Covid-19. Impact on residential construction viability and purchaser affordability. Measures to mitigate.

Keogh Consulting. May 2020

Executive Summary

Ireland is currently in the middle of the COVID-19 crisis with significant economic and health impact throughout the island. The Irish Government have looked to shield the economy and have put in place stay at home measures. Construction had been stopped in Ireland up to 18th May with sites starting to reopen last week. An economic contraction is forecast with the IMF[1] forecasting a contraction of -7.5% in real GDP in the Euro Area (v -4.5% in global financial crisis 2009) for 2020. The ESRI[2] have forecast a contraction of -7.1% in GDP with a 12 week shutdown. Hopefully this contraction may reverse when the stay at home policy is reversed on a phased basis, however, it is possible that it may take until early 2022 until GDP in Ireland recovers to current levels.

This crisis will a) shift the demand curve for housing (given reduced household incomes), b) reduce the supply of housing (given reduced housing output) and c) increase cost of delivery (given increase in programme related costs, reduced productivity and delay in sales and completions). This paper looks at the impact of these changes.

With the current housing supply deficit demand for housing will remain after the COVID-19 crisis with a mix of tenure types required in the market – however, the affordable price point for purchase will change, at least in the medium term, with viability of development issues given that pool of able purchasers may have shrunk.

Housing demand - In 2020 & 2021 our forecasts indicate that there may be a change in overall demand due to migration changes on account of COVID-19. With no emigration or immigration due to global travel restrictions, we estimate a net migration decrease on account of these restrictions from 34k to c17k. This forecast indicates that overall demand for housing may fall to below 25,000 in 2020 & 2021 before rising again in 2022 to above 30,000 as hopefully migration flows resume. This demand will be made up of a range of tenure types.

Housing supply – Covid-19 has halted construction activity in Ireland since the beginning of March. A phased restart of construction activities on sites has commenced since 18th May. Reduced completions will create further supply difficulties in the housing market and increase the housing supply deficit. We estimate the reduced construction output could increase housing supply deficit by 21k units in period to 2022.

Construction Industry Economic Output - With the reduced number of completions a reduction in residential construction output of €4.6bn in 2020 & €3.8bn in 2021 is forecast – this will have significant impact on employment, GNP & exchequer returns. The exact impact on construction costs is unclear at present – the cost of site safety measures and programme extensions will have to be recovered of profitability will be impacted.

Housing Prices – On account of the COVID-19 lockdown there have been little or no transactions in the market since early March[3]. The impact on home prices is unclear but will depend on a number of factors including speed of recovery, unemployment, average incomes and global economic trends including FDI landscape moving forward. This will make affordability more difficult with a lowering of the number of potential purchasers for new homes (with consequent increase in demand for other tenure types).

Gross Household Incomes – Given current economic conditions it is likely that income levels will at best stay flat and in all lilklihood decrease through 2020. Banks probable unwillingness to advance loans to potential purchasers on reduced incomes on account of temporary COVID-19 measures will stop transactions, make

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[1] https://blogs.imf.org/2020/04/14/the-great-lockdown-worst-economic-downturn-since-the-great-depression/

[2] Source: ESRI April 2020

[3] Source: Irish Times. 3rd April, 2020. "Housing market grinds to a halt as Covid-19 crisis takes hold".

affordability for potential purchasers (particularly those workers in high-contact sectors) more difficult and reduce demand for housing at current price levels.

Impact on FTB Numbers – Our calculations indicate that at the economically viable house delivery price of €325k there may be potentially 12.5% less households able to purchase over pre Covid period (approximately 225k households may have fallen out of the affordability net[4]).

Affordability – Based on uplifted CSO[17] household income data adjusted for Covid-19 impact:

- FTB household with the estimated median income level of €50.8K now have an affordability limit of €213.0K,
- FTB household in 75th percentile with earnings of €78.4K have an affordability limit of €349.2K assuming the Help-To-Buy scheme is still in place.

Based on the estimate of current economically viable home sales price:

- A household income above c. €83.5k will be required to purchase a 1,100 sq ft house. This would rise to €88.8k with a 10% increase in construction costs being passed on as an increase in unit price.
- A household income of c. €120k required to purchase an economically viable 2-bed apartment, €467k.

Sensitivity of viability to cost and price chages – Our analysis indicates that a 10% increase in construction costs would reduce profit on development costs for a developer from 10% to 2.9%. A construction cost increase of 15% would lead to a loss on the project (assuming no increase in prices). The price of a 1,100 sq ft housing unit would need to increase from €325k to €345k to cover the increased costs and achieve the targeted profit on costs of 10%.

Could offsetting VAT payments for a purchaser help – Some commentators have suggested that payment of VAT over an extended period could help affordability. We have analysed such a scheme – implementation of such a scheme would lower the upfront cost of purchasing a home by transferring some of the risk from a funder to the State and allow a household with lower gross income purchase a home. However, it would increase the monthly housing cost for a household – the same impact could be achieved with an increase in LTI multiplier of 4.0x and result in a €180 per month saving over the cost of illustrated VAT offset scheme.

Shared equity scheme – A specific and targeted state shared equity scheme could help lower barriers to home ownership for households and mitigate affordability challenges facilitating prospective buyers with average household incomes to get a foothold on the property ladder. Careful consideration would have to be given to the design of the scheme to ensure fairness, transparency, effectiveness and affordability while making sure that it takes account of Central Bank macro prudential rules. A household with a €60k income would save €3,080 per annum over annual average rental cost for a 2 bed townhouse with a combination of 30.4% shared equity loan and a standard mortgage for the remainder.

