

RESEARCH ARTICLE

Robots Instead of Immigrants: The Positive Feedback of Japanese Migration Policy on Social Isolation and Communication Problems

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Abstract: Demographic decline in contemporary Japan already leads to labor shortages, and there is still no existing fertility policy to stop the shrinking population. As an alternative, immigration policy could serve for replacement. However, the Japanese government opposes it mainly because of their idea of cultural homogeneity. Such thought has its historical and cultural background in the confrontation of centuries-long isolation and modern ethnic nationalism in the Meiji period. The recent plan of the Japanese leadership is to increase the role of robotics in affected professions such as caregiving. At this point, the social role of robots is going through a transformation and human-machine interactions increase the traditional communicational issues of Japanese people. *Hikikomori* is based on *amae* and receives positive feedback from a growing, more convenient non-human environment. As a long-term consequence, the already disintegrating Japanese society will face an extreme disaggregation in a not far future.

Keywords: Demographic decline, migration policy, robotics, hikikomori, communication problems

We can find plenty of news, several analyses, academic studies, essays, and books but also political statements, journal articles, and many other types of works in the topic of international migration about Japan's immigration issues. The first group of these papers deals with either the strict immigration policy of the country or with its demographic background, namely, the rapidly decreasing population. Certainly, economic interpretations are also implicated in, making huge efforts to find answers how the present state

evolved and how can be managed in the direction of better sustainability. For example, shrinking labor force, especially in certain sectors, can be replaced by robots, such as in care giving or catering industry. Thus, the second group of scientific works pays attention to these specific labor force segments and a smaller, more peculiar part of them examines the possibilities, technical, economic, and ethical problems of robotics and human relations (Szollosy, 2017; Sparrow, 2015). Although newspapers, websites, and magazines are

full of these inventions, considering the emerging demographic and social issues, until now there is no general recognition of the complex social processes among these assessments. More and more analyses draw alternative visions of the future but none of them realized the interconnectedness of the two phenomena, the whole spectrum of consequences and the underlying historical causes yet.

In this disquisition, I try to interleave the threads of Japan's demographic decline, restrictive immigration policy, and the fast technological development and governmental support of robotics. I also seek to find those historical roots from which Japanese society's present stance and future progress can be derived, such as the country's centuries-long isolation and emotionless communicational habits. On the one hand, the heritage of political culture has its longstanding effect, just like cultural values have their ones on the other hand. The belief of uniqueness is a common part of interpretations about aversive migration policy in Japan; and the limits of society for expressing emotions is often considered responsible for a huge variety of phenomena, such as suicide or social withdrawal, called *hikikomori* in Japanese. However, there is another field where both phenomena play the same role: attitudes toward immigration. Public opinion expresses rejection rather than acceptance of foreigners everywhere in the developed world (Organisation for Economic Co-operation and Development [OECD], 2010, p. 119), and despite the situation is not the worst in Japan (Green & Kadoya, 2013, p. 9; OECD & European Union, 2015, p. 223), both political will and social integration show difficulties (Milly, 2014, p. 60).

Robots seem to replace immigration, fulfilling labor shortages in specific fields but probably lessening the population too in the long run. The emerging role of robotics and robot-human relations will strengthen isolationism both among politics and human relations, despite any of its even emotionally functional advantages. During the last half of the century, positive attitudes toward robots, robotics, and artificial intelligence had firmly established in Japan. Individualism is already at its peak in Japanese society, at least partly because of the sudden change in economic conditions at the turn of the 1980s and 1990s but probably as a result of longer social

development. Nevertheless, at its current stand, robot-human intercommunications are not able to replace the whole complexity of interpersonal relations. However, their incline can rather increase isolation, along with appearing computer-robot addiction or false emotional connectedness through anthropomorphism.

Restrictive immigration policy is part of the isolationist heritage but also feeds back this process as far as virtual networks will substitute real-life human communities in a not so far future. As a consequence, the development of robotics will not only solve the problems of demographic decline in such cases as caregiving, or even in a greater sense, but also will fragmentize society to an extreme degree. Thus, migration policy has a much greater role in contemporary Japan than just being a tool for handling borders, passports, or managing socioeconomic integration and growing labor force demands. Migration policy represents the complexity of these social processes, including demographic transition and persisting isolationist traditions. Such social development can lead to an unprecedented transformation in the relationship between Japanese people and its social and material environment. Today, migration policy still has a chance to protect Japanese society from an irreversible fragmentation. In Korea, in a very similar situation, policy-making has chosen this way with promoting a multicultural society and supporting immigration in its different forms, such as attracting human capital and facilitating international marriages.

