



# KINGDOM OF THE NETHERLANDS—NETHERLANDS

## SELECTED ISSUES

February 2019

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# KINGDOM OF THE NETHERLANDS— NETHERLANDS

## SELECTED ISSUES

January 23, 2019

Approved By  
European Department

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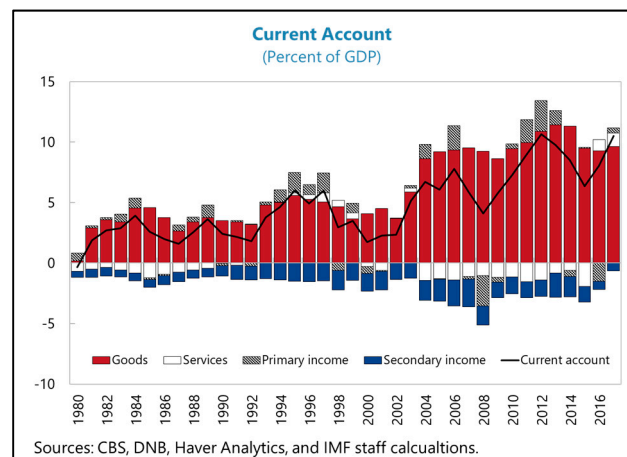
# CORPORATE SAVING IN THE NETHERLANDS<sup>1</sup>

The Netherlands' current account (CA) surplus in percent of GDP is among the highest in the world. The non-financial corporation (NFC) net saving is the largest contributor to the CA surplus. To understand the high NFC saving, this chapter provides details of the sources and uses of the NFC saving, highlights the role of multinational corporations (MNCs), and discusses the implications to the external sector assessment and policy recommendations.

## A. Introduction

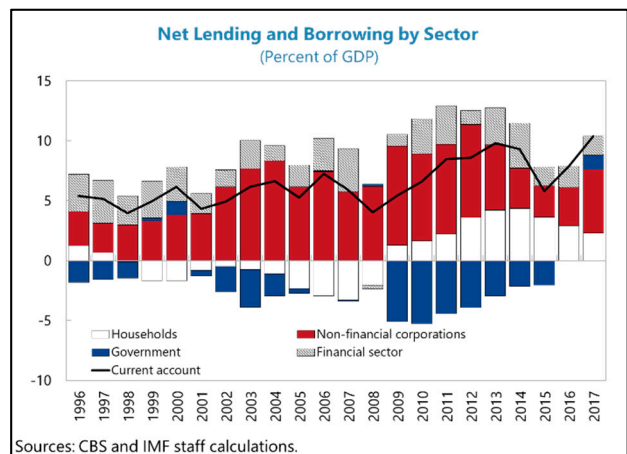
### 1. The Netherlands has a long history of CA surpluses, however a surplus of more than 10 percent of GDP in recent years hit its highest level in decades.

The Netherlands has been running CA surpluses since early 1980s, with a historical average at about 5 percent of GDP. From early 2000s, the surplus has been on a steady increasing path, reached its peak of 10.7 percent of GDP in 2012. Since then, the surplus dropped to 6.3 percent of GDP in 2015 and rapidly increased to 10.5 percent of GDP in 2017. The trade surplus in goods, at average of 10 percent of GDP over the last decade, is the biggest contributor to CA surplus. Export destinations are primarily European countries while the Netherlands incurs deficits with Asia and the United States. The balance of trade in services has been small deficits for a long time, but turned into small surpluses in last couple years, to some extent, contributing the resurging of CA surplus. Net income balances have been small and volatile.



### 2. High non-financial corporate (NFC) net saving is behind the high CA surplus in the Netherlands.

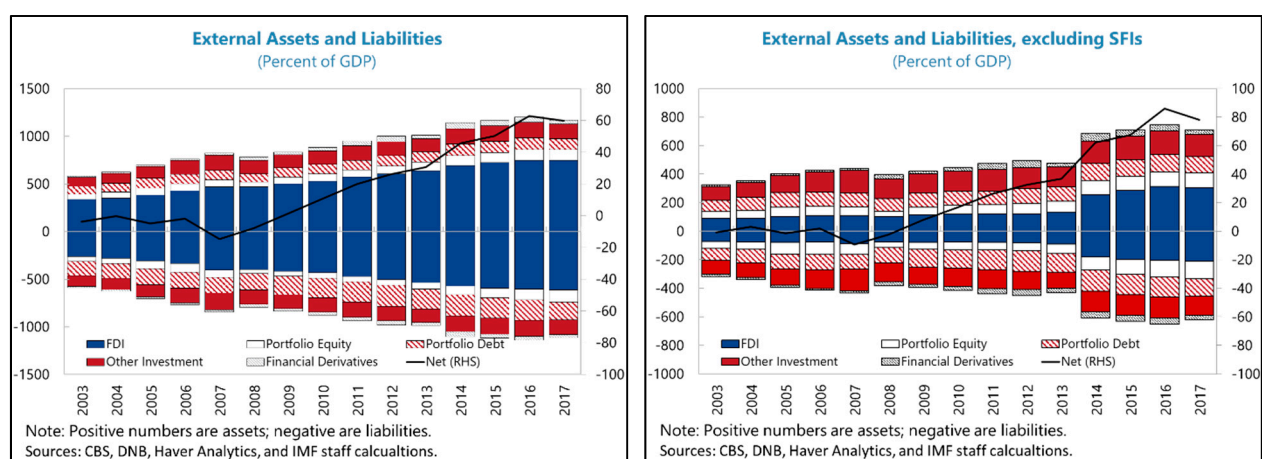
Dutch households have high pension savings but also high debt through residential investment. Household net saving has improved since the global financial crisis (GFC), contributing to the rising CA surplus, but it started to decrease again in line with the recovery of house prices since 2014. On average, household net saving stays around ¼ percent of GDP over the past two decades.



<sup>1</sup> Prepared by Ruo Chen (EUR). The author is grateful to helpful comments and suggestions from the authorities. The author would like to thank Anvar Musayev for superb research assistance.

On the other hand, fiscal consolidation improved government net saving from about  $-5\frac{1}{2}$  percent of GDP at the peak of GFC in 2009 to about 1 percent of GDP in 2017. Unlike many other countries, Dutch corporates have always been net savers, with an average net saving of around 6 percent of GDP since 2000. High NFC net saving is due to high gross saving as well as low corporate investment (see Section B).<sup>2</sup>

**3. The large Dutch international investment position (IIP) reflects its status as an international corporate center.** Gross international assets and liabilities increased from close to 6 times of GDP in 2003 to more than 11 times of GDP in 2017, of which about 60 percent of assets and 50 percent of liabilities are foreign direct investment (FDI). Net IIP moved from a small negative position before 2009 to 60 percent of GDP in 2017, which is explained by the increase in net FDI position. About a half of Dutch foreign assets and liabilities belong to special financial institutions (SFIs), whose shares are directly or indirectly held by non-residents and whose activity is to receive funds from non-residents and channel them to non-residents on behalf of multinational corporations (MNCs) (DNB, 2004). However, even after adjusting for SFIs FDI would remain the largest component in IIP, especially in recent years. Due to the friendly business environment, proximity to major port routes, and favorable tax treaties, many MNCs locate their headquarters in the Netherlands, collect financial resources, and allocate FDI through the Netherlands.<sup>3</sup>



**4. Understanding the fundamental reasons for high NFC net saving is important for the external sector assessment.** In the Fund's 2018 External Sector Report (ESR), the Netherlands' external position was assessed as substantially stronger than implied by fundamentals and desirable policy settings, calling for policies to boost domestic demand. A better understanding of the high

<sup>2</sup> CBS revised national accounts and balance of payments statistics in September 2018. The analysis in the rest of this chapter relies on statistics from the OECD for cross-country comparison. However, OECD data does not reflect the latest update, showing slightly lower net saving by NFCs and higher saving by financial corporations. Nevertheless, the main results stay the same.

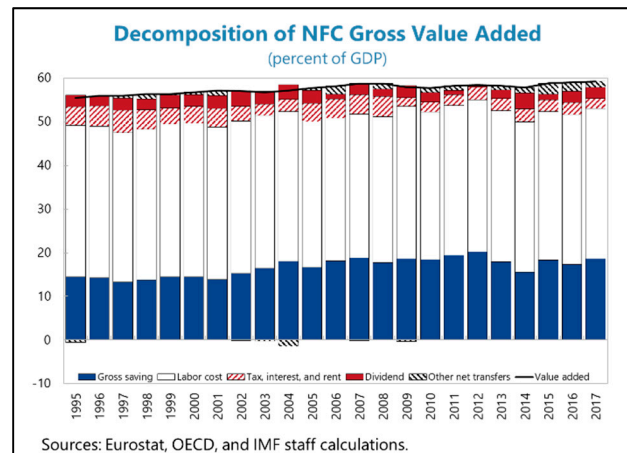
<sup>3</sup> According to CPB (2015), the main reasons for MNC's location are "market size, agglomeration and clustering effects, business climate, institutional quality, socio-political stability, and labor force characteristics" while the favorable tax system is "one of the least relevant motives."

NFC saving could help identify more specific policy recommendations to foster effective external rebalancing. This chapter documents the sources and uses of corporate saving in the Netherlands, in comparison with other European advanced countries; examines the role of MNCs; and discusses how NFCs' saving-investment balance reflects on the CA surplus, which also indicates the large impact of MNCs. The chapter concludes with implications to the external sector assessment.

## B. Sources and Uses of the Dutch Corporate Gross Saving

### 5. The rising Dutch NFC gross savings reflect increasing profit and, to a lesser extent, decreasing profit distribution.