Filling the Housing Supply Gap – With exchequer receipts generated on account of construction of an apartment estimated to amount to €134k per unit (house €99k per unit) – assuming a 130% shadow cost of government funding would imply that a stimulus programme costing up to €103k per apartment (house €76k per unit) would have a cost benefit ratio of 1. With full employment and a deficit of construction capacity such a measure may have had negligible stimulus impact up to now and perhaps resulted in price increases. However, given that the current crisis has reduced manning levels of construction sites and consequently employment, there may be spare construction capacity that could be put to use on opening sites that up to now were not viable but with a stimulus could become economically viable – getting homes that otherwise would not be built, built!

[4] This is the Total Adressable Market – the number of potential purchasers will be lower of course.

Conclusion

Housing developers need to have an understanding of prospective purchasers affordability levels and how the current crisis may have impacted their ability to purchase a new home. Now is a time to reappraise and stress test projects under differing scenarios regarding input costs and achievable price targets to determine their vulnerability. Priority should be given to those with highest risk adjusted returns and where possible these projects should be progressed through preliminary design, planning, procurement to get to a shovel ready state.

This understanding of delivery costs, affordability levels of potential purchasers and number at each price point is key in prioritising projects and may allow more sites to open and excess construction capacity to be used to progress construction projects – this paper looks to examine these questions.

Assuming demand for housing holds, albeit at a different price point, there will be an ongoing need for residential developers to contract with main contractors and a range of sub contractors in their supply chains in the future. Thus, while activity on sites is ramping up or paused, it is imperative to retain two way relationships between developers and their supply chain given current exposure to significant risks on all sides. Given new site measures that must be in place a focus should be made on improved workflow and coordination of activites on sites to minimise productivity reductions and indeed capture productivity opportunities. Collaboration is key and working together the future can be planned to minimise impact on profitability throughout the housing supply chain through formulating the most appropriate mitigation strategy for effective delivery,.

Finally, given market failure to provide the number and mix of housing types required on account of economic viability issues, the State needs to consider the best way to provide stimulus to encourage construction of houses and ensure that the impact on housing supply during the current crisis can be minimised. Direct stimulus (e.g. through VAT reduction) or measures such as shared equity schemes may be part of the solution.

Introduction

Ireland is currently in the middle of the COVID-19 crisis with significant economic and health impact throughput the island. The Irish Government have looked to shield the economy and have put in place stay at home measures. Construction is stopped in Ireland and has just restarted. An economic contraction is forecast with the IMF[5] forecasting a contraction of -7.5% in real GDP in the Euro Area (v -4.5% in global financial crisis 2009) for 2020. The ESRI[6] have forecast a contraction of -7.1% in GDP with a 12 week shutdown. Hopefully this contraction may reverse when the stay at home policy is reversed on a phased basis, however, it is possible that it may take until early 2022 until GDP in Ireland recovers to current levels.

This crisis will a) shift the demand curve for housing (given reduced household incomes), b) reduce the supply of housing (given forecast reduced housing output) and c) possibly increase cost of delivery (given increase in programme related costs, reduced productivity and delay in sales and completions).

On existing projects clients must assess the impact of the closedown and reduced output level and plan accordingly. The construction industry operates as an interdependent ecosystem reliant on all of its constituent parts functioning with the system limited by its weakest link – all participants should look to have empathy with all they do business with. All businesses should try and work constructively and openly with their supply chain to address potential cash flow issues up front. The financial resilience of core suppliers should be proactively monitored through 2020 and especially towards the end of the year and beginning of 2021 as cash flow slows down and the financial risk amplifies further down the supply chain.

With the housing supply deficit in the past number of years the demand for housing will remain after the COVID-19 crisis with a mix of tenure types required in the market – however, the affordable price point will change, at least in the medium term. In this paper an estimate is made on how the demand curve may change base on ESRI forecast income distribution changes.

Now is a time to reappraise and stress test projects under differing scenarios regarding input costs and achievable price targets. Priority should be given to those with highest risk adjusted returns and where possible these projects should be progressed through preliminary design, planning, procurement to get to a shovel ready state. Understanding delivery costs, the affordability levels of potential purchasers and number at each price point is key in prioritising projects.

[5] https://blogs.imf.org/2020/04/14/the-great-lockdown-worst-economic-downturn-since-the-great-depression/

[6] Source: ESRI April 2020

Trends in the housing market Q2 2020?

Housing Demand

Consensus forecasts through 2019 indicated that demand for housing based on new household formations lies above 30,000 units per annum. Completions, while increasing, were below this level – supply has been below demand.

In 2020 & 2021 our forecasts now indicate that there may be a change in overall demand due to migration changes on account of COVID-19. With no emigration or immigration due to global travel restrictions, we estimate a net migration decrease on account of these restrictions from 34k to c17k. The forecast, presented in Figure 1, assumes a constant headship rate in households. This forecast indicates that overall demand for housing will fall to below 25,000 in 2020 & 2021 before rising again in 2022 to above 30,000 as hopefully migration flows resume. This demand will be made up of a range of tenure types.

