programmes – low dose spiral CT scan in lung cancer screening, in Europe and in the USA, are meticulously discussed by Belgian researchers in a recent paper (van Meerbeeck and Franck, 2021).

The answer is yes. The smoking burden is in direct proportion to lung cancer occurrence and mortality.

Is there any association between the number (percentage) of smokers in a population and cigarette prices?

Mayne et al. (2019) have documented that, in the USA population, a 1 USD higher cigarette carton price is associated with a 16% higher likelihood of first smoking cessation, and an 8% higher likelihood of sustained smoking cessation. Associations were strongest among participants with lower income for first cessation, and among those with higher income for sustained cessation. Associations were strongest for participants with less than a high school degree. The impact of cigarette prices on adult smoking cessation has also been documented in Indonesia (Firdaus et al., 2024),

where price increases are associated with higher probability of cessation among adult smokers.

The USA and Indonesia, being the examples/representatives of one high income country and one upper middle-income country give the similar signals/results, notwithstanding the fact, that the tax rate in Indonesia still remains on a very low level.

The answer is yes. There is an association (in indirect proportion) between cigarette prices and the number (percentage) of smokers in the population. The higher the price level, the lower the percentage of smokers.

Have the cigarette prices had any impact on smoking onset and cessation?

Smoking onset and smoking cessation must be assessed in relation to changes in cigarette prices (Mayne et al., 2019; Nguyen et al., 2024).

The importance of onset rate reduction, i.e., not starting to smoke at all, seems to be the most promising attitude to the threat of smoking as a health risk factor.

Smoking cessation, which if achieved asap could save the health and life of a smoker, seems to be complicated to achieve. The first cessation (i.e., the first attempt to quit smoking) and the definite cessation are to be regarded. Of course, there are many smokers who undergo multiple repeated cessation attempts.

A striking example of multicentric international cooperation on this topic can be seen in the publications of Vietnamese and South African researchers (Nguyen et al., 2024; Vellios et al., 2025). Velios et al. (2025) from Cape Town, Republic of South Africa, have demonstrated the longest ever string of data on the effect of cigarette prices on smoking cessation, covering a timespan of 47 years (1970–2017). They present the fact that a 10% increase in the price of cigarettes was associated with a smoking cessation rate of 5.8–7.9%. Nguyen et al. (2024) from Hanoi, Vietnam, in cooperation with Vellios et al. (2025), have documented that a 1% increase in cigarette prices reduces smoking onset by 1.2%. They propose that increases in tobacco taxation, which translate to price increases, can reduce smoking onset. They are rather pessimistic regarding the smoking cessation effect (Nguyen et al., 2024).

The painful question, whether the higher prices have their effect on smoking cessation even in the milieu, where the purchasing cigarettes from cheaper resourcers are available, is treated by Ross et al. (2011). The researchers conclude that, even in this type of market, the higher cigarette prices effect on smoking cessation is not mitigated by cheaper cigarette sources.

The answer is yes. Cigarette prices impact smoking onset and cessation. The prices push the smokers to try to quit. They are more successful in reducing the onset, then to result in durable/permanent cessation (the price elasticity of 1.2 for onset of smoking).

What is the proportion of cigarette prices and intention to stop/quit smoking. How often the intention becomes true?

Data published by a research group from universities in Hanoi, Vietnam, Atlanta/Georgia, USA, Incheon, Republic of Korea, Waterloo/Ontario, Canada, and Toronto/Ontario, Canada (Tran et al., 2024, 2025) provide deeper insight into this topic. The findings from the 2019–2020 ITC Vietnam surveys are shown below (slightly adapted, with figures rounded to two decimal places).