Demographic Decline and the Roots of Restrictive Immigration Policy

Japan is a modern society and can be described with all of its typical features. Life expectancy at birth is the second highest in the world (84.74 years in 2015, behind Monaco), infant mortality is only 0.2% (behind Monaco and Iceland), and the total fertility rate is at the 1.4 level. The age structure does not suggest that numerous people will reach a fertile age in the next generation. The proportion of 15–24 years old population was only 9.68%, while the rate of elderly above 65 was 26.59% in 2015 (and was also overtaken by Monaco; “CIA World Factbook,” n.d.). The sudden

decrease in population size begun in 2008 but fertility was moderate already in the 1970s. Total fertility rate had been continuously falling in the 1980s but was stabilized at its current value in 1994. The underlying reasons in the last decade of the 20th and the first years of the 21st centuries are as usual: reduction in the number of marriages, the growth of mean age of maternity at the first child's birth, but the changes in women's roles have outstanding importance in Japan's demographic transition (Atoh, 2001). According to the indicators of the millennium, Japan's population will continue to decrease: falling to one hundred million by 2050 and 64 million by 2100 (National Institute of Population and Social Security Research in Japan, 2002, p. 25). However, the more recent projection of the National Institute of Population and Social Security Research in Japan (2012) depicted an even worse outlook: their calculation came up to an 86.74 million population by 2060, according to the medium mortality/fertility assumption, and the total population will further shrink to 42.86 million by 2110. The rate of elderly above 65 will be over 40% already by 2060.

Shrinking and aging population needs changing of the population and economic policies because dependency ratio and economic performance are also deteriorating along with the decrease of the working-age cohorts. This latter is the main issue in Japan's current governmental strategies since the economy started to stagnate at the end of the 1980s. However, in a longer historical perspective, economic growth is the quintessence of the country because Japan's isolated, feudal society had been replaced with international competition in the second half of the 19th century. Total dependency ratio was 56.7% in 2010 and, according to the medium fertility projection, it will increase to 96.3% by 2060 (National Institute of Population and Social Security Research in Japan, 2012, p. 4). The first victims of this transformation will be institutions such as pension system and health care (Muramatsu & Akiyama, 2011, p. 427). This ineluctability was admitted by the government as early as in the 1990s (Ministry of Foreign Affairs of Japan, n.d.).

Despite any governmental communication, which suggests coherence, the economic policy goes contradictory in Japan. One typical example is the labor policy and female employment. To increase the latter

is one of the core element of Shinzo Abe's economic recovery policy (Prime Minister of Japan, 2013; Sposato, 2015), but growing female participation in the labor force is against traditional, extended Japanese family-household system (Schultz-Lee, 2010). The government tried to strengthen and, later, relaunch the multigenerational *ie* system since the beginning of the 20th century. However, Western values were already introduced with the new Meiji Civil Code, more accurately after the Second World War (Eto, 2016).

Social transformation was also strengthened by the continuous family formation of the non-inheriting sons, which was a common phenomenon for decades already in 1952. As a result, the role of nuclear families gradually increased in the last hundred years. Nonetheless, in 1980, the proportion of extended families was still 30% in Japan (Morgan & Hiroshima, 1983, p. 279), yet the rate of nuclear families, especially of childless couples, continued to grow. The proportion of those families, where 65 or older people lived with their children's family, fell from 46.7% to 17.5% between 1986 and 2010 (Ogami, 2012, p. 22).

In the past, women had an outstanding role in Japanese family for elderly care, which remains as an important value in contemporary Japanese society but is functionally fading away today. This task is more and more devolved to state institutions, and, as a consequence, a new economic cost appears. Social expenditures have been growing rapidly in Japan: while it was only 10.3% of the GDP in 1980, for 2011 such costs reached 23.1% of the annual production (OECD, 2016). Although, because the female employment incomes are growing spectacularly, the balance is difficult to calculate. In addition, while at the end of the 1980s the government had endeavored to take over the responsibility of elderly care (Ogawa & Retherford, 1993), today the attitudes of older people show an incline not to depend on their children (Campbell & Campbell, 2003, p. 5). The whole society's value system changed toward a less intergenerational connectedness (Yamato, 2006).

