

Title: Standardised packaging for tobacco products IA No: 3080 Lead department or agency: Department of Health Other departments or agencies:	Impact Assessment (IA)
	Date: 05/03/2012
	Stage: Consultation
	Source of intervention: Domestic
	Type of measure: Primary legislation

Summary: Intervention and Options	RPC Opinion: AMBER
--	---------------------------

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCBC on 2009 prices)	In scope of One-In, One-Out?	Measure qualifies as
£m	£m	£m	Yes/No	In/Out/zero net cost

What is the problem under consideration? Why is government intervention necessary?

Research evidence suggests standardised packaging of tobacco products can reduce the appeal of tobacco products, increase effectiveness of health warnings on tobacco packages and reduce the ability of tobacco packages to mislead consumers about the harmful effects of smoking. Of particular concern is the impact of tobacco packaging on young people who might not yet be in a position to make properly informed or considered lifestyle choices. Regulation of tobacco packaging therefore represents a policy option as part of a wider comprehensive tobacco control strategy to improve public health by reducing tobacco use.

What are the policy objectives and the intended effects?

The objectives of standardised tobacco packaging would be to discourage young people from taking up smoking, encourage people to give up smoking, and help people who have quit or who are trying to quit to avoid relapse back to smoking. Achieving these aims will improve the health of those who never start to smoke and those who succeed in quitting smoking. There may also be wider benefits such as narrowing of health inequalities and a reduction in the levels of exposure to secondhand smoke which is particularly harmful to the health of children.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 1: Do nothing (i.e. maintain the status quo for tobacco packaging).

Option 2: Require standardised tobacco packaging of cigarettes and hand rolling tobacco (HRT). In line with the approach set out in the consultation document, this would involve the standardisation of pack colour and shape and the removal of all branding except brand name which would appear in a standardised typeface. Relevant legal markings such as health warnings and tax stamps would be retained as well as covert markings to reduce trade in illegal tobacco products.

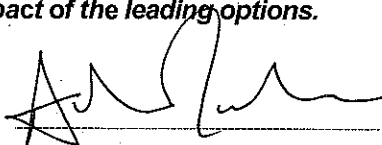
Option 3: A different approach to tobacco packaging to improve public health, if suggested by consultation responses. Options 1 and 2 are considered in this IA. The potential of Option 3 will be explored following consultation, if responses to the consultation suggest an alternative approach to reduce the promotional impact of tobacco packaging.

Will the policy be reviewed? It will/will not be reviewed. If applicable, set review date: Month/Year

Does implementation go beyond minimum EU requirements?	N/A				
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro Yes/No	< 20 Yes/No	Small Yes/No	Medium Yes/No	Large Yes/No
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)	Traded:		Non-traded:		

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY:



Date: 12/4/12

Summary: Analysis & Evidence

Policy Option 1

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate:

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate			

Description and scale of key monetised costs by 'main affected groups'

Maximum of 5 lines

Other key non-monetised costs by 'main affected groups'

Maximum of 5 lines

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate			

Description and scale of key monetised benefits by 'main affected groups'

Maximum of 5 lines

Other key non-monetised benefits by 'main affected groups'

Maximum of 5 lines

Key assumptions/sensitivities/risks

Maximum of 5 lines

Discount rate (%)

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO? Yes/No	Measure qualifies as IN/OUT/Zero net cost
Costs:	Benefits:	Net:		

Summary: Analysis & Evidence

Policy Option 2

Description:

FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate:

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate			

Description and scale of key monetised costs by 'main affected groups'

Expected costs would include the cost to manufacturers of having to alter packaging, possible costs for the operation of retail businesses, such as impact on serving time, and potential losses to the exchequer from reduced tobacco duty revenue. They also include a loss to business in the transition to the provision of other goods, a loss to business of the profit accruing to their sunk expenditure and a loss of consumer surplus associated with diminished branding.

Other key non-monetised costs by 'main affected groups'

A reduction in the ability of tobacco companies to compete through product differentiation because of different packaging.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate			

Description and scale of key monetised benefits by 'main affected groups'

Expected benefits are the health benefits that would accrue from the reduced take-up of smoking and improved quit rates. They also include the reduction in resources required to treat health conditions in children resulting from secondhand smoke due to fewer smokers, and the cost saving to business associated with the reduction in expenditure on promotional activities involving packaging and branding.

Other key non-monetised benefits by 'main affected groups'

An additional benefit is the possible enhancement of price competition between tobacco companies and the potential for accelerated product innovation to exploit other avenues for product differentiation. These represent economic benefits rather than public health benefits and potentially risk the achievement of public health benefits.

Key assumptions/sensitivities/risks

Discount rate (%)

For tobacco control policies to be justified the impact on smoking behaviour and the consequent improvement in health need to be sufficiently large to justify the related costs. Any risk that standardised packaging could increase illicit trade of tobacco will be explored through consultation as there is insufficient evidence on which to include analysis in this IA.

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO? Yes/No	Measure qualifies as IN/OUT/Zero net cost
Costs:	Benefits:	Net:		

Evidence Base (for summary sheets)

What is the problem under consideration? Why is government intervention necessary?

1. The Government remains concerned about the take up of smoking by young people, the difficulty that adult smokers can have in quitting smoking and the consequences for the health of others from exposure to second hand smoke (SHS). Research evidence suggests that standardised packaging of tobacco products can reduce the appeal of tobacco products, increase the effectiveness of health warnings on tobacco packages and reduce the ability of tobacco packages to mislead consumers about the harmful effects of smoking. Of particular concern is the impact of tobacco packaging on young people who might not yet be in a position to make properly informed or considered lifestyle choices. Around two-thirds of smokers say that they started smoking regularly before the age of 18. The regulation of tobacco packaging therefore represents a policy option as part of a wider comprehensive tobacco control strategy to improve public health by reducing tobacco use. Standardised packaging has also been referred to as plain packaging. As packs would not be plain (for example, they would be required to have coloured picture warnings), the term standardised packaging is considered to be a more accurate description.
2. Rates of smoking vary by socio-economic classification and other characteristics. In 2009, 15% of the managerial and professional group were smokers compared with 28% of the routine and manual group¹.
3. The total cost of childhood disease caused by SHS has been estimated at £23.3m per annum in the UK². We would expect this cost to be reduced in proportion to any reduction in parental smoking which might result from a standardised tobacco packaging policy. But, as in previous IAs, we have not included an impact on NHS costs for the treatment of smoking-related diseases in smokers, although recent evidence suggests that quitting may lead to a reduction in health care costs over the lifetime³.

Policy context

4. The United Kingdom is a Party to the World Health Organization Framework Convention on Tobacco Control (FCTC). To assist Parties to meet their obligations under the Convention, guidelines have been made that reflect the consolidated views of Parties on a number of different Articles within the FCTC.

5. Guidelines on Article 11 of the FCTC⁴ suggest that:

Parties should consider adopting measures to restrict or prohibit the use of logos, colours, brand images or promotional information on packaging other than brand names and product names displayed in a standard colour and font style (plain packaging). This may increase the noticeability and effectiveness of health warnings and messages, prevent the package from detracting attention from them, and address industry package design techniques that may suggest that some products are less harmful than others.

6. Guidelines on Article 13 of the FCTC⁵ recommend:

Packaging and product design are important elements of advertising and promotion. Parties should consider adopting plain packaging requirements to eliminate the effects of advertising or promotion on packaging. Packaging, individual cigarettes or other tobacco products should carry no

¹ Information Centre (2011). Statistics on Smoking 2011. Leeds: The Information Centre.

² Royal College of Physicians (2010). Passive smoking and children. London: Royal College of Physicians.

³ Godfrey C, Ali S, Parrott S, Pickett K (2011). Economic model of adult smoking related costs and consequences for England. York: University of York.

⁴ Article 11 of the FCTC relates to packaging and labelling of tobacco products.

⁵ Article 13 of the FCTC relates to tobacco advertising, promotion and sponsorship.

advertising or promotion, including design features that make products attractive.

7. In 2007, the European Commission (EC) suggested standardised tobacco packaging as a possible policy option in its consultation on revising the Tobacco Products Directive. It stated that ‘in order to decrease the smoking initiation and to protect EU consumers on equal basis in all Member States the introduction of generic (black and white) standardised packaging for all tobacco products could be explored as a possibility to reduce the attractiveness’⁶.
8. In March 2011, the Government published *Healthy Lives, Healthy People: A Tobacco Control Plan for England*⁷ which sets out the Government’s comprehensive, evidence-based, approach to tobacco control in England. It includes (at paragraphs 3.6 and 3.7) the commitment to explore whether there is evidence to demonstrate that plain packaging of tobacco would have an additional public health benefit, over and above the existing smoking control initiatives in place, including the recent legislation to end the open displays of tobacco products in shops.
9. Tobacco industry documents show the value of packaging to this industry. A report prepared for the tobacco manufacturer Philip Morris in 1989 set out that ‘consumer perceptions are based on pack design, price points and usage patterns – not images created by advertising’⁸. Tobacco packaging remains a “badge” product.
10. Given that the open display of tobacco in retail environments will soon end in England, the introduction of standardised tobacco packaging might further reduce the promotion of tobacco products. With display of tobacco products ending, the tobacco industry may seek to invest more in promoting tobacco use through packaging.
11. The 2011 World Health Organization report on the global tobacco epidemic argues that consumers of tobacco products have a ‘fundamental right to accurate information about the risks of smoking’. A basic requisite for reducing tobacco use is that every person be informed of the health consequences, addictive nature, and potential for disability and premature death posed by tobacco consumption and exposure to tobacco smoke⁹. Health warnings have high reach and frequency of exposure among smokers, a 20 pack a day smoker potentially being exposed to these warnings over 7000 times per year.
12. This Impact Assessment (IA) accompanies the Consultation on standardised packaging of tobacco products. We consider costs and benefits of standardised packs for the UK, although some of the illustrative data reported here relate to England only. The consultation itself will seek further evidence and data to inform any future Impact Assessment that may be needed, should a decision be taken to pursue further policy development following the consultation. The consultation includes a number of questions specific to this IA on which further information is sought.

Potential benefits of standardised tobacco packaging

13. A policy to introduce standardised tobacco packaging would need to be justified and be based on expected benefits over and above existing tobacco control measures, including the benefits of the following initiatives in England (which the devolved administrations in Scotland, Wales and Northern Ireland are at varying stages of implementing under similar legislation in their own territories):

⁶ European Commission (2007). *Report from the commission to the European parliament, the Council and the European economic and social committee. Second report on the application of the Tobacco Product Directive*. Brussels: Commission of the European Communities.

