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The Dawn of a New Era: Texas Time

Key Points

- Daylight saving time is a disruptive and antiquated system that should be abolished. In its place, the Legislature should establish “Texas Time.”
- By creating Texas Time, policymakers can stop the twice-annual clock change, fix one permanent standard, and set Texas apart.
- Ending the time change mandate would honor Texas’ spirit of independence and create a better environment for public health and wellness.
- Since 2015, at least 350 bills and resolutions have been introduced in almost every state to permanently observe daylight saving time or standard time.

Executive Summary

For a variety of economic and logistical reasons, the United States has sought to devise ways to control the passage of time. Its chief implement has been through the use of daylight saving time, which Washington officialdom has used to manipulate the amount of sunshine available during the workday and chase after energy savings. While well-intentioned, the twice-per-year time-change mandate has engendered certain unintended consequences, like giving rise to minor negative health effects. It has also proven to be deeply unpopular with the public, as borne out in numerous polls. In light of these factors, the Lone Star State should stop its observance of this disruptive system. Instead, the Texas Legislature should pass legislation affording Texans the opportunity to choose one permanent standard to live under. And it should be called “Texas Time.”

What Is Daylight Saving Time?

The United States currently observes daylight saving time (DST) from the second Sunday of March through the first Sunday in November. During the months of November through March, standard time is observed. Both DST (otherwise known as summer time) and standard time (winter time) are connected to Coordinated Universal Time (UTC). UTC is “an international time standard calculated by atomic clock and incorporating occasional leap seconds to compensate for changes in the rotation of the earth. Coordinated universal time serves as the basis for standard time around the world” ([American Heritage Dictionary, 2022](#)). UTC is the basis for the world’s time zones according to how far a particular location is from the prime meridian. The prime meridian crosses through Greenwich, England, at 0 degrees longitude, and each hour of difference from noon time in Greenwich equals 15 degrees of longitude ([National Oceanic and Atmospheric Administration, n.d.](#)). Fifteen degrees is due to the earth’s rotation (360 degrees) within a 24-hour period.

While most recognize what DST does, they do not all agree on how and why it was created. One account of its genesis is derived from a satirical essay written by Benjamin Franklin in 1784 ([Franklin Institute, n.d.](#)). While visiting Paris, Franklin pointed out that if Parisians woke up with the sun, they would save money by using less artificial light (e.g., candles, lamps, etc.). Some consider the essay to be the first recommendation of the daylight saving concept. However, Franklin merely suggested an economical alternative to candles and oil lamps as a satirical message, not an effort to alter how Parisians handle time. For the United States, the handling of time remained in the hands of local authorities until advancements in technology compelled a reevaluation ([U.S. Department](#)

Time zones were officially established in 1918 by the Calder Act, otherwise known as the Standard Time Act of 1918, at which time DST also became federally recognized, occurring between March and October.

[of Transportation, 2015](#)). Railroads were among the first industries to require a change in the handling of time.

Time zones in the United States, based on the UTC, were created to standardize time for transportation scheduling purposes ([Bureau of Transportation Statistics, 2021](#)). Railroad companies operated through a coordinated system of multiple time zones in 1883, but the zones were not standardized by the federal government. Time zones were officially established in 1918 by the Calder Act, otherwise known as the Standard Time Act of 1918, at which time DST also became federally recognized, occurring between March and October ([Clark & Cunningham, 2020](#)). The implementation of DST was an effort by Congress to support the war effort through fuel conservation by providing an additional hour of daylight ([Matulka, 2014](#)). Following the end of World War I, DST was abolished at the federal level but remained an option for states ([Clark & Cunningham, 2020](#)). During World War II, “war time” was established, which was a year-round DST that advanced all time zones by one hour. The law was implemented once again to conserve fuel but also to “promote national security and defense,” which is why it was nicknamed “war time” ([Lange, 2019, para. 5](#)). Following the conclusion of World War II, the law expired, and the country returned to a state-by-state option.