Table 1 shows that the highest gain of smokers willing to quit is achieved when

Table 1 – ITC Vietnam Survey 2019–2020

% of price increase	% of those willings to quit	% of willings per % of price increase*
15	27	1.80
40	43	0.60
100	71	0.47
200	82	0.12

Note: * Price elasticity of willingness, calculated by author

the price increases by 15%. Further increases bring about smaller and smaller success. A price increase of 200% would bring about the 82% of those, who would consider the smoking cessation, but the resilience of this last gain of smokers is greatest.

Similar could be conformed also in Czech Republic, by Dvořáková et al. (2025). In their series, after the tax increase, 63.6% of smokers made an attempt to quit, and (according to their own reference) 27.6% successfully quit smoking (i.e., 43.40%).

The researchers concluded that current cigarette prices were not associated with (substantial) cessation behaviours, even within the lowest household income group.

There is a direct proportion between the increase in cigarette prices and willingness to quit smoking. It is not linear; the first steps in the continuum of increasing bring about the highest gain in the number of those willing to quit. There is, perhaps, a resilient subgroup of passionate smokers who could be convinced by tripling the price.

Is there any (potential) role of excise duty/tax on tobacco resulting in tobacco offer diminishing, tobacco demand suppression, and tobacco harm reduction?

As recently presented by Baert (2024), tobacco excise taxes are an integral part of behavioural taxation in the EU. The excise tax/tax, which is inevitably part of the production costs, would be reflected in prices. The impact on tobacco supply is likely to be uncertain. The impact on tobacco demand has been discussed above, and a list of (some) relevant literature is collected below in the bibliography (2–15). Tobacco harm reduction, as a broader concept, would/should require comprehensive multifactorial analyses, including the issue of passive "second-hand" smoking.

Great expectations?

The increase of excise duty/tax on tobacco would/could result in:

- Substantial increase in the number of smokers willing to quit smoking who attempt smoking cessation (up to 63.6% – and when the price is tripled, even 82%).
- Smoking cessation of 5.8–7.9% for every 10% of price increase in a longitudinal survey, and plus 1 USD in cigarette carton price resulting in 16% higher likelihood of first cessation attempt, and 8% higher likelihood of sustained cessation.
- Substantial reduction in smoking onset, 1.2% onset reduction per 1% price increase.
- Substantial reduction in smoking burden (mainly for newcoming generations), bringing about decreased lung cancer incidence and mortality

Sense and sensibility (closing remarks)

The scientific nature of experimental and survey – type research used above, which are the emotionally – cold items from the realm of Sense, should not and must not overwhelm our attempts to deal with the topic of "Tobacco – Price – Health – Interdependencies".

The realm of Sensibility, in which the smoker is also regarded and treated as our neighbour, fellow human being (Lev 19: 34, Matt 22: 37–40) should and must prevail.

REFERENCES

1. Baert P (2024). Shaping choices: Behavioural taxation in the EU. EPRS – European Parliamentary Research Service. [online] [cit. 2025-11-22]. Available from: https://www.europarl.europa.eu/RegData/etudes/BRIE/2024/762466/EPRS_BRI(2024)762466_EN.pdf
2. Bettio M, Dimitrova N, Randi G, Negrao De Carvalho R, Martos Jimenez MDC, et al. (2021). Lung cancer burden in EU-27, European Commission, JRC125082.
3. Dvořáková D, et al. (2025). Hospital České Budějovice (Budweis) JSC, Czech Republic. What Cigarette Price would drive the Clients of Tobacco Dependency Ward to Quit Smoking? Personal communication, on the eve of GEOMED Conference, October 10th, 2025, Institute of Technology and Economics, Budweis, Czech Republic.

