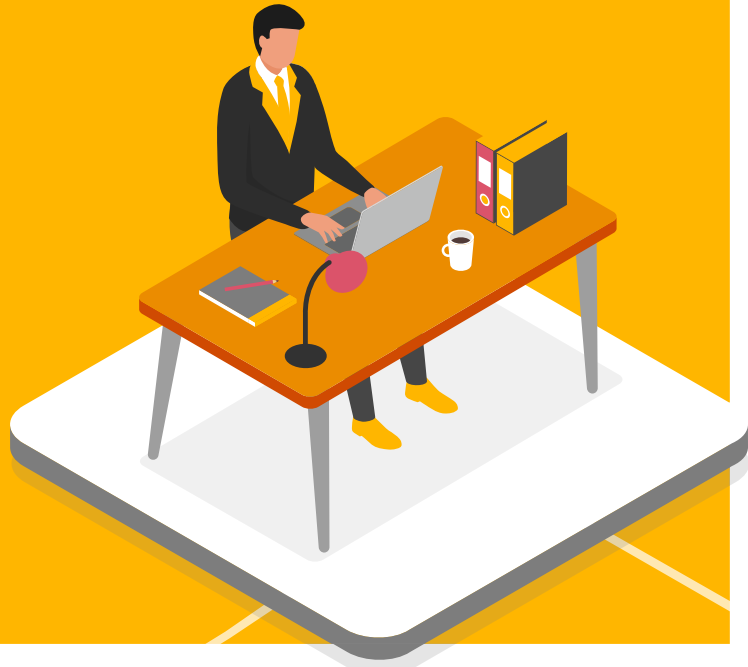


The best of both worlds

Hybrid working does not make us poorer, but does make us happier



The best of both worlds

Working from home has become commonplace, but debate continues

Working partly from home and partly from the office has not made the Netherlands poorer, but the workers involved are happier. Working partly from home does not lead to reduced production and it has a positive impact on employees' mental and physical well-being. So-called hybrid working however can have a negative impact on innovation.

These are some of the main conclusions of this research on hybrid working. Back in 2020, PwC also conducted research on the costs and benefits of working from home when workers were forced to do so by Covid-19. After the pandemic, many people continued to work from home for a number of days. The Netherlands leads the way in this with more than half of the workforce working partly from home. Hybrid working has become acceptable to both employers and employees and even institutionalised in legislation.

However, we still regularly see and hear reports in the media and in our own practice about organisations struggling with it, mostly around employers who would like to see their people in the office a bit more. The debate about the potential impact of remote working is expected to continue. With this research, we look at all the new data and studies that have become available in recent years and try to separate facts from opinions and anecdotal evidence.

Most employees are happy working from home, but what is the impact on innovation?

A review of the latest data and several new studies indicates that working from home two to three days a week has significant benefits, especially in the form of improved employee well-being and

lower emissions. Yet the research also outlines potential negative consequences: most prominently, lower employee collaboration, leading to less innovation. The fact that the impact on innovation cannot (yet) be fully quantified raises several red flags. Will the long-term benefits of working from home outweigh the costs of lower innovation? More importantly, is a euro benefit from improved well-being comparable to a euro lost as a result of less innovation?

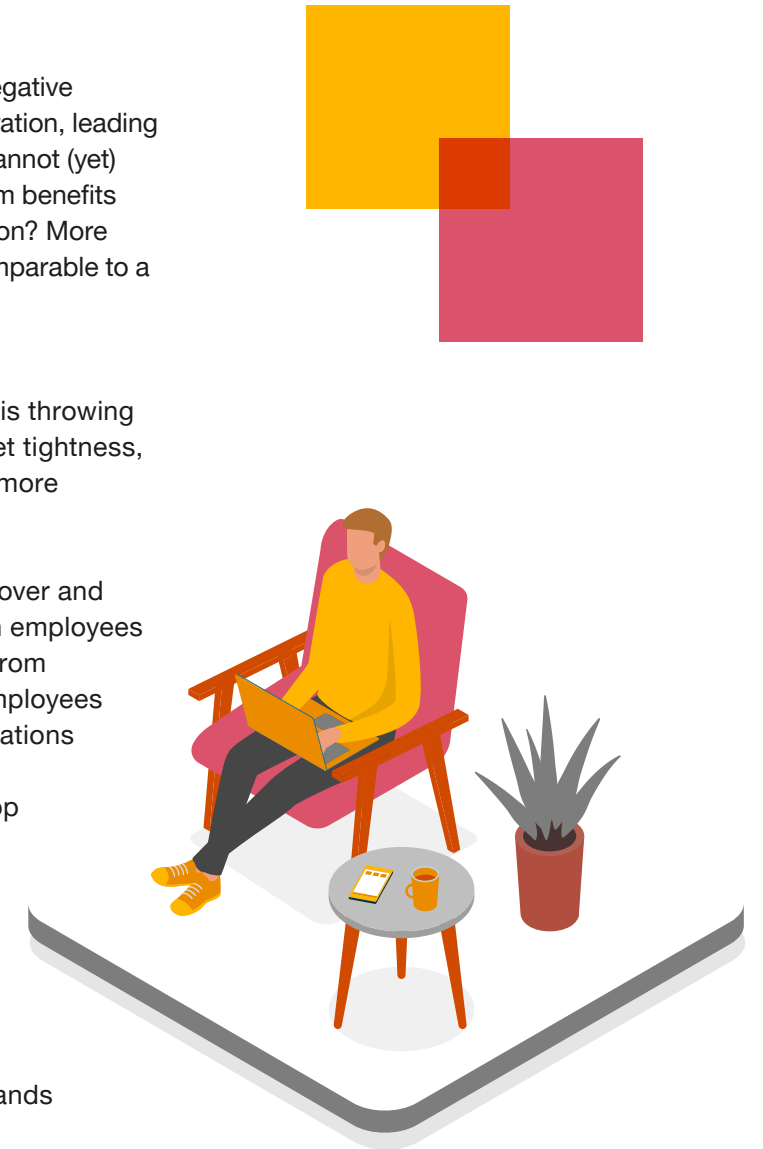
Optimise balance between home and office

Forcing people to return to the office five days per week is throwing the baby out with the bathwater. In times of labour market tightness, offering flexible working arrangements make employers more attractive which can be a competitive advantage.

