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Smart working during the Covid19 pandemic in Italy: Twitter narratives in female-centered communities^{*}

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While the recent pandemic has accelerated the spread of smart working dynamics in Italy, social media increased their importance as platforms to vehiculate information and points of view and shape public opinion. In the face of extended confinement and a looming health crisis, society has had to fundamentally rethink its daily work practices, social relations, family relationship management, and work-life balance. As a result, the radical and abrupt migration to networked platforms has been a disruptive and unprecedented phenomenon. We aimed to investigate the Twitter debate on smart working during the pandemic by focusing mainly on social concerns and thematic related to work-life balance by addressing the following research questions: RQ1: How was the topic of smart working debated on Twitter during the Covid19 pandemic (2020-2021) in Italy, and which narratives and issues fuelled the debate the most? RQ2: How the public debate has received the Italian government's work-life balance measures? RQ3: Which topics were most discussed by women on smart working?

We used Digital Methods to cope with re-proposing data to depict collective phenomena, social transformations, and cultural expressions by analyzing natively digital data on social media platforms. We gathered more than 750.000 tweets between 28 February 2020 and 30 November 2021, and we mapped narratives and communities by using social network analysis. This allowed for the selection of the more intriguing ones to define various sub-datasets on which to conduct a topic modeling study, which aided in understanding more nuanced aspects of the highly fragmented topic. By studying the Italian debate, we identified specific communities which debated government measures to help families during the pandemic and discussed digitalization and smart working as a new paradigm for work. We found DAD (Didactic at Distance, aka homeschooling) as a transversal topic that highly affected how people experienced smart working.

Keywords: smart working; Twitter; work-life balance; social network analysis; Digital Methods

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Smart working in time of pandemic: a shared human condition

Emerged as a defining dimension of smart working or telework since its emergence in the late 1990s (Castells, 2009), the network dimension has become absolutely central during the Covid 19 pandemic. Particularly in Italy, the early 2020s saw a massive and radical shift of all work activities in online environments, including those that in the pre-COVID were conducted in presence. School education of all ranks, health care and broad distribution services and all work activities not deemed to be of fundamental necessity have had to rely on digital platforms to manage and maintain the most essential relationship and collaboration activities among workers, confined to their homes and connected online. As Deborah Lupton notes, digital media played a much more important role in the Covid19 phase than in all the previous health emergencies in recent history (Lupton & Willis, 2021). Such radical and abrupt migration to networked platforms has been a disruptive and unprecedented phenomenon, not only for those who were already practicing even different forms of agile work, but for society as a whole, which has had to radically rethink its daily practices of work, social relations, family relationship management, and work-life balance in the face of protracted confinement and a looming health crisis (Corposanto, Pagno, and Gardini, 2021).

As of fall 2020 in Italy, many activities have returned to their traditional locations, while many others, such as primary and secondary school education and administrative activities in many companies, have adopted hybrid forms of attendance alternating with smart working from home, until at least mid-2021. A significant number of companies, for example the Stellantis group (ex-FCA) - has never reinstated presence work in the forms practiced in the pre-Covid19 era (Mingori, 2022).

In the face of the scenario described above, the pandemic has led to a significant reconfiguration of the workforce in Italy, in some cases precarizing functions once fully integrated into the companies' activities, at times erasing roles previously considered indispensable, and in many cases accelerating transitions and reconfigurations already underway in the pre-Covid19 era. The pandemic also amplified pre-existing forms of exclusion: digital inequalities related to, for example, poor domestic Internet connection or lack of basic network infrastructure emerged as serious obstacles to the possibility of relationships and socialization. As a result, a shift in public opinion has emerged in relation to "smart working" perceived, during the Covid19 phase, more as a form of existential peripheralization rather than a desirable opportunity (Ruzzeddu, 2020; Bolisani, Scarso, Ipsen, Kirchner, & Hansen, 2020).

Another element characterizing the Covid phase in Italy is the pervasiveness of social media as tools to obviate the need for social relations, and to preside over a mediated public sphere. Internationally, social media platforms have increased their active user volume during pandemic by 520M, from July 2020 to July 2021, becoming an even more important

instrument to vehiculate information, discuss issues and build communities (Aggarwal, Singh, Chopra, & Kumar, 2022). Even in Italy, platforms such as Facebook and Twitter have played a central role in providing individuals confined to their homes, opportunities to inform themselves, relate to others, and exchange views on the ongoing emergency. In view of the narratives and frames used by the government through the mass media to describe the evolution of the pandemic and to share with the public the assumed countermeasures, social platforms, and Twitter in particular, have made available to millions of people the possibility to intervene and reframe public debate thanks to the immediacy of tweets and the relational dimension of the platform (Boni, 2020). This has happened not without the communication drifts related to the spread of misinformation that has clearly marked the evolution of the pandemic debate in Italy and elsewhere (Caliandro, Anselmi, & Sturiale, 2020; Rocha, de Moura, Desidério, & de Oliveira, 2021).

Many studies intended to analyze public opinion trends in times of pandemic have identified social media data as a valuable source. With this premise comes that social media platforms are also a significant tool able to measure concerns of public opinion (Klašnja, Barberá, Beauchamp, Nagler, & Tucker, 2015). Particularly with respect to sensitive and highly polarizing topics such as vaccines or government measures in terms of prevention and containment of contagion, social media conversations have provided researchers with insightful evidences on disinformation patterns and strategies (Monaci and Persico, 2022).

With respect to the Italian debate during the pandemic, Twitter conversations in relation to smart working were the main data source for the present work. Twitter has been chosen over other platforms because it allows collecting data from common users. In fact, in the context of the analysis covering the period February 2020 - December 2021, the topic of smart working represented a common condition shared by millions of people and a disruptive change in the daily lives of women and men forced to learn new practices, abandon old habits and reconcile unseen needs.