4. European Union (2011). Document 32011L0064. Council Directive 2011/64/EU of 21 June 2011 on the structure and rates of excise duty applied to manufactured tobacco (codification), pp 24–36. [online] [cit. 2025-11-22]. Available from: http://data.europa.eu/eli/dir/2011/64/oj
5. European Union (2020). Document 32011L0064. Council Directive (EU) 2020/262 of 19 December 2019 laying down the general arrangements for excise duty (recast), pp. 4–42. [online] [cit. 2025-11-22]. Available from: http://data.europa.eu/eli/dir/2011/64/oj
6. Firdaus MZ, Kamilah FZ, Wisana DGK, Espressivo A, Meilissa Y (2024). The Impacts of Cigarette Prices on Adult Smoking Cessation in Indonesia. Center for Indonesia's Strategic Development Initiatives. [online] [cit. 2025-11-22]. Available from: https://tobacconomics.org/research/the-impacts-of-cigarette-prices-on-adult-smoking-cessation-in-indonesia/
7. Forjaz G, Bastos J, Castro C, Mayer A, Noone AM, Chen HS, Mariotto AB (2020). Regional differences in tobacco smoking and lung cancer in Portugal 2018: a population-based analysis using national wide incidence and mortality data. BMJ Open 10(10): e038937. DOI: 10.1136/bmjopen-2020-038937.
8. Mayne SL, Gordon-Larsen P, Schreiner PJ, Widome R, Jacobs DR, Kershaw KN (2019). Longitudinal Association of Cigarette Prices With Smoking Cessation: The Coronary Artery Risk Development in Young Adults Study. Nicotine Tob Res 21(5): 678–685. DOI: 10.1093/ntr/nty109.
9. Nguyen CV, Vellios N, Nguyen NH, Le TT (2024). The impact of cigarette prices on smoking onset and cessation: evidence from Vietnam. Tob Control 33(e1): e48–e53. DOI: 1136/tc-2022-057689.
10. Ross H, Blecher E, Yan L, Hyland A (2011). Do cigarette prices motivate smokers to quit? New evidence from the ITC survey. Addiction 106(3): 609–619. DOI: 10.1111/j.1360-0443.2010.03192.x.
11. Tran TPT, Nguyen TML, Nguyen TNP, Tran TP, Nguyen BN, Duong TA, et al. (2024). Association between current cigarette prices and cessation behaviours among male adult smokers: finding from 2018 to 2020 ITC Vietnam Surveys. BMC Public Health 24(1): 2278. DOI: 10.1186/s12889-024-19689-y.
12. Tran TPT, Nguyen TNP, Vu TT, Duong TA, Phan HT, Luong NK, et al. (2025). What cigarette price would drive Vietnamese people who smoke to quit smoking? Findings from the 2019–2020 ITC Vietnam surveys. Tob Control tc-2024-059029. DOI: 10.1136/tc-2024-059029.
13. United Nations – Treaty Collection (2005). WHO Framework Convention on Tobacco Control. Vol 2302, p. 166. [online] [cit. 2025-01-22]. Available from: https://treaties.un.org/pages/viewdetails.aspx?src=treaty&mtdsg_no=ix-4&chapter=9&clang=_en
14. van Meerbeeck JP, Franck C (2021). Lung Cancer Screeining in Europe: where are we in 2021? Translat Lung Cancer Res 10(5): 2407–2417. DOI: 10.21037/tlcr-20-890.
15. Vellios N, van Walbeek C, Guindon GE (2025). The effect of cigarette prices on smoking cessation in South Africa, using duration analysis: 1970–2017. Soc Sci Med 368: 117772. DOI: 10.1016/j.socscimed.2025.117772.

* **Corresponding author:** Petr Petr, České Budějovice Hospital, Clinical Pharmacology Ward, B. Němcové 585/54, 370 01 České Budějovice, Czech Republic; e-mail: petr.petr@nemcb.cz; ppetr@zsf.jcu.cz
http://doi.org/10.32725/jnss.2025.016

The author is responsible for the linguistic and factual aspects of the work.

Submitted: 2025-10-02 • Accepted: 2025-12-08 • Prepublished online: 2025-12-08
J Nurs Soc Stud Public Health Rehabil 16/3–4: xxx–xxx • EISSN 1804-7181 • ISSN 1804-1868