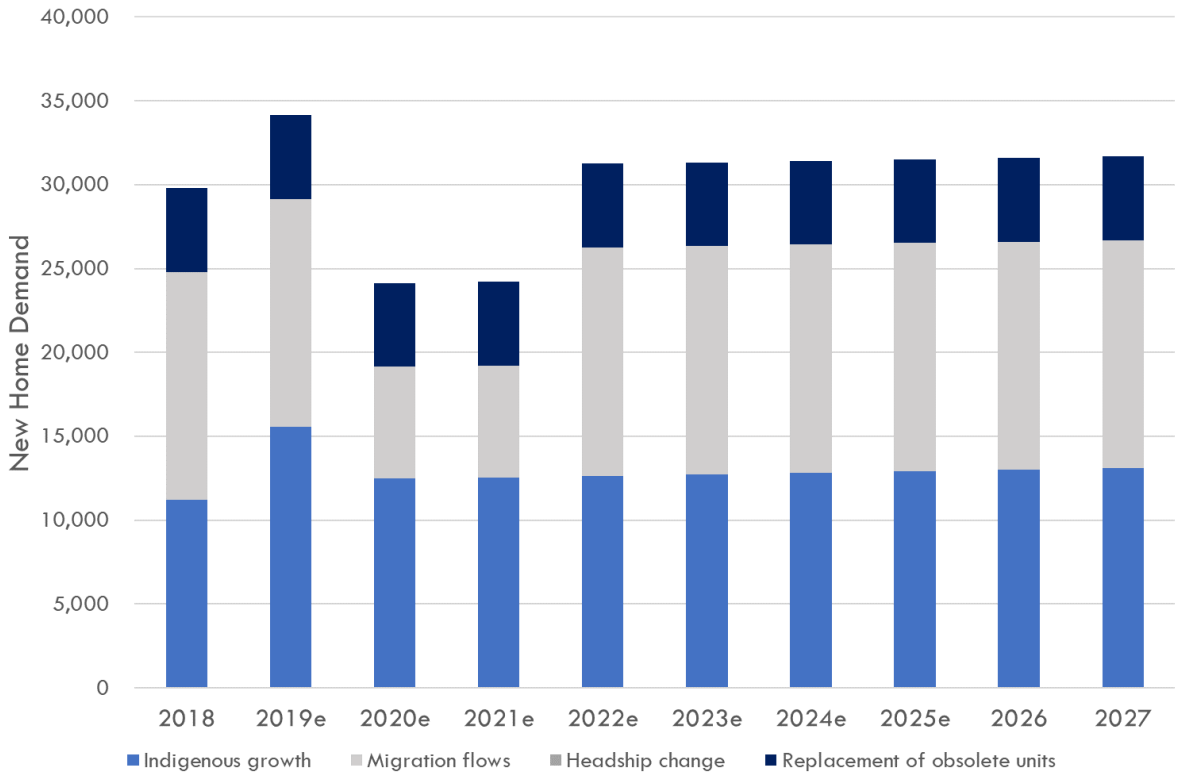

Figure 1 - Keogh Consulting Estimate of Housing Demand

Housing Supply

Covid-19 has halted construction activity in Ireland since the beginning of March. A phased restart of construction activities on sites will commence from 18th May. Site social distancing measures that must be in place will have an impact on site productivity and delivery programmes – this will have significant impact on output. The combination of a) the distancing requirements, b) the pause in construction from March to May, c) decreased productivity & d) extended programmes, will have an impact on housing completions each month (Figure 2 - Impact of Covid-19 on Residential Construction Output). These reduced completions will create further supply difficulties in the housing market and increase the housing supply deficit. We estimate the reduced construction output will increase housing supply deficit by 21k units in period to 2022.

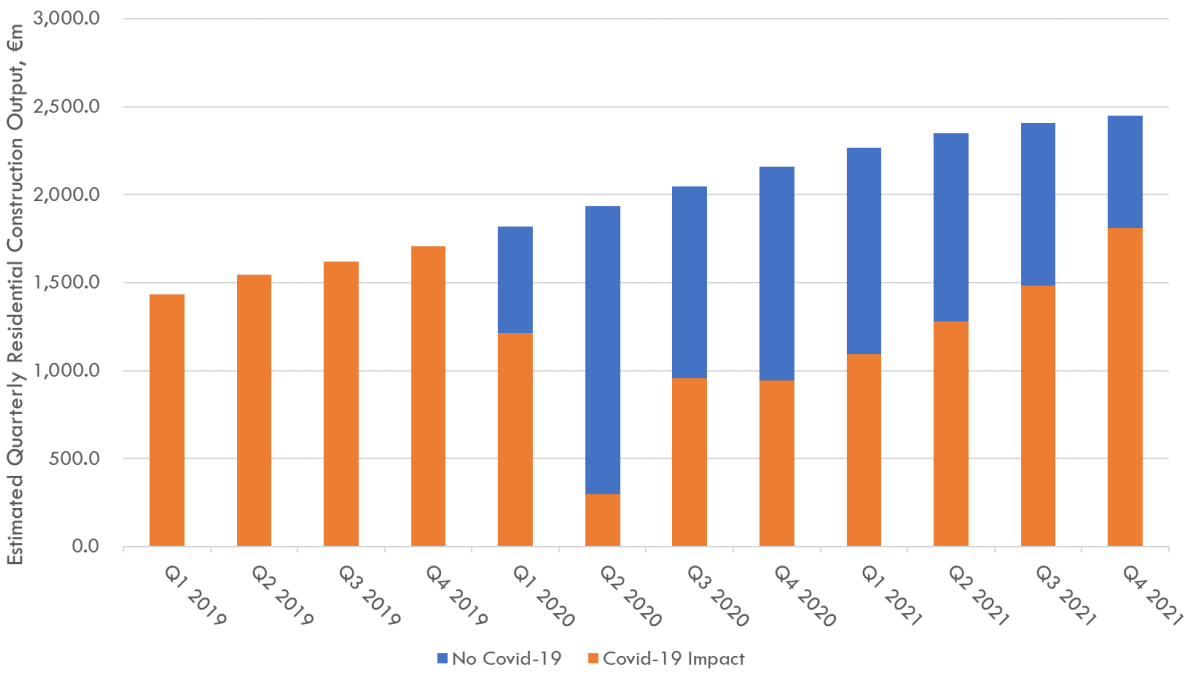

Figure 2 - Impact of Covid-19 on Residential Construction Output[7]

With the reduced number of completions a reduction in residential construction output of €4.6bn in 2020 & €3.8bn in 2021 is forecast[8] – this will have significant impact on employment, GNP & exchequer returns. The impact on construction costs is unclear at present.