The research framework

This is the landscape where the SWITCH¹ project is focusing its attention. In the present study, we sought to investigate the social effects of smart working in Italy during the pandemic period. Our goal is to analyze the debate in order to understand the thematic landscape, so being able to grasp more nuanced aspects of the online narratives regarding smart working.

In this paper, it will be described the first phase of a larger project that is articulated over a 3 years period (2021-2023). The project's goal is to explore smart working and the effects of this transition in relation to inclusion, amplified and accelerated by the pandemic from Covid19, and to identify the relationship between the working and urban contexts as a pivotal point.

The project is divided into 3 objectives focused on the Italian context. The first one identified the main and secondary narratives around the topic “smart working” and the dominant voices that led the debate. This task has been pursued by analysing the social media debate on Twitter through digital methods (Rogers, 2019). The second objective focused on new forms of digital inequality affecting especially the women condition. Drawing from the insights of objective 1, we explored via a survey the relationship between digital inequality and the new reorganization of work, focusing on the women to understand whether smart working is, or can become, a new mechanism for (re)production of gender inequalities and what the criticalities and actions to mitigate them may be. Finally, the third objective will pay attention to the re-configuration of working spaces.

In this paper we focus on Objective 1 and we address in particular the following research questions:

- RQ1: How the topic of smart working was debated on Twitter during the Covid19 pandemic (2020-2021) in Italy, which narratives and issues fuelled the debate the most?
- RQ2: How the public debate has received the Italian government's work-life balance measures?
- RQ3: Which topics were most discussed by communities with prevalence of female voices on the topic of smart working?

Methodology

The analysis focused on the Italian debate on Twitter over 21 months. We relied on Digital Methods which are research strategies that thanks to the analysis of natively digital data available on web platforms, deal with re-proposing information in order to represent collective phenomena, social changes and cultural expressions (Rogers, 2019). The theory in the field has moved towards critical metrics in contrast with the typical vanity metrics of Social Network sites. These critical metrics define relevant narratives, dominant voices, vocality, commitment, positioning, and alignment. Critical metrics purpose is to shift the attention from the self online to the issue dimension and engagement dynamics assessed by combining platform entities. We will start our Social Network Analysis (SNA) by focusing on two specific entities: users and hashtags by looking at them singularly (performing mentions analysis and Co-hashtag analysis) but also at the relationship between these different entities by performing a user-hashtag analysis. Hashtags were selected as entities to be analyzed because they represent a peculiarity of the platform which has evolved over the last decade from a simple label to a real message, increasing the ability to map topics and perspectives from the user's point of view. The first step will map narratives and user communities, that will be sieved to select the more interesting ones to define different sub-datasets on which to perform a topic modeling analysis that will help to grasp more nuanced aspects of each sub-topic.

Data Collection

Data collection relied on Twitter API v.2 with Academic Research access, allowing access to the Tweets datasets since March 2006, excluding deleted tweets and suspended accounts. We used 4CAT (Peeters & Hagen, inPress) to collect chunks of data, and later we moved the entire dataset to TCAT (Borra & Rieder, 2014) to create a unique dataset. We focused on the period from 28 February 2020 (the very beginning of the pandemic period) to 30 November 2021 (near the end of the third wave of infections). In this period we collected more than 750.000 tweets in Italian by querying content that included in the Tweet body (text field) at least one of the following keywords: smart work, smartwork, lavoro agile, homeworking, telelavoro, dad scuola, dad scuole, smartworking, smart working.

During this time, we particularly focused on five periods characterized by the rise in the volume of the debate on the platform.

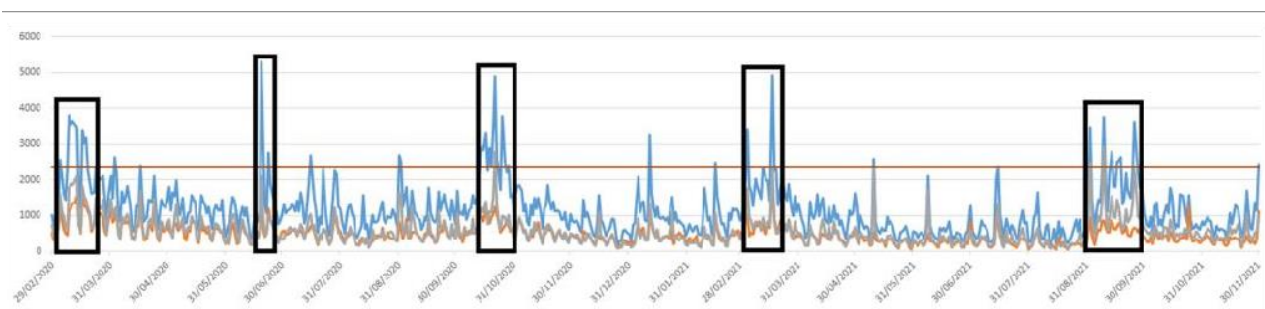


Figure 1: Time-series showing the five periods to which we focused our attention.

The five periods in detail and the relative main event are:

- from 02/03/2020 to 20/03/2020 - Start of the first national lockdown.
- from 15/06/2020 to 27/06/2020 - Launch of Immuni application to monitor infections.
- from 11/10/2020 to 29/10/2020 - The use of masks becomes mandatory outdoors and indoors.
- from 02/03/2021 to 20/03/2021 - Following the increase in infections, the “red zone” is established all over Italy, which means the most restrictive lockdown in the entire national territory.
- from 01/09/2021 to 30/09/2021 - Extension of the obligation of GreenPass (Covid vaccination certificate) for schools, universities, and public transport, and easing restrictions regarding public places.

For each period, we performed a network analysis using two main entities of the Twitter platform: users and hashtags.

