The Treasury

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From: John MacCormick
Sent: Thursday, 29 March 2012 12:54 p.m.
To: 'Andrew Craig (MIN)'
Cc: Ruth Isaac; Nicholas Green
Subject: FW: Tobacco Excise costings for options

Hi Andrew
As discussed, this email string below has costings for various tobacco excise increase options, and some discussions about the demand response assumptions used in these costings.

I understand Hon Turia has had advice from the Ministry of Health on options to proceed with excise increases, [5] [6]

Nick, Ruth FYI

JM

From: John MacCormick
Sent: Thursday, 29 March 2012 12:46 p.m.
To: [3] @moh.govt.nz'
Cc: [3]
Subject: FW: Tobacco Excise costings for options

Hi Matthew
Here are the costings you requested for a budget night increase of either 30% or 10% followed by a string 4 annual 10%+CPI increases each 1 January

Also below are some internal discussions here about the pass-through rate and price elasticity of demand assumptions.
To summarise:
On pass-through rates:

> If consumers switch to lower-price brands rather than cut consumption, and/or if suppliers add smaller markups to excise increases, this effectively means the "pass through" rate is lower – price increase for a given excise increase is lower. That would mean a smaller drop in consumption for any given tax increase, and therefore a larger increase in revenue.

On price elasticity of demand:

> With increases of the kind being explored here, the assumptions are going to be unavoidably hairy – we haven't got good data relevant to demand responses at those prices. We're using a constant elasticity of -0.5 for these costings: a 10% price increase leads to a 5% reduction in quantity. But there will likely be different short-run and long-run elasticities as prices affect current consumption, quit rates and uptake rates differently.

John MacCormick | Senior Analyst | **The Treasury**
[3]

From: [3]
Sent: Thursday, 29 March 2012 12:05 p.m.
To: John MacCormick
Subject: RE: Tobacco Excise costings for options

Here are the new costings:

30% increase in excise rates on Budget night 2012, 10% increases on 1 January 2013, 2014, 2015 and 2016 (on top of usual CPI indexation)

Revenue Gained through one 30% and four 10% excise rate increases ($ millions)	2012	2013	2014	2015	2016	Total
	16	159	216	280	357	**1,018**

10% increase in excise rates on Budget night 2012, 10% increases on 1 January 2013, 2014, 2015 and 2016 (on top of usual CPI indexation)

Revenue Gained through five 10% excise rate increases ($ millions)	2012	2013	2014	2015	2016	Total
	5	82	149	219	299	**755**

Assumptions:

- There is no stockpiling for Budget night increase. But for other 10% increases 70% of product is produced/imported in first half of fiscal year.
- Elasticity is constant at -0.5 (we should probably point out that this may not be valid with such large increases in excise rates in first scenario).
- Pass through rate falls from 140% to 100% by the end of the forecast period as budget brands gain more of market share, increasing competition.
- Extra GST not included.

[3] | Analyst | **The Treasury**
[3]

From: John MacCormick
Sent: Tuesday, 27 March 2012 4:18 p.m.
To: [3]
Subject: RE: Tobacco Excise costings for options

On the discount brands: example looking at tobacco company returns to Ministry of Health

Pall Mall brand increased from 340m sticks in 2009 to 500m sticks in 2011 - that's an increase from about 15% to 22% market share for that brand.

John MacCormick | Senior Analyst | **The Treasury**
[3]

From: [3]
Sent: Tuesday, 27 March 2012 3:12 p.m.
To: John MacCormick
Subject: RE: Tobacco Excise costings for options

Friday seems like a good deadline.

On pass through rates I'm happy to use something closer to 100%. I wasn't aware of the budget brands coming into the market but if they are it makes sense that there will be an overall lower pass through.

On price elasticity I think you can make arguments for a higher or lower elasticity and you're probably right that ideally you would use different short and long-run elasticities. But as you say that would severely complicate the costing model and would take a while to work through. So I'm inclined to stick with what we're currently using as I'm not sure the benefit we'd get would outweigh the cost of changing the costing model, especially with the deadline we have.

I guess the only problem is the sum of these two suggest higher revenue estimates, going against [3] worries that we are overestimating revenue.

[3] | Analyst | **The Treasury**
[3]

From: John MacCormick
Sent: Tuesday, 27 March 2012 2:28 p.m.
To: [3]
Subject: RE: Tobacco Excise costings for options

Thanks [3]
[7]

I think if we can have updated costings available for the Ministry by Friday, that would be useful – no need for it today.

On pass through rates:
I think we need to assume pass-through starts to fall closer towards 100%, as the tobacco supply chain will be forced to revisit its mark-up pricing.
Even if individual brands have a 140% pass through, the market composition is changing with new budget brands emerging and capturing a large market share – so the impact on average price paid by a smoker is considerably lower than the % change in the price of any given brand.
That would increase excise revenue as overall price increase and –ve demand response from any given tax increase will be smaller.