In 1961, the discretionary authority of the states spurred the Interstate Commerce Commission to reconsider the federal government’s stance in light of the confusing effects different time standards had on commerce, safety, and general convenience ([Clark & Cunningham, 2020](#)). In 1966, congressional leaders passed, and President Lyndon B. Johnson signed, the Uniform Time Act of 1966, instituting the twice-a-year time change with an opt-out clause for states. Currently there are two states, Arizona and Hawaii, who chose to opt out of DST along with four U.S. territories ([U.S. Department of Transportation \[DOT\], 2014](#)).

Following the enactment of the Uniform Time Act in 1966, an oil embargo was executed by the Organization of Arab Petroleum Exporting Countries in 1973 ([Clark & Cunningham, 2020](#)). As a consequence, Congress attempted to again experiment with manipulating time to reduce energy consumption. Thus, it passed the Emergency Daylight Saving Time Act in 1974, creating a two-year trial run for permanent DST to alleviate high fuel prices ([H.R.11324, 1973](#)). Congress exempted Hawaii and 11 states with two time zones within their boundaries, creating a permanent loophole within the Uniform Time Act of 1966. For 10 months, most of the United States remained under “spring forward” (one hour ahead) until the program was suspended in October 1974 (Downing, 2009, p. 140).

Since then, DST has seen its dates extended in the 1980s and the 2000s (Downing, 2009, pp. 145, 173). Currently, the United States follows the final extension from the Energy Policy Act of 2005 where, in yet another attempt at fuel conservation, the federal government stretched DST to begin the second Sunday of March and end the first Sunday of November ([Almanac, 2022; H.R.6, 2005](#)). Following both extensions, only two states (Hawaii and Arizona) chose to opt out through the state loophole of the Uniform Time Act of 1966 ([Ducharme, 2017](#)). A handful of U.S. territories have also opted out over the years. However, the debate on DST’s usefulness remains the subject of much contention. Between 2015 and 2019, 45 states introduced some form of legislation supporting a change to the summer observance of DST ([Clark & Cunningham, 2020](#)).

A 2019 poll conducted by the National Opinion Research Center ([2019](#)) at the University of Chicago determined that 71% of those polled wished to stop changing their clocks twice a year. Among those in favor of ending it, Americans are split on the details (40% support standard time while 31% support permanent DST). Thus, while there is majority consensus on ending the time change mandate, there is no agreement on when the clock should strike midnight.

Shedding Light on a Dark Situation

Surveying the Status Quo

Supporters of the status quo argue that there are numerous benefits to today’s system, including that it enables Americans to save energy. This is the primary justification for daylight saving laws; however, the gains are small. According to a U.S. Department of Energy ([2008](#)) study, the more efficient use of daylight facilitated by DST saved an estimated 0.5% in total electricity per day. Similarly, a meta-analysis, conducted in 2017, “collect[ed] 162 estimates from 44 studies and [found] that the mean reported estimate indicates slight electricity savings: 0.34% during the days when DST applies”

([Havranek et al., 2017, p. 1](#)). In all, the meta-analysis included 21 different countries in their survey.

Another argument offered in support is that the time change improves community safety. A 2015 study reported that, “daily cases of robbery, a violent and socially costly street crime, decrease by approximately 7% in the weeks after DST begins, with a 19% drop in the probability of any robbery occurring” ([Doleac & Sanders, 2015, p. 1094](#)). The idea of crime reduction would seem plausible following the extension of daylight further into the evening as more light provides additional security and deterrence of criminal activity. In addition, Doleac and Sanders ([2015](#)) found that, “Using the social cost of crime, we estimate that the benefit of the 2007 shift of DST was a national decrease of \$246 million in social crime costs per year, a nationwide social savings of \$12 million per hour of additional ambient light during high-crime hours” ([p. 1094](#)).

A third argument is more anecdotal than statistically significant due to a lack of adequate research. According to one study ([Goodman et al., 2014](#)), an extension of daylight into the evening offers additional time for outdoor activity. An added hour of sunlight might encourage more people, including families, to participate in leisure and physical activity. According to Goodman et al.’s research on children in Europe and Australia, there was a slight increase in daily physical activity enabled by the additional hour of daylight in the evenings. Together, these arguments represent much of the justification for continuing under the current standard.