Analysis – Social Network Analysis

First step of the SNA has been to generate with TCAT the graph files that we later processed using Gephi (Bastian, Heymann, & Jacomy, 2009), an open-source tool for network analysis. For each period, we built three different graphs:

- The social graph by mentions, which describes connections between users by looking at the network of mentions between them;
- the co-hashtag graph, which describes relations between hashtags, by connecting the hashtags used in the same tweet;
- the user-hashtag graph, that as the name suggests, describes the relationship between the two different entities previously analyzed.

First, concerning the focus on users, the mention analysis allowed us to find dominant voices and communities persistent over time (active in different periods). The concept of dominant voices (Rogers, 2019) conceptually identifies the most influencing voices on a specific social issue. As a result the mention affordance is used to operationalize the “perceived influence” of a user in a particular debate. To model the “social graph by mentions,” we performed the same modeling steps for each period. We dimensioned nodes by the number of tweets published in the period and labels by the number of mentions received. We applied the OpenOrd algorithm using standard parameters to create the final layout. OpenOrd works better with undirected weighted graphs and aims to better distinguish clusters, reason that led us to applied it to bipartite user-hashtag graph. The algorithm is originally based on Fruchterman-Reingold and works with a fixed number of iterations. Below we can appreciate an example of the result.

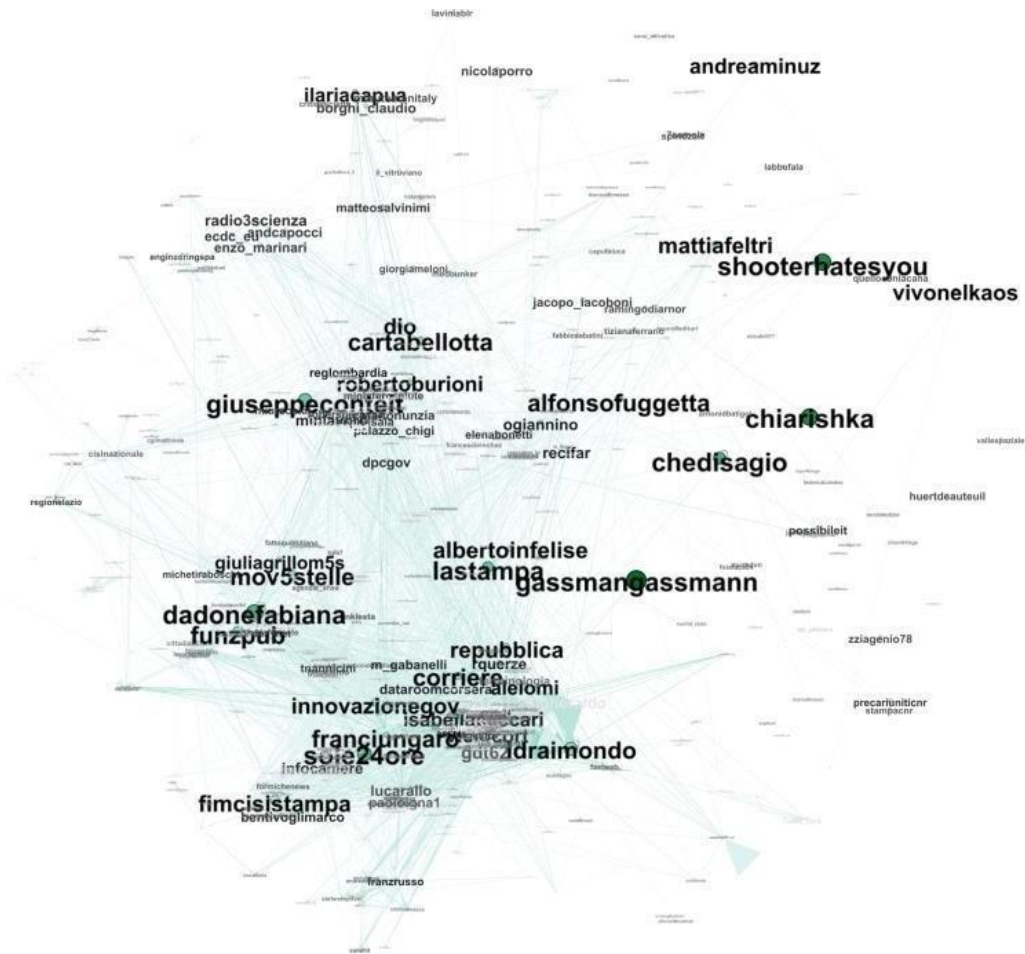


Figure 2: Mention Analysis that describes user relations by showing the different communities and highlighting the dominant voices.

Secondly, to focus on the hashtags, we performed a co-hashtag analysis to fulfill a map of topics and detect primary and secondary subjects using relative hashtags in different periods. In the case of the hashtag graph, two hashtags are connected by an edge if they are used in the same tweet, allowing the connection of similar thematics and related ones. In this step, we need to pay attention to the hashtag hijacking phenomenon, which describes the use of trending or generic hashtags to gain visibility by following the platform's trends. Again we modeled the graph using Gephi performing the same steps for each period. We dimensioned node labels by the frequency of use of the particular hashtag and clustered by applying the Fruchterman-Reingold layout with standard parameters. This algorithm simulates the graph as a mass particle system. The nodes are the particles of mass and the edges are springs between the particles. It has become a standard and we have used this algorithm for its better readability compared to others.

Finally, we performed a user-hashtag network analysis for each period by modeling a bipartite graph that describes users' relationships and the hashtags they use the most. In that case, we have two different entities in the same graph, adding the necessity to distinguish them by the node's color and label visually. We dimensioned the hashtag's labels

and nodes by frequency of use and exploited users' homophily (Lazarsferld & Merton, 1954) as characteristic of social networks to detect user communities around particular topics. More recent studies have found evidence of homophilia in social media (Halberstam & Knight, 2016) and others have highlighted the use of ideological hashtags as indicators of homophilia (Xu & Zhou, 2020).

In light of that, we identified topics by hashtags that we clustered together with users by applying the OpenOrd algorithm and using standard parameters.