Nonetheless, note that the results of this study are high-over and about averages. Ultimately, employers need to work with employees to see how they optimise the balance between working from home and office. In the sense of: what is good for the employees and what is good for the employer. For example, organisations can develop ways to measure internal collaboration and innovation. That gives them actionable insights to develop strategies to minimise any negative impact of remote working while the benefits are being captured for both parties and ultimately, therefore, for society as a whole.

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Jan Willem Velthuisen, Chief Economist, PwC Netherlands



Introduction: what are the costs and benefits from hybrid working?

During the first year of the pandemic most companies faced the unprecedented challenge of facilitating working from home for most (if not all) of their employees. To help clients navigate through these extraordinary circumstances, we published two studies that looked into the effects of the rise of working from home^{1,2}. Although most things have returned slowly to pre-pandemic normality, working from home has stuck, particularly in the Netherlands. As seen in Figure 1, the Netherlands has the highest percentage of hybrid and fully remote workers in the European Union (EU) – 53 percent of all workers reported working from home usually or sometimes in 2022, only marginally lower than in 2021. Therefore, in this follow up piece, we set out to observe the actual costs and benefits of hybrid work by looking at the latest data and research. For the sake of clarity, we use the phrase ‘hybrid’ to refer *exclusively* to work policies that allow for a mix of onsite and home office days.

At the start of the Covid-19 lockdowns, we estimated that when people work one day more from home relative to the pre-covid situation, the Netherlands could see benefits amounting to €3.9 billion annually.

These were primarily driven by less travelling for employees (accounting for over 30% of total benefits), smaller office costs for employers (over 25% of the total benefits), and lower CO₂ emissions. However, our estimation model also indicated that hybrid setups could cost the Netherlands up to €1.5 billion annually due to lower innovation and less people engagement. It is important to note that since these costs and benefits

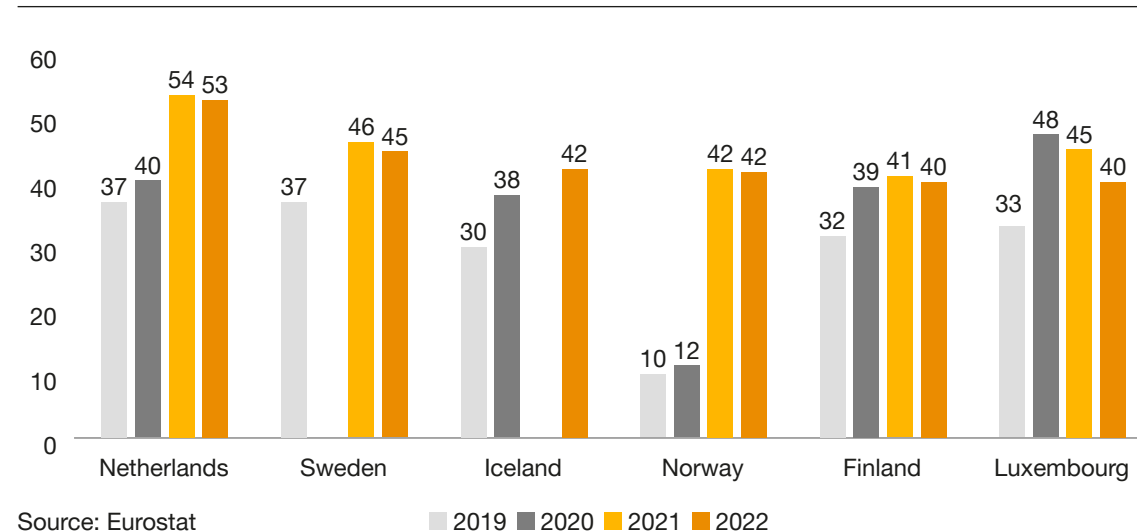
impact different groups of people differently, the benefits do not compensate for the costs directly. We noted that it was difficult to quantify up-front the effects of hybrid work on productivity, employee turnover, and absenteeism, because of limited research and data.

With this piece, we look at the latest figures from CBS, ILO, Eurostat, OECD and the

Dutch Brokers Association. Based on the latest data, we evaluated how hybrid work is being adopted and continued. In the data we observed changes between 2020 and 2022 – on yearly travelled distance and CO₂ emissions. We also found insights on output, productivity, employee well-being, innovation, as well as office rents and value, based on the latest research in Europe and the United States (US).

This body of empirical evidence indicates that our 2020 estimates were largely correct. Indeed, there are large benefits to hybrid policies in the short and medium term. There are costs associated with it as well, and as in our previous research, we stress that these benefits cannot directly offset the costs, such as from lower employee collaboration and innovation. There is also a difference between the realisation of these costs and benefits – innovation and coordination ‘costs’ arise only in the longer term, while benefits such as lower office expenses are a direct and immediate consequence. Moreover, while this research addresses the general, overall impact of hybrid working, the individual impact for a company is heavily dependent on its industry, its business model and value propositions, and culture.

Figure 1 EU countries with the highest proportion of hybrid workers (respondents who answered ‘usually’ or ‘sometimes’)



¹ All footnotes are found at page 13.