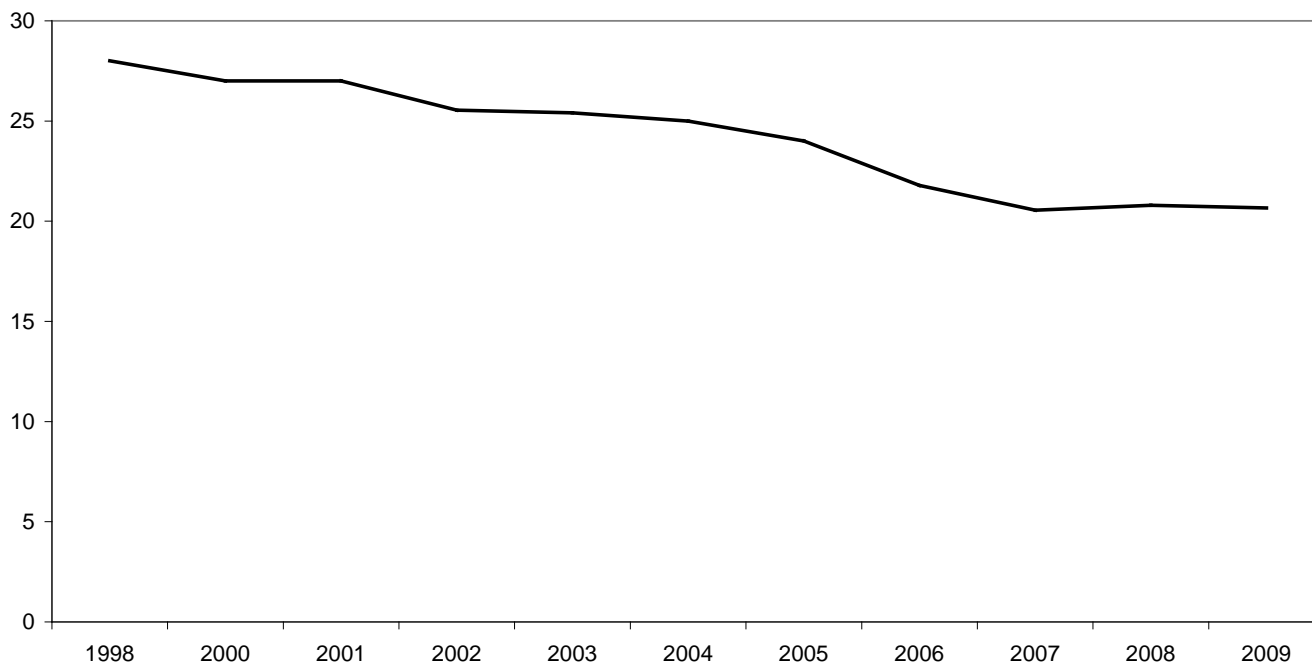
⁷ HM Government (2011). *Healthy Lives, Healthy People: A Tobacco Control Plan for England*. Department of Health, London.

⁸ Kelly Weedon Shute Advertising (1989). *Cigarette Marketing - A New Perspective*. Available online at: <http://legacy.library.ucsf.edu/tid/lti49e00>

⁹ World Health Organization (2011). *WHO report on the global tobacco epidemic. Warning about the dangers of tobacco*. WHO, Geneva.

- a) Legislation to stop the sales of tobacco from vending machines, which came into force in England in October 2011; and
 - b) Legislation to end the open public display of tobacco products, which will come into force in England in April 2012 for large shops and in April 2015 for all other businesses.
14. In England, we anticipate that legislation to end the open display of tobacco in shops will help to sustain the medium to long term downwards trend in smoking prevalence among the adult population (proportion who said that they do smoke nowadays shown in *Figure 1*) and young people (proportion who smoke at least one cigarette per week shown in *Figure 2*).

Figure 1: Smoking prevalence among adults, England (%)



Source: Information Centre

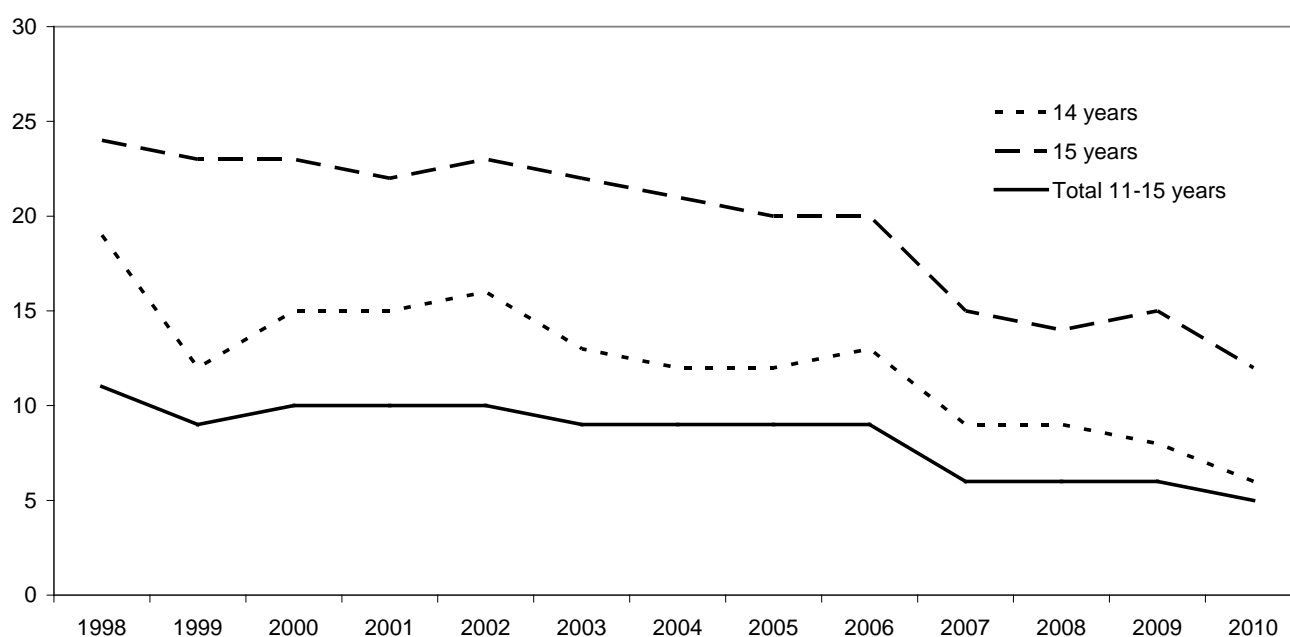
15. To inform policy development and responses to the consultation, the Department of Health (DH) commissioned a systematic review of the evidence on plain tobacco packaging¹⁰. This study is currently undergoing peer review.
16. The systematic review¹¹ found that there is consistent evidence to support the propositions set out in the FCTC relating to the role of standardised tobacco packaging in helping to reduce smoking rates, as one part of a comprehensive tobacco control strategy. Mechanisms by which it might be an effective tobacco control measure are through reducing pack and product appeal, increasing the prominence of the health warning and reducing confusion and false beliefs about the harmfulness and strength of cigarettes.
17. Despite the limitations of the studies included in the review, the authors concluded that “there was consistency in study findings regarding the potential impacts of plain packaging. This consistency of evidence can provide confidence about the observed potential effects of plain packaging. If and when introduced, existing evidence suggests that plain packaging represents an additional tobacco

¹⁰ The systematic review was supported through the Public Health Research Consortium (PHRC), a network of researchers funded by the Department of Health’s Policy Research Programme. The lead teams on the review were from the University of Stirling, the University of Nottingham and the Institute for Education, London. The review has been peer reviewed in accordance with the Department of Health’s Research Governance Framework. The PHRC report represents the work and views of the authors, not necessarily those of the Department of Health.

¹¹ Moodie, C., Stead, M., Bauld, L., McNeill, A., Angus, K., Hinds, K., Kwan, I., Thomas, J. and Hastings, G. (2012). *Plain tobacco packaging: a systematic review*. Public Health Research Consortium, University of Stirling, Stirling.

control measure that has the potential to contribute to reductions in the harm caused by tobacco smoking now and in the future.”

Figure 2: Proportion of pupils (aged 11-15) who were regular smokers, England (%)



Source: Smoking, drinking and drug use among young people in England in 2010

18. The evidence on whether and to what extent the introduction of standardised packaging might influence consumption patterns is inevitably indirect because no country has yet implemented this policy (although the Australian Tobacco Plain Packaging Act 2011 has received Royal Assent and will be implemented throughout Australia in December 2012). The DH commissioned systematic review of the literature provides indicative research evidence on the direction of impact on smoking behaviour (as reported later in this IA) but DH will supplement this work with information received through consultation and any later research that becomes available.
19. The objective of standardised tobacco packaging¹² would be to deter young people from starting to smoke and to support adult smokers who want to quit (and prevent relapses among those who have quit), ultimately reducing the overall consumption of tobacco products. If effective, it would improve the health of those not starting and those quitting smoking and an additional benefit would be a reduction in exposure to SHS from reduced rates of smoking. While exposure to SHS is harmful to anyone, children are particularly vulnerable to health conditions caused by SHS exposure. Smoking-related diseases are a leading cause of health inequalities; standardised tobacco packaging may help to narrow these inequalities.
20. In the rest of this IA, we report the key findings from the systematic review of evidence about the mechanisms by which standardised packaging might work, before then identifying the main potential impacts which might result from the introduction of standardised packs. We illustrate how some of these impacts could be quantified with reference to observed shifts in the tobacco market from higher price to lower price cigarettes. In addition to effects resulting from such shifts in consumption within the overall tobacco market, we present our methods for quantifying those effects which arise from changes in overall consumption. We consider the risks to such a policy and discuss the further collection of evidence required to obtain a quantified estimate of the anticipated impact of standardised tobacco packaging.

Findings of the evidence review

¹² Also known as “plain packaging”.

21. Studies cited in the evidence review show that standardised tobacco packaging reduces the appeal of tobacco products to both adults and children, as compared with branded packs. For example, tobacco in standardised packs can be perceived to be of poorer quality. The removal of branding features, such as colour and typeface identified with a particular brand, is likely to reduce the ability of the pack to be linked with brand identity and therefore may weaken attachment of a smoker to their preferred brand. The ability of manufacturers to introduce frequent changes of colour, logos and typefaces allows tobacco brands to be refreshed and modernised. This has been illustrated by the £60 million increase in sales of Lambert & Butler in the UK in November 2004 following the introduction of the Celebration pack¹³.
22. Branded tobacco packaging can result in the creation of 'smoker identity', which involves the projection of personality attributes by specific brands, such as 'cool' and 'popular'. Specific person types become associated with specific brands. In contrast, standardised tobacco packs are consistently rated as less appealing in terms of the projection of personality attributes. Standardised tobacco packs can weaken smokers' attachment to brands and hence are associated with a less desirable smoker identity. A survey of smokers' perceptions in which branding was increasingly removed showed the plainest packs projected less mature and less popular attributes¹⁴. For example, cigarettes in standardised packs were perceived to be less trendy and stylish and their smokers less sociable and outgoing than smokers of cigarettes from the original branded pack. Standardised tobacco packaging shows a decline in appealing personality attributes and shows increased communication of negative attributes.
23. A recent study in Scotland asked participants to use their own packs and standardised packs, each for a two week period, to research smokers' reactions to using standardised and branded packs. Of 140 smokers aged 18-35 who enrolled, 48 completed the full study as intended. The outcome was that the use of standardised packs resulted in the participants feeling more negative about smoking, including reduced enjoyment and satisfaction ($p < 0.05$ to $p < 0.001$), and experiencing significantly increased ($p < 0.001$) feelings of embarrassment and shame¹⁵. Participants reported that they were more likely to keep the pack out of sight, to cover the pack, to smoke less around others, to think about quitting and to want to quit. At the fourth measurement point, 44% reported smoking less around others with the "Kerros" pack (the fictitious brand name for the standardised pack) compared with 7% with their own pack ($P < 0.001$). At the same time point, a higher proportion of participants reported thinking about quitting with the standardised pack than with their own pack (52% versus 28%, $P < 0.01$) and a higher proportion reported wanting to quit with the standardised than their own pack (37% versus 26%, $P < 0.05$). Participants also reported that they were more likely to forgo a cigarette with the standardised than their own pack (30% versus 9%, $P < 0.05$). A further survey showed that smokers who are more motivated to quit consider standardised packs as most likely to help motivate cessation¹⁶.
24. Relatively few studies in the evidence review compared the appeal of tobacco packaging for children with that of adults. Those that did, however, showed that younger participants were more affected by standardised tobacco packaging than adults. A Canadian study found smoking and non-smoking teenagers gave standardised tobacco packs significantly ($p < 0.001$) greater negative ratings than branded packs on all attractiveness areas (ugly/attractive, boring/exciting, old

13 Good G (2006). Global brand director, Imperial tobacco group plc. Presentation at UBS Tobacco Conference, 1 Dec 2006. Available at: http://www.imperial-tobacco.com/files/financial/presentation/011206/ubs_transcript.pdf

14 Wakefield M, Germain D, Durkin SJ (2008). How does increasingly plainer packaging influence adult smokers' perceptions about brand image? An experimental study. *Tobacco Control*, 17: 416-21

15 Moodie C, Hastings GB, Mackintosh AM, Ford A (2011). Young adult smokers' perceptions of plain packaging: A pilot naturalistic study. *Tobacco control*, 20: 367-373 in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). Plain tobacco packaging: a systematic review. Stirling: University of Stirling.