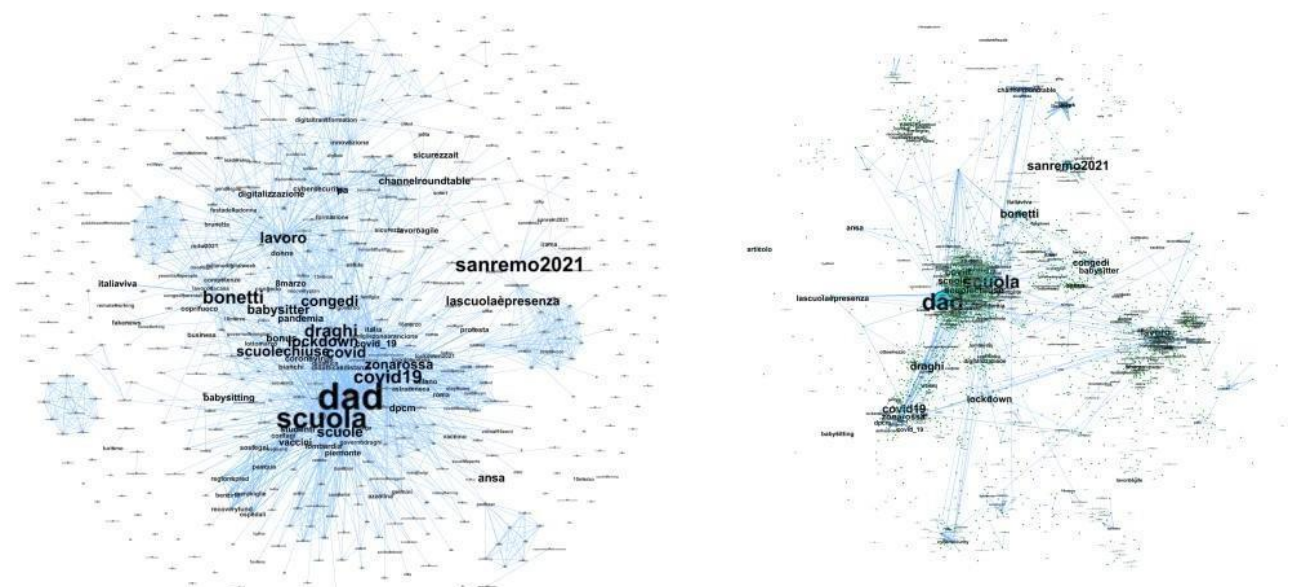


Figure 3: Co-hashtag Analysis (on the left) and User-Hashtag bipartite graph (on the right) used to identify subtopics of interest.

Exploring the networks that represent topic-related clusters and user communities, we focused on two specific clusters/communities to capture better insight and nuanced aspects. The idea is to explore among the smart working narratives the ones describing situations of social fragility and difficulty pointed out by our research questions. Indeed, we aimed to analyze:

- A thematic cluster related to babysitter bonuses and parental leave that we called BBSPL (BonusBabySitterParentalLeave) that arose in the middle of March 2021 to explore the concerns regarding work-life balance during the pandemic;
- A users community, identified in the second half of June 2020, which, as represented in Figure 4, contains several female voices and particularly revolves around two users that can be identified as career women. Those users represent what in literature is called Dominant Voices (Rogers, 2019, pp. 24-25) since they receive the most mentions in their community, which means they represent a point of reference for other users regarding a particular topic. We renamed this cluster WDV (WomenDominantVoices) to highlight women's voices.

From here now, we followed slightly different analysis paths.

From the BBSPL thematic cluster, we used the main keywords/hashtags as search parameters for the entire dataset, to expand our research and identify all the communities that have debated the issue regarding parental leave and babysitter bonuses, noticing also for this topic a prevalence of female profiles among the dominant voices of these communities (Figure 4).

From the WDV community, we calculated the ego network of the leading dominant voices, which means selecting nodes by proximity to a particular node (user). In our case, where the relationship is based upon mentions, we considered all the users that were mentioned or have been mentioned by our dominant voices. Focusing on these connected communities, we discovered with a co-hashtag analysis that they mainly focus attention on thematics related to work dynamics and digital literacy.

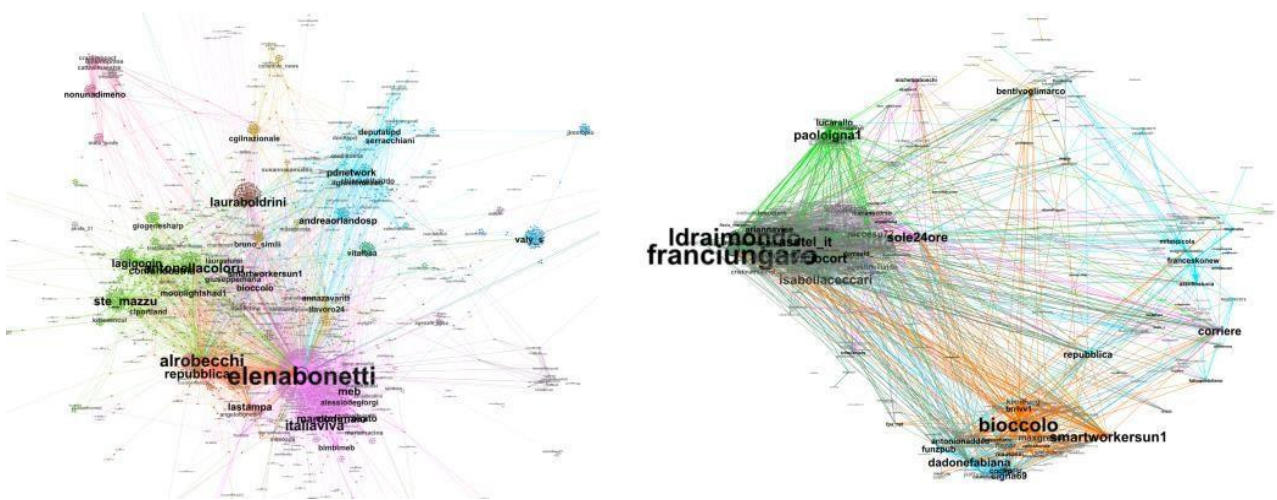


Figure 4: On the left, we can see communities that debated babysitter bonuses and parental leave, while on the right, we can appreciate the WDV cluster and their connected communities.