The sustaining capacity of the Japanese society can be increased by different means and, just like in many other countries, the extension of active age cohorts by raising the retirement age is the easiest. At least, it seems the most available, comparing to the

3.3% unemployment rate, which has been achieved in Japan in the past two decades and what is already at the limit of flexibility of the labor market. The Japanese government started to raise retirement age gradually: first from 60 to 61 years old in 2014, 62 years old in 2016, and, in an ascending system, it plans to reach the 65 years age limit by 2025. Nevertheless, the compulsory insurance faces maintenance problems and is already supplemented from the budget (Japan Pension Service, n.d.; “Japan’s pension giant,” 2014). To increase the willingness to have children, a new social security and tax program was introduced in 2010 (Ministry of Health, Labour and Welfare, n.d.). However, in the long run, the gap between ideal and completed number of children cannot replace the loss derived from the disappearance of those families who planned three and more children and from the emergence of childless families (Shirahase, 2009, p. 64). All these attempts cannot solve the world’s fastest aging society’s demographic and labor force issues.

A logically possible opportunity is replacement immigration. However, there was no Japanese political leadership in the past that supported it. In general, the reasoning behind the persistent opposition is deeply cemented in historical and cultural traditions, creating such complex phenomena as the modern nationalism after the long period of isolation. This ethnic nationalism is rooted in the homogeneity of the Japanese society and was influenced by Western thoughts during the Meiji period (Dale, 1986; Sharpe, 2014; Akashi, 2013; Kowner, 1999; Armstrong, 1989; Befu, 2001; Yamanaka, 2004; Yoshino, 1992). Kevin M. Doak (2007, p. 36) claimed that Japan even had not existed as a modern nation before 1853. The current government and its representatives often express positive opinion about immigration explicitly (Yoshida, 2015; Sieg & Sheldrick, 2015) but the long-term plans of the country are obviously against the support or even mitigation in migration issues.

The seclusion-based political thought has historical roots in the close and distant past but always meant more than a political plan or doctrine—even when its ideological character was rather emphasized between 1868 and 1945 (Wilson, 2002, p. 2). During and after the Meiji era, it was also public speaking and thinking, and in this way, the national idea became part of the

everyday life of a stable democracy and part of a movement acting to create a nation-state. Nationalism, therefore, is a discourse: in its most specific form of pure bloodedness (Robertson, 2002, p. 194), which had been taking its modern shape during the days of the Meiji period (Doak, 1997, p. 286). Such ultranationalist companies came to life that time as Genyosha, the Black Ocean Society in 1881, which was created by former samurais and was rather connected to the thought of rebirth of the feudal system at the beginning (Crowdy, 2006, p. 215). Such circles lived a vivid social and political life and they had an impact on the general thinking. The Black Ocean Society manipulated the 1880s and 1890s elections and even exploded a bomb in 1889 to achieve its goals (Gordon, 2003, p. 92). It was basically anti-Western and its Pan-Asiatic idealism helped many similar companions to be created. Anti-Westernism and grievance policy permeated the mass media (Swale, 2009, p. 160) included in textbooks (Wray, 1973) and covered almost all aspects of life (Saya, 2011). As a special form of these phenomena, movements advertising the uniqueness of Japan has also appeared in the period; and the thought of pure bloodedness gradually became more important than hostility against the West.

Certainly, uniqueness was not a new thought in Japan. It evolved from the centuries-long isolation as an ideological consequence, but after 1853 the pre-ethnic nationalism, social differences had been transformed and spread among the educated strata. At the establishment of the Yasukuni Shrine in 1869, it was much more characterized by the idea of nation-state than ever before. The memorial to the soldiers who gave up their lives for Japan is still one of the symbols of nationalism—generating many international conflicts—which has been regularly visited by prime ministers remembering the fallen heroes of the Second World War too (Tamamoto, 2011; Trefalt, 2003, p. 5). Such tools for making nation-state as mythical past and cultural superiority easily connected to ethnicity in a really ethnically homogenous society. After 1890, everything, from press through public speaking to exhibitions, was trying to prove the greatness of Japan and to cover its previous weakness against the West (Wilson, 2005). Therefore, blood lineage is only a modern ideology created in the 19th century, while in

reality, different ethnic groups inhabited the islands in historical times (Fukuoka & Mouer, 1997; Oguma, 2002).

