



Policy Studies Institute

MAKING THE MOST OF DAYLIGHT HOURS

The implications for Northern Ireland

An analysis of the potential advantages and disadvantages of advancing clocks
by an additional hour in summer and winter

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INTRODUCTION

1. *This Memorandum is focused on the implications for Northern Ireland of the adoption of the proposal to advance clocks by one hour. It seeks to provide an impartial assessment of whether the move would be of general benefit to the people of Northern Ireland. The areas of daily life that would be affected have been examined using a framework similar to that in the author's previous studies on the subject, especially the study covering Scotland, which was published in autumn 2010.*
2. The UK's adherence to GMT and BST has been the subject of popular and political debate for many decades. Recently, policy makers have been looking at this issue more closely to establish the impact of aligning our waking hours more closely with the available hours of daylight. The most widely-discussed proposal is to move to GMT+1 hour in the winter and GMT+2 in the summer, a system known as Single Double Summer Time, or SDST. The extra hour of natural light in the latter part of the day would be noticeable throughout the year whilst, for most of the population, the loss of the hour of daylight in the morning would only be felt in the winter months.
3. The problem stems from our distribution of waking hours. Most people are awake for five hours before midday, and 10 hours after. Mornings are spent entirely in daylight for much of the year, while a significant proportion of the afternoon and evening is spent in darkness.
4. Advocates of SDST claim that it would bring a host of benefits, especially in relation to leisure, health and tourism. Opponents of the change are concerned that the effects of losing an hour of daylight on winter mornings are too high a price to pay to gain the year-round benefits of the extra hour of light in the evenings.

ROAD CASUALTIES AND PERSONAL SECURITY

5. The frequency and severity of road accidents is closely related to lighting conditions. Crashes are more likely to occur in the evening 'peak', when driver attentiveness declines and darkness reduces visibility. The risk is particularly pronounced for vulnerable road users – children, elderly people, pedestrians and cyclists. During the 1968 – 71 trial of continuous British Summer Time in the UK, the afternoon peak occurred in daylight for a greater portion of the year, improving visibility and reducing the frequency of injuries.
6. The trial caused a slight increase in risk to children when traveling to school on dark winter mornings. However, this finding needs to be understood within a wider context. A child is three times more likely to be seriously or fatally injured on the road during the afternoon peak (3 – 6pm) as during the 7 – 10am morning peak (for adults, the afternoon peak is 50% more dangerous). 'Time budget' surveys show that for children, journeys to friends' houses or places of recreation, occupy nearly as much of their time as journeys to and from school. Far more time is spent travelling in the late afternoon and early evening than in the morning when children usually go directly to school. In fact, school journeys account for only about 1 in 10 child

fatalities. Hence, despite the small winter morning increase, net child fatalities and serious injuries fell during the trial period.

7. Putting clocks forward by one hour would be likely to reduce road casualties in Northern Ireland. The 1998 Transport Research Laboratory study on the impact of the proposed clock change on road casualties estimated that it would lead to an overall reduction of over 100 deaths and serious injuries and would save £138 million each year. Unfortunately, this study only covered England, Wales and Scotland, but Northern Ireland is likely to benefit pro rata in relation to its population accounting for 3% of that total. In 2009, the Public Accounts Committee confirmed the validity of this benefit.
8. The personal security benefits of adopting SDST are similarly notable. Criminal offences are more commonly committed after dark, and of these, very few occur in the hours shortly before dawn. In 1995 the Home Office calculated that an extra hour of evening daylight would lead to a 3% reduction in the number of crimes committed. Fear of crime is also higher after sunset, especially among the older generation. While such phenomena are difficult to quantify, Age UK and SAGA have both commented that longer waking daylight hours would contribute to an increased feeling of safety in elderly people.

LEISURE, SPORT AND RECREATION

9. Most outdoor sports and other types of informal recreation are sensitive to daylight hours as well as to climate. Half of the ten most popular adult sports are daylight-dependent, with walking and gardening topping the list.
10. Comparing sunrise and sunset times with typical waking hours in Belfast and Londonderry clearly indicates that an additional hour of daylight in the evenings will result in more opportunities for daylight-dependent recreation.
11. A comparable study in Scotland established that adults living in Glasgow and working 9-to-5 would enjoy a yearly total of almost 300 additional hours of daylight under SDST, with more than half of these falling at the end of the working day. For children, there was a yearly increase of about 200 daylight hours *before they go to bed*, with roughly half of these falling on school days.
12. Sunset in Belfast and Londonderry occurs 9 and 11 minutes later respectively than in Glasgow. This means that their populations currently enjoy 1699 and 1714 hours of accessible daylight each year. Adopting SDST would add a further 300 hours (18%) to these totals.
13. Changing the clocks also has implications for temperature. Analysis of Meteorological Office data suggests that advancing the clocks would give us a better relationship with the warmer time of day in the late afternoon and evening. While there would be a very marginal decrease in the average morning temperature, the average late afternoon/early evening temperature is several degrees higher.