These last two steps' aim was to trace down the same information for both BBSPL and WDV: main thematics and connected communities.

The last part of this analysis has been the extraction of a corpus (the tweet textual field of all the content posted by both communities BBSPL and WDV) to apply topic modeling algorithms to grasp more nuanced aspects of the debates.

Analysis – Topic Modeling

Topic modeling has been performed using the analysis platform Cortext (Breucker et al., 2016). The textual corpus we analyzed has been extracted from individual tweets and replies, the primary affordances used to debate with other users. The pre-processing phase consisted of formatting, cleaning text, and removing retweets to avoid duplicated contents conveying the same point of view. The input for topic modeling of the BBSPL cluster has

been a dataset containing 2.886 different tweets, while for the WDV cluster, the dataset contained 34.454 exclusive tweets.

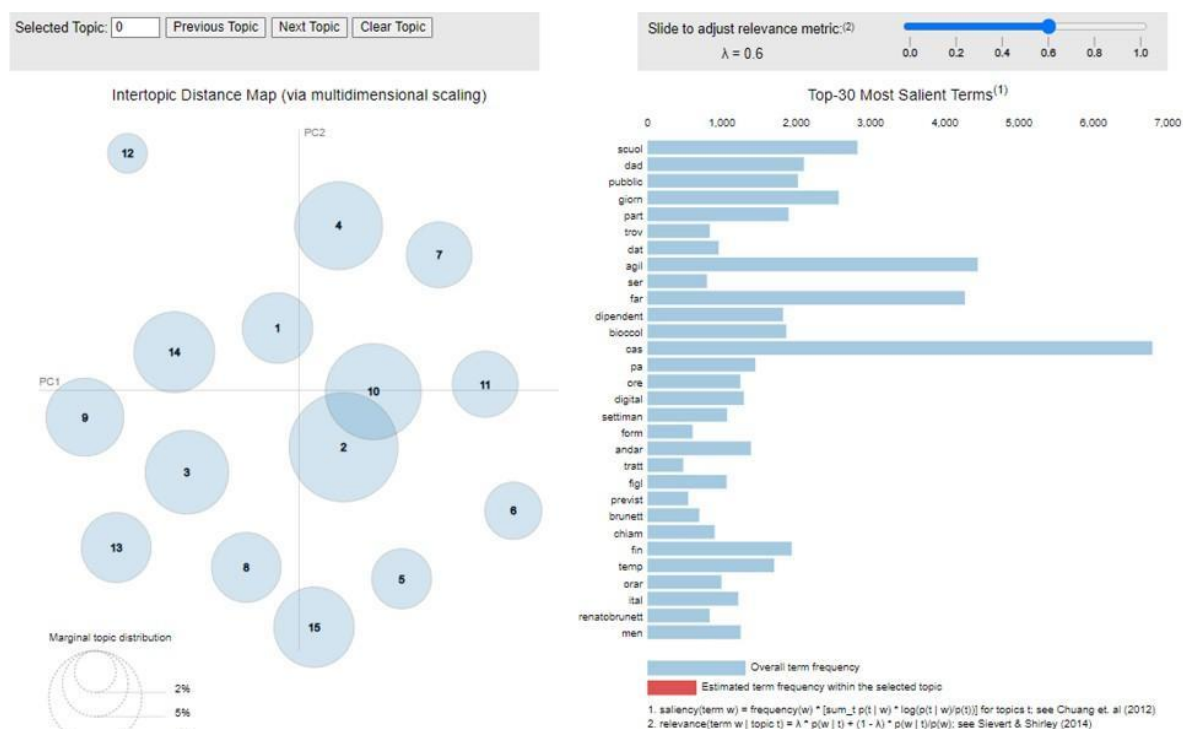


Figure 5: Topic modeling results for the WDV community. It shows the map of topics on the left and a list of salient terms on the right.