16 Gallopel-Morvan K, Moodie C, Hammond D, Eker F, Beguinot E, Martinet Y (2011). Consumer understanding of cigarette emission labelling. *European Journal of Public Health*, 21: 373-375 in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). Plain tobacco packaging: a systematic review. Stirling: University of Stirling.

fashioned/modern, awful/nice, dull/colourful, nerdy/cool)¹⁷. A survey in New Zealand found that smoking and non-smoking young adults were 25 times more likely to give a plain pack the worst rating (least likely to share with a new group of friends) than a branded pack (both packs showing equal levels of health warnings).¹⁸

25. Young adults, when using standardised tobacco packs, were more likely to think of quitting or increasingly wanted to quit as the branding was removed. Standardised tobacco packs were found to have poor symbolic power for young people seeking to create an identity through smoking.¹⁹ Donovan (1993) found that smoking and non-smoking 11-17 year olds rated standardised tobacco packaging significantly less appealing than smoking and non-smoking 18-29 year olds ($p < 0.05$)²⁰. A study of females aged 16-19 years old in the UK found standardised tobacco packs were rated as significantly less appealing ($p < 0.001$) than branded packs targeted at women.²¹

Health warnings

26. The evidence review concludes that health warnings become more prominent with the removal of branding and hence standardised tobacco packaging is likely to result in increasing attention being paid to the warnings. In addition, their prominence aids the seriousness and believability of the warnings. Given the number of times a smoker looks at a cigarette pack every day, the importance of health warnings in communicating the health harms of using tobacco may be enhanced by standardised packaging.
27. A study in Canada showed that recall of the health warning "Smoking can kill you" from the side of a cigarette packet was 22% for branded packs compared with 56% for standardised packs ($p < 0.001$)²². In a second North American study undertaken in classrooms in Chicago and Ontario, 51% of the students in Ontario said that it was easier to see the health warning on the standardised pack compared with 29% for the regular pack. The other 20% said it made no difference²³.
28. A Belgian study researched the motivations of young people choosing cigarette packs. The participants, both daily and non-daily smokers, commented on how the warnings were more salient on the standardised pack than the branded pack²⁴. The study concluded that the prominence and perceived seriousness of health warnings were greater with standardised packs than branded packs. It also appears that recall of the health warning itself is greater because the standardised pack has fewer distractions and fewer stimuli for the smoker to process.

Perceived quality

-
- 17 Centre for Health Promotion (1993). *Effects of plain packaging on the image of tobacco products among youth*. University of Toronto: Centre for Health Promotion.
- 18 Hoek J, Gendall P, Louviere J (2009). Tobacco Branding and Plain Packaging: The New Frontier in Tobacco Control? In Moore B, Paappalardo J, Wilkie W (Eds.), *Proceedings of the American Marketing Association Marketing and Public Policy Conference*, Washington DC, May 28-30.
- 19 Comite National Contre Tabagisme (2008)
- 20 Donovan R (1993). *Smokers' and non-smokers' reactions to standard packaging of cigarettes*. Perth Australia: University of Western Australia.
- 21 Hammond D, Daniel S, (2011). UK plain pack study among young women. Submitted to *Journal of Adolescent Health*.
- 22 Goldberg ME, Leiffield J, Kindra G, Madill-Marshall J, Lefebvre J, Martohardjona N, Vrendenberg H (1995). *When Packages Can't Speak: Possible impacts of plain packaging of tobacco products*. Prepared for Health Canada. Toronto, Canada in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). *Plain tobacco packaging: a systematic review*. Stirling: University of Stirling
- 23 Rootman I, Flay BR, Northrup D, Foster MK, Burton D, Ferrence R, Raphael D, Single E (1995). *A study on youth smoking: Plain packaging, health warnings, event marketing and price reductions*. Toronto, ON, Canada: University of Toronto, University of Illinois at Chicago, York University, Ontario Tobacco Research Unit, Addiction Research Foundation in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). *Plain tobacco packaging: a systematic review*. Stirling: University of Stirling
- 24 van Hal G, Arts M, Vriesacker B, Fraeyman J, Roos S (2011). *Tobacco plain packaging: perceptions of Flemish teenagers*. Unpublished manuscript in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). *Plain tobacco packaging: a systematic review*. Stirling: University of Stirling

29. The evidence review found that smokers' perceptions of the quality of tobacco can be influenced by branding. A survey of adults and young people in the UK, comparing standardised white and branded packs, found that differences between alternative brand variants in perceived smoothness of taste were less likely to be recorded when standardised white packs rather than branded packs were being used. Standardised brown packs were rated as significantly less smooth in taste ($p < 0.001$) than branded packs²⁵ by adult smokers and youth smokers.
30. While misleading descriptors used on packets (such as "light" and "mild") are prohibited in the European Union (EU), tobacco on sale in the UK continues to carry other descriptions such as "additive free tobacco", "subtle flavour" or "smooth". The systematic review of evidence found that the removal of branding (except name) can take away the ability of brand imagery to generate positive connotations and can expose the realities of smoking.

Policy Options

Option 1: Do nothing (i.e. maintain the status quo for tobacco packaging)

31. Option 1: Do nothing. This constitutes the baseline against which standardised tobacco packaging is assessed. It incorporates all existing tobacco control measures currently in place, including legislation to end the open display of tobacco products. This option involves zero costs and zero benefits in this IA.
32. The challenge, to which standardised packaging may contribute, is to secure a further decline in the existing trend of smoking amongst young people beyond the impact of current tobacco control policies. The full effect of the ending of tobacco displays is projected to be a fall in smoking prevalence among 11-15 year-olds from 5% (according to the survey of Smoking, Drinking and Drug Use Among Young People in England in 2010) to 4.2%. Any estimate of the impact of standardised packaging on smoking behaviour will need to be made against the background of the projected benefits attributable to existing policies, both in terms of adults quitting (or not relapsing) and young people prevented from taking up smoking.

Option 2: Standardised packaging of tobacco products

33. Option 2: Require standardised packaging of cigarettes and hand rolling tobacco (HRT). This would involve the standardisation of pack colour and the removal of all branding from packaging, with the exception of brand name which would appear in a standardised format. Relevant legal markings, such as health warnings and tax stamps, would be retained (see paragraph 34).
34. Guidelines to Parties for the implementation of Article 13 of the FCTC set out the following description for standardised packaging of tobacco:

*'The effect of advertising or promotion on packaging can be eliminated by requiring plain packaging: black and white or two other contrasting colours, as prescribed by national authorities; nothing other than a brand name, a product name and/or manufacturer's name, contact details and the quantity of product in the packaging, without any logos or other features apart from health warnings, tax stamps and other government-mandated information or markings; prescribed font style and size; and standardized shape, size and materials. There should be no advertising or promotion inside or attached to the package or on individual cigarettes or other tobacco products'*²⁶.
35. From the FCTC guidelines, the following proposed approach to standardised packaging has been developed to inform consultation:

²⁵ Hammond D, Dockrell M, Arnott D, Lee A, McNeill A (2009). Cigarette pack design and perceptions of risk among UK adults and youth. *European Journal of Public Health*, 19: 631-637

²⁶ From Article 13 (tobacco advertising, promotion and sponsorship) of the World Health Organization's *Framework Convention on Tobacco Control*. FCTC implementation guidelines are available on the web at: www.who.int/fctc

- All internal and external packaging to be in a prescribed colour(s) (details would be set out by the Government in the future);
- All text on the pack, including brand names, to be in a standard colour and typeface (specifications including maximum size of type would be set out by the Government in the future);
- No branding, advertising or promotion to be permitted on the outside or inside of packs, or attached to the package, or on individual tobacco products themselves. For this purpose 'branding' includes logos, colours or other features associated with a tobacco brand;
- Packs to be of a standard shape and possibly manufactured with particular materials (specifications would be set out by the Government in the future);
- Only the following information or markings to be permitted on packs (specifications would be set out by the Government in the future):
 - a brand name;
 - a product name;
 - the quantity of product in the packaging;
 - the name and contact details of the manufacturer;
 - one barcode to facilitate sale and stock control;
 - health warnings as currently required;²⁷
 - tar, nicotine and carbon monoxide (TNCO) yield information as currently required;²⁸
 - fiscal mark requirements as currently required;²⁹ and
 - markings not visible to the naked eye to counter illicit trade in tobacco products or other features to prevent fraud (details would be set out by the Government in the future).
- Any wrapper around the pack to be transparent and colourless, without any markings.

36. Views on other packaging options will be sought as part of the consultation. As the definition of standardised packaging given in the previous paragraph does not suggest constraints on pack size, limiting or standardising pack sizes might provide a further option. As far as the minimum pack size is concerned, there have been no further proposals to regulate further the number of cigarettes per pack that may be offered for sale since a consultation exercise in 2008 (the current legal minimum number is 10 cigarettes per pack³⁰). It may be noted that cigarette manufacturers' ability to circumvent standardised packaging requirements by producing other branded products such as an external container in which to keep cigarette packets, or cigarette holders, is already prohibited as a form of advertising.
37. The proposed approach to standardised packaging outlined above does not stipulate a particular colour for the packaging. Research identified by the systematic review of evidence suggests that the effectiveness of standardised packaging may be affected by the colour chosen, with lighter colours such as white or light blue being associated by participants in some studies with less harm than darker colours such as dark grey or brown.

²⁷ Written and picture warnings, set out in the Tobacco Products (Manufacture, Presentation and Sale) (Safety) Regulations 2002 and the Tobacco Products (Manufacture, Presentation and Sale) (Safety) (Amendment) Regulations 2007.

²⁸ Set out in the Tobacco Products (Manufacture, Presentation and Sale)(Safety) Regulations 2002.

²⁹ Set out in the Tobacco Products Duty Act 1979, the Tobacco Products Regulations 2001 and HMRC Notice 476 dated February 2011.

³⁰ Children and Young Persons (Protection from Tobacco) Act 1991.

38. It is anticipated that the results of the consultation will enable an informed decision to be made on whether or not to proceed with standardised packaging. It is recognised that there may be a case for delaying a decision until evidence from Australia becomes available. Any deferral would need to take account of the difficulty of disentangling the impact of standardised packaging from other public health measures and the time lag in picking up any effects.

Equality groups

39. Growing up in homes where smoking by adults is the norm, children are more likely to become smokers themselves and to take up smoking at an earlier age, perpetuating smoking into new generations³¹. A 15 year-old living with a parent who smokes is 80 per cent more likely to smoke than one living in a household where no one smokes³². In England, around one third of children under the age of 16 years live with someone who smokes³³. Smokers in the routine and manual group take up smoking at a younger age than those in other groups. In 2006, 40% of the smokers in the routine and manual group took up smoking by the age of 16 compared with 31% in the managerial and professional group³⁴. These findings could go some way to explaining why, in 2009, 15% of the managerial and professional group were smokers compared with 28% of the routine and manual group. If display of branded packets induces take-up, debranding may be helpful in tackling the differences in acculturation to smoking across socio-economic groups.
40. Smoking rates are high in other population groups, such as among lesbian, gay and bisexual people³⁵ and smoking by gay men is believed to be twice that of wider population levels³⁶. Smoking by people with a mental illness is 'a tremendous problem that goes largely ignored'³⁷. Smoking is higher in certain ethnic groups, in particular, Bangladeshi and Pakistani men and Irish men and women³⁸.
41. Current research does not provide insight into the differential impact of branding on different socioeconomic groups.