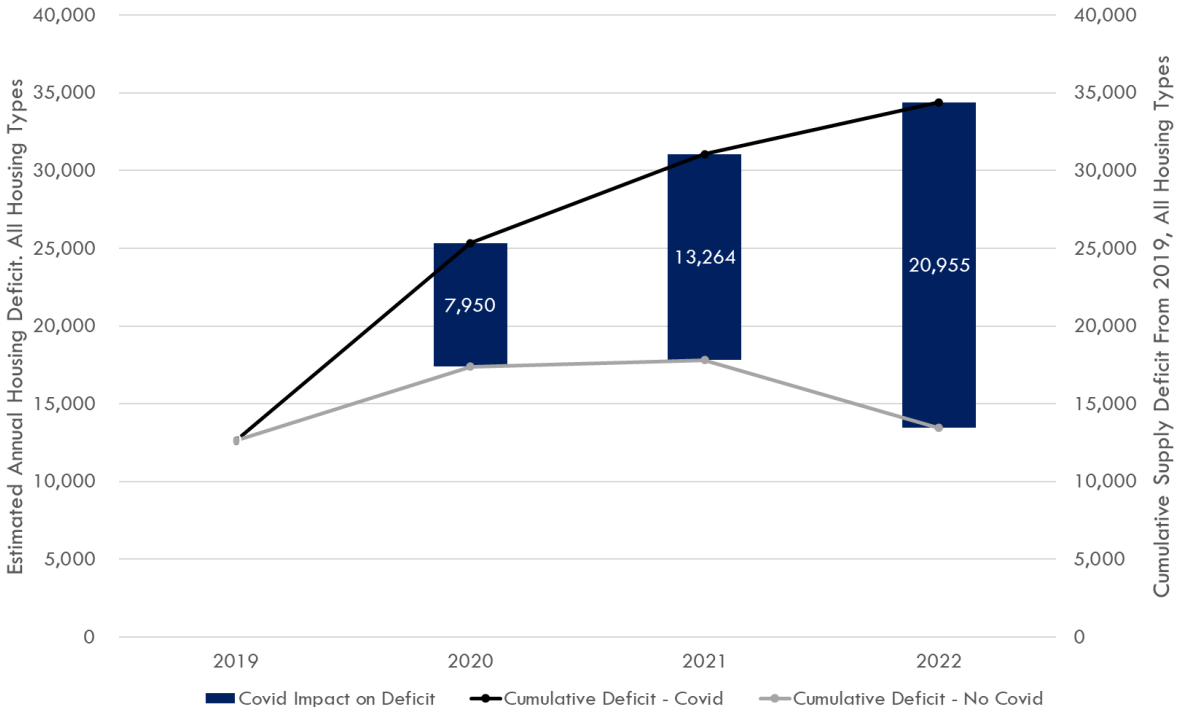

Figure 3 - Estimated Increase in Housing Supply Deficit to 2022

[7] Source: Keogh Consulting Calculations

[8] Source Keogh Consulting Calculations based on CSO commencement data & assumed average unit sizes.

Property Sales Prices.

In advance of the COVID-19 crisis property price rises had moderated. In the 12-months to January 2020 residential property prices had increased by 1.8% nationally[9]. This compares with an increase of 0.5% in December and an increase of 5.2% in the twelve months to January 2019.

In Dublin, residential property prices increased by 0.5% in the year to January - house prices saw no change and apartments decreased by 2.1%. The highest house price growth in Dublin was in Fingal at 4.9%, while Dun Laoghaire-Rathdown saw a decline of 3.6%. Excluding Dublin, residential property prices in Ireland were 3.1% higher in the year to January, with house prices up by 3.5% and apartments by 0.1%. The region outside of Dublin that saw the largest rise in house prices was the Border at 9.2% - at the other end of the scale, the Mid-East saw a 0.4% rise.

Reviewing the property price register for transactions in 12 months to December 2020 indicated that 4,334 homes were purchased by first time buyer owner occupiers at an average price of €352,238 (median €339,999) in this period with the majority of transactions taking place in urban areas. It would thus appear that the volume of transactions is significantly below the level of household formation estimated (noting that these figures don't take into account first time renters).

From the CSO data[9] correlation can be seen between household income and house prices by county, as well as the relationship between house prices and number of transactions. Regions with higher average incomes have higher prices – however the simple correlation does not apply causation, or the direction of that causation. It does, however, support the thesis that ***there is finite demand for housing at a given price level*** and that the lower than expected level of transactions may be indicative of the fact that prospective new buyers just cannot afford what is currently on sale.

On account of the COVID-19 lockdown there have been little or no transactions in the market since early March[10]. The impact on prices is unclear but will depend on a number of factors including speed of recovery, unemployment, average incomes and global economic trends including FDI landscape moving forward. This can only make affordability more difficult with a possible lowering of the number of potential purchasers for new homes.

[9] Source: CSO

[10] Source: Irish Times. 3rd April, 2020. "Housing market grinds to a halt as Covid-19 crisis takes hold".

