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Collaborative Aging Governance between China and the EU

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Abstract: Population aging is a global challenge. China and Eastern Europe (e.g., Romania) face sharply rising elderly shares and distinctive demographic pressures. This paper examines cross-border digital eldercare governance by comparing China's "Time Bank" service-exchange pilots with Romania's community-based mutual assistance initiatives. The study draws on social capital theory and trust frameworks to analyze how institutional contexts shape volunteer-led eldercare. Methods include document and literature analysis, surveys of Chinese and Romanian students (N≈600) on willingness to participate in eldercare volunteering, and a matching-efficiency simulation (E = S/D) of service provision. The cases illustrate diverging models: China's state-supported "Time Bank" channels civic volunteers through digital platforms, while Romania's rural communities rely more on grassroots mutual aid against the backdrop of labor outmigration. The study finds potential synergies in light coordination but also tensions in data governance and differing institutional trust. The findings show that social networks build local reciprocity, but require clear legal and technical trust anchors. The implications are that joint frameworks could standardize digital care protocols and enable cross-cultural volunteer exchanges, leveraging each side's strengths. This study contributes to theory by linking social capital under digital globalization and proposes practical China–EU pathways for cooperative aging governance.

Keywords: Digital eldercare; Aging governance; China–EU cooperation

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1. Introduction

Global aging is unprecedented in speed and scale. By 2050, the world's population aged 60+ will double to about 2.1 billion, with the largest increase in middle-income countries [1]. China and Romania exemplify contrasting contexts of this trend. As of 2023, China's 60+ population reached ~297 million (21.1% of its population and 65+ at 15.4%), marking a rapid "moderate aging" status; projections suggest 60+ could exceed 400 million by the mid-2030s [2–4]. Romania, an EU member, has one of Europe's fastest-aging populations: over 19% of Romanians are age 65+ [5]. Eastern Europe's aging is compounded by its "semi-peripheral" socioeconomic position – these countries are integrated in the EU core but still undergoing development and demographic transitions. High

emigration has left many older adults isolated [6]. A 2015 report found 27.5% of Romanian seniors living in poverty versus an EU average of 7%, and only 0.23% of those needing home care actually receive it [7]. Such "peripheral" challenges differ from China's urbanizing, state-coordinated context.

At the same time, digital innovation is reshaping eldercare. Technology—robotics, telemedicine, apps—offers new models for community and home support. Cross-border, digitally-mediated care, such as diaspora telecare, international volunteering via apps, is gaining interest but is under-studied. The study focuses on two comparative cases: China's "Time Bank" pilot programs and Romania's mutual-aid eldercare platforms. These cases represent diverging institutional logics in aging governance.

Research questions: How do China's Time Bank models and Romania's mutual assistance platforms each mobilize social capital for eldercare? What are the trust and regulatory challenges for China–EU digital cooperation? What light-touch collaborations are feasible across cultural and legal divides? This study's significance lies in bridging Asian and European insights on aging, with implications for joint frameworks.

2. Theoretical framework

The study frames the analysis through social capital theory and trust in digital platforms. Social capital refers to resources embedded in social networks and norms that enable collective action. Pierre Bourdieu (1986) defined social capital as the "aggregate of actual or potential resources" tied to institutionalized relationships (families, groups) and social status [8]. In Bourdieu's view, social capital is anchored in existing power structures: individuals gain "capital" through their network positions and reputation [8]. James Coleman (1988), by contrast, conceived social capital as a public-good property of social structures. Coleman saw it as features of community networks (norms of reciprocity, trust) that benefit all members [9]. For example, strong bonding in a neighborhood watch improves safety for all, not just those directly involved [10]. Both theorists emphasize networks and norms, but Bourdieu highlights inequality of access while Coleman stresses collective benefits. In aging contexts, social capital can motivate volunteer caregiving: the elderly with family and neighbor ties enjoy support, while isolated seniors may lack such networks. Thus, digital Time Banks and mutual-aid groups seek to build bonding ties that function as social capital for the aged.

Institutional and technological trust are critical in digital eldercare platforms. Digital caregiving relies on users trusting both the sponsoring institutions and the technology. Studies of telehealth note that seniors' adoption hinges on trust in platforms and service providers [11]. In China, state endorsements may enhance public trust, whereas in the EU, trust depends on transparent governance and data protection compliance. Data privacy regulations (EU GDPR, China's 2021 Personal Information Protection Law) reflect institutional trust requirements. The study discusses these regulations below.

Literature gap: Despite rich social capital theory and some studies of community care, cross-cultural comparisons of mutual assistance are scarce. The Chinese literature on time banking is growing, and European research exists on rural care. Yet few works explicitly link post-socialist and Asian mutual-aid models. Notably, Caritas Romania's NGO platform (SeniorNet) and grassroots "CARP Omenia" appear only in practitioner reports, and China's time bank pilots have been covered in state media [12–15]. The study aims to fill this gap by synthesizing social capital theory with these comparative cases.