Mechanism of action of Option 2

42. The main categories of impact to be considered with regards to standardised packaging are set out below (where (i)-(vi) outline the costs and (a)-(d) the benefits). If the policy is successful, health benefits may accrue through:
- (a) reduced take-up of smoking; and/or
 - (b) improved quit rates;
 - (c) reduced costs of treating child ill-health caused by second hand smoke (SHS).
43. The main categories of costs to be considered are:
- (i) primarily the costs to manufacturers; and
 - (ii) possible costs to retail business, for example, in time to serve customers.

³¹ Buller D, Borland R, Woodall W, Hall J, Burris-Woodall P, Voeks J (2003). Understanding factors that influence smoking uptake. *Tobacco Control* 12(suppl.4):iv16-iv25.

³² Loureiro M, Sanz-de-Galdeano A, Vuri D (2010). Smoking habits: like father, like son, like mother, like daughter? *Oxford Bulletin of Economics and Statistics* 72(6):717-734.

³³ ONS (2011). *General Lifestyle Survey 2009: smoking and drinking among adults, 2009*. Newport: Office of National Statistics.

³⁴ DH (2008). *Consultation on the future of tobacco control*. London: Department of Health

³⁵ Covey L, Weissman J, Lo D, Duan N (2009). A comparison of abstinence outcomes among gay/bisexual and heterosexual male smokers in an intensive, non-tailored smoking cessation study. *Nicotine and Tobacco Research* 11:1374-1377.

³⁶ Harding R, Bensley J, Corrigan N (2004). Targeting smoking cessation to high prevalence communities: outcomes from a pilot intervention for gay men. *BMC Public Health* 4:43.

³⁷ Williams J, Ziedonis D (2004). Addressing tobacco among individuals with a mental illness or addiction. *Addictive Behaviours* 29:1067-1083.

³⁸ Information Centre (2004). *Health Survey for England 2004: health of ethnic minorities*. Leeds: The Information Centre.

If the policy is successful in curbing tobacco consumption, there will also be costs borne:
(iii) by the exchequer (through the loss of tobacco duty); and
(iv) by business in the redeployment of business towards the provision of other goods (transition costs).

The loss of brand value may generate:

- (v) a loss to business of the goodwill value of the brands and the profit accruing to that sunk expenditure; offset by
- (d) cost-saving to business associated with the loss of the scope for branding. There may also be
- (vi) a loss of consumer surplus associated with diminished branding.

44. In previous IAs, we have identified the benefits associated with adults quitting separately from benefits to young people no longer starting to smoke.
45. The main uncertainties associated with the policy explored herein (beyond the impact upon smoking behaviour itself) relate to impacts upon price and the illicit tobacco trade.

Extent of impact

46. There are 69 main cigarette brands available on the UK market (Benson and Hedges, Marlboro etc.), most of which have a number of sub-brand variants (“king size”, “superking size”, “menthol” etc.), numbering around 180 in total. In addition, brands are available in different size packs (subject to a minimum legal pack size of ten cigarettes). All brand variants would need to be repackaged. The IA for the tobacco display legislation cited a total of 66,710 shops selling tobacco in the UK (8,151 large and 58,559 small). Standardised packaging may have an impact on serving time (either an increase or a decrease in serving time). Customers (primarily smokers) could also be affected by any increase in the time taken to serve tobacco products. Questions regarding the impacts on cigarette manufacturers, retailers and the public are included in the consultation.

(i) Cost to manufacturers: changes in the costs of production and distribution

47. A requirement to package tobacco products in standardised packaging may impose an initial resource cost of changing packaging, on tobacco companies and their suppliers. In particular, packaging manufacturers, producing materials such as foils, films and laminated materials, may be affected. There are, however, ways of mitigating this impact. For example, in Australia, a minor alteration in the requirements of their standardised packaging legislation means that tobacco manufacturers do not need to retool their machines. We have some evidence on the costs of pack redesign from the IA for the introduction of picture warnings on tobacco packs³⁹ where set-up costs were estimated at between £3.4m and £4.1m for the UK. The initial costs associated with standardised tobacco packs could be alleviated by allowing a period for preparation and a period for companies to sell through existing stocks. Since tobacco companies tend to redesign their brands periodically, the introduction of standardised packaging would avoid any such costs of brand redesign, yielding subsequent savings to business. That is, we expect the initial costs eventually to be followed by equivalent or greater cost savings accruing over time, depending on manufacturers’ cycle of brand refreshment.

(ii) Costs to retailers and the public

48. If selecting and serving a standardised tobacco pack takes longer than a branded pack, retailers would bear some costs. Whether these costs would be significant will be explored through consultation. Any impact on serving time would also impact on leisure time of consumers. Such costs were incorporated into the IA for the point of sale display legislation on the basis of an assumption about increases in serving time of that legislation.

39

Available at the DH website:
http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_077963.pdf

49. There is little direct evidence on the serving time required for a standardised pack as opposed to a conventional branded pack. One simulation study among participants unfamiliar with cigarette packs, while not being directly applicable to a typical retailer, suggests that serving staff may adapt quickly to the requirement to distinguish between packs and may be able to serve a standardised pack in the about the same time as, or more quickly than, for branded packs⁴⁰. The study found that the average transaction was slightly quicker for standardised packs than for branded packs (2.92 vs. 3.17 sec; $p=0.040$). When selecting standardised packs, 17.3% of participants made a mistake compared with 40.4% when selecting branded packs.
50. The design of this simulation experiment means that we should be cautious in applying its findings to the real-world environment of the tobacco retailer. Here, we simply observe that familiarity with the study task soon appeared to mitigate the initial increase in serving time. In practice, there are means by which the effect of removing visual cues from packs could be mitigated, such as storing packs in alphabetical order.

Small firms

51. For the more than 58,000 small shops selling tobacco, any additional costs of selling tobacco will be more burdensome than for large shops to the extent that they represent a greater proportion of their total sales revenue.

(iii) Costs to the exchequer through the loss of tobacco duty

52. For every additional adult smoker who quits, there is a lifetime loss of duty of around £3,900. For every young person who no longer takes up smoking, there is a lifetime loss of duty of around £11,300⁴¹. The estimates of lost duty have been updated since the IA on the legislation ending the open display of tobacco in shops and use the same methodology as for health benefits (see Annex 1). In previous IAs, we have excluded any impact on VAT receipts on the basis that any loss is expected to be matched by a compensating gain elsewhere in the economy. Here, we allow for the difference between VAT on tobacco (20%) and the average rate of VAT in the economy (around 13.2%) to obtain an additional item for lost VAT (around £950 per young person and £330 per adult). These estimates of lost receipts are indicative and do not allow for future changes in rates of duty, changes in market shares of different brands, changes in smoking patterns or purchasing habits.

Impact on smoking uptake and quitting

53. A quantified estimate of the impact of standardised packaging on smoking behaviour will be based on the findings of a research project being undertaken by the Policy Research Unit on Behaviour and Health. The Unit is funded by the DH Policy Research Programme. The project will elicit subjective judgements from three groups of internationally-renowned experts on tobacco control, one recruited from each of Australasia, the UK and North America, with about 10 experts in each group. Participants will be asked to state what they believe to be the likely impact of standardised packaging on the number of adult smokers and the number of children trying smoking. An edited summary of methods provided by the research team is included at Annex 2.
54. We make the assumption that, if there is a reduction in consumption, it happens evenly across the entire market. That is, we assume that standardised packaging would diminish the attraction of all brands, although it may be that premium brand users are most likely to be affected. Switching between brands (discussed in subsequent sections) leaves total consumption unchanged.

(a) Value of reduced take-up of smoking

⁴⁰ Carter O B J, Mills B W, Phan T, Jonathon R Bremner (2011). Measuring the effect of cigarette plain packaging on transaction times and selection errors in a simulation experiment. Tobacco Control doi:10.1136/tobaccocontrol-2011-050087 in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). Plain tobacco packaging: a systematic review. Stirling: University of Stirling.

⁴¹ To the nearest pound, the estimates for lost duty are £3,918 and £11,324.

55. We value the health benefits gained for each quitter or individual who refrains from starting to smoke, in the same way as for the IAs on the legislation ending tobacco sales from vending machines and legislation ending tobacco display at point of sale. Further details of the calculation of health benefits are given in Annex 1. For every young person who no longer takes up smoking, there is a lifetime benefit of 1.56 years, valued at £93,600.

(b) Value of improved quit rates

56. For every additional adult smoker who quits, there is a lifetime benefit of 1.24 life years, valued at £74,400 (£60,000 per year).

Cost savings

(c) Health care costs

57. The total costs of childhood disease caused by SHS have been estimated at £23.3m per annum in the UK⁴². We would expect this cost to be reduced in proportion to any reduction in adult smoking which might result from a standardised packaging policy. As in previous IAs, we have not included an impact on NHS costs for the treatment of patients with smoking-related illnesses, although recent evidence suggests that quitting may lead to a reduction in costs over the lifetime compared with continuing to smoke. Modelling has estimated that, if 1% of the total prevalent smoker population of England over the age of 35 were to quit, then the total lifetime cost savings would be around £162m³. We are considering whether the figures are robust enough for use in the IA.

(d) Cost-saving to business associated with the loss of the scope for branding

58. The impact of both initial costs and potential future cost savings will be explored in consultation. For the purposes of this document, we have assumed that the initial one-off cost will at least be offset by subsequent cost savings, so therefore assume there will be a neutral effect. A report by Europe Economics (2008)⁴³ similarly argues that, following a transition period during which costs are incurred to switch to standardised pack manufacturing, branding costs would no longer be incurred and “costs for cigarette manufacturers would ultimately tend to fall”. We note, in this context, that, although standardised tobacco packaging in the UK would imply a different pack style from most other countries, there already exists variation in branded pack styles between countries.

59. As far as innovations in the production process are concerned, tobacco industry communications with investors in 2010 suggest, anecdotally, that costs of regulation can be offset by making efficiencies in production processes⁴⁴.

Other impacts

Trends in the tobacco market

60. From IAs prepared in relation to other tobacco control policies, we have estimates of the health gain and impact on tobacco duty per quitter/young person who no longer takes up smoking. In the particular case of standardised packaging, we anticipate some more subtle effects related not to the overall level of tobacco consumption but to potential shifts within the overall market. We expect that benefits from standardised tobacco packaging are likely to come over a long term period, rather than have any immediate effect. To understand the possible impact of standardised packaging, it is therefore useful to review the trends we have observed in the market in the recent past.

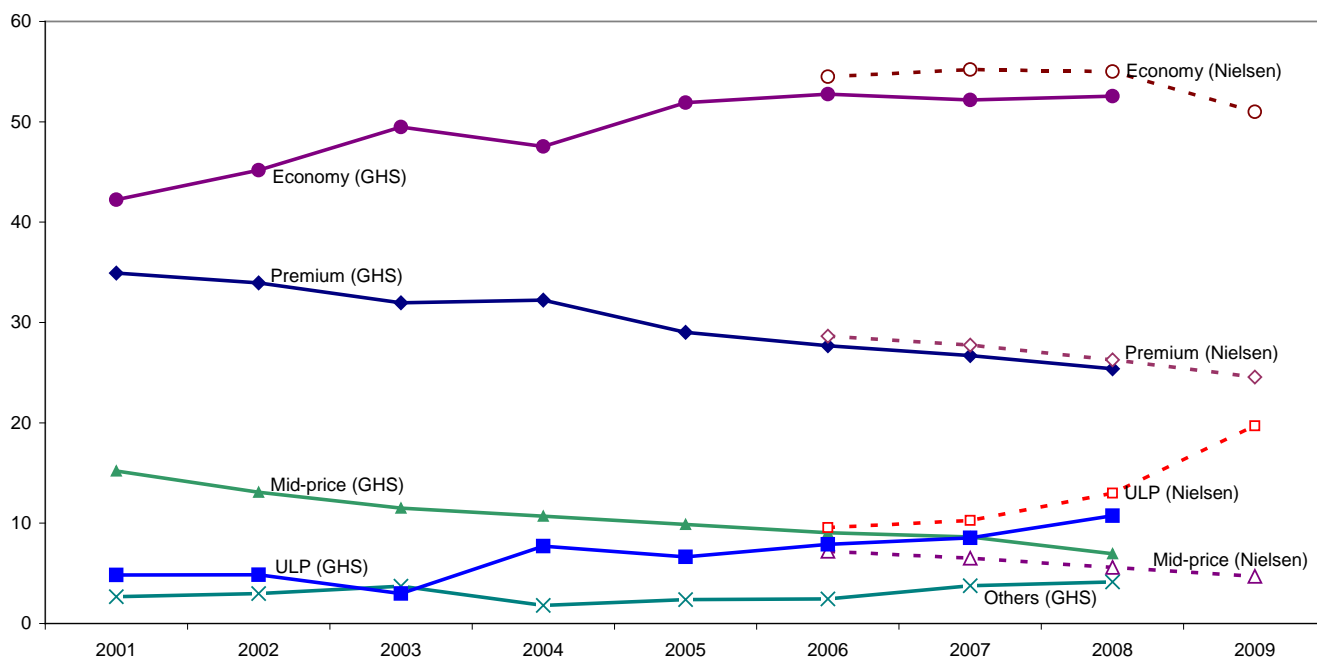
⁴² Royal College of Physicians (2010). Passive smoking and children. London: Royal College of Physicians.