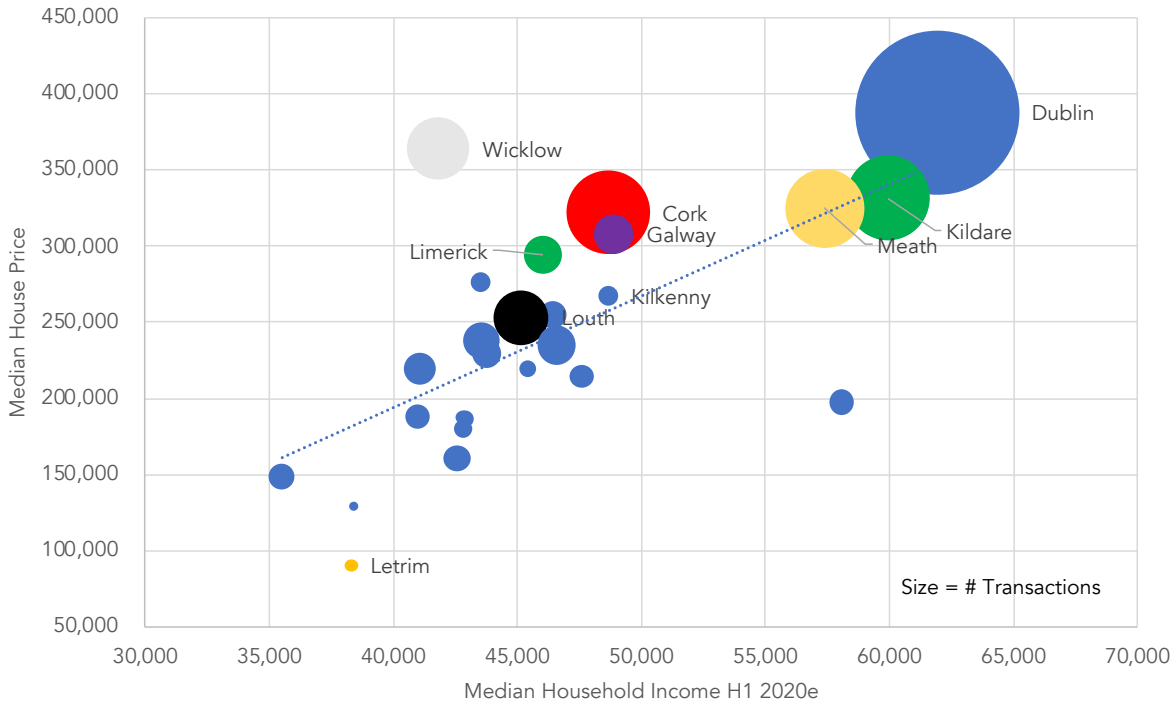

Figure 4 - Median Household Income, House Price and Transaction by County. All Transactions 12 months to December 2019[11]

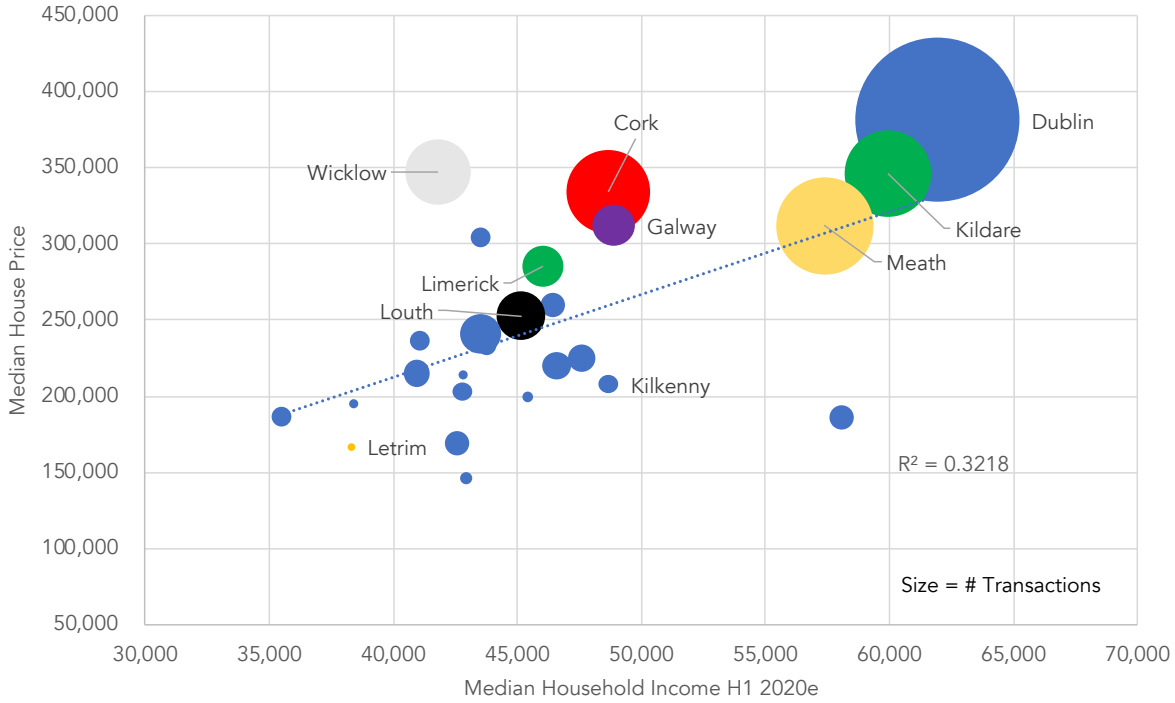

Figure 5 - Median Household Income, House Price and Transaction by County. First Time Buyer Owner Occupier 12 months to December 2019

Prior to Covid-19 it was still difficult for a first time buyer with the median household income in the State to buy a house at the median price level with median household income (Table 1) in the majority of counties in Ireland on account of the Central Bank of Ireland macroprudential lending rules which cap a mortgage at 3.5x gross income with a 10% deposit required.

[11] Source: Keogh Consulting Analysis of Residential Property Price Register Transactions from 12 months to December 2019.

	Median Household Income[12]	Median Transaction Price Past 12 months to Dec 2019 FTB[13]	CB Multiplier required to afford purchase[14]	30 year mortgage % of Disposable Income[14]
Carlow	43,771	234,000	4.8	27.9%
Cavan	42,792	203,090	4.3	24.7%
Clare	46,431	260,000	5.0	29.6%
Cork	48,649	334,017	6.2	36.6%
Donegal	35,497	186,500	4.7	26.3%
Dublin	61,910	381,201	5.5	34.2%
Galway	48,880	312,084	5.7	34.1%
Kerry	41,087	236,683	5.2	29.7%
Kildare	59,940	345,975	5.2	31.9%
Kilkenny	48,674	207,870	3.8	22.8%
Laois	47,595	225,000	4.3	25.1%
Leitrim	38,293	166,901	3.9	22.1%
Limerick	46,022	285,302	5.6	32.7%
Longford	38,394	195,000	4.6	25.8%
Louth	45,151	252,763	5.0	29.4%
Mayo	40,949	215,202	4.7	27.1%
Meath	57,390	312,088	4.9	29.8%
Monaghan	42,826	214,210	4.5	26.0%
Offaly	45,413	200,000	4.0	23.2%
Roscommon	42,921	146,415	3.1	17.7%
Sligo	42,579	169,115	3.6	20.6%
Tipperary	58,054	185,984	2.9	17.6%
Waterford	43,520	241,260	5.0	28.9%
Westmeath	43,513	304,026	6.3	36.4%
Wexford	46,581	220,155	4.3	25.0%
Wicklow	41,823	347,500	7.5	43.0%