The ideology survived both in the militarized era in the form of aggression, both during and after the period of the protectorate as a necessarily revisionist policy against the country's new constitution that was created by the U.S.A., Japan's main ally today. Despite the regularly highlighted necessity of maintaining an army for self-protection, the emperor's authority and the restriction on human rights served only to legitimize the conservative government in the past 70 years. The latest draft for the Amendment of the Constitution of Japan in 2012 is supposedly the closest ever to the governments' wish to express its intention to disassociate itself from Western liberal values. For this study, the most significant change would be the wiping out of individual liberties that would make constitutionally impossible to give citizenship and voting rights to permanently settled foreigners (Liberal Democratic Party, 2012, p. 4). The immigrants' situation in Japan is already stable but also clearly represents the described ethnic nationalism. Since the Immigration Control Order of 1951 (Japan: Immigration Control and Refugee Recognition Act of 1951), which deprived the Korean and other minorities of their previously acquired Japanese citizenship; their legal state remained essentially unchanged (Kondo, 2002, p. 418). Naturalization was only possible through a full assimilation, even with a compulsory changing of family names to Japanese but only few were willing to do so (Sharpe, 2011, p. 117).

There is always a very small rate of immigrants in contemporary Japan. It was only 1.58% in 2015, of whom only 65% were first-generation immigrants. Also, there were only a limited number of foreigners in Japan in the 1950s. Since the 1952 Immigration Act (Japan: Law No. 125 of 1952, Alien Registration Law), no legal changes related to immigration happened until 1981. The only significant minority group was the Korean, who were considered alien by the legal system as well as the public opinion (Lie, 2001, p. 171). Although South Korea and Japan signed a bilateral agreement in 1965, and as a result, the latter introduced the permanent resident status for the *Zainichi*, the situation was against integration and changed only a

little in 1991 when the special resident status replaced the previous (Kashiwazaki, 2000). The full integration of those Koreans whose ancestors had lived in Japan already before 1945 has not happened until today. Thus, Japan is the only developed industrial country in the world where fourth generational immigration issues occur (Chung, 2010).

Remarkable alteration had befallen in immigration policy only in 1989 when the revision of the Immigration Act allowed a wider space for large companies to import foreign labor. This resulted in a small increase in foreign labor immigration to Japan during the following two decades. The first significant group was female sex workers, whose number started to grow already before the 1989 changes in legislation. There were 24,000 in 1982, 71,000 in 1988, and by the 1990s over 50,000 so-called "entertainers" came to Japan annually; this situation was stabilized by 1996 (Japan Immigration Association, 1997; Herbert, 1996; Douglass & Roberts, 2000). The second group of immigrants—the low-skilled or unskilled foreign workers—appeared in Japan when the country became unable to complement its growing labor force demand from urbanization (Nakajima, 2014, p. 656). They worked in low-paying jobs and most of them were of Japanese origins according to the government's intention to call only those whose bloodline fits to the country's "profile." Trainee programs begun that time to resolve the emerging immigration, whose number reached one million by the end of the decade. The euphemistic word covered guest workers in real, but the nationalist policy is considered necessary to preserve ethnic homogeneity to maintain economic prosperity (Shipper, 2002; Yamanaka, 1996; Tsuda, 2009).

New resident statuses were created in 1989, especially for Brazilian *Nikkeijin*. Marriage migration and Chinese workers' immigration started to increase. However, foreign wives' and the trainees' situation were not satisfactorily arranged (Yamanaka, 1993; Sellek, 2001). Only security policy and border regimes strengthened after 2001, introducing biometric data collection in 2007 or increasing the number of border guards and the amount of money spent for it. Along with these changes, both the workplace situation and social integration of immigrants became more difficult through stricter monitoring and increasingly harder

access to social benefits. It reached a kind of peak in 2009 when a newer supplement to the Immigration Act deprived them of the social security services (Hayakawa, 2010; Ministry of Justice, 2016).

