The Belt and Road Initiative.

Demographic trends, labor markets and welfare systems of member countries

(First draft)

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1. Introduction

The Belt and Road initiative (BRI) aims to revive the ancient Silk road in a modern perspective. In the Chinese political agenda since 2013, it was presented as a development strategy focusing on connectivity and cooperation between a large numbers of countries (China + 64 Asian, European, and African countries) that jointly account for around 30 per cent of world GDP.

The aim is to promote economic co-operation, to enhance the orderly free-flow of economic factors and the efficient allocation of resources, as well as to further market integration.

It is envisaged that member countries will be connected as shown by the following map through:

- three land routes linking 1) China to Europe through Central Asia and Russia, 2) China with the Middle East through Central Asia, 3) China and Southeast Asia, South Asia and the Indian Ocean
- two maritime roads that (4) link China with Europe through the South China Sea and Indian Ocean and (5) connect China with the South Pacific Ocean through the South China Sea.

Up to now the main focus of this ambitious program has been on infrastructure, construction materials, railway and highway, automobile, real estate, power grid, iron and steel. Little or no attention has been paid to the human factor that appears only mentioned to indicate that one of the aim of the initiative is to create people-to-people bonds and promoted exchanges and dialogues between different cultures.

The paper will show that the BRI (BRI) countries present very different demographic characteristics and will be affected by different demographic trends. The paper aims to understand the impact of such trends on the labour market of the BRI countries, their implications for the sustainability of the welfare systems as well as the existence of demographic complementarities that, if correctly exploited, could become an important asset of the Initiative. We will therefore concentrate not only on ageing as such, but on the evolution of the population structure.

Moreover, a basic tenant of the analysis is that population is not an exogenous variable whose future values can be forecast on the basis of independent assumptions on fertility, mortality ad migration; the implication is that population trends depends on the interaction between the demographic and economic spheres. The analysis will therefore be based on the zero migration scenario produced by the United Nations Population Division.

2. Demographic characteristics of the BRI countries

The 65 countries of the BRI differ under many political, economic, and social aspects. Limiting ourselves to demographic aspects, the group includes not only the two most populous countries of the world (China and India), but also other four countries with more than 100 million inhabitants (Indonesia, Pakistan, Bangladesh, Russia, and Philippines). These seven countries account for 77.4 per cent of BRI population and 48.2 per cent of world population. The BRI includes also some of the smallest countries in the world: in 15 the population is between 5 and 10 million and in 22 below five million.

With a total population of 4.6 billion inhabitants, in 2015 the BRI countries, accounted for 62.3 per cent of the world population (Table 1). In a zero migration scenario its population is projected to increase to almost 5.2 billion in 2030 and to 5.6 billion in 2060. However, the natural rate of growth of the BRI population is projected to be much lower than that of the Rest of the world (RoW) so that its world share will decline to 60.6 per cent in 2030, and to 54.8 per cent in 2060.

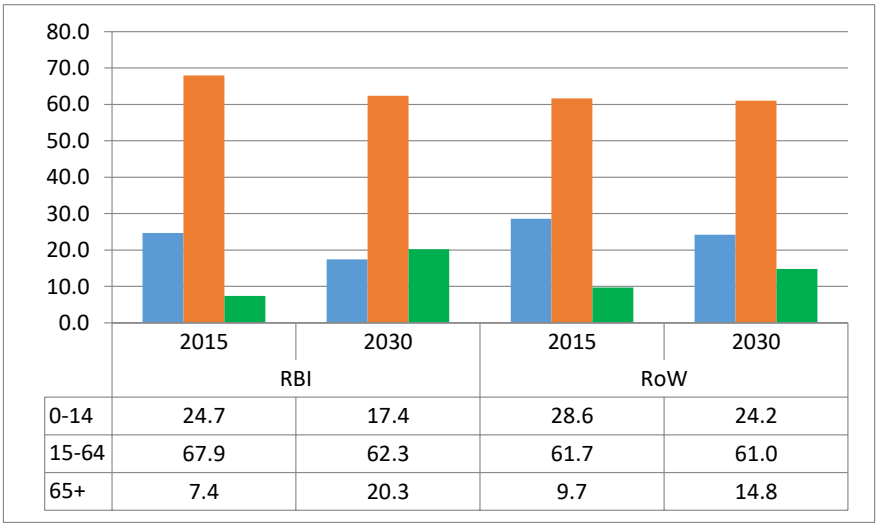
Table 1 – World, Belt and Road Initiative (BRI) and Rest of the World (RoW); population by main age group; 2015, 2030 and 2060

	0-14	15-64	65+	Total		0-14	15-64	65+	Total
	RBI					World			
2015	1,135	3,125	342	4,601	2015	1,931	4,841	612	7,383
2030	1,106	3,480	596	5,182	2030	2,026	5,528	998	8,552
2060	976	3,494	1,135	5,604	2060	2,092	6,309	1,818	10,219
2015-30	-28	354	254	580	2015-30	96	688	386	1,169
2030-60	-131	14	539	423	2030-60	66	781	820	1,667
2015-60	-159	369	793	1,003	2015-60	162	1,469	1,206	2,836
	Rest of the world					RBI/World			
2015	796	1,715	270	2,782	2015	58.8	64.6	55.8	62.3
2030	920	2,049	402	3,371	2030	54.6	62.9	59.7	60.6
2060	1,117	2,815	683	4,615	2060	46.6	55.4	62.4	54.8
2015-30	124	333	132	589	2015-30	-4.2	-1.6	3.9	-1.7
2030-60	197	767	280	1,244	2030-60	-8.0	-7.6	2.8	-5.7
2015-60	321	1,100	412	1,833	2015-60	-12.1	-9.2	6.6	-7.5

Source: Elaboration on UN DESA, 2017

At the same time the aging process of the BRI countries will be more pronounced. In 2015 the age structure of the RoW was more skewed with the young representing 28.6 per cent and the elderly 9,7 per cent, while the corresponding values of the BRI countries were 24.7 per cent and 7.4 per cent (Graph 1). In 2060 the percentage of elderly in BRI countries is expected to climb to 20.3 per cent versus a value of 14.8 per cent of the RoW, where still almost 1/4 of the total population will be below 15.