Table 1 - Multiplier Required To Purchase Median FTB House With Median Household Income[15]

[12] Source: Keogh Consulting calculations based on CSO data
[13] Source:CSO
[14] Source: Keogh Consulting Calculations
[15] It is to be noted that savings and gifts from family make up a proportion of amounts used to fund first time house purchases which may account for purchases in excess of the noted affordability limits..

Affordability – Covid-19 impact on current gross household incomes?

Given the current COVID-19 pandemic it is likely that income levels will at best stay flat and in all lilklihood decrease through 2020. Banks probable unwillingness to advance loans to potential purchasers on reduced incomes on account of temporary COVID-19 measures will stop transactions, make affordability for potential purchasers (particularly those workers in high-contact sectors) more difficult and reduce demand for housing at current price levels. The ESRI have modelled the impact of Covid-19 on household income distributions with four scenarios – this is the starting point to examine how change in income may effect affordability.

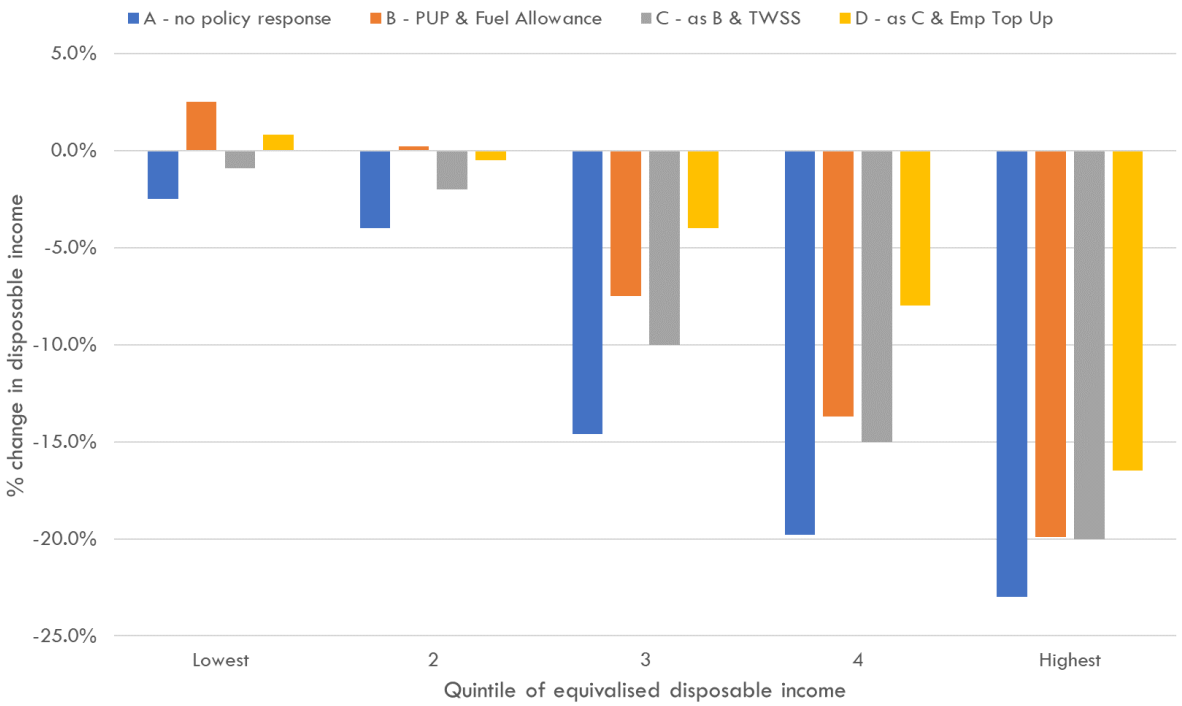

Figure 6 - Distributional Impact of a Pandemic Related Unemployment Shock[16]

There is a direct link between gross income, disposable income and savings rate and impact on overall affordability – understanding of individual and household income distribution levels is key to setting target delivery prices for new homes. From the 2018 SILC[17] data Keogh Consulting have uplifted the figures (assuming 3.2% p.a. income growth and no growth from Q4 2019) and overlaid the recent ESRI forecast of reduced household disposable incomes. From this we have prepared an estimate of impact on deciles of gross household income – this indicates that income levels, and borrowing ability, will have fallen across the income distribution – it is possible that household gross income levels will fall further should the Covid lockdown extend.