On price elasticity:
I can't see price elasticity of demand amongst *current* smokers *increasing* with larger tax increases. In absolute terms the reduction in consumption will be larger, but why would it be *proportionately* larger? Your idea that you start to hit the "hard core" of smoking consumption that's less responsive to price seems more plausible (diminishing returns to using price as a stick to beat nicotine addicts with).
Contrariwise, its possible we'd see a higher price elasticity overall from
(a) increasing substitution to untaxed (black market and/or duty-free) tobacco and
(b) lower uptake rates by new smokers as the habit is priced out of reach of da yoofs.
So maybe we need short-run and longer-run elasticity estimates – where volume reduction from a given increase in price is smaller in the first year than it is over a longer time. And that really messes up any simple costing model!

John MacCormick | Senior Analyst | **The Treasury**
[3]

From: [3]
Sent: Tuesday, 27 March 2012 12:56 p.m.
To: John MacCormick
Subject: RE: Tobacco Excise costings for options

Hi John

Yes I'll be able to do the new costings, but it may take a bit longer to do than the previous ones. It becomes a bit more complicated having two increases in the same year in terms of slitting out the revenue over the year. I should be able to get it to you by COP today if necessary, but would be good to check on MoH deadline.

In terms of[3] points on elasticity and pass through I was thinking about the same thing. When you get up to a 90% increase I think the elasticity is likely to change. Only thing is I'm not sure what a better estimate would be; you would get to a point where people can't afford to smoke but then again you might only be left with the ones who can't give up. I guess you could go to -0.7 which I think some studies have found is within the range but I wouldn't have much of a justification for it. What are your thoughts?

[3] | Analyst | **The Treasury**
[3]

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From: [3] @moh.govt.nz [mailto: [3] @moh.govt.nz]
Sent: Tuesday, 27 March 2012 10:13 a.m.
To: John MacCormick
Subject: Re: Tobacco Excise costings for options

Thanks very much for this, John - just in time and definitely fit for purpose.

But I would like to take you up on your offer of also costing for another scenario/alternative implementation dates:

Budget night 2012 - 30%; 1 Jan 2013 - 10%; 1 Jan 2014 - 10%; 1 Jan 2015 - 10%; 1 Jan 2016 - 10%

Obviously this will increase the revenue estimates considerably - but looking at the two costings you have already done (below) I do wonder if we aren't already underestimating the likely drop in consumption and overestimating the pass through (we already have some indication this is reducing, with the launch of new budget brands?)

The costing for 30/10/10/10 gives 65% more revenue than 10/10/10/10 - but the tax per pack only goes up 57% (by my calculation)?

As I understand the work you did for your aide-memoire earlier this year, the revenue estimates for the previous rises were too high for a number of reasons, including bot recognising an increasing price elasticity as a distinct possibility?

Happy to discuss - I guess the point behind this is that the intention of raising the tax is to reduce tax revenue by reducing smoking - so any overestimate of revenue is an over estimate of failure?

cheers
[3]

[3]
Principal Advisor
Sector Capability and Implementation
Ministry of Health
[3]

http://www.health.govt.nz
[3]

From: John MacCormick <John.MacCormick@treasury.govt.nz>
To: "[3] moh.govt.nz" [3]
Date: 26/03/2012 12:05 p.m.
Subject: Tobacco Excise costings for options

Hi [3]

Here's our costings for the 2 excise options you requested.

Assumptions:

- Implementation on 1 January – and pre-announced, so that stockpiling reduces initial revenue uplift
- Constant price elasticity of demand at -0.5
- Pass through to retail price of 140% (ie: $ increase in retail price = 140% of the $ increase in excise. Initially, that basically means a 10% excise increase leads to a 10% price increase)
- Stockpiling – 30% of the excise would be collected in the first half of the year and 70% in the second half
- Extra GST due to excise rate increase is not included as we assume it would have been collected on spending on other items

10% increases in tobacco excise rates on top of CPI indexation on 1 January 2013, 2014, 2015 and 2016:

Revenue Gained through	2012/13	2013/14	2014/15	2015/16	4-year Total
10% excise rate increases ($ millions)	19	83	143	207	**452**

Increases in tobacco excise rates on top of CPI indexation of 30% on 1 January 2013, and 10% increases on 1 January 2014, 2015 and 2016.

Revenue Gained through 30% and	2012/13	2013/14	2014/15	2015/16	4-year Total
10% excise rate increases ($ millions)	49	178	229	288	**744**

We have not costed an alternative approach of a mid-year excise increase – as was done for the first of the last 3 10% step increases.

Obviously a mid-year increase would bring forward the revenue increase, and (if handled securely and timed with luck not to miss a big shipment) could avoid stockpiling to avoid paying the higher excise rate.

We could cost alternative implementation dates with a fairly quick turnaround.