The main conclusions: happier, greener and not poorer

- **The effect of hybrid work on productivity remains unclear but output has not gone down.** One group of studies concluded that hybrid work does not hinder output and in fact could increase it slightly. However, it seems that these output increases are due to more working hours under hybrid work policies. Since time inputs have grown while output has stayed roughly the same, it could be argued that hybrid work has decreased productivity (*if defined as output per hour worked*). This is more akin with a separate line of research, which related *fully remote* work with productivity decreases that range between -4 and -19 percent.
- **Hybrid work could be linked to less collaboration, employee engagement and innovation, which could hinder productivity in the long-term.** As expected in our previous study, as working from home frequency increases, innovation seems to decrease because online collaboration seems less effective than face to face interactions. Similarly, employees (and especially new hires) find it harder to connect and provide feedback to their colleagues through online means.
- **The effect of hybrid work on employee turnover rates, absenteeism, recruitment costs and wages remains unclear.** Although US and European researchers argue that hybrid schemes could reduce all four variables, difficulties attracting and retaining talent as well as the general rise in wages and absenteeism rates could suggest a different effect in the Netherlands. However, it might be the case that these developments are the result of a tight labour market and would have been more pronounced without widespread hybrid working conditions.
- **Hybrid work policies significantly boosts employee mental and physical well-being for most people in the short and medium term.** Nonetheless, working from home more than three days a week is associated with lower mental health outcomes. Moreover, extroverts, new hires, and managers could experience mental well-being decreases because they feel a need for more in person interaction during their work day.
- **Hybrid setups helped to reduce CO₂ emissions from mobility** by five megatons relative to the pre-Covid average (2013-2019)³. We also observed a 12,807 million km reduction in total distance travelled in the Netherlands between 2019 and 2021.
- **Hybrid work has reduced demand for office space, which could result in lower rents but also lower valuations.** By extrapolating US estimates, we expect a decrease in office space value of up to 39 percent over the next decade. Locally, the value of Dutch offices has already declined by 30 percent as of 2023⁴. However, there are other factors at play, such as uncertain macroeconomic conditions, inflation, and higher interest rates.

It is worth highlighting three limitations of this paper. First, in our previous research we took into account more granular variables such as catering, gas, electricity, internet, and childcare costs. These variables could not be evaluated for the post-Covid period due to insufficient data. Secondly, some longer term effects of hybrid work such as (potentially lower) investments in infrastructure, public transportation operational expenses, and firms' profitability will only be seen in the data over the coming years. Hence, even when the data was available for these metrics, we excluded them from this analysis. Lastly, it is worth mentioning that highly educated office workers are overrepresented in some of the studies we cited. These factors, together with some inconclusive results, open the door to further research in the future.



Benefits to employers

In 2020 we estimated that hybrid work could help employers to **reduce office costs**, most notably rent expenses. In addition, our studies suggested that it could also be associated with **lower employee turnover** but **higher absenteeism**. Lastly, we also reported **uncertain effects on productivity**; some workers could be more productive by working hybridly while different people engaged in other tasks could experience the opposite.

Our current findings are in **agreement** with our **previous estimates** about **office expenses**. However, there are still **uncertainties** regarding the impact of hybrid work on **employee turnover rates, absenteeism, productivity, recruitment and wage costs** in the case of the Netherlands. This is because of limited data and the impact of external factors such as inflation and labour demand.

Companies are reducing office space resulting in lower costs

When it comes to office expenses, the average Dutch firm could expect to save €119 per square metre in yearly rental costs⁵ by alternating the days each team works from home. The effect is particularly pronounced in high-end business districts like Amsterdam's ZuidAs, where yearly rent

expenses go up to €500 per square metre⁶. Consequently, several major companies in the Netherlands are wondering whether to reduce office space at the moment⁷ which is already impacting occupancy. For example, ZuidAs' occupancy rate remains 29 percentage points lower than the pre-Covid average, even after rebounding during 2022⁸. A similar dynamic is playing out in other business centres such as London and New York, where occupancy rates are 50 percentage points lower than pre-Covid^{9,10}.

Research concludes employee turnover and absenteeism rates decrease, but in practice it is not so clear

Experimental research concluded that allowing staff to work hybridly lowers turnover rates by 33 percent among *most* employees¹¹. However, it is not clear whether the same dynamic is playing out in the Netherlands due to the current labour shortage. Although Dutch companies have been offering generous hybrid schemes, recent data shows that a record number of people are switching jobs¹² and that almost half of Dutch employers have trouble retaining talent¹³. Yet, it could also be that the situation would have been worse in the absence of hybrid working schemes, as a quarter of workers declared that they



would quit were work from home policies be removed from their firms¹⁴. Therefore, although research conducted in the US and China suggests that hybrid work lowers turnover rates, its exact effect among Dutch workers remains inconclusive. We observed a similar dynamic when it comes to absenteeism rates, which increased from a pre-Covid average of 4 percent to a historic

record of 5.6 percent¹⁵. Nevertheless, the exact role of hybrid setups in this situation is not clear either. Research suggests that the spike in absenteeism rates is due to the current labour shortage¹⁶, which, as mentioned earlier, could have been more dramatic in the absence of hybrid work options.

The impact of hybrid work on wages and recruitment costs is unclear too

In a similar way, the effects of hybrid work on Dutch wages and recruitment costs are in a grey area. On one hand, US research indicates that hybrid setups can be used to curb wage growth pressures, as employees are willing to trade off a portion of their salary for flexibility¹⁷. For example, the average willingness to pay for hybrid work policies in the Netherlands equals 4.2 percent of an employee's earnings¹⁸, roughly equivalent to €1,400 per year¹⁹. In addition, these schemes are associated with higher company recommendations in the labour market²⁰. In principle, these factors would imply that hybrid work could reduce the wage bill and lower recruitment costs.

Yet, talent retention remains hard and wages high, even though the Netherlands is the one of the European countries with the most generous hybrid work opportunities²¹. For example, in 2022, the average net yearly wage for a single Dutch worker was €34,790²². In contrast, the EU average figure stood at €24,373, almost a third less²³. Therefore, it could be that hybrid work in the Netherlands plays out rather differently than what American researchers suggest. Or it might also be possible that these dynamics would have been stronger without it.