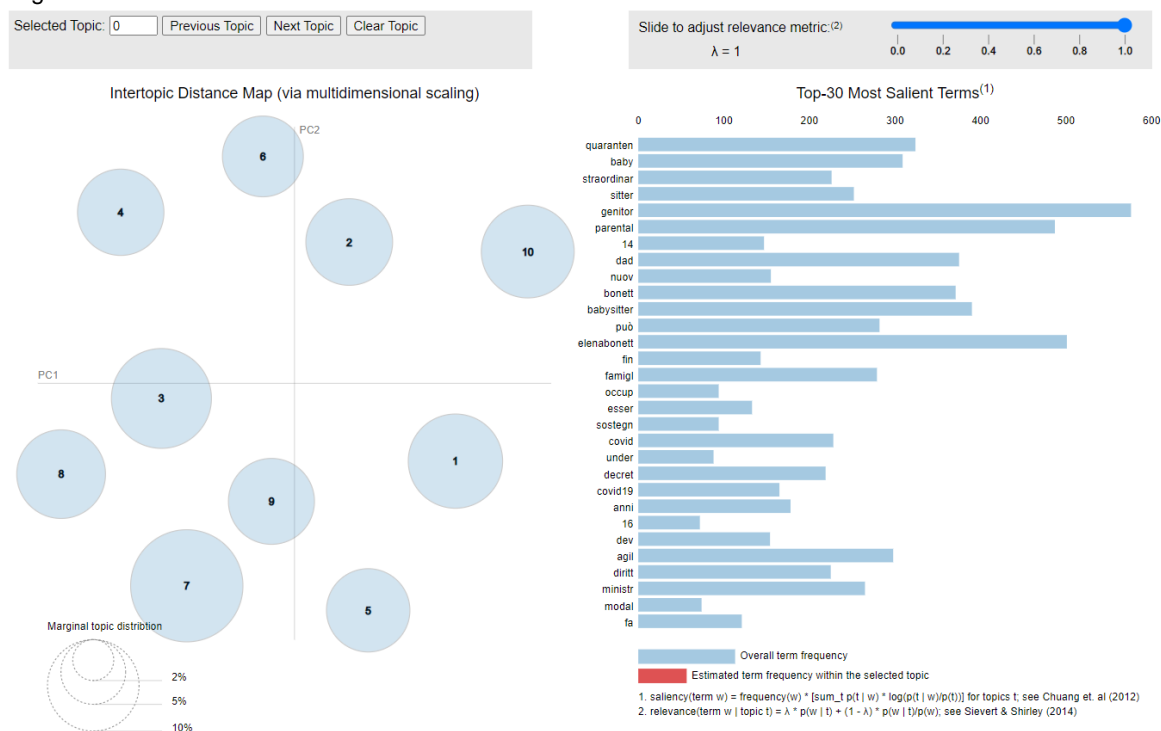


Figure 6: Topic modeling results for the BBSPL community. It shows the map of topics on the left and a list of salient terms on the right.

Figures 5 and 6 show the topic modeling results regarding the WDV and the BBSPL clusters, respectively.

The 2-dimensional diagram on the left represents the intertopic distance map. It describes how prevalent each subtopic is and how subtopics are related. The bar chart on the right describes the most salient terms used in the textual corpus. It is useful to interpret the subtopic and grab a better understanding of its meaning (Chuang, Manning, & Heer, 2012). In the WDV community, we identified 15 different sub-topics, while the BBSPL analysis shows ten subtopics because the textual corpus analyzed was quantitatively smaller than the previous one. For each subtopic of both clusters, we have been able to extract the ten most representative tweets that are characterized by the higher coefficient of correlation with the subtopic (Sievert & Shirley, 2014). Those tweets can be seen as the summary content of each subtopic, and their qualitative analysis allowed us to find clues and identify concerns of public opinion on Twitter, which will now be exposed in the Results section.

Results²

Exploring the debate about smart working, we came across both positive and negative voices. When evaluating them, it is mandatory to consider the extraordinary condition of the pandemic that suddenly forced workers to adapt to a new situation. An important portion of the content analyzed was dedicated to explaining regulations and clearly defining “lavoro agile” (smart working) and “telelavoro” (teleworking).

- *Most people confuse #smartworking with teleworking. They are two completely different things that cannot be compared in any way. The second pertains to the workplace, and the first to the concept of work for objectives unrelated to time and place. Pay attention!*

Some users pointed out that smart working could be useful in limiting infections and that fewer people commuting to the workplace means a reduction of pollution, especially in urban areas (Collivignarelli et al., 2020).

- *Those who can work from home ask the owner for #smartworking, fewer people around can be part of the solution for example*
- *They could leave voluntary smart working for suitable jobs, achieving good results against pollution.*

The polarized perspectives on the topic can be particularly found in the WDV cluster that deals with work dynamics and digitalization. On the one hand, the positive voices highlighted the prospect of saving money on the commute to work, saving time to dedicate to their families or themselves, and being more calm and productive. On the other hand, other users highlighted the increased working hours and higher rhythms that lead them to

physical and mental fatigue. Other debated aspects are underpayment and the overload due to calls and emails that some users suggested avoiding by pursuing the need to redefine a daily routine that the pandemic situation has canceled.

- *I would add a point, which is useful given the situations of the National Collective Labor Agreements: smart working often leads to a net increase in salary for workers, given the time and money savings due to travel and meals.*
- *I consider myself a privileged and lucky person to work in a period where many have lost their jobs and I am ashamed to complain of tiredness, but this smartworking is destroying me: many more hours, underpaid with suffocating rhythms. Mentally and physically tired*
- *Averages/days of these 10 smart working days: 13 calls (cell or skype) for a total of 1.5 hours, 5 conference calls for 3 hours, 1 hour of email, 2 hours of work alone.*

Part of the discussion diverged, underlining the impossibility for some people to work from home and the necessity to improve public transport. In other cases emerged the need for a dedicated internet line for work, which introduced the topic regarding the positive aspects for companies such as the decrease of operating costs. This raised the question of who should pay for the technological instruments used during SW, such as personal computers and internet access.

- *(...) but @TrenordOfficial and @atm_informa (transport companies ed.) have to make the public transport work, not reduce routes, because there are still people who have to go to work! (and maybe even come back home).*
- *(...) you have to telework for the company using your own means, paying for the internet connection. Certain entrepreneur friends are handy! Telework when possible, but with expenses dependent on companies and not on the employees, namely a dedicated internet line for teleworking.*

Looking at the future perspectives we encountered users that described smart working as a lever for digitalization that could lead the Country to track tax evasion and eradicate corruption. Other negative voices argue that with smart working and fewer jobs related to people's mobility, we will face a replacement of work in Italy with workers from low-wage Countries.

- *Digitization eradicates corruption and tracks tax evasion. And smartworking is the only real lever for digitization to take place.*
- *The evolution of smart working... fewer jobs related to people's mobility! Replacement of work in Italy with workers from low-wage countries, already seen with call-centers*

A prevalent negative sentiment can be recognized in the posts regarding labor unions and Public Administration (PA). The first ones are guilty of lacking foresight that would have

been useful to approach the pandemic crisis with a more stable smart working system and more oiled mechanisms. The second ones are guilty of having “above the average” payments even when providing a “below the standard” public service by limiting the number of services provided. Some users underlined how PA from medium cities commonly lacks VPN (Virtual Private Networks) or central repositories, making it impossible for the employees to even access their office email from home.