⁴³ Europe Economics (2008). Economic analysis of a display ban and/or a plain packs requirement in the UK. London: Europe Economics.

⁴⁴ [http://www.bat.com/group/sites/UK_8GLKJF.nsf/vwPagesWebLive/79AFD71FD3C564ABC12578880056B8F2/\\$FILE/08_Jack%20Bowles%20-%20Margin%20improvement%20in%20Western%20Europe%20.pdf?openelement](http://www.bat.com/group/sites/UK_8GLKJF.nsf/vwPagesWebLive/79AFD71FD3C564ABC12578880056B8F2/$FILE/08_Jack%20Bowles%20-%20Margin%20improvement%20in%20Western%20Europe%20.pdf?openelement)

61. The cigarette market is typically divided into a number of segments by price. Currently, in supermarkets, the top end of the price range is around £7 for a pack of 20 (e.g. “Marlboro” King Size) and the bottom end of the price range is around £5.25 (e.g. “Chesterfield” Red). Brands are distributed across the range of prices between these broad limits. For example, “Benson and Hedges” Silver retail at around £6.40 for a pack of 20 and “JPS” Superkings Blue at around £5.70⁴⁵. Costs are likely to differ in other types of shop.
62. According to research led by Professor Anna Gilmore⁴⁶, a noteworthy development in the cigarette market over the last decade has been the fall in market share of expensive premium cigarette brands and the increase in market share of cheaper and ultra low price economy brands. Figure 3 shows estimates of market share based on analysis of General Household Survey (GHS) data and Nielsen data since 2006 (shown as the dotted lines) for the following four market segments:
- Premium
 - Mid price
 - Economy
 - Ultra low price
63. As the shares of premium and mid-priced cigarette brands have declined, so the shares of economy brands and ultra low priced cigarette brands have increased. The ultra low price category which emerged around 2006 when the major tobacco companies began acquiring these cheaper brands and launching new ones has become an established part of the market. It is also noteworthy that mid-price brands make up only a very small share of the market.

Figure 3: Market shares (%) - cigarettes



Source: Anna Gilmore, University of Bath

64. As a reference point for the purposes of illustration, we consider past trends in the erosion of premium brands’ market share. The share of premium brands fell from 34.9% to 24.6% between 2001 and 2009 (Figure 3). We have assumed that the 24.6% share applies to 2010, the latest year for which we have data on quantities of tobacco released for home consumption (Table 1).

⁴⁵ Obtained from price lists on the websites of two major UK supermarket chains in December 2011. The Windsor Blue brand which Tobacco Journal International reported as a new low price brand in January 2006 retails at around £5.60 for 20.

⁴⁶ Professor Anna Gilmore, Department for Health, University of Bath. Research papers currently undergoing peer review.

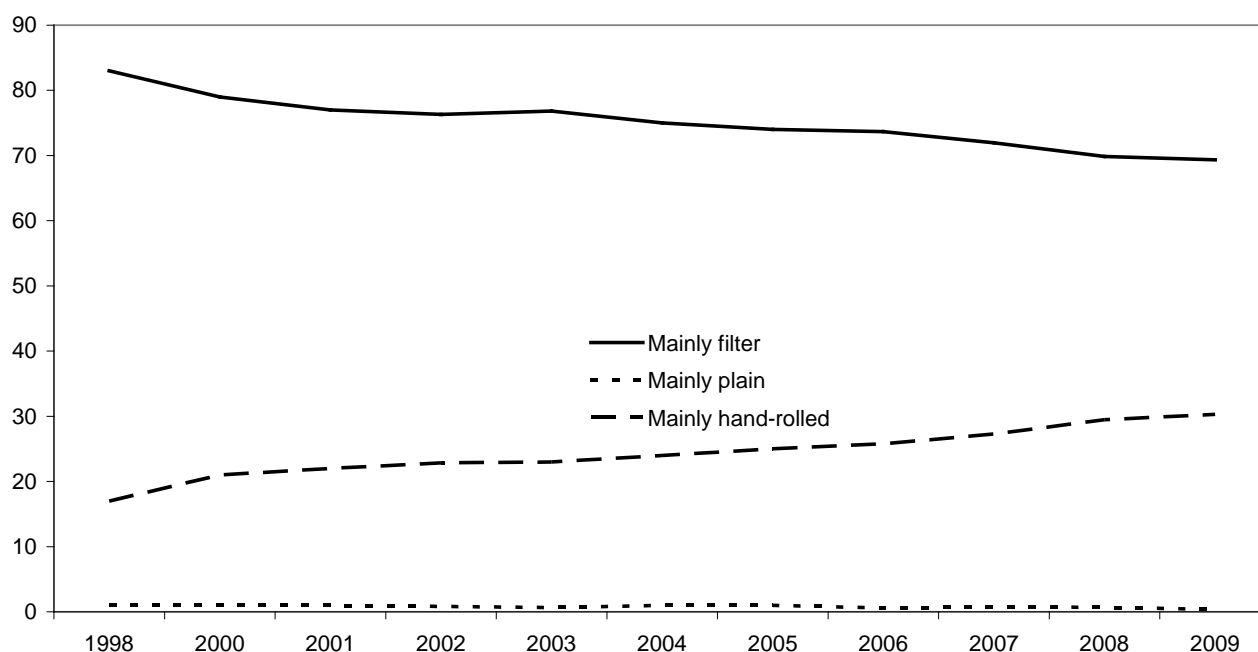
Table 1: Erosion of premium brands (UK)

Year	Packs - UK	Premium share	Premium packs	Rate of decline
2001	2726m	34.9%	951m	
2010	2262m	24.6%	556m	3.8%

Sources: Information Centre; Anna Gilmore, University of Bath; DH calculations.

65. We calculate the rate of decrease of sales of premium packs due to downtrading (the shift from more expensive to cheaper products) on the basis of the observed drop in market share for premium brands but a constant overall market size (i.e. excluding the impact of a declining total market). The rate of downtrading between 2001 and 2010 was based on a decline in the premium share from 34.9% to 24.6%. On the basis of these figures, premium packs numbered 951m in 2001 and would have been 671m in 2010 if the overall number of packs had stayed the same. This equates to a 3.8% annual decline abstracting crudely from changes in the total market. We apply this to the current total of premium packs of 556m packs to arrive at 21m packs being switched away from premium brands (and towards low price brands) were this trend to continue. The extent of downtrading which we might expect to result from standardised packs is currently unknown and is a variable on which evidence needs to be collected as part of the consultation. We hypothesise that any impact will be gradual.
66. A further potentially important aspect of the trend towards lower cost smoking has been the increase in the proportion of smokers who state that they generally smoke HRT rather than ready made cigarettes (Figure 4). We return to HRT in the context of the illicit trade.

Figure 4: Type of cigarette smoked by adults, England (%)



Source: Information Centre

Supply and demand forces

67. The observed trends in the market for cigarettes have come about as a result of the interaction of the forces of demand and supply. To the extent that standardised packaging can be expected to influence this interaction, it could be argued that the result will be a fall in prices and an increase in

consumption⁴⁷. Nevertheless, caution is suggested in proposing a simple linkage between a fall in price and an increase in consumption brought about by standardised packaging⁴⁸, while a separate wide ranging review of standardised packaging presents a rather more complex picture of the market dynamics. It is suggested that, in the short- to medium-term, prices might fall as price differentials can no longer be maintained for premium products but, in the long term, prices might be higher partly as a result of reduced competition⁴³.

68. Downtrading to cheaper cigarettes and HRT has been a sustained trend accompanied by a continued decline in smoking prevalence (albeit flattening off recently among adults). Nevertheless, there are supply side factors associated with standardised packaging (e.g. process innovation, a possible increase in the supply of illicit product) which could tend towards lower prices and increased consumption (although there are other policy responses which could mitigate such an outcome). Where there are factors which might threaten the effectiveness of standardised packaging as a tobacco control measure, we treat these as risks.

Competition and innovation

69. It has been suggested that standardised tobacco packaging would represent a further restriction on tobacco companies' ability to compete by way of product differentiation because consumers' loyalty to previously branded products might decline. A possible side effect of reduced competition of this type is an increase in price competition because of a more limited range of ways to differentiate brands (but complexities in pricing are discussed above). Another effect of standardised packaging could be an acceleration in product innovation (inventing other ways of differentiating a product from competitors) and process innovation (improving the efficiency of the production process) if greater price competition threatens profits.
70. The ways in which tobacco manufacturers would respond to the introduction of standardised packaging may serve to offset some of the negative impacts identified here (and possibly reduce the health benefits as well if the industry attracts or retains smokers). For example, product innovation may enable companies to recover some of the brand equity lost with standardised packs. The extent to which companies could differentiate their products (perhaps through varying the appearance of the cigarettes themselves) will depend on the precise wording of any legislation, should decisions to bring standardised packaging into place be made.
71. As indicated previously, the working definition of standardised packaging does not include any additional restrictions on pack size. Standardised packaging may therefore encourage further innovations in pack size which the systematic review of evidence identified as a feature of the UK market since 2008. The evidence review also found that, in Brazil and New Zealand, tobacco companies include adhesive inserts in packs that are the same size as the health warnings to allow smokers to conceal the warning if they choose to¹¹. This is an example of product innovation which could become more attractive to manufacturers if standardised packaging is introduced, unless such innovation is prohibited. On the issue of innovation, the Europe Economics (2008) report⁴³ merely states that, aside from the restrictions imposed by a standardised packaging regulation, "it is impossible to quantitatively assess the impact of the plain packs measure upon innovation".

Loss of tobacco duty due to switching

72. Changes in duty can derive both from changes in the overall level of consumption and from switching from premium brands which attract a relatively high level of duty to cheaper brands which attract a lower level of duty. For changes in consumption, we report a potential impact on duty in keeping with the magnitude of the impact on health. For switching between brands, we provide an illustration of the implications of additional switching between brands of a magnitude similar to the historical trend but do not have a central assumption about the extent of any additional switching (over and above the existing trend) which might be caused by standardised packaging. We have not made any allowance for further switching between tobacco and HRT. Any acceleration in this

⁴⁷ Padilla J (2010). The impact of plain packaging of cigarettes in Australia: a simulation exercise. Brussels: LECG Consulting Belgium.

⁴⁸ Reed H (2011). Analysis and review of J. Padilla "The impact of plain packaging of cigarettes in the UK: a simulation exercise". Colchester: Landman Economics.

trend would have an impact on duty receipts due to differential duty regimes (lower duty on HRT) and to the higher likelihood of illicit HRT avoiding duty altogether. Switching between HRT brands is not, however, an issue for duty receipts as duty on HRT is levied by weight.