Weighing the Arguments for Change

On the other side of the issue, change agents suggest that the biannual time change is detrimental to public health, increases energy consumption in some areas, and is a drain on economic output.

The DOT offered a report on the potential effects of year-round DST following the trial run between 1974 and 1975 ([Clark & Cunningham, 2020](#)). The results were inconclusive due to an inability to separate the change from other issues, like fuel constraints and other roadway reforms ([Ebersole et al., 1975](#)). During congressional hearings related to the DOT report, Rep. Charles Rose of North Carolina referred to DST as something akin to an old Native American quote: “the white man cutting an inch off the bottom of his blanket and sewing it to the top to make it longer’ would seem to apply to its savings of energy” (Downing, 2009, p. 143). In 2008, the Department of Energy determined the amount of energy saved through DST in the southern regions of the United States was negligible ([U.S. Department of Energy, 2008](#)). Similarly, Havranek et al. ([2017](#)) conducted a meta-analysis that found that

When a person’s circadian rhythm falls into misalignment, it can create the conditions for minor ailments to arise. The internal biological clock affects every aspect of the body, and with any sort of disturbance come significant pathophysiological consequences.

the estimated electricity savings increase with higher latitudes (which translates to more savings for countries farther away from the equator). Our results suggest that the effect of latitude can not only offset the effect of various estimation methods but can also easily outweigh the mean estimated savings and imply increased electricity consumption due to DST for countries closer to the equator. (p. 4)

Given Texas’ location, some of the same effects might also be applicable here, especially in comparison to other northern states.

In addition, opponents of the biannual change say DST might create health issues linked to the effects on the body’s natural clock. A person’s body clock operates on a 24-hour cycle synced to the earth’s rotation around the sun whereas the societal clock operates primarily on an artificial time-frame. When a person’s circadian rhythm falls into misalignment, it can create the conditions for minor ailments to arise. The internal biological clock affects every aspect of the body, and with any sort of disturbance come significant pathophysiological consequences ([Herzig, 2019](#)). According to a *Journal of Clinical Medicine* article ([Manfredini et al., 2019](#)), the risk of acute myocardial infarction (AMI) modestly increases among adults following DST transitions. Another health-related concern among the larger population is related to loss of sleep. Clocks shifting ahead one hour during the spring suggests every person sacrifices one hour of sleep for one additional hour of daylight. A lack of sleep disrupts the circadian rhythm, which requires a daily reset largely dependent upon light exposure ([Pacheco & Rehman, 2021a](#)).

Besides cardiovascular problems, neurological disorders can also result from the misalignment of a person’s internal clock. Cluster headaches become a common occurrence among the sleep-deprived, along with disruptions in an individual’s

blood sugar levels leading to complications for people with diabetes ([Herzig, 2019](#)). For example, when studying the effects of morning versus evening light treatment for patients with winter depression, the author found that additional morning light sped the onset of dim-light melatonin,¹ becoming more antidepressant for the patient than evening light, which delayed its start ([Lewy et al., 1998](#)).

Further health-related issues may arise due to what is considered social jetlag, which refers to “differences in sleep timing between work and free days leading to a considerable sleep debt on work days, for which they compensate on free days” ([Wittman et al., 2006, p. 497](#)). Dr. Till Roenneberg et al. ([2012](#)) suggest an association between increased body mass index (BMI) and the level of social jetlag, potentially contributing to the obesity epidemic. Sladek et al. ([2020](#)) studied chronotypes² in the Czech Republic to determine whether DST or standard time was more favorable. The blood samples collected revealed a correlation between late chronotype (late risers) and predominately higher BMI among women, which is associated with a more adverse cardiometabolic health state than men. A similar study ([Feliciano et al., 2019](#)) corroborates these findings among adolescents with an association between late chronotype and BMI in girls but not in boys.

For families, the health and well-being of children is an essential part of daily decision-making. Light sensitivity can be an issue for families with younger children due to its effect on the body’s natural clock ([Crowley et al., 2015](#)). An increase in light sensitivity may delay the body’s melatonin production. A delay in melatonin production results in a later bedtime thereby exposing young children to a greater risk of social jetlag that could affect their daily routine, including schooling. The result of modifying the natural clock appears to have a more significant effect on pre-pubescent children, with older adolescents experiencing a delay due to light exposure rather than sensitivity. There appeared to be no difference among the groups due to early morning light exposure.