- (...) *Smartworking has been around for 6 years. And the trade unions for 6 years at most got 1 day a week and without a meal voucher The unions undermined smartworking as best they could The reality is in front of everyone. Not a fucking request even in a pandemic*
- *Honestly, smartworking could be a way to evolve and change the vision and ways of working. Going back is anachronistic and sincerely demonstrates a short-sighted and plastered vision of the Public Administration*
- *I add (having collaborated with Public Administrations on free sponsorship projects, mine of course) that many medium municipalities (80/100k ab.) often don't even have a central repository, VPN or other. Smart working policy? They don't know what it is... Developments are needed before technology*

This lack of digitalization and digital competencies has been pointed out also regarding schools and the difficulties of managing work and didactic together in the same homeplace. DAD (Didactic At Distance, homeschooling) has been a transversal topic that has been touched on in both our clusters.

The debate relative to Babysitter Bonuses (BSB) and Parental Leaves (PL) is born around the difficulties and complications of managing home working and children at school. As expected, we have encountered the most dissonant voices with only a few users (journalists and politicians) describing them as necessary and important measures to sustain families.

- *The CDM (Council of Ministers) has approved important measures to support families: parental leave, smart working and babysitter bonuses. With kindergartens and schools closed due to containment measures, it is essential to help many families in difficulty.*

The negative voices particularly criticize PL which was retributed at 50%, a percentage of salary considered too low. PL and BSB were initially unavailable for people in SW, being the three measures mutually exclusive as per decreto-legge No. 30 of 13 March 2021. This decision has been deeply criticized with users pointing out smart working as not conciliable with caregiving and underlining that the measure particularly worsens women's condition.

- *This is the result of using smartworking as babysitting so that you can then go to the newspapers and say “smartworking makes the condition of women worse” No, the condition of women is made worse by this bad ruling class*

Regarding the BSB people pointed out the difficulty in managing situations with 0-6 year children, and described the measure as useless by noticing that with the pandemic it is not easy to “call a stranger” as a babysitter for children. Other voices mediated saying that being the bonuses limited it was a natural consequence to give priority to people that are unable to work from home, while others asked particular attention to people with disabilities, for whom smart working has to be planned to reinforce inclusion.

- *Shameful, not even a word about how to manage children at home and parents at work. They think they can solve it with €600 of babysitters which for 8 hours a day maybe 2 weeks is enough. But, who takes a stranger home these days?*
- *Babysitter Bonus [...] However, it is limited money to be distributed. Giving priority to those who work outside the home seems obvious to me.*
- *Try to identify yourself with those who, people with disabilities or parents of children with disabilities, have to reconcile assistance, life and work. Make an effort to understand how smart working can be a way to strengthen inclusion.*

As we already said, DAD (homeschooling) has been the transversal thematic which crossed both clusters. DAD has been affected by government measures such as BSB and PL and by the requirement for technological skills. The lack of digitalization impacted the dynamics of Italian families in dealing with this rapid change. The comments are the most negative: people highlight difficulties, especially for families with more than one child, and the difficulty of conciliating homeschooling and smart working for many reasons, from discontinued internet access to poor digital skills. Other users point out that DAD is not an option for kindergartens and nurseries, strictly connecting the issue to the relatives with BSB and PL.

- *And then there's teleworking (I need to print), my daughter's high school homework, to be printed, the other daughter's university slides...*
- *Praise to mothers, especially those with poor computer skills and no instruments, who have put themselves on the line together with teachers to support their children and the school. Thank you, thank you so much ♥ #dad #school*
- *So, are you sending the kids to school or dad? But then the babysitter earns more per hour than me, how do you pay her? There were rumors that the government was paying for it but not even tablets for children without PCs arrived. Easy solutions for the wealthy, as always.*

Summing up, smart working is perceived as an opportunity to improve living conditions. However, it faces apparent issues related to the digital divide and the complexity added by the pandemic, particularly regarding homeschooling in families with children. In those cases, the potential for smart working to become an instrument to reach an equal work-life balance is, on the contrary, described as an amplifier of disadvantages and stress.

Our findings in the smart working debate. Final remarks

Smart working was introduced in Italy with the Job Act in 2014-2015, since then it has been the subject of a long parliamentary path until Law No. 81 of May 2017, which established and defined it as "lavoro agile." It is not a contract but a way of performing work in which the possibility of working where, when, and how you want is regulated.

Moreover, what has been implemented during the pandemic could not be simply labeled as "lavoro agile" (characterized by a voluntary component and an undefined workplace), but taking into consideration the mandatory change because of the pandemic situation, the most correct term is "telelavoro", which refers more generally to a situation in which the worker has to perform their work from home. In our research we have used the term smart working as an umbrella term that refers to these modalities, just like Italian public opinion did.

The pandemic, in addition to having significantly increased remote work, which has reached 40 per cent in Italy, has also encouraged its progressive feminization. It is worth mentioning here that before the Covid emergence, smart working was practised by a small circle of companies, for a limited pool of workers, mostly in top positions (Eurostat, 2020).

Studies about smart working focused on the worker perspective have shown different results: some research demonstrates that smart working, in general, seems to be correlated with greater job satisfaction (Wheatley, 2017), but on the other hand, other researches show that smart working is also associated with high-stress levels (Song & Gao, 2019). There are different studies that have also primarily underlined the negative consequences of smart working in terms of work overload, hyper-connectivity, and work-family conflict (Golden 2012; Hilbrecht, Shaw, Johnson, & Andrey, 2013; Noonan & Glass, 2012).

This literature has been enriched during the pandemic, with the most recent analyses showing substantial deterioration in psychological well-being and high levels of stress due to the "smart" work mode (Del Boca, Oggero, Profeta, & Rossi, 2020; Hupkau & Petrongolo, 2020). Evidence from the studies also shows that under conditions of emergency, and therefore lack of regulation, smart working has produced different impacts, particularly for women, and especially in our country where historical asymmetries, between men and women, in the division of domestic and care work have strongly affected the ability to manage and carry out work activities.