3. Comparative case studies

3.1. China: Time bank pilots

In Nanjing, the MyNanjing government app runs the flagship pilot. Registered volunteers log service hours (e.g., home visits, errands, medical appointment accompaniment) and earn "time coins" redeemable for reciprocal help later [14]. As of late 2022, over 60,000 volunteers had provided nearly 30 kinds of services to seniors, including haircuts, companionship, mental health support, and completed ~650,000 orders [14, 16]. The system integrates younger adults and some older volunteers (~11% are age 60+) [17]. Government support is explicit: multi-department coordination, funding for tech upgrades, and integration with broader "smart elderly care" plans [18–19]. In 2014, Nanjing started a community-level time bank (7,666 volunteers, 420,000 hours by 2019), which evolved into the citywide digital 3.0 platform by 2019. Recent policies explicitly encourage "Internet+" solutions and time banking in community care.

Yueyang city in Hunan launched a similar concept via its Communist Youth League. The Yueyang "Time Bank" also awards volunteer hours for neighborhood clean-ups, visiting elders, helping with shopping, or transport in the form of time-coins redeemable for goods like books, vouchers. By early 2025, Yueyang had 3,560 volunteers and logged over 35,000 service hours. While Nanjing's model is tech-driven with government oversight, Yueyang's is more grassroots (youth-led) and community-bounded. Together, these pilots illustrate China's state-led mobilization: municipal and civic authorities sponsor, standardize, and publicize time banking. Trust is engineered through official endorsements and integration into social welfare plans. The social capital generated is partly "bonding" within communities, partly "bridging" to civic networks.

3.2. Romania: Rural aging and mutual aid

Romania's aging is concentrated in rural areas hollowed out by labor migration. In many villages, the majority of residents are seniors whose children work abroad. Infrastructure and services (transport, local clinics) are often lacking. In this context, Romanian communities rely on mutual support institutions. One example is CARP Omenia, a federation of seniors' mutual-assistance houses. Established decades ago, Omenia operates local clubs ("casă de pensionari") offering affordable shops, workshops, healthcare, and social gatherings, funded by member dues and nominal fees. By 2015, it had ~1.4 million national members (35,400 in Bucharest). In Bucharest, one Omenia center served 100 bedridden pensioners with food, medical visits, and home care, funded by micro-payments (members contribute 3 lei/month plus dues). These grassroots networks highlight Romanian seniors' agency: they pool social capital to meet needs unmet by the state (which at the time "does nothing" for such community care).

While Omenia's model is largely offline and locally anchored, Romania has begun experimenting with digital mutual assistance platforms. For instance, Caritas Romania coordinated SeniorNet, an online NGO network for elder home care. Launched around 2013, SeniorNet joined 57 NGOs under one referral platform so that social and medical services could be coordinated across counties. This platform embodied social capital on the meso-scale — pooling NGO resources — but relied on in-person service provision. More recently, initiatives like The Care Hub use digital matching: older adults register via smartphone or tablet, and vetted caregivers are algorithmically paired for home visits. As of 2023, The Care Hub reports delivering 25,000+ care-hours to 425 families through a real-time app that connects seniors with nurses and social carers. This model aligns with Romania's integrated community care strategy, filling gaps where state services lag. Unlike China's time bank, Romania's platforms are decentralized and often EU-supported. Institutional logic is civic and network-driven rather than government-

programmatic.

Key differences: In China, the state orchestrates Time Banks with clear institutional backing. Social capital is activated through formal channels, encouraging prosocial exchange across generations. In Romania, eldercare mutual aid is more emergent from the community, such as via NGOs or associations like Omenia. Social capital arises from grassroots trust networks. Another contrast is scale: China's tech platforms target large urban populations, whereas Romanian efforts tend to be local, niche, and tied to specific communities. Yet both confront similar supply–demand mismatches: shortage of paid caregivers, rural service deserts, and seniors' isolation. These cases set the stage for the China–EU comparative analysis.

4. Methodology

This study synthesizes policy documents, academic literature, and primary survey data to analyze China's Time Bank and Romania's eldercare models. The study conducted a document analysis of official plans and media reports on elderly care pilots. A comparative framework was developed to categorize features of each model in terms of supply, demand, and service mechanism.

The study also implemented a survey of university students to gauge youth willingness to participate in elderly care volunteering, preferences for digital vs face-to-face modes, and perceived barriers. The survey included Likert-scale and open-ended questions. Though not clinical data, these responses inform the supply side (S) of the care models by estimating volunteer interest and constraints in each country.