NFC gross savings, or retained earnings, is defined as gross value added (GVA) less costs of labor, taxes, interest and rent, dividends, and other net transfers (including reinvested earnings from FDI). From 1995 to 2012, the increase of NFC gross saving outpaced the increase of GVA, reflecting lower costs (including tax and net interest and rent) and lower net dividend payments. Since 2012, gross savings dropped slightly due to higher dividends and net transfers. The saving rate, defined as gross saving in percent of GVA, increased from 26 percent in 1995 to 35 percent in 2012 and dropped to 29 percent in 2016. Throughout the period, labor costs have been quite stable as a percentage of GDP, even though NFCs' GVA has increased moderately, indicating a declining labor share in GVA.



$$\text{Gross Saving (GS)} = \text{Gross Value Added (GVA)} - \text{Cost of Labor} - \text{Taxes} - \text{Interest \& Rent} - \text{Other Net Transfers} - \text{Net Dividends} \quad (1)$$

$$\text{Net Saving} = \text{GS} - \text{Domestic Investment} \quad (2)$$

**6. Compared with some advanced European countries, the Dutch NFC saving rate is among the highest.** At the aggregate level, Dutch NFCs' cost structure is similar to that of Danish NFCs; and Dutch NFCs' saving rate was slightly lower with higher dividend payout. Relative to other advanced European countries, Dutch firms had either low costs, or low net dividend payout, or a combination of both. For example, German NFCs maintained very low costs (including labor, tax, net invest and rent), but on average paid much higher dividends than their Dutch peers. Compared with Swiss NFCs, Dutch firms enjoyed much lower labor costs. Overall, Dutch firms successfully contained their operational costs, enjoyed high dividends distributed by their subsidiaries, paid only moderate dividends to their own shareholders, and therefore maintained high savings.

**Table 1. Selected OECD Countries: Decomposition of NFC Gross Value Added**  
(percent of GVA, 1995-2016 averages)

	Labor cost	Tax	Interest and rent	Other net transfers	Net Dividend	Gross saving	Dividend paid	Dividend received
<b>NLD</b>	<b>60</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>29</b>	<b>12</b>	<b>7</b>
DNK	59	4	3	1	1	31	9	7
SWE	52	13	2	0	6	27	23	17
IRL	43	5	4	6	17	24	17	1
CHE	68	3	2	-2	5	24	15	9
GBR	61	7	3	-2	9	22	15	6
DEU	59	2	1	0	18	20	21	3
LUX	64	4	7	7	-1	19	30	31
FRA	64	7	4	2	4	18	18	13
ITA	52	7	3	1	20	18	23	3

Source: OECD, and IMF staff calculations.

**7. However, Dutch firms spent the lowest share of their gross saving on domestic investment compared with their European peers.** During the period between 1995 and 2017, about 10 percent of GDP per year was invested on capital formation by Dutch firms, which was not extremely low for an advanced economy. However, with the average gross saving rate at 17 percent of GDP, Dutch firms spent only 63 percent of their savings on domestic business investment. With similar gross savings in percent of GDP, Sweden and Danish firms spent 96 percent and 78 percent of their savings on domestic investment, respectively. With much lower gross savings in percent of GDP, French and Italian firms spent more than 120 percent of their saving on investment. Therefore, Dutch firms have the highest net saving rate (i.e., gross saving minus domestic investment) among European advanced economies.

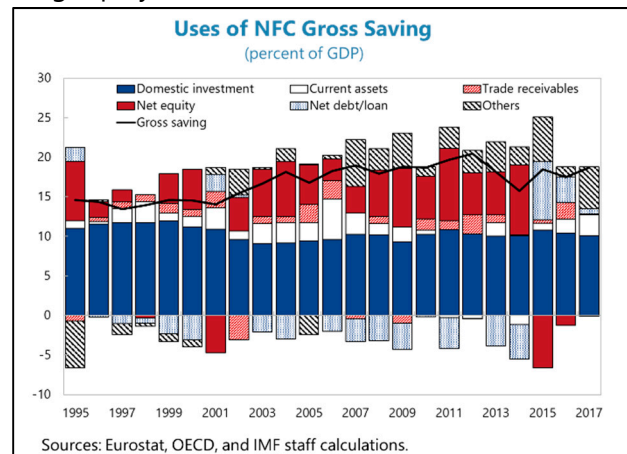
**Table 2. Selected OECD Countries: Uses of NFC Gross Saving**  
(percent of GDP, 1995-2016 averages)

	Gross saving	Domestic investment	Current assets	Trade receivables	Net equity	Net debt/loan	Others	Investment-saving ratio
<b>NLD</b>	17	10	2	1	4	-1	1	<b>0.62</b>
DNK	15	12	0	0	2	-1	2	0.78
SWE	16	15	1	1	-2	-3	3	0.96
IRL	14	13	2	5	-1	0	-3	0.89
CHE	14	15	1	0	1	0	-3	1.09
GBR	12	10	1	0	2	-3	1	0.86
DEU	11	12	1	1	1	-1	-2	1.02
LUX	8	10	2	4	0	-4	-4	1.27
FRA	9	11	1	1	0	-2	-2	1.21
ITA	8	10	1	1	0	-2	-1	1.25

Source: OECD, and IMF staff calculations.

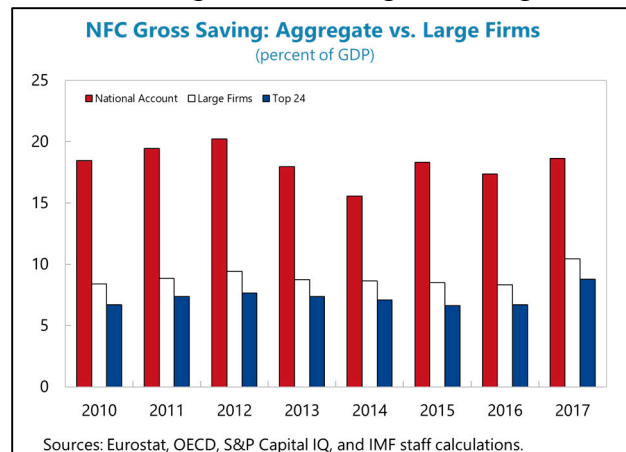
### 8. The net saving accumulated by Dutch firms were mostly used for equity purchases.

Dutch NFCs have large financial transactions, including equity and debt/loan issuances and purchases. Therefore, identifying the ultimate usage of NFCs' net saving is not straightforward. For example, the net saving, at average of 7 percent of GDP during the period between 1995 to 2017, plus issuances of equity (4 percent of GDP) and debt/loans (6 percent of GDP), were used for purchases of equity (8 percent of GDP) and debt/loans (5 percent of GDP) and current assets (2 percent of GDP). On a net basis, most Dutch NFC net saving went to equity purchases. Firm's financial transactions do not indicate whether equity was purchased from domestic firms or foreign firms. However, the co-movement of firm's net equity purchases and net FDI flows indicates that Dutch firms use net saving for foreign equity purchases to a large extent.



## C. Roles of MNCs

9. **Dutch NFC gross savings are highly concentrated in a few companies.** Based on financial statements of publicly listed firms, large firms contributed, on average, half of NFC gross savings during 2010-17.<sup>4</sup> The top 24 firms (according to their total assets) contributed about 40 percent of total NFC gross savings. Just one company, Royal Dutch Shell plc (Shell), reported gross savings of about 2.8 percent of Dutch GDP in 2017, about 15 percent total NFC gross savings. Such calculations based on consolidated financial statements could overestimate Dutch MNCs' gross savings in the Netherlands if not all consolidated profits are reported in the Netherlands. However, this is unlikely since most Dutch MNCs have their global or European headquarters located in the country.



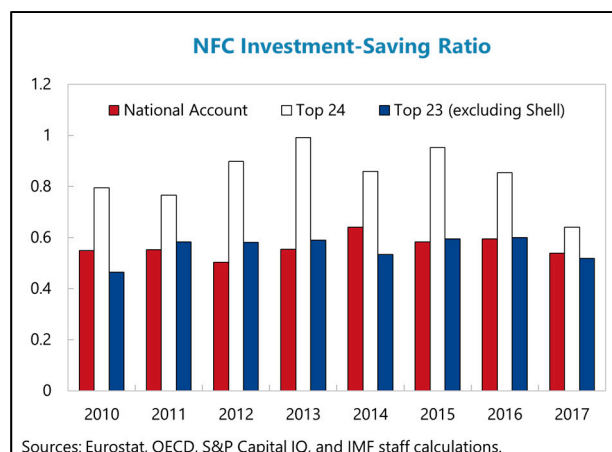
10. **MNCs allocate their saving to investment globally.** During 2010 to 2017, the top 24 firms spent around 84 percent of their gross savings on investment either in the Netherlands or abroad. This compares with an average rate of domestic investment of only 54 percent. However, excluding Shell, the two investment ratios are similar. Between 2010 and 2017, Shell invested on average about 1½ times its gross savings, financed by debt or equity issuance, an amount close to 2.8 percent of Dutch GDP in 2016. 60 percent of this expenditure was for upstream investment (for exploration and research), of which only 17 percent was invested in Europe. Assuming that all its European

<sup>4</sup> The definition of gross saving of firms follows the calculation in Chen et al (2017).



investment was in the Netherlands, Shell would have contributed 1.8 percent of GDP to the Netherlands CA surplus in 2016. Similarly, other MNCs would invest globally, which would lead to higher net savings in the Netherlands than their consolidated net savings. Since other MNCs in the sample have similar investment-saving ratio as that in the national accounts, their contribution to the net saving would be higher than their contribution to the gross saving. Therefore, the low investment-saving ratio shown in the national accounts could be largely driven by MNCs investing a large fraction of their savings abroad rather than in the Netherlands.

**11. MNCs' investment intensity varies significantly across sectors.** International evidence about large MNCs shows that companies in the energy, consumer staples, industrials, and communication services sectors have the largest contributions to gross saving. IT and health care sectors invested less than 20 percent of their savings. Low investment is correlated with large intangibles and stock buybacks, as firms keep high saving for R&D to maintain high level of intangibles or for stock buyback to boost shareholders' wealth. High investment sectors, like energy and utilities, tend to issue debt to finance their investment.