Those studies are for the most part conducted with surveys; our approach instead focused on the Twitter conversations during the Pandemic in order to catch a comprehensive but also chaotic image of the Italian social media debate. This approach, supported by Digital Methods (Rogers, 2019) enabled us to outline an articulated map of the main topics and narratives on smart working, but it is not to be considered as representative or exhaustive in relation to a specific sample of individuals. Our research, in fact has been conducted via a single platform analysis on Twitter, which represents a significant space for

public debate but it also represents a limited part of the social media ecosystem as a whole especially in Italy where other platforms such as Facebook and Telegram, are significantly more popular. Nevertheless, by mapping the users' Twitter conversations, some points appear to be in line with the reference literature on the topic.

The fragmented nature of social media platforms can be appreciated in our captured insights where it is possible to identify divergent positions. This divergence cannot be quantified in our research, but the qualitative textual analysis of each subtopic allowed us to collect positions from a wide range of perspectives. The advantage of using Twitter data in our case is the ability to analyze user discussions about smart working and get a personal view of users either in general agreement or disagreement, allowing us to collect some more details.

First of all, it is interesting to underline that an important portion of the content analyzed was dedicated to explaining regulations and clearly defining "lavoro agile" (smart working) and "telelavoro" (home working). This testifies that smart working is not a clear and defined condition in people's experience, and the debate over the terminology issue is symptomatic of a shift from legal issues discussed by a niche of experts to a media space inhabited by non-experts as well. This shift is certainly due to ordinary people's direct experience of smart working during the pandemic, an experience from which the full complexity and multidimensionality of this mode of work emerge.

Another aspect of the smart working debate that the pandemic has brought out consistently is that related to the environmental and health impacts on people: some users pointed out that smart working could be useful in limiting infections and that fewer people commuting to the workplace means a reduction of pollution, especially in urban areas. This strong emphasis on material and practical aspects is certainly pandemic-driven and in some ways represents a shift from pre-pandemic studies.

More in line with the pre-pandemic literature on smart working is the co-presence in our study of positive and negative voices emphasizing divergent impacts of smart working. As we have explained in the results, we have witnessed a polarization of opinions: on the one hand, the positive voices highlighted the prospect of saving money, saving time to dedicate to their families or themselves, and being more calm and productive; on the other hand, other users highlighted the increased working hours and higher rhythms that lead them to physical and mental fatigue. Other debated aspects are underpayment and the overload due to calls and emails.

Welfare measures made available by the government, such as babysitter bonuses and parental leaves, have not helped mitigate the debate either. These measures made by the government in the crisis period were not always well welcomed by public opinion. Indeed, we have encountered the most dissonant voices with only few users (journalists and politicians) describing them as necessary and important measures to sustain families. The negative voices particularly considered the parental leaves too low, and the initially unavailability of babysitter bonuses and parental leaves for people in smart working has

been deeply criticized with users pointing out smart working as not conciliable with caregiving and underlining that the measure particularly worsened women's condition.

This topic of discussion ties in with a characteristic and distinctive element of the debate, and research, conducted on smart working during the pandemic: the availability of enabling technologies and digital skills. In our research, as we discussed above, the DAD has been the transversal topic that merged the problems about the pursuit of work-life balance and digital skills. The pandemic situation and the extraordinary measures taken during the crisis made the government a natural channeler of dissent. The management of baby sitter bonus and parental leave have particularly created chaos, with voices that highlighted how the lack of their implementation in the smart working context was deleterious by forcing workers to manage work and children at home. This situation is described as particularly critical for women, in contexts such as the Italian one where the burden of care is especially on women that spent on average 26h per week more than men caring for children (De Vita, Mazali, & Campanella 2022).

Thus, the polarization of opinions is related, in particular, to subjective aspects, and personal experience, but also to objective conditions, in other words, it is related to work-life balance. However, it is also interesting to note the emphasis on organizational aspects, where smart working is linked to an idea of "increased productivity." This is a very present issue in the vast organizational literature (de Menezes and Kelliher, 2011).

Another culprit identified by our communities is the trade unions, guilty of lacking foresight that would have been useful to approach the pandemic crisis with a more stable smart working system and more oiled mechanisms. Also, Public Administration has been identified as guilty of not delivering efficient services due to lack of digitalization and pointing with particular attention against public transport, especially by those workers for whom smart working is not a practicable solution (70% of jobs cannot be done remotely) (Cetrulo, Guarascio & Virgillito, 2020).

To sum up, our findings show that the change in the work paradigm has been a valuable opportunity to redefine the ways, timing, and mechanisms of conducting work. However, the rapidity of this change (a sudden decision from the government and employers forced by the unpredictable evolution of the pandemic) created potential situations of inequality, because not everyone had the same possibility and capacity to deal quickly with this shift, in terms of availability of technological infrastructures and digital literacy, ending with missing the possibility to appreciate the change. The contingency of the pandemic has entailed costs for workers in terms of cognitive energy necessary to learn new procedures and change their work routine to maintain productivity (Marino & Capone, 2021). What emerged is that an important factor in experiencing smart working during the pandemic has been the concurrent DAD with the school closures that affected families with children together with the increased difficulty of relying on nannies. The presence of children is among the crucial factors in experiencing smart working, together with the availability of equipment and space (De Vita, Mazali, & Campanella, 2022). The definition of equipment should not be read-only as the physical accessibility to technologies but also the skills that allow a worker to actively

access and use technologies to perform his job adequately (Van Dijk, 2019). From this perspective, digital literacy becomes essential for reducing social inequalities (De Vita, Mazali, & Campanella, 2022).

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Note

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² The listed text comes from the analyzed tweets. We reported only the text's translation, omitting the author's name out of respect for their privacy.