Time Is Money

Sleep cycle disturbances may easily affect the workplace and school. As sleep deprivation and cognitive problems grow, the risk of preventable accidents increases as does the negative economic effects associated with such events. For example, motor vehicle accidents increase following the spring forward and decrease during the November fall

back ([Coren, 1996](#)). A more recent study revealed that DST increases motor vehicle accident risk by 6%, with more prevalence during the morning hours and further west in a time zone ([Fritz et al., 2020](#)). According to the Centers for Disease Control and Prevention ([CDC, 2017](#)), motor vehicle injuries cost the nation \$44 billion per year in medical and work loss costs. In addition, sleep deprivation resulting from time changes increases the probability of being involved in a vehicle crash by 46% ([Smith, 2016](#)). Such a result would indicate that the twice-per-year time change not only creates an unsafe environment for people but threatens economic prosperity considering that almost 90% of Americans travel by automobile ([Center for Sustainable Systems, 2021](#)).

For those able to arrive at work safely, sleep deprivation still increases the risk of workplace injury. In 2005, the Texas City oil refinery explosion resulted in significant damage, including 15 dead and 180 injured. The final report released by the U.S. Chemical Safety and Hazard Investigation Board ([2007](#)) concluded that employee fatigue was a major cause of the explosion. The Texas City explosion was not a result of DST, but the incident is one consequential example of how vital adequate rest is in preventing injury in the workplace. The anecdote is supported by research also, with one study finding:

Results indicate that, on average, 3.6 more injuries ($p < .01$) and 2,649 more days of work were lost because of injuries ($p < .05$) on days following phase advances than on non phase change days. Not only does this represent a 5.7% increase in the number of injuries on these days but a 67.6% increase in days work lost because of these injuries, representing a considerable increase in injury severity on days following phase advances. ([Barnes & Wagner, 2009, p. 1310](#))

From an economic standpoint, workplace accidents harm not only the labor force but also the company’s output. A delay in production translates into a loss in profit, and while Benjamin Franklin may or may not have been the originator of DST, he did originate the axiom “Time is Money” ([Franklin, 1748](#)). Various industries like tourism, retail, and travel consider DST good for business because of the additional daylight hours ([Victor, 2016](#)). According to the golfing industry, when the debate to extend DST occurred between 1984 and 1986, the move had the potential to add \$46 million in additional sales and increase industry-wide revenue from \$200 million to \$400 million in 1986

1 Melatonin is “a hormone that your brain produces in response to darkness. It helps with the timing of your circadian rhythms (24-hour internal clock) and with sleep. Being exposed to light at night can block melatonin production” ([National Center for Complementary and Integrative Health, 2021](#)).

2 Chronotype is defined by the Sleep Foundation as “the natural inclination of your body to sleep at a certain time, or what most people understand as being an early bird versus a night owl” ([Pacheco & Rehman, 2021b, para. 1](#)).

dollars (Downing, 2009, p. 148). In order to promote their message, chambers of commerce in New York and Boston pushed the narrative that DST would help the working man, despite the general make up of both bodies being replete with the well-to-do (Downing, 2009, p. 20–22).

Despite the chambers' narrative, there are indications that DST may actually harm companies' bottom line. One study found that

The magnitude of the daylight saving effect, roughly 200 to 500 percent of the regular weekend effect, is both statistically and economically significant in several international financial markets. In the United States alone, the daylight saving effect implies a one-day loss of \$31 billion on the NYSE, AMEX, and NASDAQ exchanges. (Kamstra et al., 2000, p. 1010)

As shortened sleep on a given day is associated with multiple factors, the unintended addition of DST shortened sleep along with other sleep loss factors cost approximately 2% of the gross domestic product (Hafner et al., 2017).