**Table 3. The Netherlands: Large MNC Activities by Primary Industry Classification**  
(2010-2017 average)

	Share in total gross saving	Investment-saving ratio	Stock buyback in percent of gross saving	Debt repay in percent of gross saving	Intangibles in percent of total assets
Energy	32.8	0.99	5.9	-37.1	1.6
Consumer Staples	17.1	0.80	17.1	-23.6	25.2
Industrials	15.7	0.39	16.5	12.9	40.2
Communication Services	12.4	0.46	7.0	-67.5	46.8
Information Technology	8.0	0.14	36.0	4.2	35.6
Materials	6.1	0.62	5.9	3.8	19.8
Health Care	6.0	0.16	20.1	2.7	36.2
Utilities	1.9	3.21	3.4	-152.0	0.9

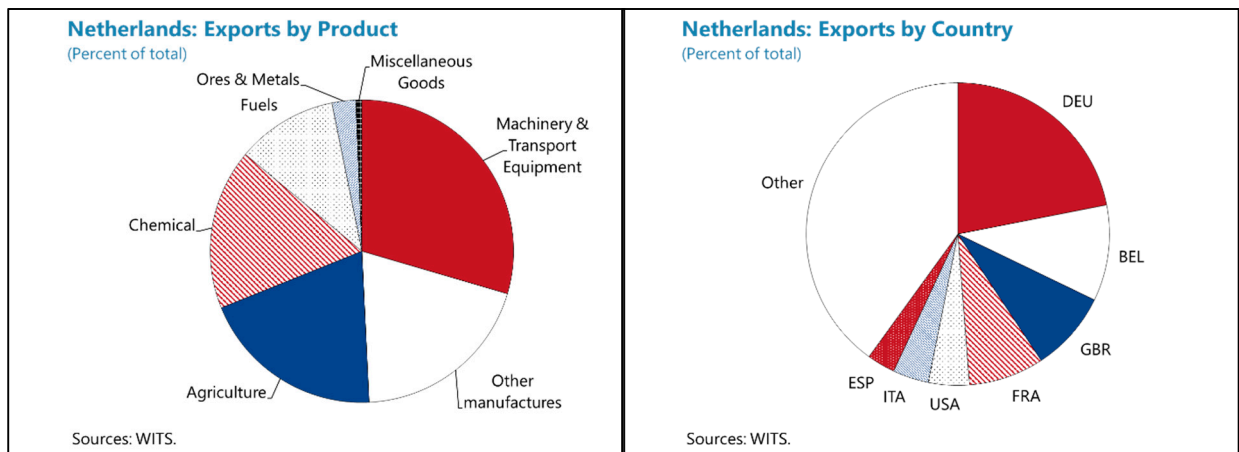
Sources: Eurostat, OECD, S&P Capital IQ, and IMF staff calculations.

**12. MNCs' retained earnings (or gross saving) should be attributed to their ultimate shareholders, but this may not be feasible in practice.** Dutch MNCs are largely owned by foreigners. If foreigners own the shares as portfolio investors, or if they own controlling shares indirectly through a Dutch company, the retained earnings corresponding to their ownership shares are not recorded as a primary income outflow in the CA. For instance, if the largest investor of a Dutch MNC is a Dutch holding company, most of the MNC's retained earnings will be attributed to

Dutch residents even if the holding company is owned by foreigners. Taking Shell as an example again,<sup>5</sup> the largest shareholder in Shell is Nederlands Centraal Instituut Voor Giraal Effectenverkeer BV (a Dutch holding company), holding 41.2% of the shares. The second largest investor is BlackRock Investment Management (UK) Ltd., holding 4.7% shares, who would be classified as a portfolio investor. Therefore, all retained earnings of Shell are attributed to Dutch residents. However, according to Eggelte et al. (2014) around 90 percent of Shell shares are owned by foreigners. Due to complicated holding structures of MNCs, it is difficult to allocate retained earnings to their ultimate shareholders around the world.

## D. From the Saving-Investment Balance to the CA

**13. Large exports, particularly re-exports, reflect MNCs' activities.** Major Dutch exports are manufactured goods, mainly machinery and transport equipment, food and fuels, and their primary destinations are other European countries (e.g. Germany, France, United Kingdom, and Belgium). The list of top export products is consistent with major MNCs' primary business sectors, such as industrials, IT, consumer staples, and energy. More than 40 percent of Dutch exports are re-exports, as the port of Rotterdam, the largest port in Europe, provides a prime location for good transport in, out, and within Europe for MNCs. OECD (2017) shows that foreign-owned firms in the Netherlands are more export intensive than domestic-owned firms, and MNCs play an important role in foreign market penetration. The significant amount of goods transferred via the Netherlands is largely for geographic reasons but could also be related to profit shifting. Like intangible assets, movable tangible assets, such as transportation equipment (a major Dutch export category), could be used for tax planning as their legal ownership could be assigned to a leasing company resident in a low tax jurisdiction.



**14. The small primary income balance implies that a large part of dividends is paid to foreigners.** As discussed above, Dutch firms' profits include a significant part of dividends from their

<sup>5</sup> Shareholder information is taken from London Stock Exchange as of November 16, 2018.

foreign subsidiaries, which seems inconsistent with the small net primary income balance. However, dividends paid by Dutch firms could also go to their foreign investors, particularly within MNCs' networks. Both dividends received and paid by Dutch firms are within the range of large gross investment income flows (around 30 to 40 percent of GDP), derived from even larger stock positions. When the primary income flows are driven by MNCs, depending on how the dividends are distributed within MNCs' networks, the net balances may not match to the rising stock position.

## E. Conclusion

**15. The high Dutch CA surplus is driven by high corporate saving, which is dominated by a few MNCs.** The Netherlands is an attractive location for MNCs partly due to its favorable international corporate taxation regime. Dutch NFCs, particularly MNCs headquartered in the Netherlands, receive substantial dividends and interest payments from their foreign subsidiaries, which are exempted from domestic corporate taxes under the “double participation exemption”.<sup>6</sup> MNCs' savings are used for global investment through foreign equity purchases, which are again subject to exemption on capital gains on foreign equity. As a result, the Dutch BoP registers high corporate net saving. While MNCs are domiciled in the Netherlands, they are largely owned by foreign shareholders. In principle, retained earnings should be attributed to foreign shareholders, thereby giving rise to CA outflows, but this may not be feasible in practice due to MNCs' complicated holding structures, potentially leading to an overestimate of the CA surplus. Large trade surpluses and small primary income balances are consistent with the dominance of MNCs in the Netherlands' external positions.

**16. Separating MNCs' activities from the Dutch CA for the external sector assessment would help identify underlying policy distortions.** Rising corporate saving is a global phenomenon, which could be related to rising market power or profit shifting, possibly associated with rising intangible asset intensity. Granular information on MNCs' activities in the Netherlands is needed to further disentangle global factors and domestic policy distortions. Separating MNCs' activities would help identify imbalances of other economic sectors. The small and medium enterprises (SMEs) are stagnant and remain financially constrained. Small household net saving hides the fact that households are still highly leveraged, and their consumption constrained by a stagnating disposable income. Therefore, improving statistics and separating MNCs' activities from both internal and external accounts would help identify domestic policy distortions and address imbalances effectively.

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<sup>6</sup> The “double participation exemption” refers the tax exemption of both dividends paid by foreign subsidiaries and capital gains on the disposal of foreign equity, which was designed to avoid double taxation.

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# SELF-EMPLOYMENT AND SUPPORT FOR THE DUTCH PENSION REFORM<sup>1</sup>

## A. Introduction

**1. The Netherlands' proposed pension reform is under discussion in the context of a system that has widely been regarded as one of the world's strongest and most sophisticated.**

According to the Melbourne Mercer Global Pension Index 2018, the Dutch pension system ranked first in a group of 34 countries, on a scale evaluating adequacy of benefits and the system's sustainability and financial integrity across 40 indicators. The pension system is viewed as having achieved high participation rates, provided adequate retirement income, and ensured sustainability through a model that adroitly takes advantage of the strengths intrinsic in defined-benefit (DB) and defined-contributions (DC) frameworks. However, pressure points are arising because of population aging, low long-term interest rates, and changes in the labor market structure that have strained redistribution, bringing to the fore intergenerational tensions. In 2014, the government initiated a series of consultations with social partners on a possible reform. The coalition agreement of 2017 proposed a route for reform, and the agreement with social partners was expected in early 2018 with legislation to be passed in 2020. While there appears to be a broad consensus on the need for reform, an agreement on the final package has been delayed.

**2. In this chapter, we analyze pension system preferences and self-employment.**

Facilitated by favorable tax treatment, self-employment has increased in recent years and is now among the highest in Europe. A further switch of younger generations to self-employment could, however, put substantial pressure on the long-term solvency of the collective schemes (Gerard, 2019) and represents a risk of termination of the social contract. Building on the work on Parlevliet (2018) who analyzed public acceptance of the increase in retirement age in Netherlands in 2012, we study the individuals' pension system preferences and their choice of labor contract.

**3. Support for specific pension system characteristics inherent in the proposed reform is significantly associated with self-employment status.**

We find that, after controlling for demographic characteristics and individual psychological traits, individuals who have a preference for pension plans with more freedom of choice and more investment risk are significantly more likely to choose self-employment than regular employment under the current pension system. A pension reform giving more freedom of choice to regular employees, such as the one proposed by the government, should thus reduce incentives to go into self-employment and include individuals who do not enjoy pension coverage into personal savings schemes. These issues are central to the debate in Netherlands not only in the context of social insurance but also in the context of the dual labor market.

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<sup>1</sup> Prepared by Izabela Karpowicz.

**4. The rest of the paper is organized as follows.** Section B provides a background on the pension reform; section C describes the self-employed population based on household survey data; section D presents the model and estimation results; and section E concludes.

## B. Background on the Pension Reform and Political Economy

**5. As in most advanced economies, the Dutch pension system has three pillars.** The 1<sup>st</sup> pillar – public, pay-as-you go – benefit, grants a minimum flat pension to the entire population subject to age and residency requirements (see Table 1, Appendix I). The 2<sup>nd</sup> pillar mandatory occupational schemes are the predominant type of pension contracts covering over 90 percent of all employees and providing supplementary benefits based on lifetime wages. The 3<sup>rd</sup> pillar pension schemes are voluntary, tax-exempt contracts. Participation in 3<sup>rd</sup> pillar is still limited, contributing to about 10 percent of pension systems’ assets, but growing.

**6. The 2<sup>nd</sup> pillar Dutch occupational schemes are known for having combined the features of the DB and DC schemes.**

- Contributions are quasi-mandatory and derived from collective labor agreements. Contributions are levied at a uniform rate, independent of age. The rates can be increased in the case the pension fund falls below the target solvency ratio but have *de facto* been fix.
- Benefits are accrued annually at a maximum rate of 1.875 percent, providing 75 percent of average lifetime pay after 40 years of contributions. However, in contrast with pure DB schemes, Dutch DB contracts are structured as deferred *variable* annuities accumulated through an investment strategy that targets a stable lifetime income. This makes the system a *de facto* “hybrid DB” that displays some features of the DC scheme inasmuch as the final benefit can (and does) change over time. Annuities are indexed to wages or inflation but can be frozen or cut in nominal terms conditional on the funding rate.
- 2<sup>nd</sup> pillar funds are managed by boards consisting of employers, unions, retirees, and independent specialists who act as fiduciary trustees and determine investments, contribution levels, and indexation collectively (Bovenberg and Nijman, 2017). The outcomes of such decision-making result in solutions that are rooted in a strong consensus.