Figure 1 - Belt and Road Initiative and Rest of the World; percentage composition of total population by main age group,; 2015 and 2030



	RBI		RoW	
	2015	2030	2015	2030
0-14	24.7	17.4	28.6	24.2
15-64	67.9	62.3	61.7	61.0
65+	7.4	20.3	9.7	14.8

Source: Elaboration on UN DESA, 2017

A closer look shows also that BRI countries largely differ in terms of age distribution In 2015, the percentage of elderly was below 5 per cent in 27 countries, between 5 and 10 per cent in 14 countries and only in one, Bulgaria, it was above 20 per cent. In 2060 the situation is expected to be totally different. Only five countries will register a percentage of elderly below 10 per cent, in nineteen the value will be between 10 and 20 per cent; in twenty-four between 20 and 30 per cent, and in the remaining seventeen 30 percent or more, with record values in Singapore (39.4 per cent), in the United Arab Emirates and Qatar, with 49.3 and 50.2 per cent respectively.

3. China and India

In the next 50 years BRI member countries will be affected by different demographic trends that are well exemplified by China and India. Both countries will register a sharp decline of the

young and a large expansion of the elderly (Table 2). But while in China between 2015 and 2060 working age population will decline almost by 28 per cent, in India it will increase by 30 per cent (Table 3).

Table 2 – China and India; population by main age group; total values in million and percentage composition; 2015, 2030 and 2060

	China							
	Absolute value				Percentgage composition			
	0-14	15-64	65+	Total	0-14	15-64	65+	Total
2015	247	1,015	135	1,397	17.7	72.6	9.7	100.0
2030	223	978	246	1,447	15.4	67.6	17.0	100.0
2060	182	731	395	1,308	13.9	55.9	30.2	100.0
	India							
	Absolute value				Percentgage composition			
	0-14	15-64	65+	Total	0-14	15-64	65+	Total
2015	375	860	74	1,309	28.7	65.7	5.6	100.0
2030	358	1,034	128	1,521	23.6	68.0	8.4	100.0
2060	299	1,124	281	1,704	17.6	65.9	16.5	100.0

Source: Elaboration on UN DESA, 2017

Table 3 – China and India; population by main age group; total change in million and percentage change composition; 2015-30, 2030-60 and 20165-60

	China							
	Absolu te change				Percentage change			
	0-14	15-64	65+	Total	0-14	15-64	65+	
2015-30	-24	-37	111	50	-9.8	-3.6	82.0	3.6
2030-60	-41	-247	149	-139	-18.4	-25.2	60.7	-9.6
2015-60	-65	-284	260	-89	-26.4	-27.9	192.5	-6.3
	India							
	Absolute value				Percentgage composition			
	0-14	15-64	65+	Total	0-14	15-64	65+	Total
2015-30	-17	174	54	212	-4.5	20.2	73.7	16.2
2030-60	-59	89	153	184	-16.4	8.7	119.5	12.1
2015-60	-76	264	208	395	-20.2	30.6	281.3	30.2

Source: Elaboration on UN DESA, 2017

As a consequence between 2015 and 2060:

- In China total population will decline by 5 per cent, in India it will increase by 30 per cent, making India the largest country in the BRI;
- In China the percentage of elderly will pass the 30 per cent mark, in India it will reach only 20.5 per cent.

The demographic trends of the other 63 countries of BRI show that they can be classified into three groups: the first group includes countries like China where WAP will decline in both the periods we are considering; the second group includes countries like India where WAP will increase in both periods; the third group includes countries where WAP will increase in the first period and decline in the second.

4. The demographic transition and its main phases

At the origin of these different demographic trends is a complex phenomenon known as demographic transition (DT) that is defined as the passage from a traditional ....

The inception of the DT process is determined by the socioeconomic and cultural development reached by a country; therefore, different countries entered the DT in different moments of time and in any given moment are located in different phases of the process.

To better understand the impact of the DT, it can be useful to point out the three phases that in absence of migration all countries will that its three phases (Table 4):

1. In the first, the death rate declines mainly as a consequence of the decline in infant and child mortality, while the birth rate remains at the original level; therefore the share of young people increases, while the total population increases at an increasing rate; .
2. In the second phase the rate of birth starts to decline progressively converging toward the rate of mortality; therefore total population continues to increase, but at a decreasing rate; due to the arrival of cohorts of increasing size, the share of working age population (WAP) increases, while the share of young declines; it is at the end of this phase that the aging process starts.
3. The third phase begins when the the birth rate falls below the death rate; this implies a decline in total population and an increase in the the share of the elderly, while the shares of WAP and of the young decline.

Table 4 - The phases of the demographic transition

	First phase	Second phase	Third phase
Mortality rate	Declines rapidly	Declines	Increases
Birth rate	Remains constant	Declines and converge toward the mortality rate	Not defined
Natural rate of growth	Increases	Declines	Becomes negative and its absolute value increases
Share of young people	Increases	Declines	Continue to decline
Shared of working age population	Declines	Increases	Declines
Share of elderly	Declines	Start to increase at the end of the phase	Increases at an increasing rate

5. A demographic classification of the BRI countries

If we consider the trend of WAP, the 65 countries of the BRI can be classified into three groups. In the first, the most advanced along the path of the demographic transition, WAP will decline in both the periods we are considering (2015-2030, and 2030-2060). This group is epitomized by China. In a second group, WAP is expected to increase in the first period and decline in the second. Finally, in a third group WAP will increase in both periods. This group is well represented by India. The first group includes 25 countries, the second 14, and the third 26.

The 25 countries of the first group are those that entered the DT first and have been proceeding along its path for a longer period or countries in which the DT has proceeded at higher speed. In all of them the TFR is well below the replacement level of 2.1 children per woman, and is not projected to be back to replacement level by 2060. In 2015 the average TFR of the group was 1.53. In spite of common demographic features, these countries do largely differ with respect to geographical position, size, and religion. Five of them are Asian countries, the other 20 are in Easter, Northern and Southern Europe. The group includes countries whose population is predominantly Buddhist, Muslim, Catholic, Orthodox and Protestant. Finally, while China is the most populous country in the world and Russia has about 144 million inhabitants, the population of 6 countries of this group is included between 5 and 10 million, that of 11 between 1 and 5 million, while in one the population is less than 1 million.

The second group is the smallest, its population accounting in 2015 for less than 6% of total BRI population. Generally speaking and as a group, these countries are lagging behind the countries of the first group on the path of the DT. The average level of their TFR is 2.1 with the national levels being just above or just below the replacement level. This group includes 6 South and South-eastern Asian countries and 8 western Asian countries including six Arab states that border the Persian Gulf (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The two largest countries are Iran and Vietnam, followed by Saudi Arabia. All the countries of this group, but Bhutan, are Muslim countries.