73. To estimate the loss of duty associated with switching away from 21 million premium packs in the first year (see paragraph 65), table 2 presents the duty comparison for an illustrative example of downtrading from a £7.00 pack to a £5.25 pack.

Table 2: Duty on a £7 versus a £5.25 pack of cigarettes

Price	£5.25	£7.0
Ad valorem rate	16.5%	16.5%
Specific rate per 1,000 cigs	£154.95	£154.95
VAT rate	0.2	0.2
Cigarettes per pack	20	20
Ad valorem duty	£0.9	£1.2
Specific duty	£3.1	£3.1
VAT	£0.9	£1.2
Total duty	£4.0	£4.3
Duty + VAT	£4.84	£5.42
Price minus duty+VAT	£0.41	£1.58

74. The difference in duty between the £7 pack and the £5.25 pack is relatively small at £0.29. This gives a loss of duty of £6.1m in the first year should standardised tobacco packs result in switching of the magnitude shown by recent trends. In subsequent years, the loss would diminish with any further decline in the premium share of the market. The corresponding impact on VAT is £2.1m.

Loss of duty due to the illicit trade and/or cross-border shopping

75. Loss of excise duty would result from any increase in the share of the illicit trade and any switching from standardised tobacco packs to branded packs sourced from other countries. Estimates are available for the impact on duty receipts of an increase in the share of the market accounted for by the illicit trade but not the impact of standardised tobacco packaging on this share. It is hard to predict the potential impact on the complex and dynamic nature of the illicit trade in contraband and counterfeit tobacco.
76. Diversion of demand to cross-border trade will have the same impact on duty as diversion to the illicit trade. To some extent, the cross-border trade issue will be mitigated by the impact of a reduction in minimum indicative limits (from 3200 cigarettes and 3kg of HRT to 800 cigarettes and 1kg of HRT as of 1st October 2011) on the financial incentive to travel abroad to buy cigarettes. As table 3 shows, both the illicit and cross-border trade are declining but there is the risk that standardised tobacco packaging may lead to some reversal of this trend. Standardised packs may provide an additional possibly powerful incentive to cross-border shopping, an issue which will be explored in consultation to enable a central quantified estimate of impact. This assumes that policies requiring the standardised packaging of tobacco are not introduced in other countries.

Table 3: Components of the UK tobacco market

Cigarettes	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
UK tax paid	73%	72%	75%	73%	77%	78%	79%	81%	82%	87%
Illicit market	21%	20%	16%	18%	17%	16%	15%	14%	13%	10%
Cross border shopping	6%	8%	9%	9%	6%	7%	6%	6%	5%	3%
HRT										
UK tax paid	27%	28%	28%	31%	30%	32%	35%	41%	42%	47%

Illicit market:	61%	56%	55%	54%	61%	60%	56%	50%	50%	46%
Cross border shopping	12%	16%	17%	15%	9%	8%	9%	9%	8%	7%

Source: HMRC

77. Based on the latest receipts⁴⁹ and tax gap data⁵⁰, a one percentage point increase in the tax gap for cigarettes would be equivalent to around a £90m duty loss. A one percentage point increase in the tax gap for HRT would be equivalent to around a £15m duty loss.

Changes in the supply of illicit tobacco

78. It may be argued that standardised tobacco packaging would be easier and cheaper to copy, so increasing the supply of illicit tobacco. Standardised tobacco packs would still need to carry coloured picture warnings, as well as covert markings. Counterfeiters are already able to produce sophisticated replica goods. If there were any increase in counterfeiting, this would represent an additional source of competition and potentially exert downward pressure on prices. Against this, illicit trade might become less profitable if the price of premium brands falls as a result of standardised packaging. These effects are here subsumed into the risk that the illicit trade will increase and lead to a fall in duty receipts.

(iv) Transition costs to business in the redeployment of business towards the provision of other goods

79. Transition costs apply to the re-allocation of resources as a result either of changes in the level of consumption or switching between brands (in respect of those involved in maintaining brands). In 2010, 92% of cigarette sticks released for home consumption were home produced¹. Part of these resources transfer to other uses with changes in tobacco consumption. We assume that any shift to the purchase of other goods and services would happen gradually and involve negligible transition costs. In terms of the overall profitability of the economy, we have assumed that downtrading from premium tobacco brands to ultra low price and economy brands will result in less profit for the tobacco industry and possibly retailers (more information on this will be sought through consultation). We deal with the impact on the tobacco industry of downtrading through the concept of brand equity. For a reduction in overall consumption, we are interested, in economic terms, in the difference between supernormal profits in the tobacco industry and corresponding returns which might be earned in other industries to which resources are redeployed.

80. Standardised packaging may also have an impact on the profits earned by other types of business, such as the packaging and retail industries. For the packaging industry, there may be transition costs while certain types of equipment are re-allocated to other uses in the economy. We have assumed above that such transition costs are negligible. In relation to the profits of these businesses, we are again interested in their ability to earn returns in excess of those in other industries. Profits to these businesses may be regarded differently from those to tobacco companies depending on the extent to which they are retained in the UK as opposed to benefiting overseas shareholders (see discussion below).

(v) A loss to business of the goodwill value of the brands and the profit accruing to their sunk expenditure

81. In accordance with the use of willingness to pay as a measure of value, we use the price premium approach to measuring brand equity⁵¹. As before, the price premium in this case is £1.75 (see table 2). From this we need to deduct the difference in duty (which we have already included) and VAT. The difference in price after duty and VAT for a £7 pack as opposed to a £5.25 pack is £1.17. This represents a loss to producers assuming equivalent costs to manufacture and supply an economy pack as a premium pack. According to Green Book guidance, we need to adjust for the proportion which might be gains to UK rather than overseas shareholders. As cigarette manufacture is a

⁴⁹ <https://www.uktradeinfo.com/index.cfm?task=bulltobacco&hasFlashPlayer=true>

⁵⁰ <http://www.hmrc.gov.uk/stats/measuring-tax-gaps.htm>

⁵¹ Aaker D A (1996). Measuring brand equity across products and markets. *California Management Review* 38(3):102-120.

global business, one reference point for an estimate of the proportion of profits received by UK shareholders is the share of UK GDP in world GDP, of around 3% in Purchasing Power Parity terms⁵² in 2010. The true figure for the share of profits retained in the UK requires further research but, on the basis that this is an underestimate, we use an indicative figure of 10% for the purposes of this IA. This gives a loss of brand equity of £2.5m in the first year for the illustrative figure of 21m packs based on past downtrading. Adjusting for the main rate of corporation tax of 25% in 2012 gives a figure of £1.9m. This figure will diminish over time as the number of premium brand packs falls, reflecting a depreciation in the value of the expenditure on packaging made to promote the brand.

(vi) *Consumer surplus*

82. As with the loss of duty due to switching from high price to low price brands, we assume a transfer of consumption from a top end brand to a bottom end brand. Consumer surplus is captured by the difference between the price consumers actually pay and the price they would be willing to pay (wtp). The consumer surplus on packets of cigarettes in different market segments is unknown. As an illustration, if the consumer surplus on a premium pack was £1 greater than on an economy pack, and the impact of standardised packaging on downtrading was of similar magnitude (and additional) to the historical trend, then we would have a consumer surplus loss of £21.2 m in the first year from switching between premium and economy brands. This illustrative figure should be seen as a placeholder for the loss of consumer surplus, the magnitude of which will depend upon a number of factors. These include the price elasticity of demand for products in different price brackets, the shape of the demand curve and the size of the switching effect (the smaller the impact, the smaller the change in consumer surplus). Although we have been considering relatively small annual percentage changes in consumption between high and low price brands, any shifts which do occur will come about through shifts in the respective demand curves in the different market segments, such that the entire demand curve is relevant for the calculation of consumer surplus impacts.
83. In any discussion of consumer surplus, it is implicitly assumed that consumers have stable preferences over time and can therefore be regarded as rationally addicted⁵³. From the perspective of a rational consumer, standardised packaging may reduce both the number of smokers *and* the utility of those who do not stop smoking. It has been argued, however, that smokers may exhibit preferences which are not consistent over time⁵⁴. In this case, self-control devices (such as standardised packs) will generate some current utility for smokers who are enabled to quit, a factor we have not included in this IA. A further offsetting factor is that, if lost consumer surplus is seen as the value of individuals' freedom to express themselves through their choice of branding, then there may be compensating gains from the use of substitute forms of self-expression (i.e. through goods that are not related to smoking, for example, branded clothing, footwear etc.). Moreover, smokers may benefit if standardised packaging serves to remove misleading associations (for example, of harmfulness or strength of a particular tobacco product) created by branded packaging. Consumer surplus, including the issue of self-expression, will be investigated as part of the consultation.

Profits to the tobacco industry due to changes in the overall level of consumption

84. As table 2 shows, revenue after duty and VAT is £1.58 on a £7 packet of cigarettes. We have estimated a cost of £0.22 per pack for production and distribution, based on a Canadian data source⁵⁵. A profit per pack of £1.36 gives a ratio of profit to duty of around 0.3, compared with around 0.05 for the £5.25 pack. The average ratio, weighted by market share, across the four market segments specified above, is around 0.17. Applying this ratio to the estimate of duty lost per quitter (assuming that any decline in consumption in the different market segments occurs in proportion to their market share) gives £662 lost profit per adult who quits and £1912 lost profit per young person who is prevented from taking up smoking. Adjusting for the proportion which benefits UK shareholders gives a loss of profit of around £66 per adult quitter and £191 per young person

⁵² International Monetary Fund, World Economic Outlook Database, September 2011

⁵³ Becker G S, Murphy K M (1988). A theory of rational addiction. *Journal of Political Economy* 96(41):675-700.

⁵⁴ Gruber J, Kőszegi B (2004). Tax incidence when individuals are time-inconsistent: the case of cigarette excise taxes. *Journal of Public Economics* 88: 1959-1987.

who no longer smokes. This takes no account of the proportion of the surplus revenue per pack which is excess or supernormal profit or the extent to which excess profits might be earned elsewhere in the economy. Neither does it allow for the profit attributable to the sunk investment in the brand. A certain amount of the operating profit is normal return on brand expenditure. That profit will be re-produced elsewhere in the economy. In consultation, we will invite views on the annual cost of maintaining a brand and the depreciation rate. We again need to take account of corporation tax.

Impact on profits of illicit and cross-border trade

85. The impact on the domestic industry may be a result not only of switching between brands and quitting behaviour, but also switching from standardised tobacco packs to conventionally packaged cigarettes purchased abroad. Increased cross-border trade may have an impact, in addition to excise duty receipts, on industry profits from which UK citizens benefit but we have excluded this source of profit effects from our analysis. Since profits from these purchases will accrue to the same multinational tobacco companies which supply the domestic UK market, the impact is judged to be negligible.
86. We have not explicitly incorporated a potential loss of profit from the legitimate trade (which is relevant) matched by a gain in illegitimate profit (which we do not count) but this could be factored in through a change in consumption. We have not included a separate item for the effect on profits of downtrading since our valuation of brand equity captures this value.

One in one out (OIOO) calculation

87. Impacts we identify as being relevant for OIOO are:
- Any costs to retailers;
 - Loss of profits to tobacco companies consequent upon switching to lower price brands net of saving of expenditure on brand maintenance;
88. If standardised tobacco packaging is expected to be associated with higher costs for retailers, then these will constitute an IN for the purposes of OIOO. Loss of profits to tobacco companies due to reduced consumption of cigarettes is an indirect effect (as agreed for display) and out of scope for OIOO.

Specific Impact Tests

Equality Test

89. In a recent survey there were no significant differences by ethnicity or education level when rating standardised tobacco and branded packs in terms of appeal⁵⁶. There are not expected to be any differences in how appealing a standardised tobacco pack is to different socio-demographic groups. If branded packaging is one means by which smoking is propagated in lower socioeconomic groups, standardised packaging should have a favourable impact on smoking-related health inequalities.
90. Whilst both females and males find standardised tobacco packs less appealing, females are particularly negative about standardised tobacco packaging. Gallopel-Morvan et al. (2011) found women more likely than men to rate standardised tobacco packs as “repulsive”⁵⁷. However, Bansal-Travers et al. (2011)⁵⁶ could find no significant differences by gender of respondent (n=397).