**7. The advantages of this design are multiple and include high pension coverage, risk pooling and risk sharing, and long-term sustainability of pension funds.** Over a 10-year horizon (established prudentially) the system is self-sustainable given the possibility (and the obligation) of the funds to address the eventual funding shortfall through changes in revenues (contributions), accrual of benefits, as well as payment of earned annuities.<sup>2</sup> In this respect, the Dutch occupational schemes resemble a DB scheme, in which decisions are made collectively and affect all beneficiaries,

<sup>2</sup> However, pension funds have used overly optimistic assumptions about expected returns which allowed them to circumvent nominal cuts (Wills Tower Watson, 2018; and DNBulletin 2017). Pension funds’ financial positions have been improving recently as favorable developments in the equity and foreign exchange markets have been offsetting the negative consequences of the decline in interest rates. The funding ratio was 108.4 percent in mid-2018, against the statutory minimum of 104.2 percent (DNB, June 2018).

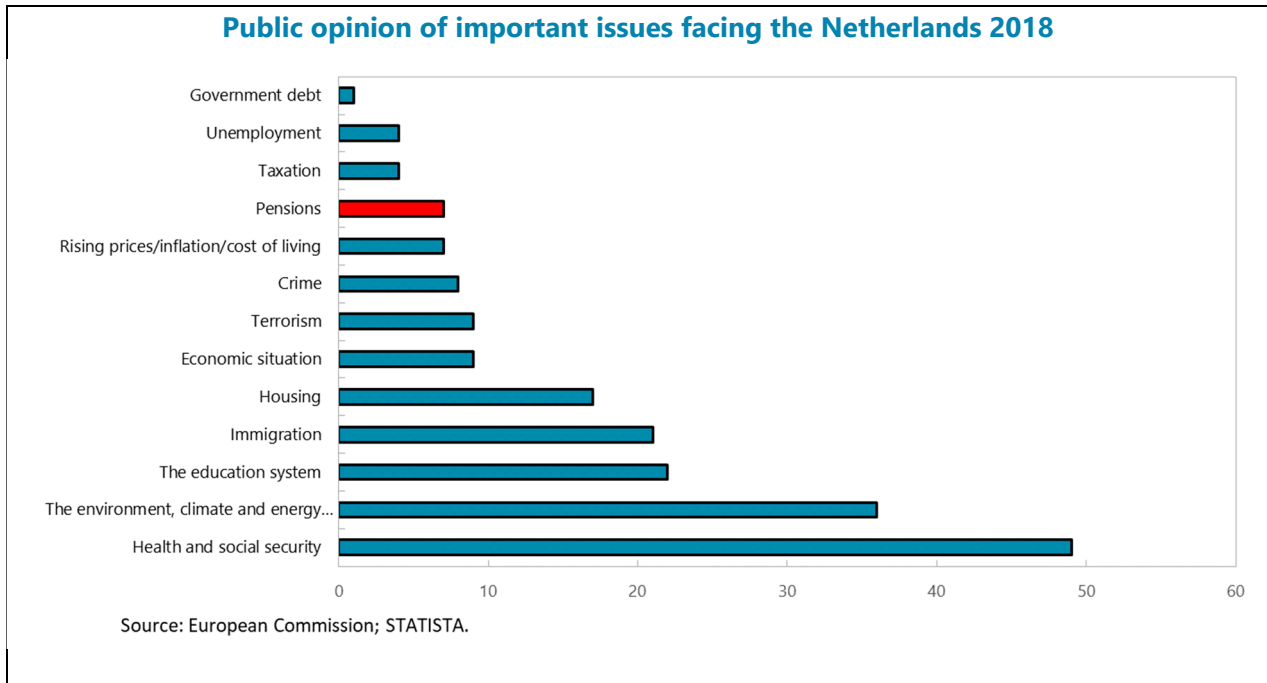
current and future ones, while at the same time avoiding underfunding, as in a DC plan. Aside from ensuring sustainability, collective management of savings lessens concerns stemming from cognitive constraints and financial illiteracy and strengthens participants bargaining power in financial markets. Pooling of longevity and systemic macro risks is also a desirable feature that makes the system closer to a pure DB.

**8. However, characteristics that make the Dutch pension system attractive also govern some of its disadvantages that have led to increasing complexity and opacity of transfers.**

Uniform accrual rates imply an intergenerational transfer from the young to the old, by virtue of the time value of money, and from the lower educated to the higher educated. This implicit subsidy is, however, partly offset by the reverse redistribution due to the fact that rights accumulated in the past at higher real return rates are subsidizing annuities which are valued at the risk-free rate (Bovenberg and Nijman, 2017). In addition, the indirect link between changes in contributions and benefits stemming from changes in macro environment and the flow of new entrants into the system have increased uncertainty. The system has become complex and, as investment risks are increasingly born by participants, it becomes even more important that allocation of losses and gains across individuals and generations are transparent. Finally, given the governance structure of pensions funds, agreement on any potential reform is more difficult and must satisfy multiple, and at times conflicting, interests.

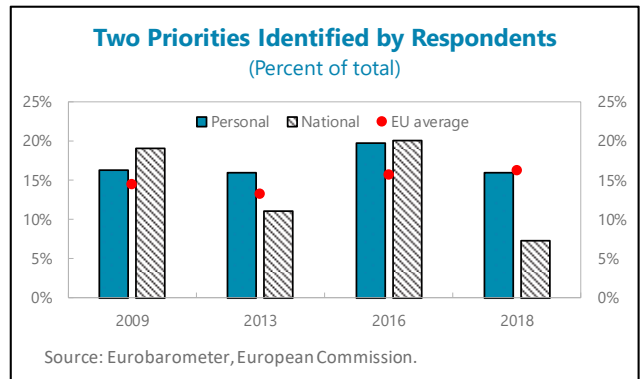
**9. The pension reform in the coalition agreement proposes to replace variable annuities, characteristic of the Dutch “hybrid DBs”, with personal entitlements in the form of financial assets, akin to a DC.** Moreover, the new system would feature insurance contracts, hedging participants against longevity risk, and possibly also collective buffers that allow for sharing systemic risks across generations. These solutions that have become known in the literature as “third space” or “personal pensions with risk-sharing and collective buffers” (PPR-CB), seek to produce a more predictable income stream for participants by means of a collective approach to investment and decumulation, thus minimizing inefficiencies related to the higher cost of investment. The PPR-CB offer the possibility to tailor financial instruments to individual risk preferences more closely while still targeting a desired retirement income stream. The PPR-CB would improve the system’s transparency, at least the PPR part would do so and, more importantly, the reform would shift to participants virtually all risks related to pensions that may currently be borne by employers.

**10. As the Netherlands can already praise itself for having a first-class pension system, a justifiable question appears to be – is this the right time for reform?** Given absence of apparent sustainability or equity pressures, pension reform was not seen as top priority for the government in a survey conducted by the European Commission in 2018. Among the economic objectives for the government a significantly greater share of respondents prioritized health, social security and housing issues. Fewer people in Netherlands today see pension reform as a national priority compared with the past, although a higher share of individuals still sees pension income as one of important *personal* preoccupations, albeit less so than in 2016. *Why is then the pension reform necessary? Who supports it and who gains from it?*



**11. The government views the reform as necessary because of revealed tensions surrounding intergenerational risk transfers and the systems’ inadequacy in supporting the needs of the changing labor market.**

Population aging is putting pressure on DB pension schemes, including in Netherlands, and making the transfer from young to old employees less viable. Moreover, transitional labor markets of today, in which contributions histories are occasionally erratic and incomplete, imply that risk sharing may be



costlier and no longer the preferred social choice.<sup>3</sup> This argument could be a much more prominent driver of change compared with other justifications, including the preference towards managing risks individually for which evidence is not clear cut, as van Dalen and Henkens (2017) show. Although individuals already bear the risks of lower retirement income through the possibility of benefit cuts, from the perspective of the government, offloading fiscal risks to individuals more explicitly may also seem an attractive option. The government has promised to provide support for ensuring a smooth and evenly distributed transition for all age cohorts and participants through tax instruments.

**12. Employers federations’ interests are aligned with government’s objectives.** Employers’ interests mandate that risks related to fluctuations in contributions and liabilities be shifted off their

<sup>3</sup> On the contrary, the actuarial fairness principle, on the opposite of the range of social contracts, may be the only viable solution to this change.



balance sheets which would be achieved in the current proposal. This would lower uncertainty and facilitate investment planning and hiring, which could push up growth over time and ultimately improve pension system sustainability. Introducing regressive premiums, which would vary depending on a contributor's age, would lower the cost and facilitate hiring of younger workers and possibly crowd some self-employed into the pension system. Slowing down the increase the retirement age in the 1<sup>st</sup> pillar, however, a proposal put forward by the unions in recent negotiation rounds, would also be beneficial for some companies that find older workers expensive and more difficult to retrain. In a survey of 68 companies in 2017, the majority of employers have recognized their responsibility and willingness to assist employees in choosing options that better fit their needs, actively help them manage their pension contributions, and provide support with investment and planning decisions (Wills Towers Watson, 2017).

**13. On the other side of the consultation process spectrum, the labor unions favor redistribution.** The unions would support a system that allows more risk sharing across generations. This is because the unions have to strike an internal balance between the interests of the young and those of the retired who retain the membership in pension funds (Ponds and van Riel, 2007).<sup>4</sup> The unions insist on participation in collective buffers being made mandatory at industry level, to strengthen the bargaining power of pension participants in negotiations with the financial sector. In addition, self-employed should also be forced to participate in the system which would improve its capitalization and protect them from old-age poverty. They would, moreover, favor the possibility of allowing financial buffers of funds to turn negative in the downturn of the economic cycle and avoid curtailing benefits, an idea strongly opposed by the central bank. Related to that, an important point of contention is their insistence on using a stable (higher) ultimate forward rate by funds in their solvency calculation. The unions insist on an arrangement where older generations affected negatively by the transition would be compensated, which would be necessary in a transition from accrual based on average pensions to accrual dependent on age, i.e., lower for older contributors (Preesman, 2017).<sup>5</sup> More recently, the decision to increase the minimum retirement age for 1<sup>st</sup> pillar pension benefits to 67 by 2021 and link it 1-to-1 to life expectancy thereafter agreed upon in 2012 was challenged as overly punitive for workers employed in precarious occupations.