The third group is the largest both by number of countries (26) and total population size (54.9% of 2015 total BRI population). The countries of this group are those in which the DT is less advanced; the average TFR is 3.2 children per woman, but values range from a maximum of 5.9 registered in Timor Leste and a minimum of 2.1 registered in Sri Lanka. All the countries of this group, but Egypt, are in Asia and the full range of main religious beliefs are represented. To be noted that, differently from the others, the third group includes some of the most populous countries on the planet. In fact, beside India, there are other 5 countries (Indonesia, Pakistan, Bangladesh, Philippines, Egypt) whose population already is or shortly will be in excess of 100 million; together with India these 5 countries account for more than 80 per cent of the total population of the group.

➢ The different demographic trends of three groups of countries

To fully appreciate the way in which the DT is going to progressively impact on the three groups of countries we will analysis the three groups of countries in the two periods. (Table 5).

In the ***first period*** we can observe that :

i. The rate of growth of **total population** is smallest for the first group and largest for the third: the first group is projected to register a marginal increase (+2%), the second to increase by 14.6%, and the third by 19.6%. Given the different size of the three groups the increase registered by the third group of countries (494 million) accounts for 86.6% of the total, while those of the first (36 million) and of the second (40 million) account respectively for 6.4% and 7%;
ii. The rates of growth of the **young people** present the opposite ranking: the young people of the first group are expected to decline by 9.7%, those of the second by 3.3 %, while those at of the third will remain substantially constant;
iii. The **WAP** of first group will decline by 5.2% (-67 million); that of the second will increase by 12.5% (40 million) and that of the third by 23.9% (391 million). In conclusion between 2015 and 203,0 the increase in WAP registered by the BRI countries is almost completely concentrated in the third group of countries.
iv. The **elderly** will increase in all three groups; in this case 53% of the additional elderly of the BRI countries will be in the first group, 7% in the second and 40% in the third.

In the second period (2030-2060):

Total population will decline only in the first group of countries (-10.5%), it will increase by 7.8 per cent in the second and by 19.4% in the third;

The **Young people** will decline in all three groups the decrease being progressively less pronounced moving from the first group -17.5% (- 50 million) to the second -15.3% (- 9 million), to the third -9.5% (- 72 million);

WAP is projected to decline in the 39 countries that compose the first and second group; in the first group the expected decline is equal to 306 million, almost 1/4 of 2030 level, while in second group the absolute decline is just 25 million which however represent 11.3% of the initial value; in the third group WAP will increase by 342 million (16.9%): the increase in the third group is just sufficient to offset the decline of the first two groups;

The **elderly** will increase in all three groups:166 million (50.8%) in the first, 59 million (183.2%) in the second, and 355 million (133%) in the third, so that in the BRI countries taken together the number of elderly will increase from 2015 to 2060 by 792 million.

Table 5 - Population by main age group in the BRI and in three groups of countries; absolute value in 2015, 2030 and 2060; absolute change and percentage change in 2015-2030 and 2030-2060; absolute values in million.

	Total				First group			
	0-14	15-64	65+	Total	0-14	15-64	65+	Total
	Absolute values							
2015	1,135	3,125	342	4,601	313	1,296	192	1,802
2030	1,104	3,474	594	5,172	283	1,229	326	1,838
2060	973	3,485	1,134	5,591	233	924	492	1,649
	Abasolute change							
2015-30	-31	348	253	571	-30	-67	134	36
2030-60	-131	11	539	420	-50	-306	166	-189
2015-60	-162	360	792	990	-80	-372	299	-153
	Percentage change							
2015-30	-2.7	11.1	74.0	12.4	-9.7	-5.2	69.4	2.0
2030-60	-11.9	0.3	90.8	8.1	-17.5	-24.9	50.8	-10.3
2015-60	-14.3	11.5	232.0	21.5	-25.5	-28.7	155.5	-8.5
	Second groupl				Thirdt group			
	0-14	15-64	65+	Total	0-14	15-64	65+	Total
	Absolute values							
2015	64	195	15	273	757	1,634	135	2,526
2030	62	219	32	313	759	2,025	236	3,020
2060	52	195	91	338	687	2,366	551	3,605
	Abasolute change							
2015-30	-2	24	18	40	2	391	102	494
2030-60	-9	-25	59	25	-72	342	315	584
2015-60	-12	0	76	65	-70	733	417	1079
	Percentage change							
2015-30	-3.3	12.5	121.4	14.6	0.2	23.9	75.6	19.6
2030-60	-15.3	-11.3	183.2	7.8	-9.5	16.9	133.3	19.4
2015-60	-18.2	-0.2	526.9	23.6	-9.3	44.8	309.7	42.7

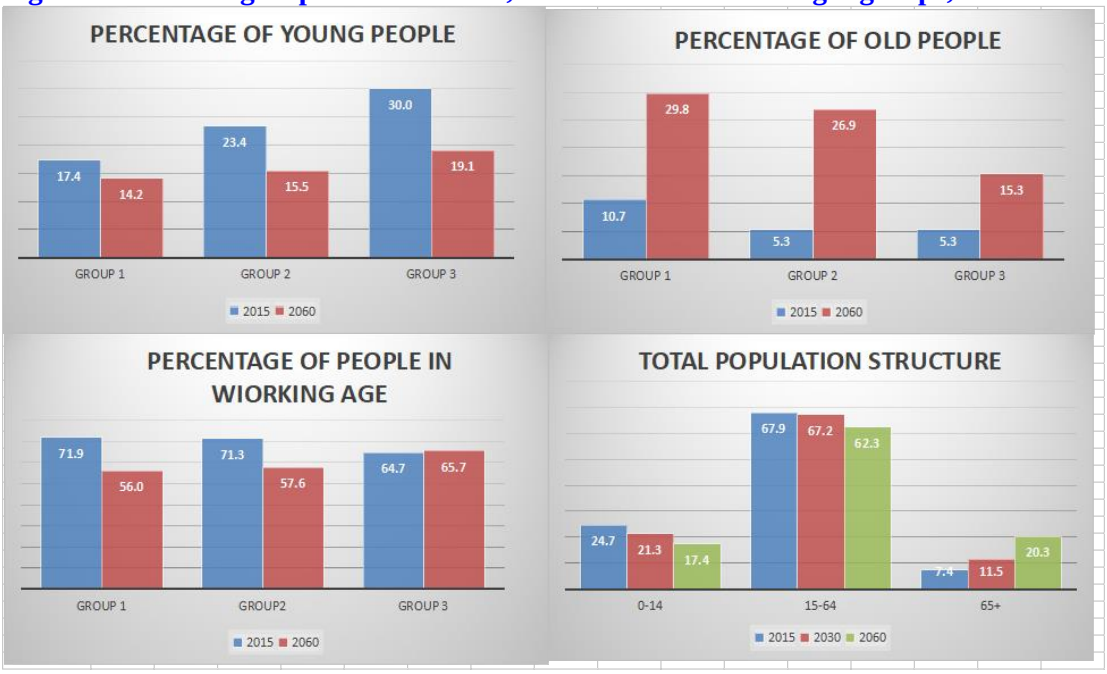
➢ Population structure by main age groups