The integration of immigrants with Japanese ascendants—mainly from Brazil but also from other South American countries—has failed. Most of the fourth generation also have Brazilian parents and their identity is rather not Japanese. They speak the language only a few or none, and they are also struggling with employment problems (Chapple, 2014; Chitose, 2009, p. 22). The only real development in immigration policy relates to the intellectual elite because Japan's point-based immigration system is different to any other comparable schemes. It allows only the exceptionally high-quality workforce to be able to reach permanent settlement (Oishi, 2014). There is no dual citizenship in Japan, family unification is still missing from the legislation, and Japan is the only developed country where a direct law against discrimination is lacking (Kondo, 2011, 2013). Japan's value system and immigration policy are based on *nihonjinron*, the superiority of Japanese identity; thus, the recognition of ethnic minorities rather strengthens than weakens social hierarchy, of which they are at the bottom (Ishiwara, 2011).

Alternative to Immigration: Robotics in Skill Shortages

According to the development of modern nationalism in Japan, the political leadership's decisions are based on preserving ethnic homogeneity, traditional Japanese values, and social and economic achievements. It does not matter if today Japanese values thought to be traditional are not similar to the historical ones at all; the point is the approach of political thought and act. Japan's demographic decline and the ensuing problems (such as shrinking and aging population, decreasing sustainability and economic performance, female employment growth, and eroding traditional female roles in family and society) lead to skill shortages. The most well-known case is of caregivers, which is an underpaid job, giving a generally insufficient perspective for Japanese youth of whom less and less chooses this profession (Vogt, 2008). Given that immigration is not an option for the government,

the situation is tense. Nonetheless, Japan's leading technology in robotics can substitute the shortfall; thus, questions increasingly arise about the functionality of robots than their social competitiveness.

It certainly does not mean that labor import in caregiving is totally lacking. At the time when the technical internship programs were created in the 1990s, international cooperation also began. For instance, the Japan International Training Cooperation Organization (JITCO) was established in 1991. Along with the increasing labor demand in Japan, institutions were created in the Philippines, such as the non-stock, non-profit, non-government organization, Japan IT Standards Examination Philippines PhilNITS. It was founded in 2002 with Japanese capital and knowledge to sustain an examination system for Filipino workers applying for work in Japan. Finally, in 2009 the Japan-Philippines Economic Partnership Agreement was signed to facilitate labor immigration, and the first group of 190 Filipino health workers arrived that year (JITCO, n.d.; <http://philnitsjitse.weebly.com>; Ministry of Foreign Affairs of Japan, 2009). However, according to the statement of the Ministry of Health and Labour of Japan in 2014, 2.53 million caregivers will be required to sustain Japanese health system by 2025 but with the current trends, only 2.15 million will be available. Already in the first year, caregivers started to be involved into technical internship programs. A plan was born in 2015 to extend foreign employees' term up to five years, but these efforts will scarcely be enough to fill the growing gap (Takahata, 2016; Suzuki, 2007; Tullao & Cortez, 2003).

Returning to functionality, robots used in healthcare can be divided into roughly two groups: the first contains those substitute or support home care, such as the humanoid robots which can perform basic functions in the home of a patient or even of an average family. Famous examples are Honda's Asimo and Toyota's Human Support Robot. Some other robots were created for quite simple tasks, like Riba which is only able to lift and place somewhere a human in its arms (Toyota Motor Corporation, 2016; RIKEN-TRI Collaboration Center for Human-Interactive Robot Research, 2016; <http://asimo.honda.com/default.aspx>). These robots were purposely developed for human caregiving, and the most advanced ones, like Asimo, are already at

the stage that they can move and run like humans, and recognize moving objects, poses, gestures, voices, and faces. Given that they can distinguish movements and voices, can sense distances and speeds, the robots can follow humans and obey the instructions immediately. They are reacting to their environment, the relationship between these robots and humans are excessively interactive.

Robots in the second major group are supporting rehabilitation and are used worldwide already, treating dementia for example. The well-known robot seal, Paro, widens the opportunities of animal therapy where living animal is not available (PARO Robots, 2016; Pfadenhauer & Dukat, 2015). Another type in this broad group is the Hybrid Assistive Limb or HAL, an exoskeleton, which is reading the bio-electric signals sent by human brain and assists motions of walking (Cyberdyne, n.d.).