**14. From this point on, understanding how individuals view the pension system provides additional insight for evaluating reform support comprehensively but is also helpful in predicting how the different incentives inherent in the system could affect occupational choices and system participation.** The following sections will shed more light on self-employment and its relationship with pensions.

### C. Self-Employment and Pension Reform Support

**15. In contrast with trends in most other OECD countries, self-employment in the Netherlands has increased over the past decade.** The share of self-employment in total

<sup>4</sup> Union representatives on pension boards are also engaged in wage negotiations, thus, the wage and pension policies are closely linked and redistribution across generations is achieved by means of both policy tools.

<sup>5</sup> The estimated cost of this compensation is 55 billion euros.

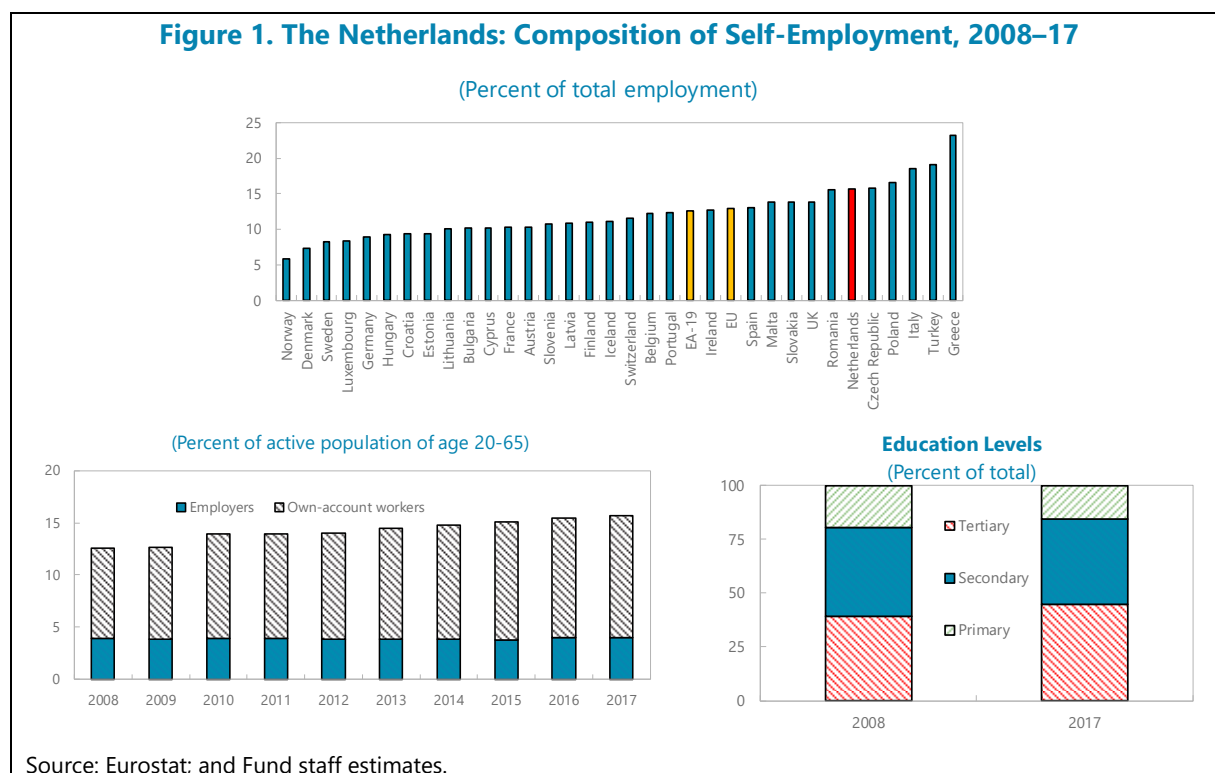
employment has picked up by more than 4 percentage points between 2005 and 2017 when it stood at 15.7 percent. The largest increase was recorded in the category “own-account workers” which accounted for 11.6 percent of employed in 2017. In contrast to business owners, own-account workers typically do not employ other individuals (OECD, 2018). Older workers are more represented among the self-employed, with about 40 percent belonging to the age group 50–64, and slightly more than one in three self-employed workers are women. While self-employment is widespread across all occupations, half of self-employed in 2017 were active in four main categories: construction, trade, social work and professional, scientific and technical activities. In recent years, the share of self-employed workers with tertiary education has expanded (Figure 1).

**16. Self-employment offers advantages for workers and employers and contributes to labor market flexibility.** Self-employment is often motivated by the prospects of lowering the individual tax burden. Indeed, self-employed do not contribute to the sickness and disability insurance and tax deductions are also available for incentivizing entrepreneurship (Dekker and others, 2018). Self-employed on average pay 20 percent lower taxes on equivalent gross income compared to employees (Bosch and others, 2015). Moreover, the cap on tax deduction for contributions in 3<sup>rd</sup> pillar DC schemes increases with age. Self-employment is attractive for both young workers, who need to gain work experience, and old workers, who have built up sufficient pension capital but would like to remain marginally attached to work. Work arrangements of these individuals are more flexible and more cost-competitive than for regular employees (IMF 2018) which contributes to job satisfaction (Josten and others, 2014) as their primary motive for choosing these contracts is autonomy (Conen and Schippers, 2017). However, these arrangements undermine the level playing field in the labor market, expose the government to revenue loss, and subject self-employed to risks, such as unstable contractual relationships and possible income loss. With only few exceptions, the self-employed are not covered by sectoral or occupational 2<sup>nd</sup> pillar arrangements (Mastrogiacomo and others, 2016).

**17. Are self-employed risk attitudes and preference for freedom of choice at the core of their employment status?** How likely is that, given certain demographic characteristics, education profiles, and psychological traits individuals opt for self-employment as a result of their preferences for greater risk-taking and freedom of choice in managing pension savings? Answering this question is key to understanding how their behavior may change in response to the reform. On the one hand, it is possible that workers who have built up sufficient savings, such as older workers, or have other sources of income, are not interested in additional risk-sharing. It is also possible, however, that individuals who do not perceive the current system as sustainable in the long term prefer financing their old age income in different ways, for instance by investing in individualized 3<sup>rd</sup> pillar schemes.<sup>6</sup> It could also be the case that the current intergenerational risk transfer is not in their favor. These individuals may welcome the reform and would possibly be willing to transition into contractual arrangement within the same occupations. We attempt to understand the role of the pension

<sup>6</sup> The tax exemptions for DC schemes may also have pushed some employees away from regular contracts for which participation in the 2<sup>nd</sup> pillar is mandatory.

system in ensuring a level-playing field in the labor market using evidence from the Dutch National Bank household survey (DHS).



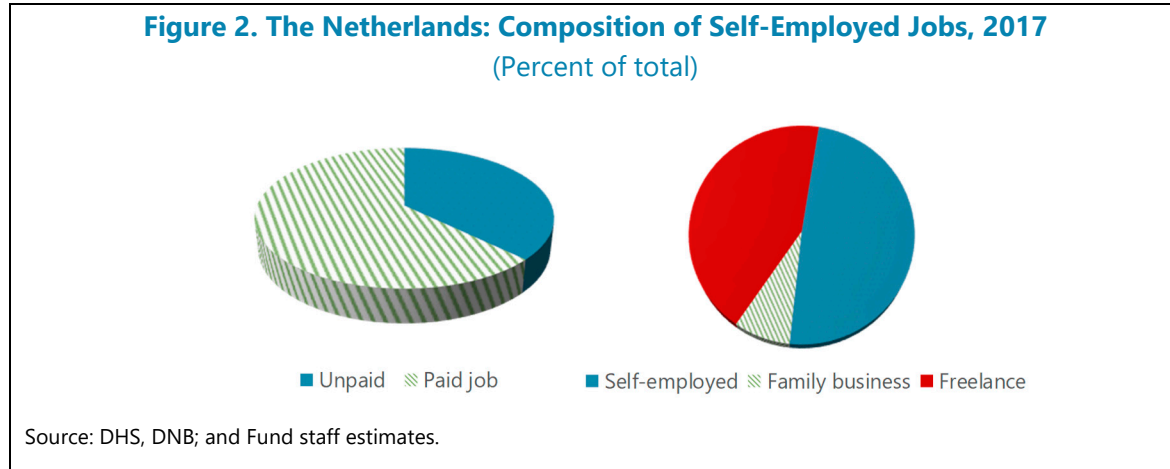
## Evidence From the DHS

**18. The DHS is administered annually to about two thousand Dutch households (five thousand individuals) and includes key questions necessary for understanding risk and choice preferences of the Dutch population.** The first survey was conducted in 1993. The objective of the survey is to establish the economic and psychological determinants of households' saving behaviors. The latest wave (the 25th wave) of the survey was conducted over the period April - October 2017. The survey consists of six questionnaires which comprise general information on the household and individuals, including health status, work patterns, income (including from retirement and benefits), wealth data, other demographic, economic and psychological concepts. Questions included gauge the risk sharing preferences of respondents, preference for choosing the investment profile savings individually, and various options available for meeting the possible shortfall in retirement income and pension system sustainability risks.<sup>7</sup>

