Economic consequences of ignorance about aerotoxic syndrome

Philip Parsons*

Kingsbridge, Devon, UK

The economic consequences, reduced to deductions from gross domestic product, of illness that might have been preventable if appropriate action had been taken beforehand are assessed. This kind of estimate is useful for determining what expenditure might be reasonable in attempting to eliminate the causes of ill health.

Frequent fliers[1] are typically the most economically active members of society, entrepreneurial individuals flying to generate business either as employees of companies or as professionals acting on their own behalf.

I was myself in this category; I was a director of a small to medium-sized enterprise (SME) and specialized in finding innovative solutions to component obsolescence. In 2003 I became ill with an array of symptoms consistent with chronic fatigue syndrome (CFS)/myalgic encephalomyelitis (ME),[2] and by 2005 I had become too ill to continue working. Aged 48, with more than 25 years of engineering experience, I had to retire and have not been able to resume work since then.

The cost of this to the national economy can be estimated as follows (Table 1). The total can then be multiplied by 17 (assuming retirement at 65; legislation just being introduced this month in the UK abolishes mandatory retirement at this age, hence we get a lower limit of the cost over what would have been the remaining working lifetime of this example), yielding £6.8 million.

Table 1. Costs associated with an economically active person being invalided out of a job.[a]

Description	Value	Notes
Loss of taxes	17.5	Estimate, based on 2005 rates
State incapacity benefit	7.5	
Loss of projects to employer	300	Average estimate, assuming irreplaceability of the invalid
Loss of disposable income to the overall economy	25	Estimate, based on 2005 rates
Business expenses not spent doing the job	50	Including travel
Total of readily quantifiable costs	400	

[a] Per annum, in thousands of pounds Sterling (GBP).

To this figure must be added the cost of medical investigations by the National Health Service (already several thousand pounds), which will make a comparatively small difference to the total (assuming there is no catastrophic decline in my health). Far greater costs have been incurred due to the lost of specialist expertise. One of my rôles was to resolve component obsolescence problems for major clients including aerospace and defence manufacturers. The cost of a design change can be enormous, involving many man hours (occasionally man years) of engineering time plus requalification, which can cost £30,000 for a single part. Production delays also have an associated cost, of course.

Any attempted calculation of this type faces the difficulty of estimating an uncertain future. Certain projects that only I would have been able to bring in might have triggered further business, multiplying the gains (and corresponding losses in Table 1). Perhaps a replacement could have been found; perhaps my premature departure might have struck a blow of such severity the company subsequently was forced to cease trading. These are all imponderables, which could in principle be addressed by multiplying their effects by by probabilistic weightings.

Had the proper diagnosis of my ailment been to hand at its incipient stages, I might have been able to prevent it, either by continuing to fly but taking appropriate precautions or by reorganizing my work to avoid the necessity for frequent flying. If treatment were available *post hoc*, I might now be on the road to recovery and able to contemplate resuming meaningful employment. As it is, I and others in my position face an impoverished, uncertain future with an enormous loss of quality of life, quite apart from the financial aspects.

This sort of calculation, and the more sophisticated attempts it might inspire, will be useful for assessing whether expenditure to remedy the current problems of jet airliner travel are reasonable. The loss of government revenue (the first two entries in Table 1) provides a basis for assessing the reasonableness of public expenditure on appropriate research and development. A proportion of the other items would involve other people working, hence generating income tax, and other kinds of tax (e.g., value-added and corporation).

* E-mail: help@computerhotline.co.uk

[1] There is no official designation of a frequent flyer, but flying at least once a week seems to be the consensus definition.

[2] Cf. the paper by Hyde in this issue (pp. 172–179).

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