The trends we have just outlined will obviously cause dramatic changes in the population structure that will reflect the progression of the demographic transition on each group of countries, while the relative position of each group will remain the same, since it is determined, as we have already underlined, by the moment in time in which the DT began .

Figure 2 shows that the share of the young people will progressively decline in each group, the share of the elderly will progressively increase, while the ranking of the three groups with respect to each age group will remain the same. In the first and second group the share of WAP will register a very consistent decline since the countries belonging to them are already at the end of the second phase of the DT; in the third group, whose countries are on the average still in the initial phase of the DT, the share of WAP increases.

In conclusion, over the 2015-2060 period, in absence of migration, the total population of the BRI is projected to increase by almost 1 billion (21.5 per cent). From the age group perspective this is the result of a decline of the young by 162 million (-14.3%), an increase of WAP by 360 million (+11.5%) and of the elderly by 792 million (232%). As a consequence: the percentage of the young will notably decline (from 24.7% to 17.4 %) that of the elderly notably increase (from 7.4% to 20.3%), while the share of WAP will loose 5.6 percentage points.

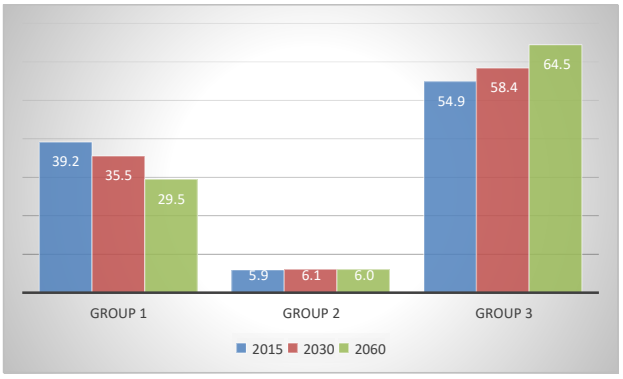
Figure 2 - BRI groups of countries; evolution of main age groups; 201\5-2060



Source: Elaboration on UN DESA, 2017

From the perspective of the three groups of countries we are considering, the increase of the total population is the result of a decline of the first group, a small increase registered by the second and of a huge increase (1.07 billion) registered by the third. As a consequence, the demographic weight of the first group will decline by almost ten percentage points that will be gained by the third, while the share of the second will remain substantially unchanged (Figure 3).

Figure 3 - BRI groups of countries; share of totakl population in 2015, 2030 and 2060



Source: Elaboration on UN DESA, 2017

➢ The national level

The previous data clearly suggest that aging is going to be a phenomenon that will invest all the countries of the the BRI, spreading from those more advanced along the path of the demographic transition to those that, by now, are just at the beginning of this process.

While Table 6 (that reports the ranking of the percentage of elderly in the 65 countries of the BRI in 2015, 2030 and 2060) allows to have a detailed vision of the problem, some summary data are sufficient to understand the magnitude and pervasiveness of the process.

Table 6 - BRI countries; ranking by the percentage of elderly over total population; 2015, 2030, and 2060

	2015		2030		2060
Bulgaria	20.1	Slovenia	25.9	Qatar	50.2
Latvia	19.3	Singapore	24.5	United Arab Emirates	49.3
Croatia	18.9	Croatia	24.3	Singapore	39.4
Estonia	18.8	Estonia	23.2	Poland	35.2
Lithuania	18.7	Bulgaria	23.2	Slovenia	33.6
Slovenia	18.0	Poland	23.1	Oman	33.1
Czechia	18.0	Czechia	23.0	Bahrain	33.1
Hungary	17.5	Lithuania	22.8	Czechia	32.6
Romania	17.0	B&H	22.8	Slovakia	31.6
Serbia	16.3	Latvia	22.6	B&H	31.5
Ukraine	15.9	Hungary	22.2	Croatia	31.4
B&H	15.7	Slovakia	20.9	Thailand	30.9
Poland	15.6	Romania	20.7	Hungary	30.9
Georgia	14.6	Serbia	20.4	Maldives	30.8
Belarus	14.3	Ukraine	20.3	Moldova	30.3
Slovakia	14.1	Montenegro	20.0	China	30.2
Montenegro	13.9	Belarus	19.8	Estonia	30.0
Russia	13.5	Albania	19.6	Iran	29.8
Albania	12.5	Russia	19.6	Romania	29.1
TFYR Macedonia	12.5	Thailand	19.5	Bulgaria	28.7
Singapore	11.7	Georgia	18.1	TFYR Macedonia	28.5
Israel	11.2	TFYR Macedonia	18.1	Albania	28.3
Armenia	10.9	Moldova	17.1	Latvia	28.2
Thailand	10.6	China	17.0	Montenegro	27.6
Moldova	9.9	Armenia	16.9	Ukraine	27.5
China	9.7	Sri Lanka	14.7	Armenia	27.4
Sri Lanka	9.3	Israel	14.0	Kuwait	26.7
Lebanon	8.1	Vietnam	12.3	Lithuania	26.7
Turkey	7.8	Turkey	12.1	Brunei Darussalam	26.3
Kazakhstan	6.8	Lebanon	12.1	Serbia	26.3
Vietnam	6.7	Azerbaijan	11.7	Belarus	26.3
Malaysia	5.9	Brunei Darussalam	10.4	Lebanon	26.1
Azerbaijan	5.7	Kazakhstan	10.4	Vietnam	25.8
India	5.6	Malaysia	9.8	Russia	24.6
Nepal	5.5	Iran	9.8	Turkey	23.6
Myanmar	5.3	Myanmar	8.6	Georgia	22.9
Indonesia	5.1	India	8.4	Bhutan	22.8
Bangladesh	5.0	Bahrain	8.3	Malaysia	22.8
Iran	5.0	Indonesia	8.2	Saudi Arabia	22.1
Bhutan	4.7	Kuwait	8.0	Azerbaijan	21.7
Philippines	4.6	Uzbekistan	7.9	Sri Lanka	21.6
Pakistan	4.5	Bangladesh	7.6	Bangladesh	21.0
Kyrgyzstan	4.3	Kyrgyzstan	7.6	Israel	18.8
Uzbekistan	4.2	Maldives	7.5	Uzbekistan	17.8
Cambodia	4.1	Bhutan	7.4	India	16.5
Maldives	4.1	Saudi Arabia	7.2	Nepal	16.3
Brunei Darussalam	4.1	Nepal	7.1	Kazakhstan	16.0
Turkmenistan	4.1	Turkmenistan	7.0	Cambodia	15.5
Syria	4.0	Mongolia	7.0	Indonesia	15.5
Laos	3.9	United Arab Emirat	6.9	Mongolia	15.1
Mongolia	3.9	Philippines	6.7	Myanmar	14.9
Jordan	3.8	Cambodia	6.6	Laos	14.1
Timor	3.5	Qatar	6.5	Kyrgyzstan	13.6
Tajikistan	3.3	Syria	6.4	Syria	13.4
Iraq	3.1	Oman	5.8	Turkmenistan	13.3
Saudi Arabia	3.1	Tajikistan	5.6	Jordan	13.0
State of Palestine	3.0	Pakistan	5.5	Philippines	11.9
Yemen	2.9	Laos	5.4	Tajikistan	11.7
Afghanistan	2.5	Jordan	5.3	Pakistan	10.8
Bahrain	2.3	State of Palestine	4.0	State of Palestine	9.7
Oman	2.3	Timor	3.8	Yemen	8.9
Kuwait	2.1	Iraq	3.6	Afghanistan	7.6
Qatar	1.1	Yemen	3.4	Iraq	7.3
UAE	1.0	Afghanistan	3.1	Timor	6.1