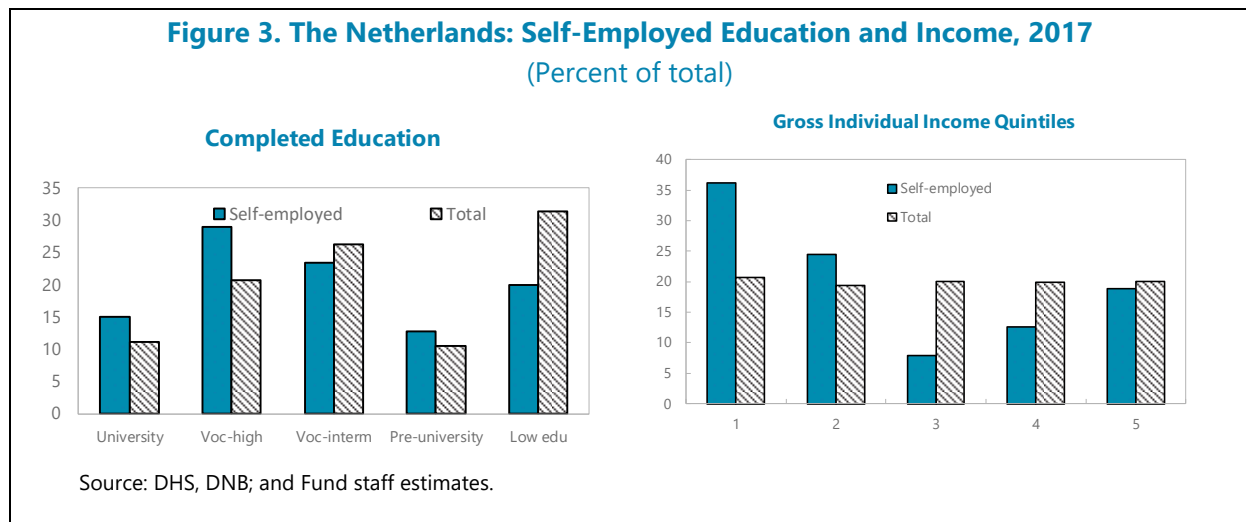
**19. The self-employed in the DHS exhibits similar characteristics to those reported in official statistics from Eurostat.** Two thirds of the approximately 2,000 respondents broadly falling into the labor force category has a paid job. The share of self-employed with a paid job in total self-employed population is lower, at 63 percent (Figure 2). The so-called "self-employed and

<sup>7</sup> The DHS is administered by CentERdata (Tilburg University, The Netherlands). The main questions on pensions and the range of available answers are reported in Appendix II.

freelancers” constitute the overwhelming majority of this group, with individuals owning a family business accounting for less than 9 percent of total. The age and gender group compositions in the survey are in line with that observed for the total labor force, with slightly fewer female workers represented in the self-employed. These features have remained broadly constant over the past several years.



**20. Differences in education levels and income between self-employed and employees in the DHS are worth noting.** Akin to total population, the majority of self-employed has completed vocational education at high and intermediate level (Figure 3). However, compared to total population, the self-employed are proportionally more represented at university and high vocational education. In terms of gross income reported in the survey, about 35 percent of self-employed fall in the first quintile on the distribution, above the 20 percent recorded for the total working population. However, the top quintile comprises a similar share of workers across the two groups. On average, both groups plan to retire around age 66.

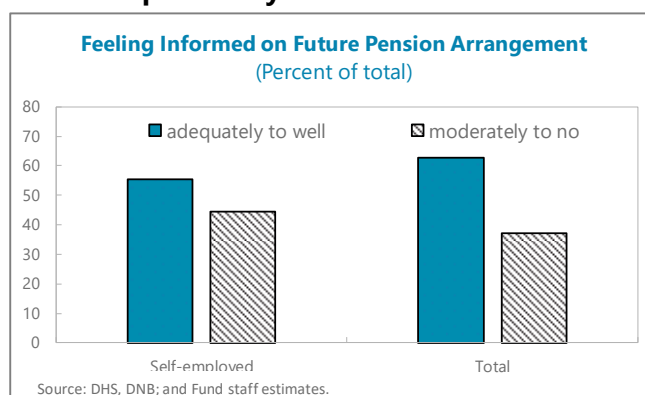


**21. Self-employed participate in the pension system only marginally.** A question in the DHS enquires about whether the respondents current or last job before retirement entitles him/her to a retirement pension (aside from the 1<sup>st</sup> pillar, AOW, to which everyone is entitled). Only a fifth of self-employed answered affirmatively compared with 84 percent for the total surveyed employed

population. Roughly the same share reports participating in one such plan offered by employers while only 11 percent of self-employed report having made other arrangements for their pension apart from the customary pension built through their employer either through annuities, whole life insurance policies, or additional pension rights purchased through the employer. This suggests that the majority of the self-employed are not covered by any formal pension arrangement though they may still be accumulating wealth in other ways.<sup>8</sup>

**22. Self-employed are less well-informed about the pension system.** Numerous studies find

that information increases political support for reform (see for instance Boeri and Tabellini, 2012; Gouveia, 2017; van Dalen and Henkes, 2017). Parlevliet (2018) shows that respondents to the DHS have updated their preferences in favor of the increase in the retirement age in 2012 over time possibly as a result of a learning process. Participants in the DHS are asked whether they feel adequately informed about their pensions. They are



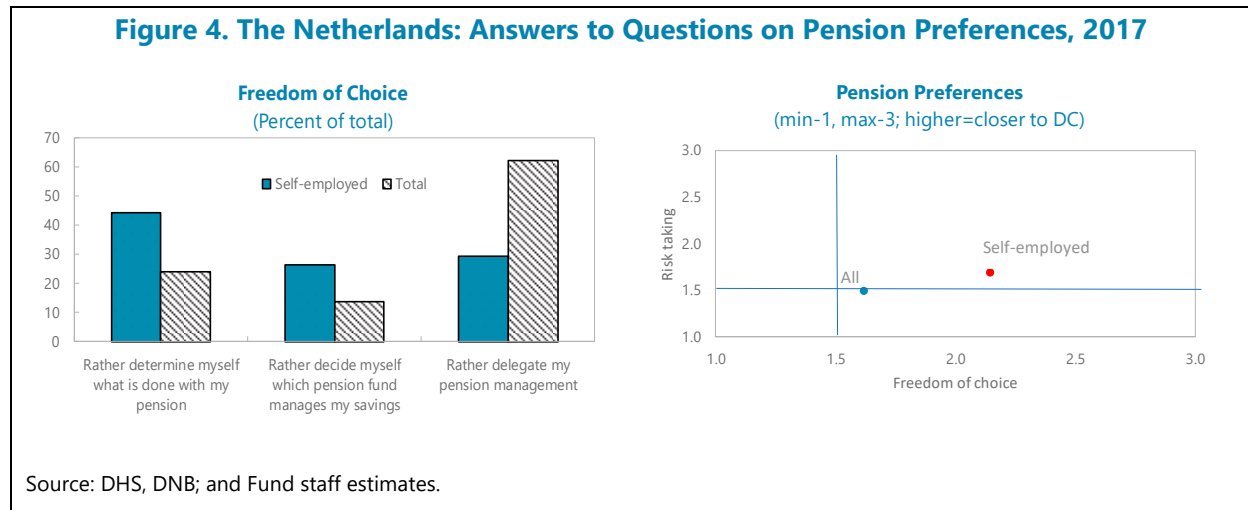
asked also whether they have received a prospectus from their pension fund in the past year (and which fund they belong to). Although a higher share of self-employed in the DHS feels well informed about the pension system, overall in the self-employed group fewer individuals feel well, more adequately or adequately informed and a higher share feels not adequately informed and uninterested in the pension system. The less-than-adequate information may be related to the employment status more directly, as self-employed may be more isolated from the key sources of communication including from pension funds. In fact, while two thirds of workers claim to have received an overview of pension rights from their fund in 2016 only about 40 percent of self-employed report the same.

**23. Self-employed express a higher preference for freedom of choice in the management of their pension savings and are more willing to tolerate risk on their final pension income.**

Two key questions in the survey help us understand respondents attitudes towards the pension reform: a question on savings management and a question on risk management. These questions are central to our study. Compared to total population, the self-employed more consistently opt for managing their savings independently, about 45 percent of the group. The remaining share is split between those who would gladly delegate savings decisions to a fund and those who would like to have a choice of the fund that manages their savings. This is in stark contrast with employees, about 65 percent of whom gladly delegate pension decisions to a fund (Figure 4). When asked whether they would rather pay more premium for a guaranteed pension or a lower premium for a pension that is on average expected to be equally high, but for which the final pension payment can

<sup>8</sup> Li and others (2016) report that only around 7 percent of self-employed in their sample were affiliated with the occupational pension system in 2010. Knoef and others (2017) show that self-employed build less wealth than employees through the 2<sup>nd</sup> pillar, in particular at higher income levels, while their net replacement rates are lower.

vary depending on the investment risk self-employed expressed a somewhat higher attitude towards risk taking, on average.



## D. Model Estimations

**24. The starting year for our panel is the one in which the current pension reform draft was initially proposed, and discussion with social partners launched.** Thus, the panel comprises answers collected during the years 2014-17 for a total of about 20,000 observations. We are interested in gauging the probability of being self-employed given expressed preferences for greater freedom of choice and risk-taking, controlling for a number of observable and unobservable characteristics. We estimate the following model by means of a PROBIT regression:<sup>9</sup>

$$SE_{i,t} = \alpha DC_{i,t} + \beta' X_{i,t} + c_t + \varepsilon_{i,t} \quad (1)$$

Where:

- The *dependent variable*,  $SE$  is a dummy that denotes the job status and takes the value of 1 if the individual is self-employed;
- The *independent variables*  $DC$  are dummies denoting two questions associated with elements of the proposed pension reform.  $DC1$  takes the value of 1 if the individual has indicated that he/she is willing to take a risk related to the pension income in exchange for paying a lower premium;  $DC2$  is a dummy that takes the value of 1 if the respondent has expressed a preference for managing pension savings individually (as opposed to delegating it).
- $X$  is a vector of demographic and psychological characteristics; and
- $\varepsilon$  is the error term.

<sup>9</sup> See Appendix II for more detail on the construction of variables.