Shortened sleep affects workers' productivity. Gibson & Shrader (2015) found tired people to perform poorly in daily activities resulting in less productivity, an impediment to human capital development, and direct costs on society. A simple solution would be to ensure people receive quality sleep, but in a culture saturated with stimulation, laying down earlier may be difficult (Sun, 2020). However, implementing changes that respect man's natural clock would be a better alternative long-run. An earlier sunset encourages people to sleep earlier, and since work and school will start at the same time regardless of when you go to sleep, an earlier bedtime could mean more sleep for some and better quality sleep for others (Hamernesh et al., 2008). Even one additional weekly hour of sleep can increase worker wages—by 1% in the short run and 4.5% over the long run (Gibson & Shrader, 2015).

“Texas Time” Is Texas Independence

Interest grows nationwide in ending the time change mandate. Consider a recent report from the Congressional Research Service (Clark & Cunningham, 2020) which found that

since 2015, at least 45 states have proposed legislation to change their observance of DST. These efforts include proposals to exempt a state from DST observance, which is allowable under existing law, and proposals that would effectively establish permanent DST, which would require Congress to amend the Uniform Time Act of 1966. (Summary)

In Texas, state lawmakers have filed bills to end DST in previous legislative sessions; however, none have advanced further than a committee hearing.

Another source reports that “Most all of the states have considered legislation over the last several years that would place the state permanently on either standard time or daylight saving time. Since 2015, at least 350 bills and resolutions have been introduced in virtually every state” (National Conference of State Legislatures, 2022, para. 3).

In Texas, state lawmakers have filed bills to end DST in previous legislative sessions; however, none have advanced further than a committee hearing. A few notable examples include House Bill 2400 (2017) that would have required Texas to opt out of DST requirements under the Uniform Time Act of 1966. The intent of HB 2400 was to exempt Texas from having to change its clocks twice per year. In the following legislative session, Texas once again saw an attempt to end DST via a constitutional amendment with the introduction of Senate Joint Resolution 59 (2019). This constitutional amendment would have transferred the final decision to voters if it had passed. Also in 2019, legislators introduced and considered House Joint Resolution 117 and House Bill 3784 to allow for a state-wide referendum on the preference for either standard or year-round daylight saving time (HJR 117, 2019; HB 3784, 2019). None successfully reached the governor's desk, but each piece of legislation signaled significant interest in the Texas Legislature on the matter of ending the biannual time change.

In 2023, the Texas Legislature would do well to reintroduce legislation that establishes one permanent standard, that is, “Texas Time.” In doing so, state lawmakers would not only eliminate the time change mandate but also preempt any further health and economic concerns as well as appeal to the spirit of Texas independence.

Let Texas Decide

No matter what permanent standard Texas chooses to replace the current system with, the road runs through the state Legislature. According to the Uniform Time Act of 1966, any state may exempt itself from DST provided the entire state observes standard time (S.1404, 1966). For states seeking year-round DST, the enacted legislation must await a similar measure passed by the federal

legislative branch ([Ali, 2021](#)). An amendment must be made to the Uniform Time Act of 1966 to allow states to recognize year-round DST. The requirement to first amend the UTA places much of the power in the hands of the federal government rather than individual states.

That said, members of the Texas Legislature can still introduce and pass legislation with the same goal in mind: ending the time change mandate. Different approaches have been made with direct state action ([HB 2400, 2017](#)) and constitutional amendments with statewide referendums ([SJR 59, 2019](#); [HJR 117, 2019](#)). These efforts should continue with a renewed focus on creating “Texas Time” during the 2023 legislative session. The provision of additional research as it pertains to time change on health and workplace productivity will offer legislators additional support to advance any time change opt-out legislation. Furthermore, if other states that currently follow DST, like Oklahoma,

are successful in ending the time change mandate for their state, then that may spur Texans to act similarly.

Conclusion

Daylight saving time was created at a time when conserving resources was considered important to the war effort abroad. Advocacy efforts by the engines of commerce compelled state and federal governments to maintain the yearly ritual. As energy efficient technology continues to improve, the workweek evolves, and a more health-conscious population emerges, the concept of time change has continued to lose support, as consistently evidenced in public opinion polls. Health becomes a more prevalent issue, so why not improve it by reducing chronic maladies for some, helping safeguard our children, and offering restful relief to more Texans? Increased productivity at the workplace and in the classroom will keep Texas on its path toward prosperity. ★

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