Source: Elaboration on UN DESA, 2017

In 2015 only Bulgaria registered a percentage of elderly above 20%, while in 40 countries the percentage was below 10%. In 2030 16 countries are projected to register values over 20% and the number of countries with values below 10% will drop to 31. In 2060 in two countries the percentage will reach 50%, Qatar and United Arab Emirates, in 15 it will be between 30% and 40%, in 25 between 20% and 30%, in 19 between 10% and 20% and only in 5 below 10%. Moreover while by now the ranking is lead by European countries with Singapore and Thailand still preceding China, in 2060 the ranking will be lead by Gulf States with Singapore in the third place.

These shocking data are raising a growing concern for the financial sustainability of the pension and long-term care systems. However equally or even more worrying is the trend of WAP, the source of human resources that will responsible for production, economic growth and the provision of services for the elderly.

In this perspective it is important to remember that aging is a relative phenomenon. The absolute numbers of elderly is important to understand the size of the problem to be faced, but the increase in the percentage of elderly is not only the result of more people above 65, but also of less people below that age limit.

Between 2015 and 2030 the natural balance of the WAP in the BRI will be positive since the decline of the first group will be largely offset by the increase in the third; however, in the following period the total WAP of the BRI will remain substantially stable since the decline of the first group will become larger, WAP will decline also in the 14 countries of the second group and the growth of WAP in the third group will notably diminish.As a matter of fact a closer look would show that around the middle of the century the total WAP of BRI countries will be decreasing .

Given the extremely different size of the 65 countries of the BR,I the absolute change of WAP is dominated by a few of them. On the negative side, over the 2015-2060 period, the major role is obviously played by China (-284 million), followed by Russia, Thailand, Ukraine and Poland, while the other countries with a negative balance account for around 48 million with respect to a total decline of almost 400 million. On the positive side the dominant role is played by India (+264 million), followed by Pakistan (112 million), Egypt (53 million), Indonesia and Philippines (46 million each), Iraq (40 million), Bangladesh and Afghanistan (33 million each), Yemen (22 million) and Syria (11.6 million). The other countries where the increase in WAP will be less than 10 will account for a total of 72 million (9.8%).

Table 7 - Selected countries; working age population; absolute change in million (2015-30, 2030-60, 2015-60) and percentage change (2015-2060)

	2015-30	2030-60	2015-60			2015-30	2030-60	2015-60	
	Absolute change		Abs. change	% change		Absolute change		Abs. change	% change
China	-36.8	-246.8	-283.6	71.4	India	174.0	89.5	263.5	36.0
Russia	-12.7	-16.1	-28.8	7.2	Pakistan	43.9	68.3	112.2	15.3
Thailand	-2.9	-12.1	-15.0	3.8	Egypt	19.2	33.8	53.0	7.2
Ukraine	-4.1	-6.9	-11.1	2.8	Indonesia	30.7	15.5	46.3	6.3
Poland	-3.0	-7.5	-10.5	2.6	Philippines	18.3	27.9	46.2	6.3
Others	-7.4	-40.8	-48.3	12.1	Iraq	11.3	29.2	40.6	5.5
Total	-66.9	-330.3	-397.2	100.0	Bangladesh	28.1	5.3	33.4	4.6
					Afghanistan	11.7	20.6	32.4	4.4
					Yemen	8.2	13.5	21.7	3.0
					Syria	5.1	6.6	11.6	1.6
					Others	40.3	31.5	71.7	9.8
					Total	390.8	341.8	732.6	100.0

Source: Elaboration on UN DESA, 2017

However, from a labour market analytical perspective it is more relevant to consider the percentage change (Table 8). Starting from group 1, in the first period 14 countries register a decline of WAP in excess of 10% and the only Asian country in this group is Singapore (-10.3%). Thailand ranks 20th, China 23rd (-5.6%). In the second period the changes become more relevant, even considering that the period lasts the double, for many countries, especially those in Asia. In this ranking Singapore is now second (-33.2%), Thailand 7th (-26.2%) and China 12th (-25.2%). If we consider the 2015-2060 period we can see that the WAP of Singapore is projected to decline with respect to 2015 by 39.1%, that of Thailand by 30.6 % and that of China by 27.9%.