Definition of Key Variables			
Dummy variable	Abbreviation	DHS code	Description
Risk taking	DC1	DNB95	Value = 1 if DNB95=2; 0 otherwise
Freedom of choice	DC2	DNB96	Value = 1 if DNB96=1; 0 otherwise
Self-employed	SE	zelfst	Value = 1 if zelfst=1; 0 otherwise

## Stylized Facts

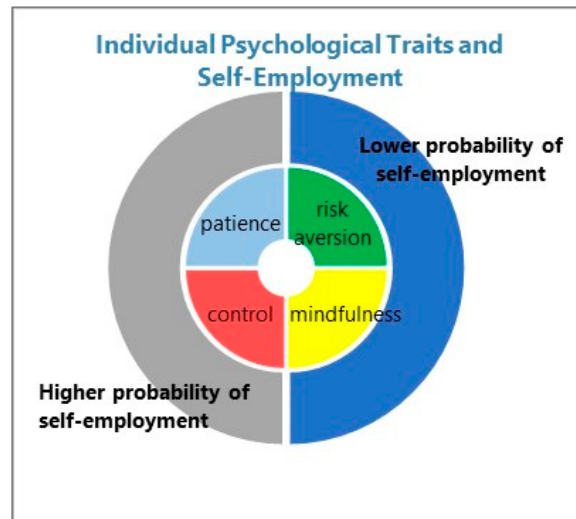
**25. Personal characteristics can influence retirement income preferences and savings management, as well as the choice of contract type in many ways.**<sup>10</sup> The literature on the determinants of self-employment suggests that women are less likely to enter in this type of contract, among other reasons because they are intrinsically more risk averse. Age is found to have a positive influence on self-selection into self-employment, favored by accumulated social, individual and human capital through years and experience and stronger preference for flexibility. Self-employed are also more likely to be of older age when they have managed to build up sufficient savings and are less dependent on income from retirement. Individuals who have *children* may be more likely to be self-employed for a variety of reasons including flexibility to manage time, which helps preserve work-life balance, and pressure from increasing financial needs when the family is enlarged. On the other hand, risk aversion may increase. The theoretical literature and empirical evidence on the influence of education on occupation status is ambiguous and suggests the relationship may be U shaped and obscured when employment industry is not taken into consideration. The relationship may go both ways because on the one hand more educated individuals can have better opportunities in contractual relationships while on the other hand, they can have better managerial abilities that make them succeed in self-employment. For what concerns income and wealth, individuals with higher *income* and those whose *tax* burden is higher may be more likely to be self-employed as in both cases their contributions would be lower.<sup>11</sup> Moreover, individual with lower liquidity constraints may be more likely to star-up their own businesses with some initial capital.

**26. Personality traits, also known as non-cognitive abilities, may also affect occupational choice.** An increasingly influential literature branch shows that individual personality traits are able to predict a variety of social and economic outcomes and affect preferences (Borghans and others, 2008; Almlund and others, 2011; Hudomiet and others, 2018). Risk attitudes, for instance, are predictive of investment decisions and entrepreneurship, and are associated with personality. Individuals do not necessarily maintain the same level of a trait over time, however, which can

<sup>10</sup> See, for instance Simoes and others (2015), for an extensive review of literature.

<sup>11</sup> However, while income may suffer from endogeneity (the aggregate income variable includes retirement income), *tax* could display multicollinearity with income and employment status.

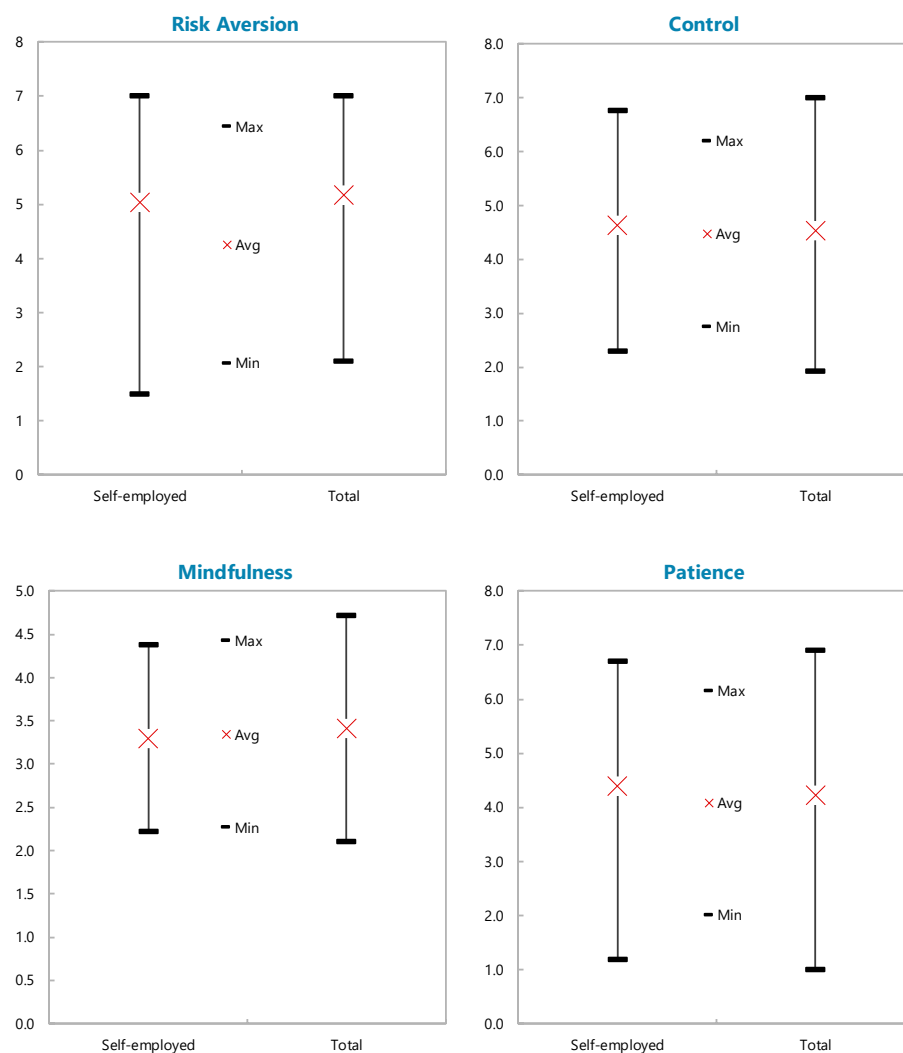
change as a result of exogenous shocks such as economic crises, or due to temporary changes in self-control resources, emotions, or stress (Schildberg-Horisch, 2018). The DHS allows us to construct personal profiles based on a set of questions administered to respondents almost every year. Answers to psychological question in the DSH do not reveal stark differences across the two population groups with a slightly lower average score on “risk aversion” and higher on “patience” for the self-employed (Figure 5). The average score on “risk aversion” is the predominant trait across the entire surveyed population, with the average score of 5 in a range of 1 to 7 based on 6 questions.<sup>12</sup> Based on literature, we expect that the probability of entry into self-employment is greater for individuals with lower levels of risk aversion. We also postulate that “patient” and “controlling” individuals are more likely to accept a self-employed status given that they are more likely to feel in charge of their working life and future income (+ sign) (Eren and Sula, 2012). Those “mindful” are less likely to do so (- sign) as self-employment is associated with higher but more uncertain income and less redistribution due to lower contributions.



<sup>12</sup> See Appendix II for more detail.



**Figure 5. The Netherlands: Psychological Traits, 2017**  
(average score, unit)



Source: DHS, DNB; and Fund staff estimates.

## Regression Results

**27. Individuals who have a preference for pension plans with more freedom of choice and more investment risk are significantly more likely to choose self-employment than regular employment.** The regression shows that, given an expressed preference for “risk and choice”, the probability of being self-employed is positive. The DC1 and DC2 dummies summarizing preference for freedom of choice and risk taking are significant and bear the expected sign. Self-employment, is also more likely at older ages, in line with findings in the literature, and at higher education levels. Interestingly, the reported perceived information level about future pension conditions which we

include in the regression is not significant. Self-employment is less likely when individuals pay higher taxes. This may be because self-employed have in general a lower tax burden being exempt from part of contributions. Psychological traits confirm expectations: self-employment is more probable when individuals feel in control of their life and savings and less common when they are mindful. Time dummies, gender, having children or not, civil status (not reported) and gross income are not significant in the estimation.

### Reform Preferences and Self-Employment

<i>Regression Results - PROBIT</i>	
Dependent var	SE
DC1	0.019 * (0.010)
DC2	0.036 *** (0.010)
<i>Age group (35-45)</i>	
<35	-0.020 (0.016)
46-55	0.029 ** (0.013)
56-67	0.041 *** (0.013)
Gender (F)	0.015 (0.010)
Gross income	0.000 (0.000)
Tax burden	-0.020 ** (0.008)
Children (Y)	-0.012 (0.010)
<i>Education (primary and below)</i>	
Vocational_inter.	0.063 *** (0.019)
Vocational_high	0.042 ** (0.019)
Pre-university	0.046 ** (0.022)
University	0.062 *** (0.020)
Informed	0.002 (0.004)
<i>Psychological traits</i>	
Risk averse	-0.004 (0.005)
Patient	-0.001 (0.006)
Controlling	0.015 ** (0.007)
Mindful	-0.030 *** (0.011)
N obs	1,847
Pseudo R2	0.130

**28. These findings suggest that pension system architecture in the Netherlands could be one of the determinants of individual employment choices.** If the reform decreases pension wealth, or the perceived pension wealth, for instance, some individuals could find it necessary to increase savings including by spending more time in contractual employee relationships in response. This was true in the case of the 2006 reform that abolished preferential tax treatment of early retirement for certain groups and lowered the share of people willing to use their liquid assets for entrepreneurship, and thus self-employment (Mastrogiacomo and others, 2016). Moreover, a reform that introduces individual contracts which allow more flexibility should incentivize participation into the pension system and discourage self-employment.

## E. Conclusions

**29. Our findings suggest that individuals who prefer pension plans with more freedom of choice and more investment risk are significantly more likely to choose self-employment as labor relationship.** Encouraged by favorable tax treatment, self-employment in the Netherlands has increased over the past decade, and more pronouncedly so among older workers and those with higher education levels. Self-employed, however, participate only marginally in occupational pension schemes. In the DHS, self-employed have expressed a higher preference for freedom of choice in the management of pension savings and greater willingness to tolerate risk on final pension incomes. Mapping survey answers into pension reform support is not unequivocal and the current proposal, while broadly comparable to a transition toward a “plain” DC framework, is markedly complex. Despite possible limitations, after controlling for observable and unobservable individual characteristics, we show that the link between self-employment and the support for greater individualization of savings plans appears strong. Our analysis offers a starting point for shaping considerations surrounding the labor market effect of the pension reform.