⁵⁵ <http://www.hc-sc.gc.ca/hc-ps/pubs/tobac-tabac/evaluation-risks-risques/coststructure-structurecouts8-eng.php>

⁵⁶ Bansal-Travers M, Hammond D, Smith P, Cummings KM (2011). The impact of cigarette pack design, descriptors and warning labels on risk perceptions. *American Journal of Preventive Medicine*, 40: 674-682 in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). Plain tobacco packaging: a systematic review. Stirling: University of Stirling

⁵⁷ Gallopel-Morvan K, Moodie C, Hammond D, Eker F, Beguinot E, Martinet Y (2011). Consumer understanding of cigarette emission labelling. *European Journal of Public Health*, 21: 373-375 in Moodie C, Stead M, Bauld L, McNeill A, Angus K, Hinds K, Kwan I, Thomas J, Hastings G (2012). Plain tobacco packaging: a systematic review. Stirling: University of Stirling

Competition Test

91. Standardised tobacco packaging will limit competition through limiting product differentiation. However, it is also expected to increase price competition, which may result in process innovation as companies improve the efficiency of the production process. Standardised tobacco packaging may result in product innovation as tobacco companies invent new ways of differentiating their products.

Sustainability Test

92. It is not thought that a change to standardised packaging of tobacco will change the sustainability of tobacco packaging from the current situation.

Environmental test

93. It is not thought that a change to standardised packaging of tobacco will change the environmental impact of tobacco packaging. Should there be a change, then it is likely to be due to a reduction in tobacco consumption, a fall in the number of tobacco products and therefore in the packaging produced and discarded.

Conclusions

94. We have assumed that the effect of standardised tobacco packaging would be expressed through consumers' decisions not only about whether or not to smoke (as with the legislation to end the open display of tobacco in shops) but also about which brand of cigarette to smoke and potentially their source (UK duty paid or non UK duty paid). The effect of standardised tobacco packaging could be further to erode the ability of tobacco companies to distinguish their brands from one another. We might expect therefore that it would reinforce the trend towards downtrading to lower priced cigarette brands, a process that has, for a variety of reasons, been a notable feature of the market over the past decade.
95. As far as total consumption is concerned, there are plausible scenarios under which standardised tobacco packaging could be effective as a tobacco control measure. The evidence review suggests a possible impact on consumption in the intended direction. A substantial impact on consumption is plausible but we need a better idea of its likely scale (from our expert panel), its cost implications and any impact on duty free imports.
96. Any adverse impact of standardised tobacco packaging (increase) in the non duty paid segment of the market could involve significant costs. A one percentage point increase in the market share of non UK duty paid cigarettes would cost around £90 m in lost duty. Further consultation will help to establish central estimates of the impact of standardised tobacco packaging on consumption and these unintended effects for the purposes of arriving at a net present value of standardised tobacco packaging.

Annex 1: Technical

97. This Annex describes the method and data sources behind the estimation of:
- The discounted number of life years saved for each young person who does not take up smoking.
 - The discounted number of life years saved for a randomly chosen adult who quits smoking today. This figure is lower, as some harm may already have been done by past smoking.
 - The inclusion of the effects in prompting higher adult quit rates.

Estimating and monetising the health benefits associated with reduced take-up among children and increased quit rates among adults

98. To convert the above figures into a monetary value, a standard value of £60,000 per life year is applied. Both estimates take account of the fact that many smokers quit during their lifetime, thus reducing the expected number of life years lost from starting to smoke in the first place, and reducing the expected number of life years gained by quitting today.
99. The following main sources of data are used:
- General Household Survey (2006) source data. Used to identify the age distribution of smokers and the relationship between age and the percentage of smokers who have quit.
 - Doll, Peto, Boreham and Sutherland (2004), 'Mortality in relation to smoking: 50 years' observations on male British doctors' (*BMJ* 2004;328;1519). Reports the impact of smoking on mortality, split by age of quitting smoking (if applicable).
 - Office for National Statistics (ONS) period life tables, United Kingdom, 2004-06, Reports population mortality estimates. Used to transform the outputs of the doctors' study into life years saved.
100. The steps common to both estimates are listed below:
101. **Identify an estimate of the percentage of smokers who have quit by each year of age.** Data from GHS (2006) is used here. The percentage who have quit increases at a fairly steady and constant rate as age increases. A linear relationship was therefore identified between age and the percentage who have quit; the results imply that 18.2% of "ever-smokers" have already quit by age 16, with 1.05% quitting in each year thereafter up to age 94.
102. **Identify an estimate of the prevalence of smoking at each year of age.** Data from GHS (2006) is used here.
103. **Identify an age distribution for the smoking population.** Again, data from GHS (2006) is used here.
104. **Identify mortality data (by year of age) for non-smokers and for four categories of smoker (as defined by quit age).** Mortality data are taken from Doll, Peto, Boreham and Sutherland (Table 5, 2004), which lists number of deaths per 1,000 people at ages 34-44, 45-54, 55-64, 65-74 and 75-84. (These are referred to below as the five age bands). This information is presented at each age band for lifelong non-smokers, as well as
- those who have quit between age 35-44,
 - those who have quit between age 45-54,
 - those who have quit between age 55-64, and
 - those who continue to smoke beyond age 65
105. These categories of smoker are used throughout the calculations, and are referred to as quit age bands (alongside an "age under 35" band). The data are converted into relative risks by dividing

the number of deaths per 1,000 in each of these four categories by the equivalent number of deaths (i.e. the number of deaths in the same age band) for the lifelong non-smokers. The following formulae are then applied, which calculate mortality rates at each year of age (from 0 to 100) for smokers and non-smokers respectively.

106. Smokers' mortality at age $x = M * (r / (pr + 1 - p))$
107. Non-smokers' mortality at age $x = M * (1 / (pr + 1 - p))$
108. Where M is the mortality estimate from the ONS life tables for age x , r is the relative risk at age x , and p is the prevalence (expressed as a proportion) at age x .
109. The above formulae are calculated for each year of age, for each sex and for each of the four categories of smoker, as the relative risks differ between quit age categories and population mortality differs between the sexes.
110. **Identify the number of life years lost (by year of age) for each combination of sex and the four categories of smoker.** For each combination of quit age band and sex, two life tables are calculated following the method of Chiang (1984). One of the two life tables starts with the smokers' mortality figures and the other starts with the non-smokers' mortality figures (both for each year of age, and as calculated above). Each life table models a birth cohort of 100,000 children; one column in particular measures the total number of life years lived by the cohort for each year of age. For each year of age, the difference in this column between the two life tables is calculated and divided by 100,000 to convert the value into the expected number of life years lost per capita (for that age). The sum of these values across all years of age (from 0 to 100) equals the number of life years lost by the specified combination of quit age band and sex.
111. **Discount the numbers of life years lost, as calculated in the previous step.** As the life years lost occur in future years of the cohort's life, they should be discounted appropriately. The discount rates used are equal to Green Book rates minus 2%. The 'minus 2%' takes account of the fact that the monetary value per life-year (which is applied later on) can be expected to grow at the same rate as real economic growth. The 2% figure for this is taken from the Social Rate of Time Preference assumptions underlying the Green Book discount rates. The sum of the discounted numbers of life years lost at each year of age equals the discounted number of life years lost by the specified combination of quit age band and sex.
112. The end results of these calculations are presented in the following table. The identified relationship between age and the percentage of smokers who have quit is used to calculate the percentages in the second column.

Quit age band	Percentage of smokers in this band	Change in life years lived for this band (discounted male)	Change in life years lived for this band (discounted female)
Under 35	38.20%	0	0
35 to 44	10.50%	-0.85	-0.66
45 to 54	10.50%	-2.75	-2.34
55 to 64	10.50%	-3.48	-3.03
65 and over	30.20%	-4.49	-4.15

113. The benefit (in discounted life-years) for each child who does not take up smoking is estimated as follows:
- (a) A weighted average of the number of life-years saved for male children is calculated, with the percentage of smokers who quit in each quit age band being used to weight the life expectancy penalties for those bands.
- (b) A similar weighted average is calculated for female children.

(c) The resulting male and female estimates are then downscaled to 83% and 72% of their calculated value respectively. This reflects the fact that the median doctor from the doctors' study smoked 18 cigarettes per day, whereas current averages for men and women are lower: 15 and 13 respectively (GHS 2006). Current smokers can therefore be expected to experience less harm.

(d) The resulting downscaled estimates are then monetised with a value of £60,000 per life year.

114. Therefore: Benefit for each child who does not take up smoking:

- (a) Males: 1.75 life years, i.e. £105,000
- (b) Females: 1.36 life years, i.e. £81,600
- (c) Average: 1.56 life years, i.e. £93,600 (1.56 * £60,000)

115. The benefit (in discounted life-years) for a randomly chosen adult who quits smoking is estimated as follows:

- (a) The aforementioned five age bands for adult smokers are also used here: those aged (i) under 35, (ii) 35-44, (iii) 45-54, (iv) 55-64, and (v) over 65. The percentage of smokers that quit in each quit age band is then considered, *given that the smoker has already reached one of age categories (i) to (v) above*. For example, 10.5% of smokers quit in the 55-64 age band, whereas 30.2% go on to become lifetime smokers. For an individual who is already aged 55 to 64, it must be that $(10.5\% / (10.5\% + 30.2\%)) = 25.9\%$ will quit in the 55 to 64 age band, whereas the remaining 74.1% continue to smoke over the age of 65.
- (b) For each category of smoker age, the percentage of smokers who quit in each quit age band (as adjusted above) is multiplied by the life year penalty associated with each quit age band. Obviously, as we move towards the older age bands, fewer and fewer quit age bands enter into the calculation (as it is not possible, say, to quit smoking at 35-44 if you are already aged 45-54). This calculation gives the expected number of life years lost given that the smoker may quit at some point in the future. The calculated values for the older age groups are larger, as they are more likely to become lifelong smokers.
- (c) For each age band, the previous table indicates the number of life years that would be lost anyway if the smoker were to quit at their current age. This number is higher for the older age groups, as more harm has already been done. For each age band, these values are subtracted from the numbers calculated in the previous bullet. This gives the number of life-years that could be reclaimed if the smoker were to stop smoking at their current age.
- (d) GHS (2006) data on the age distribution of smokers is used to weight the number of life years that could be saved in each age band. This yields a final estimate of the number of life years that could be saved if a random smoker were to quit today.

116. Therefore: Benefit for each adult who decides to quit smoking:

- (a) Males: 1.36 life years, i.e. £81,600
- (b) Females: 1.12 life years, i.e. £67,200
- (c) Average: 1.24 life years, i.e. £74,400 (1.24 * £60,000)

117. For the following reasons, the benefit estimates described above are conservative:

- (a) They do not take account of the improved quality of life that results from quitting smoking. For example, a quitter may escape diseases that reduce their quality of life as well as reduce their life expectancy (such as chronic obstructive pulmonary disease).
- (b) It is assumed that no harm is incurred by smoking over the age of 84. There is likely to be some harm here (which would increase the measured benefits if counted), but there is a lack of precise data. In any case, as the cohort is fairly small by this age, the results are not particularly sensitive to this assumption. Even assuming that the relative risk for those aged 84 also holds for those who are aged 84 and over, the discounted 'child who does not start smoking' benefits only increase by less than 5%.

- (c) It is assumed that no harm is incurred by smoking under the age of 35. Again, there is likely to be a benefit from not smoking at this age, but there is a lack of precise data.
- (d) It is assumed that quitting after the age of 65 yields no health benefit. There is also likely to be a small benefit here, but again, there is a lack of precise data.
- (e) The estimates do not take account of the fact that the resulting reduced smoking prevalence would reduce demand for stop-smoking goods and services. The economic resources saved could be used for other purposes.