Table 8 - First group of countries; total and yearly percentage change; 2015-30, 2030-60, and 2015-60

		2015-30			2030-60			2015-60	
		Total	Yearly		Total	Yearly		Total	Yearly
1	Lithuania	-13.8	-0.9	Moldova	-33.7	-1.1	Moldova	-41.0	-0.9
2	Bulgaria	-13.7	-0.9	Singapore	-32.2	-1.1	Poland	-39.5	-0.9
3	Ukraine	-13.4	-0.9	Poland	-31.8	-1.1	Singapore	-39.1	-0.9
4	B&H	-12.7	-0.8	Hungary	-29.0	-1.0	Hungary	-37.6	-0.8
5	Russia	-12.6	-0.8	Bulgaria	-27.1	-0.9	Bulgaria	-37.1	-0.8
6	Latvia	-12.3	-0.8	Slovakia	-26.9	-0.9	Ukraine	-35.9	-0.8
7	Slovenia	-12.1	-0.8	Thailand	-26.2	-0.9	B&H	-35.1	-0.8
8	Hungary	-12.1	-0.8	Czechia	-26.2	-0.9	Slovakia	-34.2	-0.8
9	Belarus	-12.1	-0.8	Ukraine	-26.0	-0.9	Croatia	-33.9	-0.8
10	Croatia	-12.0	-0.8	B&H	-25.7	-0.9	Slovenia	-33.3	-0.7
11	Poland	-11.3	-0.8	Romania	-25.7	-0.9	Romania	-32.6	-0.7
12	Moldova	-11.0	-0.7	China	-25.2	-0.8	Czechia	-32.6	-0.7
13	Singapore	-10.3	-0.7	Croatia	-24.9	-0.8	Latvia	-32.0	-0.7
14	Slovakia	-10.0	-0.7	Slovenia	-24.2	-0.8	Thailand	-30.6	-0.7
15	Romania	-9.3	-0.6	Latvia	-22.5	-0.8	Lithuania	-29.4	-0.7
16	Estonia	-8.8	-0.6	TFYR Macedonia	-21.8	-0.7	Belarus	-29.3	-0.7
17	Czechia	-8.7	-0.6	Belarus	-19.6	-0.7	Russia	-28.7	-0.6
18	Serbia	-8.4	-0.6	Estonia	-19.4	-0.6	China	-27.9	-0.6
19	TFYR Macedonia	-6.0	-0.4	Russia	-18.4	-0.6	Estonia	-26.5	-0.6
20	Thailand	-5.9	-0.4	Lithuania	-18.2	-0.6	TFYR Macedonia	-26.4	-0.6
21	Georgia	-5.0	-0.3	Serbia	-17.8	-0.6	Serbia	-24.7	-0.5
22	Montenegro	-4.6	-0.3	Armenia	-17.1	-0.6	Montenegro	-19.0	-0.4
23	China	-3.6	-0.2	Montenegro	-15.1	-0.5	Armenia	-18.6	-0.4
24	Albania	-3.6	-0.2	Albania	-13.0	-0.4	Albania	-16.2	-0.4
25	Armenia	-1.9	-0.1	Georgia	-9.2	-0.3	Georgia	-13.8	-0.3
	Total	-5.2	-0.3	Total	-24.9	-0.8	Total	-28.7	-0.6

Source: Elaboration on UN DESA, 2017

The WAP of the countries in the second group is subject to changes not very pronounced (Table 9). However this is not necessarily true for the single countries. In fact, in the first period 10 of the 14 countries of the second group are expected to register a growth of WAP in excess of 10% which implies yearly average rates ranging between 0.7% and 1.4%. In the second period in two gulf countries (the United Arab Emirates and Qatar) the decline will be in excess of 50 percent which correspond to yearly values close to 2 and in other three gulf countries the yearly values will be included between 0.7% and 1.4%.

Table 9 - Second group of countries; total and yearly percentage change; 2015-30, 2030-60, and 2015-60

		2015-30			2030-60			2015-60	
		Total	Yearly		Total	Yearly		Total	Yearly
1	Bhutan	21.0	1.4	United Arab Emirates	-57.1	-1.9	United Arab Emirates	-55.3	-1.2
2	Saudi Arabia	19.5	1.3	Qatar	-55.3	-1.8	Qatar	-53.0	-1.2
3	Maldives	18.2	1.2	Bahrain	-29.0	-1.0	Bahrain	-21.0	-0.5
4	Oman	17.2	1.1	Kuwait	-25.6	-0.9	Kuwait	-18.0	-0.4
5	Malaysia	15.2	1.0	Oman	-21.1	-0.7	Oman	-7.6	-0.2
6	Lebanon	15.2	1.0	Iran	-17.9	-0.6	Iran	-6.1	-0.1
7	Iran	14.4	1.0	Maldives	-14.9	-0.5	Azerbaijan	-1.8	0.0
8	Brunei Darussalam	12.5	0.8	Brunei Darussalam	-10.3	-0.3	Maldives	0.5	0.0
9	Bahrain	11.3	0.8	Azerbaijan	-7.6	-0.3	Brunei Darussalam	0.8	0.0
10	Kuwait	10.1	0.7	Vietnam	-5.0	-0.2	Vietnam	3.7	0.1
11	Vietnam	9.2	0.6	Bhutan	-4.6	-0.2	Lebanon	13.5	0.3
12	Azerbaijan	6.2	0.4	Saudi Arabia	-3.6	-0.1	Malaysia	15.2	0.3
13	Qatar	5.1	0.3	Lebanon	-1.4	0.0	Saudi Arabia	15.2	0.3
14	United Arab Emirates	4.1	0.3	Malaysia	0.0	0.0	Bhutan	15.5	0.3
	Total	12.5	0.8	Total	-11.3	-0.4	Total	-0.2	0.0

Source: Elaboration on UN DESA, 2017

In the third group, the growth of WAP is quite impressive with an average yearly value of 1.6% in the first period and 0.6% in the second. Even more impressive are some of the national values (Table 10). In the first period the average yearly rate of growth of WAP is expected to exceed 4% in two countries, in four 3% and in six 2%. The average yearly growth of WAP will decline from 1.6 % in the first period to 0.6 in the second and this trend is shared by all the countries of

the group. However also in the second period, two countries, Timor Leste and Iraq, will register a yearly value above 3, two above 2 and 9 above 1.