Meanwhile, the market situation has also changed: although previous health and personal care products satisfied the needs of the gerontology market, today a significant part of the old age society in Japan is rich, healthy, and open to innovations. The so-called silver market creates opportunities for economic mechanisms—along with state investments—to extend such technologies (Storz & Pascha, 2011, p. 225). For those living alone or far away from medical services, such innovations help to bypass the distance or lack of support and, at the same time, replace a huge part of home services originally provided by humans. There were 3.94 million people in Japan in 2014 who lived with physical disability needing support (Cabinet Office, 2014, p. 29). Seeing the number of beds and technical equipment for hospitals Japan is in the best position among the OECD countries but slips back to the 13th place considering the nurses per patients and lagging to the 29th place by the number of doctors (OECD, 2015, p. 27). The antagonism is conspicuous and Shinzo Abe imagined Japan's future based on robotics already in 2007 in his plan called Innovation 25. The government strongly supports the development of robotics since 2012, and in 2015 it has become part of a long-term strategy plan (Robertson, 2007; "Ministry of Economy, Trade and Industry," 2015). Although media report about leading politicians still considering the possibility and necessity of

immigration, it has been already declared that the best solution for labor shortages is robotics instead of immigration. Most recently, Yoichi Kaneko, a former economist of the OECD and an Upper House member of the Democratic Party of Japan, delivered his opinion about care profession to be filled rather with robots than immigrants (Murai, 2016). The prime minister declared in 2016 that population shrinkage is rather an incentive for boosting the development in robotics (Sieg & Tanekaka, 2016).

Along with their utilization in the army, transport, and many other fields, robots offer solution in elderly care. Thus, it is raising widely discussed demographic, economic, and ethical questions, and the answers increasingly suggest yes to them (Charova, Schaeffer, & Garron, 2010). Nevertheless, economic opportunities are more far-flung than it is already recognized by the government. In case Japan becomes market leader in robotics, different global trends would be initiated, which will solve the question of immigration without any direct political decision (Kohlbacher & Rabe, 2015, p. 33). The public opinion about robots is already much more positive in Japan than in Western countries because of the different popular cultures. According to the perception of the average Japanese people, a humanoid robot lives together and plays with humans, helps them in the household and at work, and even experiences similar thinking and behavior patterns, as surveys demonstrate it (Robertson, 2010a, 2010b). With a long history of positive attitudes and socialization, the Japanese are accustomed to accept instructions from robots. The hotel, opened next to Tokyo Disney Resort in the summer of 2016, was the second which employed robots at the reception desk instead of humans. Given that cleaning and supplying rooms is also fully automatized, the hundred-room facility needs only a six-member crew instead of the usual personnel of 20 (Kakuta, 2016).

The usage of robots meets a hard, ethical opposition already at its initial stage (Tamburrini, 2015). In caregiving, the very obvious criticism is that while emotional bond between caregiver and patient is necessary, this cannot be substituted by a senseless machine (Bubeck, 2002, p. 162). Positive emotions and human warmth are prerequisite for the helping profession. The basic function of Paro was precisely

made to evoke such feelings in its user. HAL is a tool that exists in a quasi-symbiosis with human or is a kind of extension of it; thus me-him relation does not even appear. Employing robots, however, affects not only the emotions of clients but has an influence on nurses' motivations too, though this cannot be extensively discussed until its spread in helping and healing professions will give sufficient experience (Qureshi & Syed, 2014). Shinzo Abe's deepest aim in his 2007 concept was to rebirth a traditional Japan, depressed by Western values. Its only surviving institution is the household registration called *Koseki*, which preserve the patriarchal social approach of the *ie*, accepted as the basic unit of society in the 1890 constitution. Eloquent signs of the archaic viewpoint in the system are the following: it registers only on family name, usually men's name; stigmatizes women living and children born out of wedlock; and does not register non-Japanese citizens. Innovation 25 imagines robots as part of the revitalized household community and anti-Western attitudes are best expressed in Abe's 2014 constitution-reinterpretation (Robertson, 2014, p. 579). And how do all of these come true? On November 7, 2010, Nanto's mayor officially handed Paro's *Koseki* to its inventor and registered the robot seal to the scheme, giving the inventor's name as its father (Jones, 2016). Therefore, in 2010 a robot obtained such rights as Japanese minorities could not acquire for four generations, it is named a real Japanese: it was made in Japan.