[16] Source: ESRI April 2020

[17] Source: CSO 2018 SILC Survey. Uplifted to Q1 2020

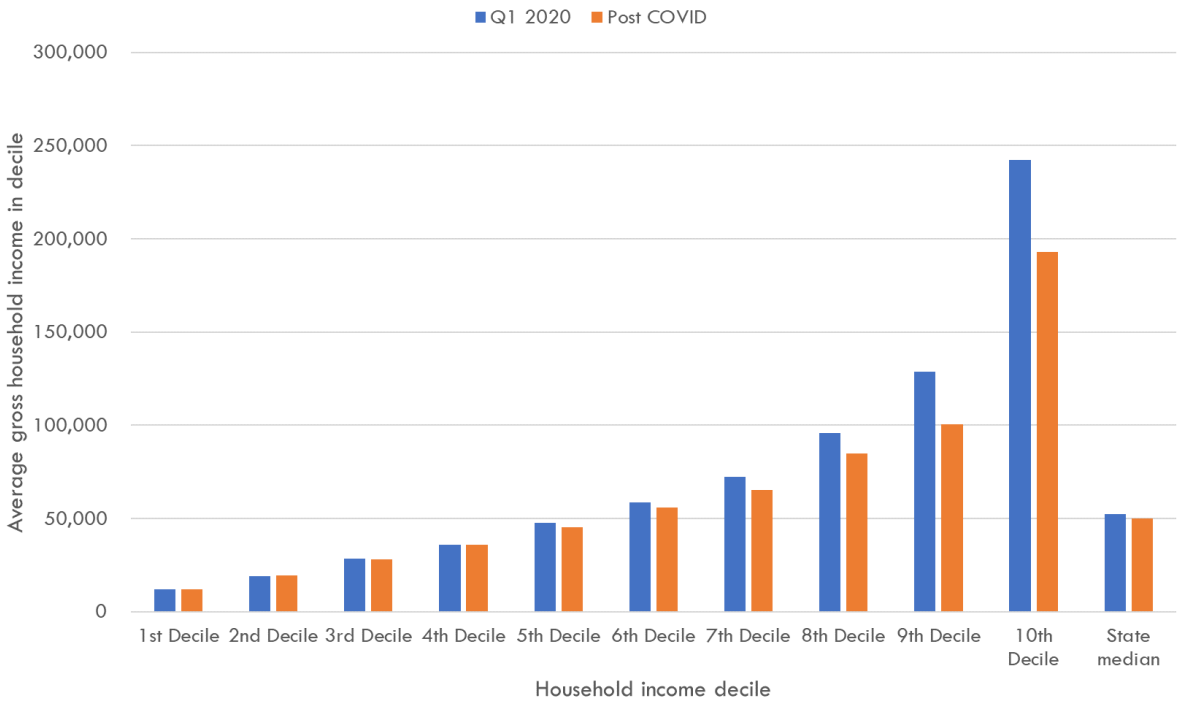

Figure 7 – Covid-19 impact on gross household income with Goverment Intervention

The analysis (Figure 8 - Estimated Household Income Distribution Q2 2020 post Covid-19) highlights that:

- 50% of households have a gross income of less than €45,426
- Median gross income in State is estimated to be €50,007
- 70% of households have a gross income of less than €65,154
- Only the top 25% of households have a gross income of more than €75,000 per annum

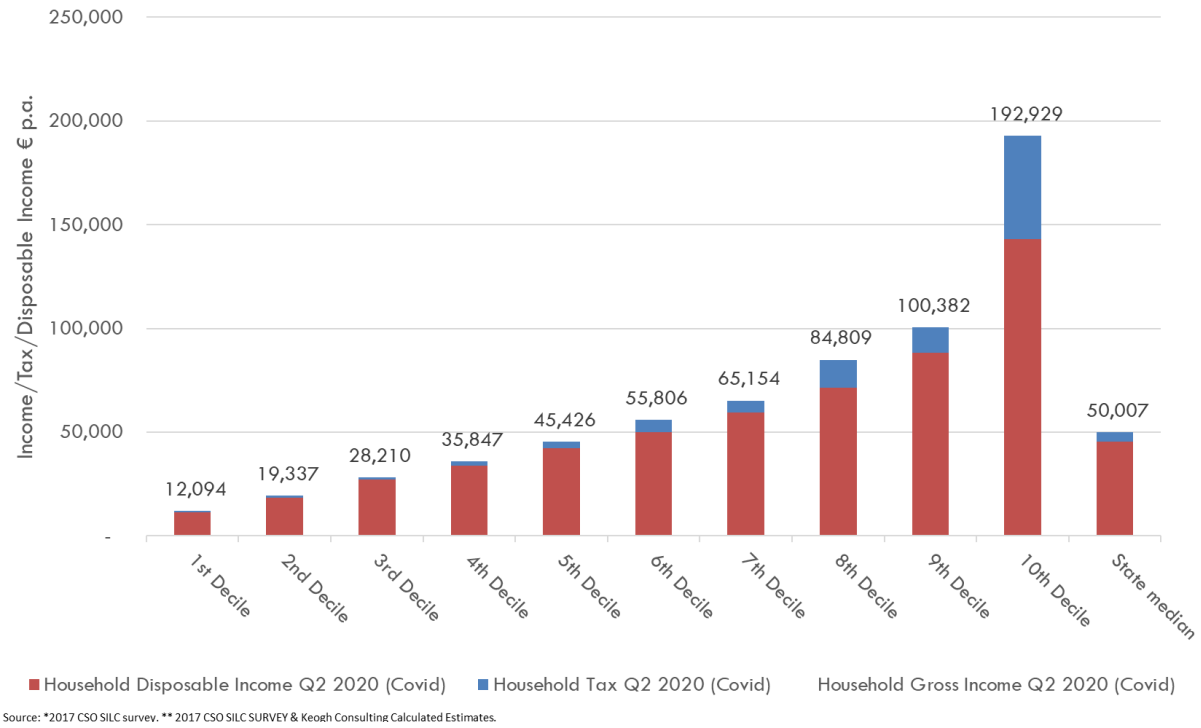

Figure 8 - Estimated Household Income Distribution[18] Q2 2020 post Covid-19

[18] Source: CSO 2018 SILC Survey. Keogh Consulting Calculations.

Figure 9 - Impact of Covid on Number of househods that can afford at differing sales price levels

These calculations indicate that at the economically viable house delivery price of €325k there may be potentially 12.5% less households able to purchase over pre Covid period (approximately 225k households may have fallen out of the affordability net[19])

[19] This is the Total Adressable Market – the number of potential purchasers will be lower of course.