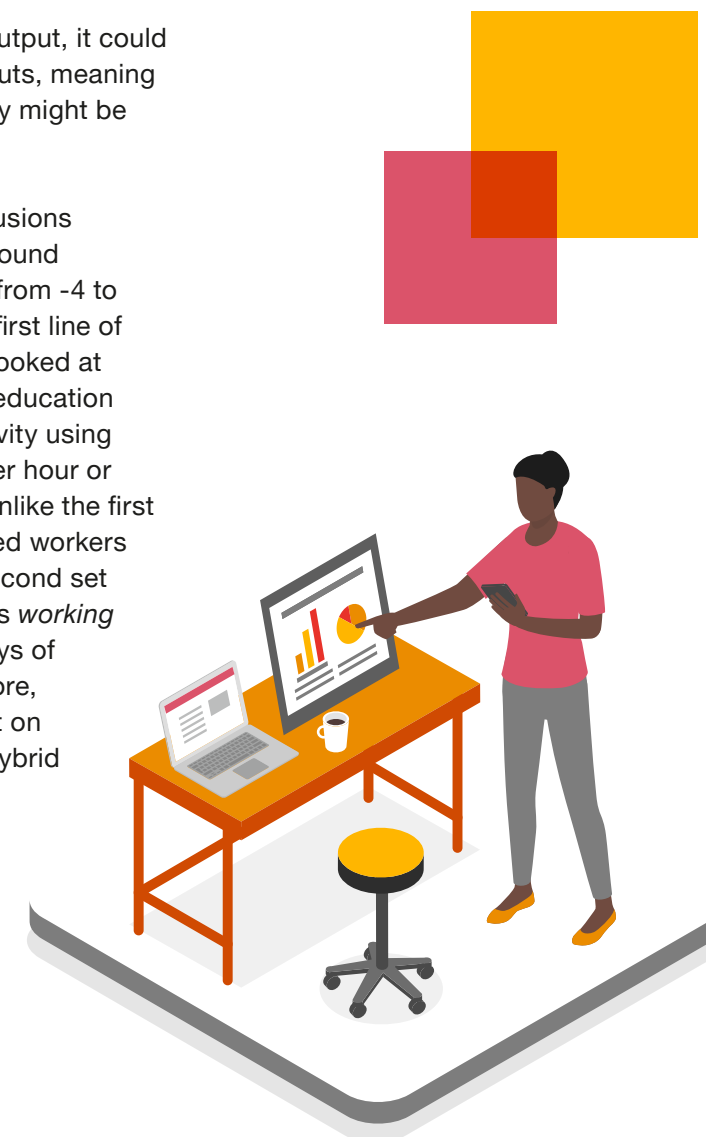
Impact on productivity and output also remains vague

On one hand, a group of three major studies^{24,25,26} concluded that hybrid work policies do not reduce productivity nor output and could even improve both of them slightly (at least in the medium term). This was the case for workers with all kinds of education levels and regardless of whether productivity was measured by management reports, self-assessments, or 'objective' metrics like lines of code written or customer calls per hour. The researchers suggested that this could be due to a more comfortable and quieter work environment in conjunction with tasks that did not need plenty of collaboration. More aggregate data seems to support this conclusion, as we observed that the Netherlands' output per worker rose by 3.4 percent relative to the pre-Covid average²⁷ despite widely extended hybrid work policies.


Yet, as The Economist²⁸ points out, the improvements found in one of those landmark papers were due to employees putting in longer working hours. Another study found a statistically insignificant increase in lines of code written, an 'objective' productivity metric, but a significant three day increase in the number of working days per year. Hence, while

hybrid work might not lower output, it could increase the need for time inputs, meaning that productivity and efficiency might be hindered.

This is more akin to the conclusions of another set of papers that found productivity declines ranging from -4 to -19 percent^{29,30,31}. Like in the first line of research, these authors also looked at workers with a wide range of education levels and measured productivity using 'objective' metrics like calls per hour or typing speed. Nevertheless, unlike the first group of studies which followed workers under *hybrid* schemes, this second set of papers looked at employees *working exclusively online* or with 4 days of home office per week. Therefore, it could still be that the impact on productivity differs between hybrid and fully remote setups.



Benefits to employees



In our previous studies, we concluded that employees would benefit from **working hybridly** due to **lower time commuting and less travel costs**, which would boost (mental) health. We also asserted that in the case of employees with families, well-being improvements would arise by being closer to their children. However, as it will be discussed later in the costs section, we warned that working from home more than three days per week could actually be detrimental to employee well-being.

Recent data on the topic suggests these **2020 estimates** were mostly **correct** in the case of non-managerial office workers. Not commuting provides the average Dutch employee with more than **one hour extra of free time** per day³². A study conducted in 27 different countries (including the Netherlands) indicates that hybrid work leads to **increased feelings of personal autonomy** and **lower** traffic-related **stress**, particularly among employees with long commutes³³. Accordingly, researchers concluded that most people who work hybridly reported **higher** levels of **job satisfaction, life satisfaction, and work-life balance** in the short and medium term.

Hybrid work boosts welfare because it increases time for personal affairs

When looking at how employees use these newly available minutes, we observed that on average, 35 percent of the time saved is dedicated to additional work, while the remaining 65 percent is spent on personal affairs³⁴. Within this latter category, the bulk of time is dedicated to indoor leisure (such as watching TV), house chores, and exercising, which boosts physical health and lowers stress. As expected in our previous studies, hybrid policies are heavily valued by employees with children due to more family time³⁵. For instance, parents with otherwise large commutes could pick up their kids from school or have a family dinner, and then make up for this time working more during office days.

Hybrid policies could have helped to curb the negative impact of the labour shortage

However, Dutch workers have been experiencing record levels of stress and burnout³⁶. How can the Netherlands, with its high rates of hybrid work, experience such a degree of mental distress? According to experts in sickness absence and work functioning this is caused by the current

labour shortage, as people must handle a growing number of tasks while the size of their teams remains the same³⁷. If researchers are correct, and hybrid work actually decreases turnover rates while boosting employee well-being, these policies are actually helping to improve a situation that could have been worse.