Nevertheless, robots are not the only solution for the issues of an aging society without immigration. Long-stay tourism is on the agenda in Japan since the Silver Columbia Plan of 1986 developed by the Ministry of Trade and Industry. This agenda was abandoned for being considered an act against the elderly (Leheny, 2003, p. 139; Campbell, 1992, p. 239) but some Japanese at their old age still chose to live in cheaper homes under mild climate. The Philippines or Thailand and many other places in the world give homes to them now, and tourism industry has also recognized the opportunity already in the 1990s. (Hongsranagon, 2005, 2006). Local health and support services are adapted to the needs of these Japanese communities abroad. Nonetheless, instead of immigration, there is still a short-term chance to move to capital-intensive

technologies by increasing investments or make caregiver profession more attractive by raising salaries or just increasing women's employment (Ganelli & Miake, 2015). Still, demographic changes are unstoppable.

Social Changes in Connection with the Spread of Robots

As Youichi Itoh described in 1991 (1991, p. 101), more than hundred books and articles had been already written about the unique characteristics of Japanese interpersonal communication with avoidance, anxiety, and uncertainty as major features (Duronto, Nishida, & Nakayama, 2005). The most important traits of Japanese people are shyness and inconvenience when approached by foreigners. However, as cultural homogeneity can be associated with communication difficulties, the Japanese people extends this trait even to their native counterparts. Thus, individual differences in Japan does not account as much as in Western countries, so communication problems with foreigners is highly similar to those with co-nationals in Japan (Kowner, 2002; Duronto & Nakayama, 2005; Keaten, Kelly, & Pribyl, 1997). Long term historical isolation developed cultural homogeneity and oversophisticated and hypersensitive communication at the same time, along with the contribution to the consciousness of national identity.

Humanoid robots are overwhelmingly anthropomorphic and, with the spread of their everyday usage and existence in households, interactions between humans and robots will be as common as it is now between humans. The only exception is that people with communication issues can solve their problems with mechanic partners easier because their expectations of a communicational situation are lower compared to those with humans. The feeling about their ability to shape the environment simultaneously, in fact, the feasibility of robotic partners to be shaped dissolves such tensions.

As a consequence of anthropomorphism, emotional attachments develop between humans and robots, especially among children; the earlier an encounter, the more probable the emotional bond forming. This is highly correlated to the following: when

knowledge about environment is less, the desire to learn and for social relationships intensifies. This phenomenon causes an increase in anthropomorphism during childhood as a tool to avoid loneliness but is also present in humans as a general incline (Waytz, Cacioppo, & Epley, 2010; Hutson, 2012). Such relationships can satisfy social needs, however, only to a certain point, and even only in case if we hypothesize that there is an analogy between the anthropomorphism of robots and animals because the latter is a usual component in treating social anxiety and mental illness (Cusack, 2013). Indeed, in emotional connections to robots, anthropomorphism already has a great role (Waytz & Norton, 2014). Robots fulfill the need for congeniality and similarity; we shape them in our own image; thus they are not strangers, at least not for our perception. However, this convenient situation of the self—without any compulsion to adapt—further confirms the rejection of the acceptance of cultural and other differences, and, as a consequence, contact with aliens becomes increasingly difficult. Along with the spread of robots, such combined individual psychological mechanisms lead to the consolidation of the hostile public opinion against immigration.

Nonetheless, another aspect of human-machine relations come into view at this point, and its importance increases as such relations become more commonplace. Communicating with machines, besides all of their anthropomorphic characteristics, leads to dependency and isolation. Addiction, however, comes to different dimensions of the relations as it happens in case of the Internet addiction. Communication itself can be the object of such pathologic relation, just like cyber-relations and anonymity (Griffiths, 2000; Heron & Shapira, 2003). In this case, virtuality becomes more important than real-life contacts and family or community. If texts can serve as transitional spaces or as extensions of minds communicating in a virtual reality, robots are much more suitable to personify this virtual reality. Such addiction disorders are linked to existing mental health issues, such as depression and its interconnectedness with isolation (Young & Rogers, 1998; Young, 1999, 2010; Suler, 2010). As it was demonstrated in Korea, addiction to the different activities of virtual reality is related to interpersonal

difficulties and to a higher intention to avoid reality (Whang, Sang-Min, Lee, & Chang, 2003).