118. Other limitations of the estimate include:

- (a) It is assumed that the same smoking mortality impacts hold for both men and women. The Doll, Peto, Boreham and Sutherland (2004) study only covers male doctors.
- (b) It is assumed that the average daily number of cigarettes smoked throughout life is linearly related to the number of life years lost. The relationship is unlikely to be perfectly linear in practice.
- (c) The Doll, Peto, Boreham and Sutherland (2004) study does not explicitly adjust for confounding factors (although it does control for social class, given that its sample consists only of doctors). For example, if smokers are also more likely to drink heavily, this may exaggerate the mortality impact of smoking. However, a similar cohort study (based in The Netherlands) does adjust for a long list of confounding factors, including socioeconomic status, alcohol use and body mass index. The authors conclude that adjusting for confounding factors reduces the estimated number of (undiscounted) life years lost due to smoking by half a year. This is a fairly small effect given that the estimated life expectancy loss to smokers (including the adjustment for potential confounders) is still equal to seven years. Given that the estimates presented in this annex are discounted and take account of future quit propensities, any reduction to take account of confounding factors would be considerably less than half a life year.

Annex 2: Elicitation of Subjective Judgments of the Impact on Smoking of Plain Packaging Policies for Tobacco Products

Overall aim

119. To elicit experts' judgments regarding the likely impact of the introduction of a plain packaging policy for tobacco products on (i) the number of smokers and/or (ii) the number of children trying smoking

Key research questions

120. What do experts judge to be the likely impact of the introduction of a standardised packaging policy on: (i) the number of smokers and (ii) the number of children trying smoking?
121. What reasons do experts give for their judgments?

Background

122. The Australian Government has proposed legislation that would require all tobacco products to be sold in standardised packaging, and the UK government has committed to consultation on the possible introduction of such a policy. A key difficulty in evaluating this policy, however, is the lack of quantifiable evidence on the likely impact of standardised packaging, given that no country has yet introduced this measure. One approach to address this limitation is to elicit subjective judgments on the likely impact of standardised packaging from a range of experts in this area.
123. Elicitation of experts' judgments allows us to construct a probability distribution that represents each expert's knowledge and uncertainty regarding the issue in question. Following this elicitation process, these individual distributions can be aggregated to a distribution that encapsulates the beliefs of a group of experts. While this process must be undertaken carefully given that human judgments can fall prey to certain biases (e.g., availability, representativeness and/or anchoring heuristics), steps can be taken to overcome these during elicitation. Indeed, elicited experts' judgments have previously been used in a range of areas, including quantifying the risk of volcanic eruptions, the value of ambulatory treatments for major depression and the chances of survival following gastric surgery.

Method

124. In keeping with established methods for this procedure, experts will be recruited and briefed so that they know why judgements are needed and understand the procedure for eliciting these. The elicitation process involves obtaining summaries for experts' distributions and fitting probability distribution for these values. These steps are described below.

Sample and recruitment

125. The sample will consist of three groups of internationally-renowned experts on tobacco control policies, one group recruited from each of Australasia, the UK and North America. We will aim to recruit about 10 participants per group, numbers found to be sufficient in previous studies. Experts will meet Hora and van Winterfeldt's first four requirements for participation, that is: (a) tangible evidence of expertise (as evidenced by publications), (b) reputation (as indicated by peer-nomination), and (c) availability and willingness to participate, (d) understanding of the general problem area (in addition to being a requirement for recruitment, participants will be provided with papers on the topic area to ensure sufficient knowledge). The latter two requirements suggested by Hora and van Winterfeldt (impartiality and lack of an economic or personal stake in potential findings) are considered impractical in this area, and so instead we will include a description of the participants' employment and expertise for transparency.
126. We will identify experts from countries of interest using editorial lists for relevant publications (Addiction; Tobacco Control, and Nicotine Tobacco Research) and society memberships (Society for Research on Nicotine and Tobacco) and in consultation with key experts in this area. A third party, employed by a private company will write to potential participants, informing them of the

study aim and requirements. Informed consent for participation in a one-off telephone interview will be obtained at this stage.

Procedure

Email prior to interview

127. Following recruitment, times will be arranged by the third party for each participant to be interviewed. Approximately one week prior to the interview, participants will be provided via email with a recently commissioned review on the possible impact of plain packaging. The importance of reading this information, and giving some thought to likely impact will be emphasised.

Interview

128. We will use a semi-structured interview to elicit subjective judgments for the impact of standardised packaging on the prevalence of smoking and the percentage of children trying smoking. Interviews will take place by telephone and will be recorded. The researcher will ask the caller to identify him/herself in terms of the region where they work (UK, Australasia, North America), so this categorisation will be on the recording/transcript. Participants will be asked not to provide any details that could allow them to be identified, and the time and date of the data collection will not be recorded. Participants will be asked to estimate the expected value, and the lowest and highest likely values, measures that have been used previously in similar studies.

Judgment elicitation

129. An outline of the areas covered in the interview script is as follows:

1. Check whether participants have engaged with materials sent and if necessary briefly review the current evidence available.
2. Reiterate the definition of the exact quantities we want to elicit: best guess estimate and highest and lowest of possible values for the percentage of (a) smokers and (b) children trying smoking two years after the introduction of plain packaging in their country of residence (or Canada for US experts/ and Australia for NZ experts)
 - a. Emphasise that we are comparing the policy against a 'do nothing' approach and all other things being equal:
 - i. Other controls regarding the sale of tobacco will still be in force
 - ii. The price would be stable
3. The elicitation itself (in order; the order of questions on all smokers and children, and eliciting of highest or lowest possible outcomes will be counterbalanced):
 - a. Start with neutral script outlining possibility of positive, no or negative impact
 - b. For all smokers and for children trying smoking:
 - i. Ask for estimate of best guess
 - ii. Ask for the highest and lowest estimates of prevalence, such that the expert would be extremely surprised if the actual value fell outside this range: 'extremely' is defined as a 1% chance
 - iii. Use subsidiary questions to explore range
 - iv. Confirm expert is happy with the final result
 - v. Ask for reasons for estimates

Analysis

130. Elicited judgments will be linearly pooled to estimate the most likely value(s) and range for the impact of plain packaging on each outcome. Impact, measured as percentage change, will be plotted against the number of experts judging such a change as possible. Comparisons between the judgments made by different groups of experts will be made using forest plots to distinguish within-person uncertainty from between-subject variability, and highlight any differences by experts' region. Degree of consensus will be judged using standard methods for assessing heterogeneity used in meta-analysis, such as the I^2 statistic.

131. Content analysis will be conducted on the reasons provided for the estimates. Responses will be compared between different groups of experts to assess for any systematic differences.

Annex 3: Consultation questions

132. This consultation-stage impact assessment accompanies the consultation document *Consultation on standardised packaging of tobacco products*. To further develop the consultation-stage impact assessment, additional evidence is sought on a number of questions specifically related to the evidence contained within the impact assessment.
133. Those who wish to respond to the consultation questions, including those specifically focused on the impact assessment, are encouraged to provide their views online but responses can be made in any of the following ways:
- *On the Department of Health website at:*
<http://consultations.dh.gov.uk>
 - *Completion of the response form:* A form that can be completed and returned can be downloaded at:
<http://consultations.dh.gov.uk>
 - *Email:* Responses can be sent by email to:
tobaccopacks@dh.gsi.gov.uk
 - *Post:* Responses can be sent by post to:
**Tobacco Packs Consultation
Department of Health
7th Floor
Wellington House
133-155 Waterloo Road
London
SE1 8UG**

Consultation questions

- i. Which option do you favour?
 - Do nothing about tobacco packaging (ie, maintain the *status quo* for tobacco packaging)
 - Require standardised packaging of tobacco products
 - A different option for tobacco packaging to improve public health
- ii. If standardised tobacco packaging were to be introduced, would you agree with the approach set out on page 6 of the consultation?
- iii. Do you believe that standardised tobacco packaging would contribute to improving public health over and above existing tobacco control measures, by one or more of the following:
 - discouraging young people from taking up smoking;
 - encouraging people to give up smoking;
 - discouraging people who have quit or are trying to quit smoking from relapsing; and/or
 - reducing people's exposure to smoke from tobacco products?

- iv. Do you believe that standardised packaging of tobacco products has the potential to:
 - Reduce the appeal of tobacco products to consumers?
 - Increase the effectiveness of health warnings on the packaging of tobacco products?
 - Reduce the ability of tobacco packaging to mislead consumers about the harmful effects of smoking?
 - Affect the tobacco-related attitudes, beliefs, intentions and behaviours of children and young people?
- v. Do you believe that requiring standardised tobacco packaging would have trade or competition implications?
- vi. Do you believe that requiring standardised tobacco packaging would have legal implications?
- vii. Do you believe that requiring standardised tobacco packaging would have costs or benefits for manufacturers, including tobacco and packaging manufacturers?
- viii. Do you believe that requiring standardised tobacco packaging would have costs or benefits for retailers?
- ix. Do you believe that requiring standardised tobacco packaging would increase the supply of, or demand for, illicit tobacco/non-duty paid tobacco in the United Kingdom?
- x. Those travelling from abroad may bring tobacco bought in another country back into the United Kingdom for their own consumption, subject to UK customs regulations. This is known as “cross-border shopping”. Do you believe that requiring standardised tobacco packaging would have an impact on cross-border shopping?
- xi. Do you believe that requiring standardised tobacco packaging would have any other unintended consequences?
- xii. Do you believe that requiring standardised tobacco packaging should apply to cigarettes only, or to cigarettes and hand rolling tobacco?
- xiii. Do you believe that requiring standardised packaging would contribute to reducing health inequalities and/or help us to fulfil our duties under the Equality Act 2010?
- xiv. Please provide any comments you have on the consultation-stage impact assessment. Also, please see the specific impact assessment questions at Appendix B of this consultation document and provide further information and evidence to answer these questions if you can.
- xv. Please include any further comments on tobacco packaging that you wish to bring to our attention. We also welcome any further evidence about tobacco packaging that you believe to be helpful.

Specific impact assessment questions (as at Annex B of the consultation document)

To better understand the likely costs and benefits if standardised packaging were introduced, and to develop the consultation-stage impact assessment, further evidence is sought on the following questions:

- i. What would be the costs to tobacco and packaging manufacturers of re-designing packs and re-tooling printing processes if standardised packaging were introduced?

- ii. Would the cost of manufacturing cigarette packs be less if standardised packaging were introduced, compared with the current cost of manufacturing packs?
- iii. How often do cigarette manufacturers amend the design of tobacco packaging for brands on the United Kingdom market, and what are the costs of doing so?
- iv. How many different types of shape of cigarette pack are currently on the United Kingdom market?
- v. Would retailing service times be affected, and if so why and by how much, if standardised packaging were introduced?
- vi. How could standardised packs be designed to minimise costs for retailers?
- vii. Would retailers bear any other costs if standardised tobacco packaging were introduced?
- viii. What is the average price of a packet of cigarettes in the following segments?
 - Premium cigarette brands
 - Mid price cigarette brands
 - Economy cigarette brands
 - Ultra low price cigarette brands
- ix. What percentage of total cigarette sales in the United Kingdom are in each of the following segments?
 - Premium cigarette brands
 - Mid price cigarette brands
 - Economy cigarette brands
 - Ultra low price cigarette brands
- x. How does the total price of a packet of cigarettes break down into manufacturing costs, distribution costs, tax, other costs, profits for retailers and profits for the tobacco manufacturer in the following segments?
 - Premium cigarette brands
 - Mid price cigarette brands
 - Economy cigarette brands
 - Ultra low price cigarette brands
- xi. Would there be an impact on down trading from higher priced to lower priced tobacco if standardised tobacco packaging were introduced?
- xii. Of the total cigarette market in the UK, what proportion of cigarettes are sold in cartons rather than in individual packs?