However, not everyone benefits from hybrid work schemes

As we will discuss in the costs section in greater detail, we have identified three groups of people that are more prone to feel stressed, isolated, and even burnt out under hybrid setups: extroverts, recent hires and managers. Therefore, it is also important to consider that these benefits are not present across the whole Dutch worker population and might require some active management on the side of employers.

Benefits to society at large

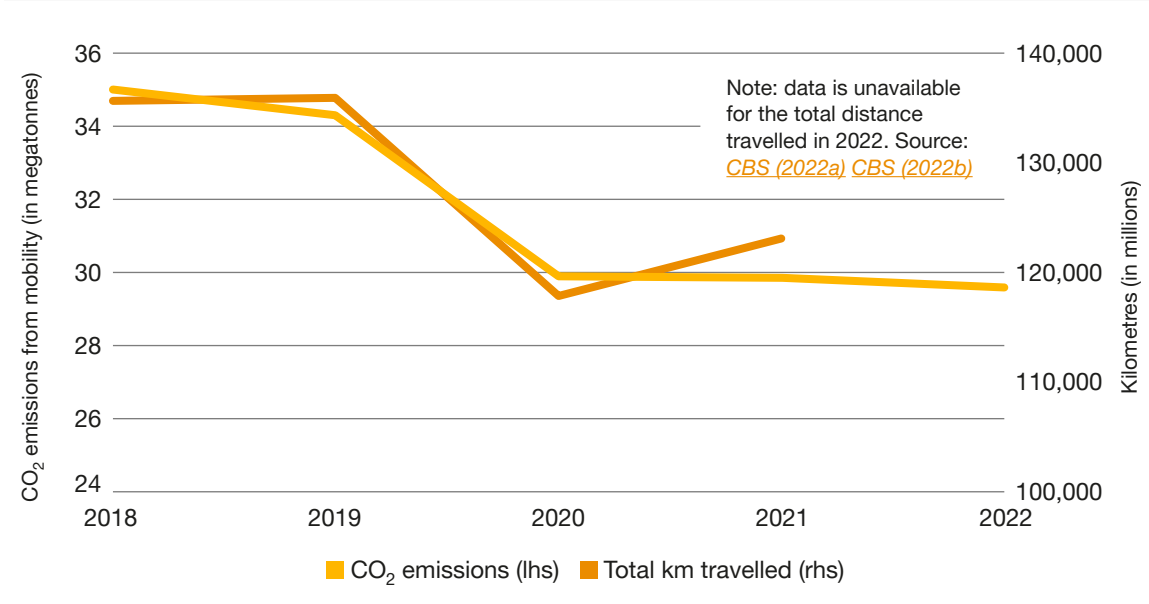
In our previous research we estimated that **hybrid work** would **decrease CO₂ emissions** by 0.6 megatons due to less travelling. We calculated that the decline in emissions would be linked to a **3,648 million km decrease in the total distance travelled** by car in the Netherlands. We estimated that this would have a positive impact on health and would require less infrastructure investment.



Hybrid work reduces the need for commutes, thereby lowering emissions

While the effects on government investment can only be seen in the long-term, we did observe a **reduction in CO₂ emissions** from mobility and total kilometres travelled, both of which could be linked to the rise of hybrid work. Drops were **larger than we initially expected**. As seen in Figure 2, there is a 5 megaton decrease in CO₂ emissions relative to the pre-Covid average. For comparison, the entire agricultural industry in the Netherlands emits around 8 megatons of CO₂ per year³⁸. At current carbon prices, this reduction is worth around €460 million³⁹. While this could be due to increasing deployment of green means of transport, we also observed a **12,807 million km reduction** in the total distance travelled in the Netherlands between 2018 and 2021⁴⁰. Hence, empirical evidence suggests that we could have **underestimated** the magnitude of the **benefits** for society at large.

Figure 2 CO₂ emissions from mobility and total km travelled (2018-2022)



Costs for employers

While hybrid work does have potentially large upsides, our previous studies also acknowledged that it comes with plausible costs that cannot be ignored. We argued that the main cost for employers would be a **decrease in innovation** due to lower face to face interactions and thus **less (effective) collaboration and engagement between employees**. In particular, we assumed a negative linear relationship between working from home and effective collaboration, meaning that a 10 percent increase in working from home would be matched by a 10 percent reduction in collaboration.

Hybrid work could decrease innovation and collaboration

While the latest research does not show a negative *linear* relationship between these two variables, it does suggest that fully remote work decreases engagement, collaboration and innovation^{41,42,43}. If half of the employees at a given firm worked remotely all week, then the subsequent decrease in collaboration would reduce patent citations, an innovation metric, by 11 percent⁴⁴. The competitive context of cutting-edge industries, where innovation is central, makes this figure important. For example, consider the tech industry and start-ups ecosystems, both of which house the biggest advocates of working from home.

If collaboration and innovation are permanently reduced within a firm, then productivity and profits might decrease because the company could be outpaced by stronger competitors. While these studies only looked at the effects of entirely remote work, they also open the possibility that hybrid setups could come with increased innovation costs too which need to be managed to secure effective team collaboration and engagement.

In addition, even if all firms would follow the same steps, thereby eliminating the risks of competition, then hybrid work could still have important macroeconomic consequences. As we move towards a more knowledge-based economy, innovation becomes increasingly relevant for countries. If it is permanently damaged due to the structure of organisations, then we could face lower growth rates and stagnant productivity in the long-run.

Hybrid work is reducing the value and demand of office space

Hybrid work is profoundly changing the office real estate market around the world. For example, it is estimated that working from home will cause a 39 percent reduction in the value of New York City's office space by 2029⁴⁵. The effect is already taking place as

US banks are rushing to exit the office real estate market due to the rise of working from home⁴⁶. A similar dynamic is expected to play out in Dutch office space⁴⁷, whose value has already declined by 30 percent since its peak⁴⁸. Consequently, while hybrid work policies could save costs for firms that rent, it could also negatively affect the balance sheet of firms that own office real estate.