PHYSICAL HEALTH AND WELL-BEING

14. In common with the populations of other countries of the UK, Northern Ireland has a high level of chronic disease, and this poses a serious public health problem. A major contributing factor to this is physical inactivity. Just under a third of Northern Irish citizens die from circulatory diseases, associated for instance with obesity and hypertension. Medical authorities have calculated that adults should accumulate at least 30 minutes of moderate or more vigorous activity on most days of the week, and children at least one hour daily. Regrettably, however, regular exercise no longer features in most people's everyday lives. Recent academic studies have predicted that, on current trends, up to half of the population will be clinically obese by 2050.
15. SDST would also allow more access to direct sunlight, with all its associated therapeutic benefits. Meteorological records show that between a third and a quarter of daylight hours experience direct sunlight. Thus, advancing the clocks would provide working adults with the additional 300 daylight hours noted earlier, meaning close to 100 hours of extra sunlight. Children would benefit from an additional 200 daylight hours and about 60 more hours of sunlight.
16. SDST would significantly increase opportunities for outdoor sports and recreational activity as well as potentially improving people's quality of life. It could also play a preventive health role in several medical conditions including anxiety and depression, vitamin D deficiency from low exposure to sunshine, and osteoporosis, a condition caused in part by lack of weight-bearing exercise.
17. Moreover, lighter evenings could contribute to an increase in exercise and socialising, especially among children and older people. Most children are prevented from going out after dark due to parental concerns about their safety. The extra hour of late afternoon and evening daylight would diminish this anxiety, thereby leading children to spending more time outside. This would also be likely to apply to older people most of whom limit their evening activity by imposing on themselves a curfew at dusk.

DOMESTIC TOURISM AND LEISURE INDUSTRIES

18. Northern Ireland currently receives 3.3 million visitors and domestic tourists each year, contributing in the region of £1.5 billion to the economy. Relevant data from studies on the subject in the UK show that levels of tourism vary substantially during the year, owing to factors such as the state of the economy, school holidays and, most notably, daylight and temperature. Earlier studies on the subject in England and Scotland have shown that daylight actually plays a greater role than temperature in influencing visitor numbers. There are no obvious reasons why the general pattern of tourist activity in Northern Ireland would differ significantly in this respect. Under the present time system there are generally sufficient daylight hours for outdoor tourist activity in the height of summer. However, an additional hour of accessible daylight in the afternoon and evening could effectively extend the so-called 'shoulder months' during spring and autumn, allowing the industry to operate at near-peak

capacity for a greater portion of the year. Lighter evenings would encourage more day trips and weekend breaks and accelerate the rapidly growing trend towards off-peak and short-break holidays. It is also likely to encourage people from elsewhere in the UK to take holidays in Northern Ireland rather than in more distant locations.

19. The later onset of dusk would also expand opportunities for spectator sports and therefore attract more revenue from the 'gate'. For example, matches could start at a more convenient hour on winter afternoons and still finish before dusk. Tourist destinations, meanwhile, could extend winter opening hours.
20. The clock change would significantly aid job creation in leisure and tourism. Growth in this sector is particularly valuable during a time of rising unemployment. The Northern Irish economy would also benefit from the additional tax revenues arising from increased earnings from the industry. For the UK as a whole, it was calculated that the clock change would boost tourism revenues to the tune of £3.5 billion and generate around 80,000 jobs. That would suggest that Northern Ireland could expect an increase in annual earnings of up to £100 million and the creation of over 2,000 new jobs.

FARMING, CONSTRUCTION AND OTHER INDUSTRIES

21. Where services are provided over an 18-hour day, as with some transport sectors, or where shifts or rotas cover 24 hours, the clock change is unlikely to affect working practices. However, other jobs in Northern Irish service sector industries entail outdoor activity with little potential for working flexible hours. Some difficulty could arise for those employed in postal, milk and newspaper deliveries as darker winter mornings would make their working lives in these months less pleasant.
22. The darker mornings could also pose problems for agriculture and construction, where work may have to start early in the day. In the past, livestock farmers, particularly in northerly latitudes, raised concerns relating to getting animals to early markets and herding dairy cows in time for the first train to town. Due to huge changes in farming methods over recent decades involving mechanisation, artificial lighting and the intensification of the dairy industry, much of this is now obsolete. The NFU in Scotland and England are publicly in support of the current Daylight Saving Bill, and the Ulster Farmers Union have commented on the advantages of a switch to SDST.
23. Decades of modernisation have led to a substantial move away from jobs that would be affected by a later sunrise during the winter months. This is reflected in altered attitudes to the proposal to put clocks forward. It is recognised that SDST would enable construction workers an extra hour of daylight in the latter part of the day and likewise arable farmers ploughing and sowing in spring and harvesting in the autumn. Expanding the use of floodlighting is one obvious way of avoiding working in the dark for the additional hour on winter mornings. Starting work an hour later in the winter months (as practiced in the Scandinavian construction industry) is another.
24. Moreover, it should not be overlooked that people working in these types of industry would benefit even more than the general population from the extra hour of evening

daylight for leisure throughout the year. It should be noted that working people would only be affected by the later sunrise on about 50 working days in winter as the two or so weeks of Christmas and New Year holidays coincide with the period of fewest daylight hours. It is also important to note that the sky lightens appreciably from about half an hour before sunrise, and daylight-dependent work outdoors is still possible for 20 to 30 minutes after sunset.