**30. Because of the complexity involved in managing new pension options, consensus and successful implementation may take time.** The PPR-CB may indeed be the best of the two worlds in combining the most attractive features of both DB and DC plans while moving a step forward towards greater individualization. However, as the reform brings the system closer to the individual preferences and increases transparency it will also increase complexity. The new framework will require people to take more active interest in the management of retirement savings which the majority has not done until now. The learning process may take time, as even individuals who prefer freedom of choice may not be ready to exercise it (van Dalen and Henkens, 2017). Meanwhile, maintaining trust in institution, which is currently at its highest in recent years, will be crucial for reaching a consensus and navigating the transition successfully (Figure 1, Appendix I).<sup>13</sup>

<sup>13</sup> Consumer confidence in the banking sector and employers is also high and rising, according to the latest figures. (Banking Confidence Monitor 2017, The Dutch Banking Association; Statista 2018, The Edelman Trust Barometer, 2018).

**31. Greater transparency on the “missing arguments” would help build consensus and speed up reform implementation.** The political economy literature offers numerous insights on options for overcoming reform resistance through elimination, compensation and information building (Tsebelis, 2000; Tsebelis and Hahm, 2014; Tompson and Price, 2009; James and Brooks, 2001). Though the literature on pension reform design is vast in the Netherlands, additional information in some areas could clarify remaining open questions and strengthen government’s arguments. More specifically, the redistribution cost in the transition to the new contract type should be made explicit and the modalities of financing it specified. This should clearly identify the losers and the winners of the reform, highlighting options for compensation in a wider reform package. Answering these open questions will be key to reaching a reform consensus in one of the most inclusive and equitable consultative societies in the world.

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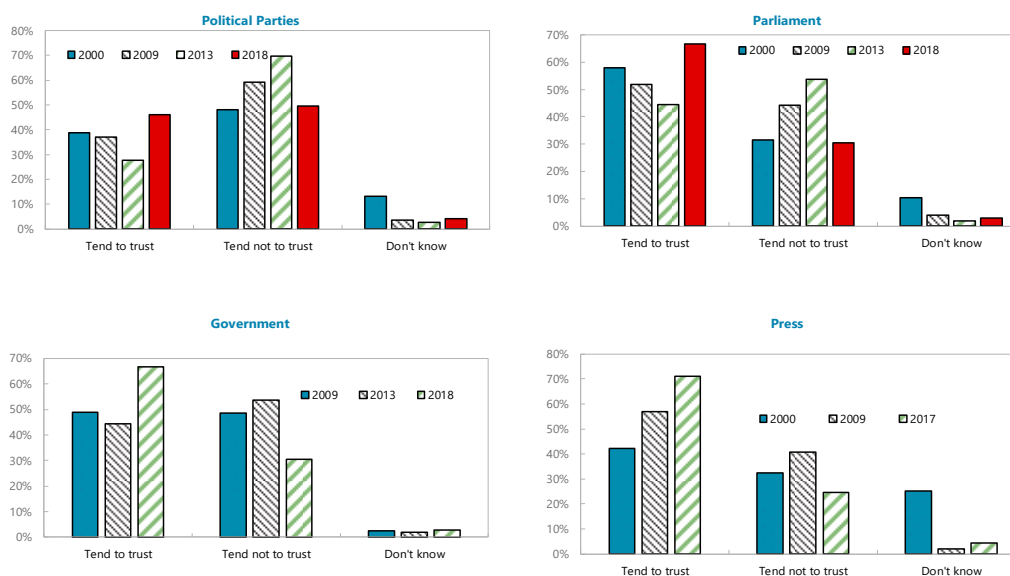
## Appendix I. Data and Tables

**Table 1. The Netherlands: Key Parameters of the Dutch Pension System, 2018**

Pension parameter	Mandatory		
	1st pillar		2nd pillar
	Minimum pension	Disability and survivors benefit	Occupational
Provider	Public	Public	Private
Coverage	All residents (not means tested)		90% active workers
Funding	DB/PAYG	DB/PAYG	Hybrid DB
Pensionable age	Increasing to 67 by 2021, then linked to life expectancy		68 in 2018
<b>Beneficiaries</b>			
Millions (2016)	4.04		
Benefit formula	average of all salaries		
Accrual rate, annual	1.875		
<b>Annual benefit per person, gross</b>			
Maximum (in eur, 2017)	103,317		
Average (in eur, 2017)	14,737		
Percent of GDP per capita			
<b>Expenditure (2016)</b>			
Billions eur	37.5	13.5	41.1
Percent of GDP	5.3	1.9	5.8
Indexation post-retirement	minimum wages		CPI
<b>Contributions (2016)</b>			
Contributors (millions)	8.89		
Contribution rate (average)	the AOW franchise		employers 17, workers 7
Contributions (gross, billions)	49.6		31.2
Percent of GDP	7.0		4.4
Interest rate on contributions (monthly, Dec 2017)			
<b>Size of fund (in 2017)</b>			
Billions eur	1620		
Percent of GDP	220		
Non-indexed funding ratio (2017)	103/105 (regulatory min)		

Source: OECD Aging Report.

**Figure 1. The Netherlands: Trust in Institutions, 2000–18**



Source: Eurobarometer.

## Appendix II. The DNB Households Survey (DHS)

### Variables Description

- The dependent variables DC1 and DC2 are constructed from the responses reported in variables dnb95 and dnb96 in the survey. DC1 takes the value of 1 if the individual has indicated that he/she is willing to take a risk related to the pension income in exchange for paying a lower premium; DC2 is a dummy that takes the value of 1 if the respondent has expressed a preference for managing pension savings individually.
- The variable age is constructed from the variable birth less the year of the survey. It is used to construct 5 dummies for the main age groups. Individuals who are older than 67 are dropped from the estimation.
- The educational dummies reflect completed education level of respondents which is grouped into “low” if the respondent has completed primary education or below or special education (a limited number of individuals in the survey report it). Other dummies encompass university, pre-university and vocational education at high and intermediate level.
- Female is a gender dummy that takes the value of 1 if the respondent is female.
- Children is a dummy variable indicating that the respondent reported having children when the value is 1.
- Married is a dummy which takes the value of 1 if the individual lives in a registered partnership and 0 if the individual is divorced, living in an unregistered partnership, widowed or has never been married.
- Health is a step dummy indicating the self-reported health status of the individual. It takes the value of 1 if the reported health status is excellent, 2 if good, 3 if fair, 4 if not so good, and 5 if poor.
- Informed is a step dummy variable taking the value of 1 to 6 depending on how informed the individual feels about his/her future pension arrangements. A lower value is associated with feeling better informed.
- The variable tax is the implied overall tax burden, calculated as a difference between gross and net income and divided by the net income. We also use the variable income tax *ib* - calculated based on the taxable components of the total gross income and includes the social security premiums - to construct an alternative measure of tax burden.
- Total gross and the total net income - *btot* and *ntot* - are calculated based on a large number of reported sources of income on a personal level. They include all forms of income: from work, benefits (social assistance and social insurance), scholarships, tax credit, rental etc.



- Employment status dummies:
  - 🚩 *Employee* takes the value of 1 if the individual is employed on a contractual basis or works in own business.
  - 🚩 *Self-employed* takes the value of 1 if the individual is self-employed, freelancer or in a free profession and 0 otherwise.
  - 🚩 *Unemployed* takes the value of 1 if the individual is looking for a job after having lost one or looking for the first job.
  - 🚩 *Other work* takes the value of 1 if the individual performs households, voluntary, unpaid, or other work, is not a student, retiree, employee or self-employed.
- Psychological traits variables: respondents in the survey are asked to express agreement over statements on their personality on a scale of 1 to 7 (from extremely uncharacteristic to extremely characteristic). Coverage and the number of questions may vary across years.
  - 🚩 *Risk averse* – mean of values (between 1 and 7) associated to answers on 6 questions depicting personal traits linked to risk aversion.
  - 🚩 *Patient* – mean of values (between 1 and 7) associated to answers on 12 questions depicting personal traits linked to patience.
  - 🚩 *Controlling* – mean of values (between 1 and 7) associated to answers on 13 questions depicting personal traits linked to locus of control.
  - 🚩 *Mindful* – mean of values (between 1 and 5) associated to answers on 18 questions depicting personal traits linked to consciousness.

In some instances, the values needed to be recoded and missing variables in certain years replaced with average responses from previous years.

## DHS Questions on Pensions

(dnb94)

**Which of the below mentioned statements applies to you most?**

1. I do not worry about my pension arrangements, we'll see by then.
2. It is important to know that my pension is taken care of, without knowing the details.
3. I keep well informed about any developments regarding my pension.
4. I don't know.

(dnb95)

**Which of the below mentioned statements applies to you most?**

1. I'd rather pay more premium for a guaranteed pension (money for pension mainly invested in bonds).
2. I'd rather pay less premium for a pension that on average is equally high or is expected to be equally high, but for which the final pension payment can be higher or lower due to the higher risk of the chosen investment form (money for pension mainly invested in stocks).
3. I don't know.

(dnb96)

**Which of the below mentioned statements applies to you most?**

1. I'd rather determine myself what is done with the pension premiums I pay, so that the final pension payment depends on the decisions I made.
2. I'd rather decide which pension fund manages my pension premiums for me.
3. Building up my pension I gladly leave to the pension fund of my employer.
4. Not applicable.
5. I don't know.

(dnb207a)

**In 2012, it has been decided to increase the general old-age pension age.**

**To make sure that the general old-age pension remains affordable, which of the following measures appeals to you most?**

1. A lower general old-age pension.
2. An increase of the old-age pension premium for people working.
3. Increase the age on which I will receive the general old-age pension.

**(dnb207b)**

**Which of the two remaining measures appeals the most to you thereafter?**

1. A lower general old-age pension.
2. An increase of the old-age pension premium for people working.
3. Increase the age by two years on which I will receive the general old-age pension.

**(dnb116)**

**Will you adjust your conduct if the pensions are cut down, for example through an adjustment on the indexation, postponement of the retirement age or a different pension system?**

1. Yes, I will put more money aside for my pension.
2. No, I will see what I'll do when it happens.
3. No, I think I can make ends meet fairly easily with the pension I will have.
4. Other.
5. I don't know.

**(dnb210)**

**Suppose your pension fund makes a choice between increasing the pension premium or increase the risk of the investment, as a result of which the exact amount of your pension becomes less certain (there is a 2.5% chance that it will be 10% lower). Will you change your savings behavior if the fund chooses an investment mix with a higher risk but the premium remains the same?**

1. Yes, I will put more money aside towards my pension.
2. No, I will see what I'll do when it happens.
3. No, I think I can make ends meet fairly easily with the pension I will have.
4. Other.
5. I don't know.