Cost for employees

Our previous research suggested that material costs for employees would rise because of **increased gas and electricity consumption** due to more time spent at home. However, the main potential downside of hybrid working was related to mental health. We expected that **working from home more than three days per week could lead to lower employee engagement**. This is because people might find it harder to maintain a strong bond with their teams through mostly online means. Accordingly, some workers might experience **higher levels of stress, isolation and**

burnout which could amount to annual costs worth €2.8 billion⁴⁹. We deemed this to be particularly important in a country like the Netherlands, where, even pre-Covid, a quarter of the population reported sporadic feelings of loneliness⁵⁰.

The literature suggests that our previous analysis was generally correct. **Hybrid work** is associated with **higher employee well-being**^{51,52}. By contrast, Figure 3 shows that **fully remote work** schemes (and entirely physical setups) are linked to significantly **lower** self-reported **mental health** outcomes⁵³.

Extroverts, new hires and managers are likelier to experience well-being decreases

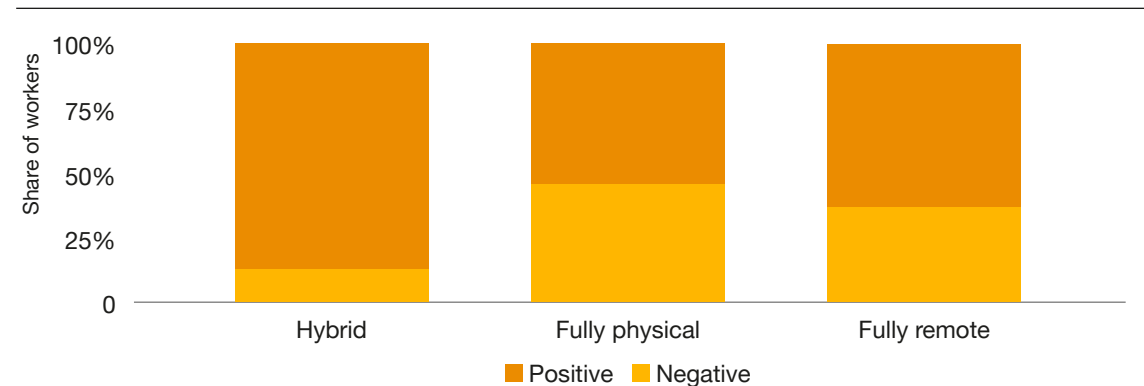
As mentioned earlier, not everyone benefits from hybrid work and we identified three groups who are more vulnerable. First, people who are particularly social could actually be harmed by hybrid work⁵⁴. Extroverted employees might experience more stress, isolation and burnout due to less social engagement, which they deem crucial for their day to day. Second, recent hires, be it trainees, interns, or new full time workers, could actually have difficulties learning on the job and feel disconnected from their new teams⁵⁵. In a recent report, the Financial Times gathered testimonies from new employees in the City of London who reported feelings of frustration and loneliness, as most of their teammates were not present during a large part of the work week⁵⁶. This seems to be confirmed by new research that points out that remote work could decrease collaboration and feedback flows between colleagues, which raises concerns about its long-term effect on employee well-being, professional development and engagement⁵⁷. In addition, given that extroversion or being a new hire is not something under one's control,

hybrid policies could also cause equal opportunity concerns for these two groups, as they could face a structural disadvantage relative to more experienced or introverted colleagues. Lastly, US research concluded that employees in managerial positions are also prone to experience a decrease in well-being⁵⁸. According to experts in work and private life interdependency, a similar situation could be occurring in the Netherlands, as Dutch managers are critical of working from home policies even when employers actively encourage them⁵⁹. Therefore, while there are large well-being increases due to hybrid work, these are not evenly distributed across the worker population.

There are material costs associated with working from home

Lastly, our previous estimates regarding higher electricity and energy consumption were correct. The cost of working from home for Dutch employees amounts to €2 per day or €440 per year when accounting for increased electricity, gas, and water expenses⁶⁰.

Figure 3 Self-rated mental health by type of work setup



Note: estimates based on 1,576 Canadian workers. The sample over represents hybrid workers
Source: [Botner et al. \(2022\)](#)

Costs for society

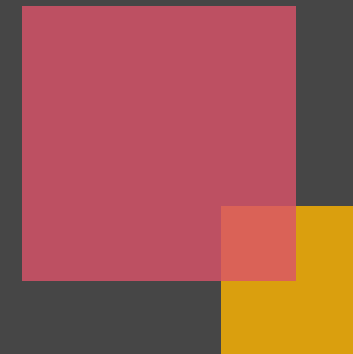
There are distributional concerns associated with working from home policies

In our 2020 study we pointed out that there are also distributional concerns for society as a whole. In particular, we pointed out that hybrid work could lead to a widening welfare gap between people who can work from home and people who cannot. Data by CBS⁶¹ confirms these concerns. In some industries such as agriculture, technical work and logistics, more than 80 percent of employees never work from home. This prompts questions about the distribution of the benefits of working from home, as the gap between office and non-office workers could continue to widen.