Finally, the study constructed a simulation model of matching efficiency, defined as, where is the estimated supply of volunteer-hours and is the demand (number of older adults needing assistance). This simple ratio illuminates service adequacy: it implies sufficient volunteers, signals unmet need. The study simulated scenarios to identify critical bottlenecks under current policy conditions. This combination of qualitative and quantitative methods provides a robust picture of collaborative governance potentials.

5. Discussion

5.1. Synergies and tensions in China–EU collaboration

The comparison reveals both complementarities and frictions in a potential China–EU partnership on aging. Synergies include knowledge exchange: China's large-scale digital platforms offer technical models that could inform EU eldercare services. Conversely, EU experience in social welfare could enhance Chinese projects. Cultural exchanges, such as volunteer tourism programs or student internships in care NGOs, could build mutual understanding.

However, tensions arise from differing trust and regulatory regimes. In China, state sponsorship and media promotion foster public confidence in tech initiatives. In the EU, trust may depend more on NGO credibility and transparency. For instance, Romanian seniors might trust help from a known community NGO more than a foreign-run app. Building cross-border trust may thus involve joint branding or certification.

5.2. Feasibility of lightweight cooperation

Despite challenges, lightweight cooperation paths appear promising. Cultural exchange programs could share best practices in community care. Skill barter is another idea: Chinese volunteers could offer Mandarin lessons via video to European seniors in exchange for folk therapy or nursing tips. Policy alignment forums could bring

together elderly care officials to harmonize standards. Existing multilateral platforms might host sessions on aging. These do not require heavy legal change and could build goodwill.

At the same time, a major practical hurdle remains data compliance. Joint digital eldercare schemes must navigate GDPR vs PIPL. For example, PIPL requires a "security assessment" for any export of Chinese residents' data, while GDPR demands explicit consent and limits on data retention. Harmonizing policies might involve interim measures: e.g., China-based programs may keep Chinese user data in China, while sharing only aggregate statistics with EU partners. Mutual recognition of privacy certifications would be ideal, but it is complex geopolitically. This is an area of significant tension requiring detailed negotiation.

5.3. Policy implications

The study recommends several policy directions for China–EU collaborative aging governance:

Joint governance frameworks: Establish an institutional dialogue on aging to coordinate standards. This could draw on EU legislation and Chinese Five-Year Plans to identify interoperable objectives.

Institutional interoperability: Develop common digital trust models to verify volunteer identities and service records across borders. For instance, a Sino-EU "ElderCare Quality Seal" could certify apps meeting safety and privacy criteria.

Digital trust models: Leverage technology to build trust. China's pilots have experimented with blockchain to timestamp volunteer hours. The EU could study these for use in its own platforms. Conversely, the EU's strong eID and consent frameworks might be adapted into Chinese systems.

Standardization and funding: Promote international standards for elderly care apps. Joint funding mechanisms could support pilot programs. The EU's European Social Fund could finance exchanges, while China's government or Silk Road funds might invest in overseas aging projects.

Talent mobility: Ease cross-training of care professionals. For example, China's hospitals could host Romanian geriatric nurses (and vice versa) under short-term fellowships. Aligning vocational qualifications (through a mutual recognition agreement) would facilitate this.

Policy alignment: China's 14th Five-Year Plan explicitly calls for integrated smart elderly care and digital health. The EU Green Deal and Digital Strategy emphasize inclusivity. Policymakers should explicitly link these agendas to aging. For instance, the Green Deal's emphasis on rural development and pollution taxes could finance rural community care (as the EU Green Paper suggests shifting taxes to pollution to support social systems).

6. Conclusion

This study contributes to theory by illustrating how social capital theories operate under digital globalization. Bourdieu's view reminds people that who can access volunteering opportunities and resources depends on status and networks — a factor in China's urban/rural divide. Coleman's perspective highlights that community-embedded platforms (e.g., CARP Omenia) can produce broad public goods for seniors. Under globalization, digital platforms can extend these social capital benefits beyond localities, but only if trust and equity are built in.

Practically, China and the EU face parallel eldercare deficits, yet bring complementary assets. China's vast "silver economy" and tech innovation can be matched with the EU experience in social policy and legal safeguards. By exploring "lightweight" cross-national cooperation rather than heavy structural integration, policymakers may make incremental progress. Crucially, any collaboration must respect regulatory regimes:

GDPR and China's PIPL will shape how data flows in digital eldercare networks.

In sum, cross-border aging governance is complex but attainable through deliberate trust-building and alignment. This comparative study highlights that the social capital underpinning volunteer care transcends borders: families and communities worldwide will increasingly rely on peers — connected through apps and agreements — to help the growing elderly populations age with dignity.

Disclosure statement

The authors declare no conflict of interest.

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