The number of isolated people not leaving their apartments for weeks or even years, is already the highest in Japan. Their number is difficult to estimate, showing a huge variety between half and two million (Agerholm, 2016; Mathews & White, 2004, p. 7). This phenomenon—called *hikikomori*—is highly related to addictive behavior. While 80% of patients who suffered from social withdrawal had experience with intoxicants, the more important is that their withdrawn state itself is rather like an addiction (Saito, 2013, p. 49, 85). One of its main characteristics is the lack and fear of intimacy, spiraling individuals to self-restraining process. However, an artificial environment composed of a human and one or more robots has the potential to satisfy elementary needs for intimacy without generating fears of interpersonal relationships. Thus, the dissuasive effect and the supporting effect for social reintegration, created and sustained by the tension between isolated state and normal social life, diminishes.

The *hikikomori* is the result of a peculiar social development deriving from the traditional Japanese value of dependency called *amae* (Doi, 1973; Maynard, 1997). Living together has a greater acceptance than alone, and in certain economic conditions, it results to children not needing it to establish independent household even reaching adulthood. The concept of self in Japan is deeply rooted in the collectivistic thought of *ie* in which responsibility is directed toward the household, parents, ancestors, and in a more abstract way toward nation. The conception of self, therefore, is rather like a particle within the collective identity (Johnson, 1993, p. 76). In the developed, contemporary economic situation, the psychological disposition found its ground to unfold, resulting such phenomena as *parasaito shinguru* (parasite single) and *hikikomori* (social withdrawal). Losing faith in their parents' traditional work-centered, tough lifestyle, the life of the youth of the 1980s became empty. Among the youth-isolation condition—which means more and more people above 40—a “relation-less society” emerged, characterized by the growing number of lone deaths, people who die alone, and whose bodies are found only later. The role of suicide, homelessness, or

truant children are all signs of a social disaggregation in Japan. (Allison, 2015)

In the past, isolationism made the complexity of nation as a whole community confronted with the outside world. In today society, however, as a result of the mutual influence of Western individualism and the traditional consciousness of dissimilarity, the self confronts the totality of its environment as an entire complex. The destructive effect of individualism on the *ie* is clearly visible during the 20th century, even if the government is trying to rebirth it until now. However, historical processes are not reversible. In addition, *ie* represented Japanese society as a whole; thus we can talk about the disintegration of the family-household system and the basic cohesive fabric of society at the same time. The encounter of the isolationism and the Western ethnic nationalism in the 19th century created a still living unique Japanese ideology lying behind migration policy. At the same time, the role of the individual in the traditional isolationism confronted with modern individualism, traditional community integration and its extension to the nation as community has been transformed.

Conclusion

The threads of this complex social development are highly interrelated and it is difficult to eliminate them. Nationalist migration policy has its historical background just like social withdrawal, communicational difficulties, and hostility have their own historical and cultural roots, and sometimes components are the same. The continuously changing relationship between them has not reached a final point yet, but there is a synergy between them. Migration policy has an outstanding responsibility to manage this process and to think about it considering all of the corollary. Meanwhile, the population does not stop decreasing and robotics rapidly evolve. International isolation and the underlying specific individualism can increase to the extreme the problematics of Japanese society, creating an extremely atomistic population, hardly be called society anymore. Interpersonal relations will be replaced by a virtual world in local, family, and even the most intimate level. Robots become more and more sophisticated and realistic.

In a hypothetical point of the future, there must be a stage of perfection when they will be able to fully satisfy human needs in its every aspect. The rise of robot-human relations has a positive feedback on interpersonal isolation. Today, Japan might have the last chance to alter the direction of such development, and the decision is in the hands of the government because the relationship between voters and leadership reminds hardly to the traditional Japanese dependency between children and parents.

One last remark might emphasize the risks of such social development. As robotics is increasingly replacing unskilled workforce in the world, unemployment grows in underdeveloped countries faster than in the developed world. The simple reason is that the rate of replaceable jobs is higher there. However, another reason is that growing social expenditures in rich countries will more and more devolved to employers. As a result, capital export from developed countries increases; thus technological development in target countries rise, replacing more and more human labor with robots. This contributes to expand differences in unemployment rates between global south and west. Growing unemployment rates will further strengthen outward migration pressure in developing countries and increase immigration in the highly developed world. As history showed many times, growing immigration pressure triggers opposition in host countries; thus the international seclusion of Japan in a global migratory system can only be reinforced in this way.

Conflict of interest

None.

Ethical clearance

The study was approved by the institution.

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