Sources

- Aksoy, Barrero, Bloom, Davis, Dolls, Zarate, https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- Arbo Unie, <https://www.arbounie.nl/werkgever/nieuws/verzuim-door-psychische-klachten-in-2023-hoger-dan-ooit>
- Atkin, Chen, Popov, https://www.nber.org/system/files/working_papers/w30147/w30147.pdf
- Barrero, Bloom, Davis, Meyer, Mihaylov, <https://www.nber.org/papers/w30197>
- Berenshot, <https://www.berenschot.nl/media/5a2nj3pu/hr-trends-deel-1.pdf?key=65ef0b07-c3ce-4a49-bf6c-21c0fbd6c758&guid=f5c439e0-e0f4-48ab-a44c-c712d011df40>
- Bloom, Davis, Barrero, <https://cepr.org/voxeu/columns/60-million-fewer-commuting-hours-day-how-americans-use-time-saved-working-home>
- Bloom, Han, and Liang, <https://www.nber.org/papers/w30292>
- Botner et al., <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9517068/>
- Bouwinvest Real Estate <https://www.bouwinvest.com/news/latest-news/2022/bouwinvest-dutch-market-outlook-2023-2025>
- CBS, <https://longreads.cbs.nl/the-netherlands-in-numbers-2020/how-many-people-never-work-from-home/>
- CBS, <https://opendata.cbs.nl/statline/#/CBS/en/dataset/85395ENG/table?ts=1688988785751>
- CBS, <https://www.cbs.nl/en-gb/news/2023/11/greenhouse-gas-emissions-9-percent-lower-in-2022>
- CBS, <https://www.cbs.nl/nl-nl/visualisaties/dashboard-arbeidsmarkt/werkenden/ziekteverzuim>
- Emanuel and Harrington, https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1061.pdf?sc_lang=en
- Euronews, <https://www.euronews.com/next/2023/02/10/want-to-work-from-home-these-european-countries-are-the-most-open-to-hybrid-or-remote-work>
- Eurostat, https://ec.europa.eu/eurostat/databrowser/view/EARN_NT_NETFT/default/table?lang=en&category=labour.earn.earn_net
- Financial Times, <https://www.ft.com/content/3e905e3c-697c-4109-bd9a-605e75a0cfa4>
- Financial Times, <https://www.ft.com/content/5cc8ae2e-765c-43be-9f84-9426408e9609>
- Financial Times, <https://www.ft.com/content/b19797c9-b33a-41f7-953d-551ab393699d>
- Frank Knight, <https://content.knightfrank.com/research/233/documents/en/dutch-office-market-report-2022-9160.pdf>
- Gibbs, Mengel, Siemroth, https://bfi.uchicago.edu/wp-content/uploads/2021/05/BFI_WP_2021-56.pdf
- Gupta, Mittal, Van Nieuwerburgh, https://www.nber.org/system/files/working_papers/w30526/w30526.pdf
- Het Financieel Dagblad, <https://fd.nl/bedrijfsleven/1478894/de-kantoorvloer-is-uitgestorven-op-vrijdag-wat-nu-jsf3ca6dd3SY>
- ILO, <https://ilostat.ilo.org/topics/labour-productivity/>
- Kastle Systems, <https://www.kastle.com/safety-wellness/getting-america-back-to-work/>
- Knab Beib, <https://bieb.knab.nl/inkomsten-uitgaven/modaal-en-gemiddeld-inkomen-per-leeftijd-opleidingsniveau-en-branche>
- Lancée, Veenhoven, Burger, <https://www.eur.nl/en/ehero/media/85023#:~:text=Even%20in%20a%20small%20country,Susilo%20and%20Maat%2C%202007>
- NIBUD, <https://www.nibud.nl/nieuws/thuiswerken-kost-e-2-per-dag/>
- NOS, <https://nos.nl/artikel/2460908-uwv-een-op-de-vijf-werknemers-wisselde-vorig-jaar-van-baan>
- NVM, https://www.nvm.nl/media/1zxhvpi5/nvm_kantorenmarkt_2022_5.pdf
- OECD, <https://data.oecd.org/lprdy/gdp-per-hour-worked.htm>
- PwC, <https://www.pwc.nl/nl/actueel-publicaties/assets/pdfs/pwc-the-costs-and-benefits-of-working-from-home.pdf>
- PwC, <https://www.pwc.nl/nl/actueel-publicaties/assets/pdfs/pwc-working-from-home-part-ii.pdf>
- Remit Consulting, <https://return.remitconsulting.com/resource-centre/41-news-release-uk-office-occupancy-rates-plateau>
- Savills, <https://www.savills.nl/blog/article/348057/dutch/terugkeer-naar-kantoor--of-teruggekeerd-naar-kantoor-.aspx>
- The Economist, <https://www.economist.com/finance-and-economics/2023/06/28/the-working-from-home-delusion-fades>
- TNO, <https://www.rtlnieuws.nl/economie/business/artikel/4916891/werknemers-met-burnout-kosten-nederlandse-bedrijfsleven-28>
- Trading Economics, <https://tradingeconomics.com/commodity/carbon>
- Vastgoed, 2023, De waardedaling van kantoren sinds de top van de markt bedraagt ongeveer 30 procent.