TRADE, TRAVEL AND COMMUNICATIONS

25. The nations forming the UK are effectively a 'time island' at present. Trade, travel and communications with most countries in central and western Europe, stretching from Serbia and Albania up to Sweden and Norway and across to Spain, are made more difficult by the fact that their clocks operate on a Central European Time i.e. the GMT+1/GMT+2 system under consideration.
26. Travel and communications would be made more convenient as the proposed change would result in clocks being harmonised with nearly all these countries. Other than sales to the Republic of Ireland and the rest of the UK, over a third of Northern Ireland's manufacturing business – accounting for the majority of exports and currently worth over one billion pounds – is with European countries, the large majority of which are in this time zone.
27. The change would also increase the overlap of office hours between UK and Far Eastern markets – though reducing the overlap with North America. It is not surprising that the clock change has been widely supported by UK organisations working with colleagues, customers and clients in central and western Europe.

ENERGY CONSUMPTION

28. Recent evidence shows that advancing the clocks would lower electricity demand on every evening of the year due to a fall in the need for artificial light. This would outweigh the small rise during the mornings of the winter months. A recent detailed study of the likely effects showed that during the winter months lighter evenings would reduce demand by about 9%. It can be assumed that this benefit would apply similarly to Northern Ireland.
29. There are no separate figures for Northern Ireland on the reduction in greenhouse gases from power stations that would result from this lowered demand. However, it has been calculated that, across the UK as a whole, carbon dioxide emissions from power stations would drop by nearly half a million tonnes in winter alone.

PUBLIC OPINION

30. The prospects of reform have been improved by increased public support. The advantages are still as considerable, and the implementation costs just as low as when the Policy Studies Institute published its first report on the subject in 1988. The most dramatic change has been that of public opinion and the level of debate.

31. The potential shift to SDST has received huge amounts of media attention. The announcement of NFU Scotland's support for the current Daylight Saving Bill, combined with the proposed inclusion of the clock change in the government's tourism strategy, have pushed the issue back into the public eye. The Ulster Farmers Union has been quoted as saying that the "extra evening light could particularly benefit part-time farmers" but the issue remains less prominent in Northern Ireland than in the rest of the UK.
32. In 2005 an IPSOS MORI poll found that 61% of respondents in Greater London and Scotland approved of the proposal to advance the clocks. A 2006 Gallup poll in England, Scotland and Wales found 68% of participants approved of SDST, with this figure increasing to 73% once individuals were informed about road safety findings. Sadly, no current data exists for Northern Ireland specifically, but the aforementioned figures make it reasonable to predict similar support to that found in the rest of the UK.

CONCLUSION

33. Adopting SDST would appear to be an effective, practical and remarkably straightforward way of better aligning our waking hours with the available daylight during the year. The evidence presented in this Memorandum indicates that advancing the clocks would bring Northern Ireland at least as great benefits as those predicted for the rest of the UK.
- The change would create far more opportunities for outdoor leisure in the evenings.
 - It would be a boon for the tourist and leisure industries in terms of revenue and job creation.
 - Later sunset throughout the year would give the great majority of the population more daylight hours to enjoy in the evenings.
 - Most parents would be able to extend the hours that they allow their children to be out and about and the lives of most elderly people fearful of going out after dark would be improved.
 - There would be a small reduction in road casualties and in lighting costs.
 - Most importantly, the great majority of the population could look forward to a marked improvement in their health and quality of life.
 - It has been seen that the grounds repeatedly cited in support of keeping the present time zone have lost much of their relevance since the last time the subject was seriously debated during the 1968–71 trial with the summertime clock retained for three winters.
34. **These conclusions indicate that advancing clocks by one hour in summer and winter would bring Northern Ireland at least as great benefits as those predicted for the rest of the UK. This is of particular note in terms of leisure opportunities and the improvement in the health and quality of life of its population. These benefits appear to add up to an exceptionally strong case for the reform under consideration.**

35. In the circumstances, it would be difficult to argue against the proposal contained in Rebecca Harris' Private Members Bill for the Government to conduct a cross-departmental analysis aimed at gathering evidence of the wide-ranging consequences. If, and only if, that revealed that the change was likely, on balance, to benefit the UK, a three-year trial would be undertaken before a final decision was reached to make it permanent.

REFERENCES

The statements in this Memorandum are largely based on the three Policy Studies Institute reports below, together with relevant data drawn from Northern Ireland sources.

Hillman, M., *Making the Most of Daylight Hours*, 1988.

Hillman, M., *Time for Change: setting clocks forward by one hour throughout the year – A new review of the evidence*, 1993.

Hillman, M., *Making the Most of Daylight Hours: the implications for Scotland*, 2010.