Table 10 - Third group of countries; total and yearly percentage change; 2015-30, 2030-60, and 2015-60

		2015-30			2030-60			2015-60	
		Total	Yearly		Total	Yearly		Total	Yearly
1	Timor	65.7	4.4	Timor	115.0	3.8	Timor	256.1	5.7
2	Afghanistan	65.6	4.4	Iraq	92.5	3.1	Iraq	199.6	4.4
3	State of Palestine	56.1	3.7	State of Palestine	78.9	2.6	Afghanistan	181.2	4.0
4	Iraq	55.7	3.7	Afghanistan	69.7	2.3	State of Palestine	179.4	4.0
5	Yemen	53.8	3.6	Yemen	57.8	1.9	Yemen	142.7	3.2
6	Syria	46.8	3.1	Tajikistan	52.6	1.8	Tajikistan	111.2	2.5
7	Jordan	43.8	2.9	Jordan	44.9	1.5	Jordan	108.3	2.4
8	Tajikistan	38.4	2.6	Egypt	43.8	1.5	Syria	107.3	2.4
9	Pakistan	38.3	2.6	Pakistan	43.1	1.4	Pakistan	97.9	2.2
10	Laos	34.9	2.3	Syria	41.2	1.4	Egypt	91.5	2.0
11	Egypt	33.1	2.2	Kyrgyzstan	33.8	1.1	Philippines	71.8	1.6
12	Nepal	32.5	2.2	Philippines	33.8	1.1	Laos	68.5	1.5
13	Cambodia	28.5	1.9	Israel	31.8	1.1	Kyrgyzstan	67.1	1.5
14	Philippines	28.4	1.9	Cambodia	25.2	0.8	Cambodia	60.9	1.4
15	Bangladesh	26.6	1.8	Laos	24.9	0.8	Israel	60.4	1.3
16	Kyrgyzstan	24.8	1.7	Turkmenistan	23.4	0.8	Nepal	54.2	1.2
17	Turkmenistan	23.6	1.6	Mongolia	17.3	0.6	Turkmenistan	52.5	1.2
18	Israel	21.7	1.4	Nepal	16.3	0.5	Mongolia	41.3	0.9
19	Mongolia	20.4	1.4	Kazakhstan	14.7	0.5	Bangladesh	31.6	0.7
20	India	20.2	1.3	India	8.7	0.3	India	30.6	0.7
21	Uzbekistan	20.0	1.3	Uzbekistan	7.8	0.3	Uzbekistan	29.4	0.7
22	Indonesia	17.8	1.2	Indonesia	7.6	0.3	Kazakhstan	28.4	0.6
23	Myanmar	16.4	1.1	Myanmar	4.0	0.1	Indonesia	26.7	0.6
24	Turkey	15.3	1.0	Bangladesh	3.9	0.1	Myanmar	21.1	0.5
25	Kazakhstan	11.9	0.8	Sri Lanka	2.2	0.1	Turkey	15.7	0.3
26	Sri Lanka	9.0	0.6	Turkey	0.4	0.0	Sri Lanka	11.4	0.3
	Total	23.9	1.6	Total	16.9	0.6	Total	44.8	1.0

Source: Elaboration on UN DESA, 2017

In conclusion the BRI countries (that represent a very important share of world population) are affected by an unprecedented aging phenomenon and a growing demographic polarization.

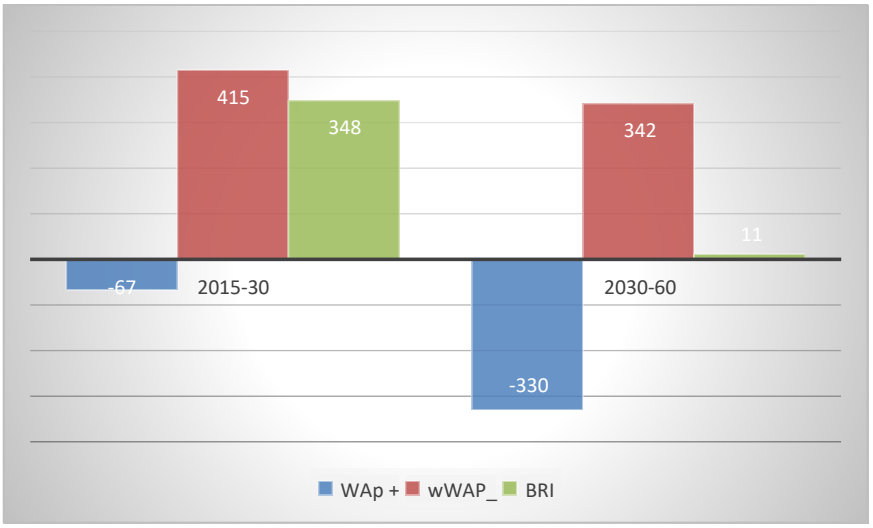
6. Labour market implications

As it was previously shown and is summarized in Figure 4, between 2015 and 2030 the WAP of the BRI will increase by 348 million as the balance of a decline of 67 million in 25 member countries and an increase of 345 in the remaining 40. Between 2030 and 2060 WAP will increase by only 11 million as a balance between a decline of 331 million in 39 countries and an increase of 342 million in the other 26 countries.

As we have already pointed out, this will be caused by the progress of the DT in the countries of the BRI that will:

I. reduce the gap between generational entries and exits in the countries in the first phase;
II. bring 14 countries from the second to the third phase;
III. increase the gap between generational entries and exits in the countries already in the third phase.

Figure 4 - WAP increase in BRI countries at the beginning of the demographic transition, decline in BRI countries at the end of the demographic transition, and total balance; 2015-30 and 2030-2060; values in million



Source: elaboration on UN DESA data; UN DESA 2017

We have also seen that, behind these summary data and general trends, the national situations are extremely diversified since BRI countries are widely spread along the path of the DT so that the average yearly rates of change of WAP between 2015 and 2060 are included between +5.7% in Timor and -0.9% in Lithuania.

This situation has far-reaching and opposite labour market implications. More specifically, a growing number of BRI countries will be affected by a situation of potential structural labour shortage, while a decreasing number of countries will face a potential structural[1] excess of labour. In the first case the local labour supply will be largely insufficient with respect to the demand, while in the second the labor demand will not be sufficient to satisfy the local supply, over a long time horizon. We define these situations "structural" since both the positive and negative gap between labour demand and labour supply will be such that labour market mechanisms as well as the adoption of suitable demographic, employment and labour policies can not generate a situation of equilibrium; only immigration can bring labour market equilibrium in the first group of countries, while only emigration can alleviate unemployment, social tension, and rising poverty in the second.