Footnotes

- 1 PwC, <https://www.pwc.nl/nl/actueel-publicaties/assets/pdfs/pwc-the-costs-and-benefits-of-working-from-home.pdf>
- 2 PwC, <https://www.pwc.nl/nl/actueel-publicaties/assets/pdfs/pwc-working-from-home-part-II.pdf>
- 3 For reference, the entire agricultural industry in the Netherlands emitted 8 megatons of CO2 in 2021 according to CBS.
- 4 Vastgoed 2023.
- 5 NVM, <https://www.nvm.nl/media/wrxfaj5s/stand-van-zaken-kantorenmarkt-2023.pdf>
- 6 Frank Knight, <https://content.knightfrank.com/research/233/documents/en/dutch-office-market-report-2022-9160.pdf>
- 7 Het Financieele Dagblad, <https://fd.nl/bedrijfsleven/1478894/de-kantoorvloer-is-uitgestorven-op-vrijdag-wat-nu-jsf3ca6dd3SY>
- 8 Savills, <https://www.savills.nl/blog/article/348057/dutch/terugkeer-naar-kantoor--of-teruggekeerd-naar-kantoor.aspx>
- 9 Remit Consulting, <https://return.remitconsulting.com/resource-centre/41-news-release-uk-office-occupancy-rates-plateau>
- 10 Kastle Systems, <https://www.kastle.com/safety-wellness/getting-america-back-to-work/>
- 11 Bloom, Han, and Liang. <https://www.nber.org/papers/w30292>
- 12 NOS, <https://nos.nl/artikel/2460908-uwv-een-op-de-vijf-werknemers-wisselde-vorig-jaar-van-baan>
- 13 Berenshot, <https://www.berenschot.nl/media/5a2nj3pu/hr-trends-deel-1.pdf?key=65ef0b07-c3ce-4a49-bf6c-21c0fbd6c758&guid=f5c439e0-e0f4-48ab-a44c-c712d011df40>
- 14 Aksoy, Barrero, Bloom, Davis, Dolls, Zarate, https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- 15 CBS, <https://www.cbs.nl/nl-nl/visualisaties/dashboard-arbeidsmarkt/werkenden/ziekteverzuim>
- 16 Arbo Unie, <https://www.arbounie.nl/werkgever/nieuws/verzuim-door-psychische-klachten-in-2023-hoger-dan-ooit>
- 17 Barrero, Bloom, Davis, Meyer, Mihaylov, <https://www.nber.org/papers/w30197>
- 18 Aksoy et al., https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- 19 Eurostat, https://ec.europa.eu/eurostat/databrowser/view/EARN_NT_NETFT/default/table?lang=en&category=labour.earn.earn_net
- 20 Bloom et al., <https://www.nber.org/papers/w30292>
- 21 Euronews, <https://www.euronews.com/next/2023/02/10/want-to-work-from-home-these-european-countries-are-the-most-open-to-hybrid-or-remote-work>
- 22 Eurostat, https://ec.europa.eu/eurostat/databrowser/view/EARN_NT_NETFT/default/table?lang=en&category=labour.earn.earn_net
- 23 Idem.
- 24 Bloom et al., <https://www.nber.org/papers/w30292>
- 25 Bloom, Liang, Roberts, and Ying <https://www.jstor.org/stable/26372598>
- 26 Aksoy et al., https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- 27 ILO, <https://ilostat.ilo.org/topics/labour-productivity/>
- 28 The Economist, <https://www.economist.com/finance-and-economics/2023/06/28/the-working-from-home-delusion-fades>
- 29 Atkin, Scholar, Shinde, https://www.nber.org/system/files/working_papers/w31515/w31515.pdf
- 30 Emanuel and Harrington, https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1061.pdf?sc_lang=en
- 31 Gibbs, Mengel, Siemroth, https://bfi.uchicago.edu/wp-content/uploads/2021/05/BFI_WP_2021-56.pdf
- 32 Lancée, Veenhoven, Burger, <https://www.eur.nl/en/ehero/media/85023#:~:text=Even%20in%20a%20small%20country,Susilo%20and%20Maat%2C%202007>
- 33 Aksoy et al., https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- 34 Bloom, Davis, Barrero, <https://cepr.org/voxeu/columns/60-million-fewer-commuting-hours-day-how-americans-use-time-saved-working-home>
- 35 Idem.
- 36 Arbo Unie, <https://www.arbounie.nl/werkgever/nieuws/verzuim-door-psychische-klachten-in-2023-hoger-dan-ooit>
- 37 Idem.
- 38 CBS, <https://www.cbs.nl/en-gb/news/2023/11/greenhouse-gas-emissions-9-percent-lower-in-2022>
- 39 Trading Economics, <https://tradingeconomics.com/commodity/carbon>
- 40 CBS, <https://opendata.cbs.nl/statline/#/CBS/en/dataset/85395ENG/table?ts=1688988785751>
- 41 The Economist, <https://www.economist.com/finance-and-economics/2023/06/28/the-working-from-home-delusion-fades>
- 42 Emanuel and Harrington, https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr1061.pdf?sc_lang=en
- 43 Atkin, Chen, Popov, https://www.nber.org/system/files/working_papers/w30147/w30147.pdf
- 44 Idem.
- 45 Gupta, Mittal, Van Nieuwerburgh, https://www.nber.org/system/files/working_papers/w30526/w30526.pdf
- 46 Financial Times, <https://www.ft.com/content/3e905e3c-697c-4109-bd9a-605e75a0cfa4>
- 47 BouwInvest Real Estate <https://www.bouwinvest.com/news/latest-news/2022/bouwinvest-dutch-market-outlook-2023-2025>
- 48 Vastgoed, 2023
- 49 TNO, <https://www.rtlnieuws.nl/economie/business/artikel/4916891/werknemers-met-burnout-kosten-nederlandse-bedrijfsleven-28>
- 50 CBS, <https://www.cbs.nl/en-gb/news/2020/13/nearly-1-in-10-dutch-people-frequently-lonely-in-2019>
- 51 Bloom et al., <https://www.nber.org/papers/w30292>
- 52 Aksoy et al., https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- 53 Botner el al., <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9517068/>
- 54 Aksoy et al., https://www.nber.org/system/files/working_papers/w30446/w30446.pdf
- 55 Financial Times, <https://www.ft.com/content/b19797c9-b33a-41f7-953d-551ab393699d>
- 56 Financial Times, <https://www.ft.com/content/b19797c9-b33a-41f7-953d-551ab393699d>
- 57 The Economist, <https://www.economist.com/finance-and-economics/2023/06/28/the-working-from-home-delusion-fades>
- 58 Bloom et al., <https://www.nber.org/papers/w30292>
- 59 Het Financieele Dagblad, <https://fd.nl/bedrijfsleven/1478894/de-kantoorvloer-is-uitgestorven-op-vrijdag-wat-nu-jsf3ca6dd3SY>
- 60 NIBUD, <https://www.nibud.nl/nieuws/thuiswerken-kost-e-2-per-dag/>
- 61 CBS, <https://longreads.cbs.nl/the-netherlands-in-numbers-2020/how-many-people-never-work-from-home/>

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