However both mass emigration and mass immigration have very high human, social and economic costs. Therefore, both groups of countries should strive strive to reduce as much as possible their opposite labour market disequilibrium through demographic policies, employment policies and active labour policies (Bruni, 2014, 2017, 2018; Bruni and Tabacchi, 2011).

The first group of countries should try to increase labour supply; in the short run, by

i. raising labour market participation (also by optimizing the territorial distribution of WAP by providing timely vacancies information);
ii. raising the legal retirement age;
iii. providing training and retraining to reduce qualitative miss-matches between labour demand and supply;

and in the long run by trying to raise fertility.

They should also try to decrease demand by promoting productivity and delocalizing production. The second group of countries should try to reduce fertility and, whenever possible, choose a labour intensive development model.

[1] The term potential is used because both situations are the result of the interaction of the demographic and economic spheres so that we can imagine exceptional events that could prevent the very probable outcome we have suggested. We can, for instance, imagine a dramatic economic crisis that would drastically reduce labour demand or a dramatic pandemic reducing supply.

The different suitability and scope of the policies we have just listed and their possible impact on the labour market have been extensively discussed in previous papers (Bruni, 2014, 2017, 2018), while it cannot be the goal of this paper to analyse the extremely different situations of the 65 BRI member countries.

The more limited scope is to argue that:

- ✓ the opposite demographic situations that will characterize the BRI countries and will create serious labour market problems and endanger the sustainability of the welfare systems could be turned in an opportunity

and

- ✓ China could exploit its leading situation in BRI not only to its advantage, but to the advantage of all member countries.

7. Policy suggestions

We have argued that in the next 45 years if not for all, certainly for the great majority of BRI countries imigration or emigration (depending on the phase of the DT they will have reached) will not be an option but a necessity.

For what relates to China I have already stressed (Bruni, 2018b) that:

China will need foreign labour before becoming old and rich.

The international experience shows that the presence of labour needs promotes irregular immigration flows that not only are at the origin of dramatic legal, social and economic problems, but normally ends up generating a labour supply not in line with the need of arrival countries. There is also notable evidence that the best way to avoid irregular immigration is by eliminating the need of foreign workers and this can be done by regular migration. In substance

Regular migration is the best way to prevent irregular immigration

It would therefore be in the interest of China and all other BRI countries affected by labour shortage to design, develop and implement a policy framework that would allow to manage immigration flows together with the countries characterized by an excess of labour. Such flows should maximize the potential of demand driven migrations providing arrival countries with workers endowed with the skills they need. At the same time, it will be in the interest of the countries with a structural excess of labour to reduce their labour supply in order to reduce labour market pressure, alleviate poverty and social tension.

To reach this goal it is necessary to follow a long path bristling with political and technical problems, while a series of preconditions should be met, even in order to start the process.

In the first place, the thesis presented in this and previous already cited papers and the conclusions to which they bring do not find much consensus neither at the academic, nor political level. A series of reasons stand on the way.

In the first place a structural disequilibrium of the labour market does not fit in the neoclassical theoretical framework in which the real wage is expected to always equate labour demand and supply. This is compounded by the lack of social and political correctness off this thesis. A myopic vision that foreign workers are not needed together with the xenophobic feelings of which no country is devoid could make difficult to adopt a pragmatic approach aimed to provide the market with the needed supply of foreign labour.

If such rational approach to migration would prevail, then the first step should be the creation of a technical structure (a Labour Market and Migration Observatory, LaMMO) in charge of jointly building labour market and demographic scenarios of labour needs by educational level for China as a whole and for all its provinces. This would require:

- ✓ To build a data base with the necessary demographic, labour market and economic data;

- ✓ To perfect the methodology: i) to analyse labour market flows and skill needs by educational level and ii) to jointly build demographic and labour market scenarios by educational level;
- ✓ To produce an analysis of demographic and labour market trends of the Chinese labour market at the provincial level;
- ✓ To build demographic and labour market scenarios of labour needs by educational level for all the provinces of China and for China as a whole;
- ✓ To produce a report pointing out the relative role that internal and international migration should play and suggest the demographic, economic, social and educational policies to be adopted to reduce the need of foreign labour.

The presentation of the report should represent the occasion for a high level discussion of the migration issue aimed to validate the methodology adopted and the empirical evidences collected by the LaMMO. If the results will find academic approval and political support, then a second international phase could begin.

China could invite representatives of BRI countries and present the idea of jointly managing migration flows coherently with the needs of the countries characterized by a situation of labour shortage.

If a political agreement would be reached, then a technical phase could start aimed to produce an international setup of the Observatory with the participation of experts of interested countries and the support of their statistical offices. While the Observatory would produce the scenarios of shortages and excess of labour by educational level, the interested countries could design and implement the procedure to manage migrations flows and organize the placement and social integration of migrants.

A fundamental point is that the scenarios should allow to define the training activities to be carried on in departure countries to allow migrants to have the skilled needed by arrival countries. Such training activities should be financed by arrival countries that will enjoy the human capital of the migrants.

The joint management of migration flows will benefit both arrival and departure countries (Bruni, 2017). The first would be able to have the workers with the skills necessary to continue on the path of economic growth and social development. Regular immigration will also represent the best defense against irregular migration. Departure countries will benefit by a reduction in their excess supply and the consequent alleviation of poverty, while training activities and the possibility to properly exploit the remittances sent by migrants could represent a key element in promoting economic and social development in the countries affected by a structural excess of labour.

8. Conclusions

The demographic transition is causing a worldwide transformation of the population age structure. While ageing has attracted a lot of attention from scholar and politicians worried of the financial sustainability of the welfare systems, much less attention has been paid to another even more relevant effect of the DT: the polarization of the word that will be increasingly divided between a growing number of countries whose working age population is dramatically declining and a decreasing number of countries whose working age population is exploding.

The BRI countries that represent a very important share of world population are affected by the same trends: an unprecedented aging phenomenon and a growing demographic polarization.

Once we consider the two trends together, it becomes immediately evident that they create a situation of strong complementarity suggesting that the solution of the ageing problem will require not only specific policy measures on the pension and long-term care systems, but would greatly benefit from a migration policy framework capable of providing a rational answer to both the structural shortage of labour that will affect the countries more advanced along the

path of the demographic transition (China *in primis*) and the structural excess of labour that will characterize the countries in the initial phase of the DT.

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