What is the estimated affordability (not viability[20]) limit?

Based on the uplifted CSO[17] data sdjusted for Covid-19 impact (*Table 2 – Estimated Home Affordability Limits Based on Central Bank Lending* Rules with Savings. Q2 2020) our calculations indicate the following:

- FTB household with the median income level of €50.8K now has an affordability limit of €213.0K,
- FTB household in 75th percentile having earnings of €78.4K and an affordability limit of €349.2K assuming the Help-To-Buy scheme is still in place.

Gross Household Income	Adjusted Affordability with 2 years saving	Maximum Loan as per CB rules	Required downpayment (deposit)	Own Funds - 2 years savings	Help to Buy
45,426	184,848	158,991	17,666	3,686	8,562
50,616	213,074	177,156	19,684	7,092	9,697
55,806	239,670	195,321	21,702	10,498	10,833
60,480	263,621	211,680	23,520	13,565	11,855
65,154	287,573	228,039	25,338	16,632	12,877
74,982	336,181	262,435	29,159	23,082	15,027
84,809	382,610	296,832	32,981	29,531	17,177
100,382	456,184	351,337	39,037	40,334	20,000
146,656	665,734	513,294	57,033	80,824	20,000
192,929	872,114	675,252	75,028	121,313	20,000

Table 2 – Estimated Home Affordability Limits Based on Central Bank Lending Rules with Savings. Q2 2020

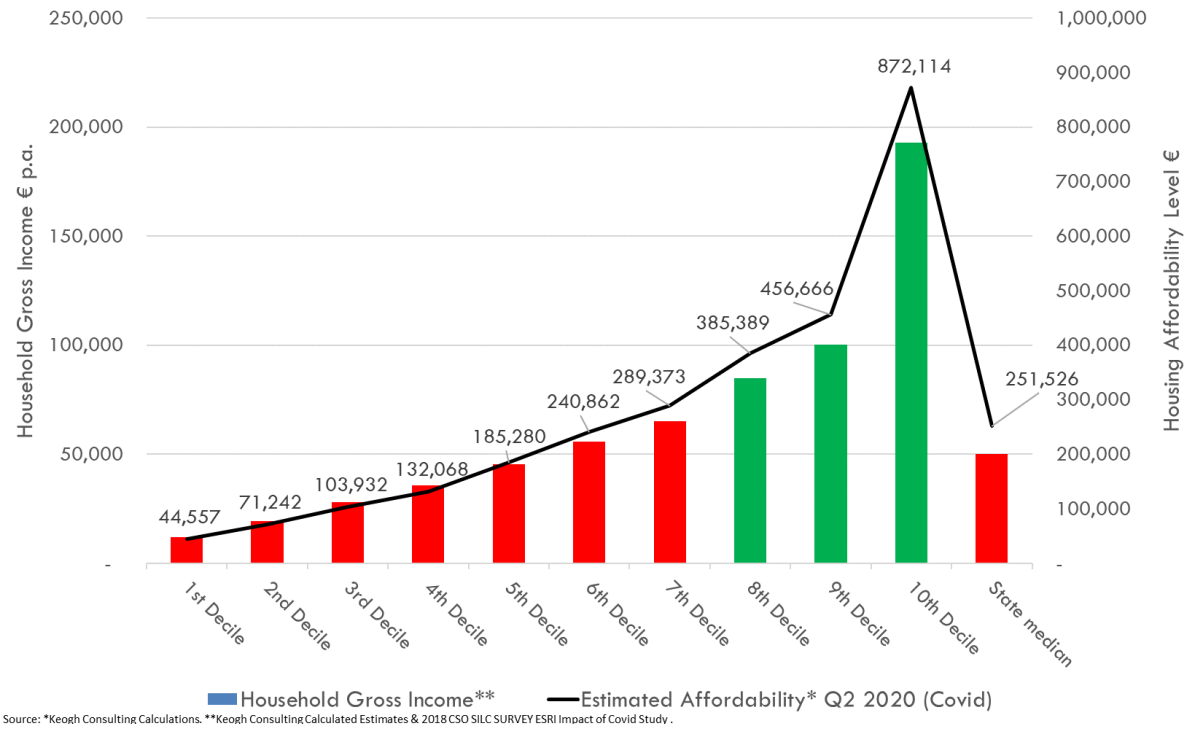

Figure 10 - Estimated Household Gross Income v Affordability

[20] A housebuilder needs to build homes that are affordable for purchasers so that i) a FTB household can buy a new home through obtaining a loan within the limits imposed by the Central Bank lending rules and, ii) that it does not take too long to save to accumulate a deposit (assumed at not greater than 2 years).

For the majority of households an economically viable housing unit (see Table 3 – Estimated Price Build-up – Houses, apartment for sale & rent, affordable house. Q2 in next section of report) is not within their affordability level with a household having to be above the 70th percentile to purchase a viable unit[21] (Note that this would still be the case without taking into account reduced household income levels caused by the COVID-19 crisis).

What is the current economically viable delivery cost?

Pre Covid-19 the average construction cost[22] (incl. builders profit excl. VAT) for *mid-range*[23] *urban apartment* developments was running around €2,270 per sq. m. in Q2 2020. Similarly, for a *semi-detached house* the average construction cost (incl. builders profit excl. VAT & site development) is around €1,330 per sq. m.

Is is not clear at this stage what the magnitude of the cost impact on projects will be. The historical trend in Tender and Cost Indices v GDP and GNP is presented in Figure 11 – during the global financial crisis construction tender prices fell significantly – the severe economic shock of Covid-19 is fundamentally different in nature and scope from types of shock previously witnessed and so it is probably that the impact will be different. The H&S requirements for PPE will incur cost, social distancing will result in reduced site resourcing, reduced resourcing will increase project durations, fixed site overheads will increase and productivity decreases may reduce output per FTE. These cost increases may be offset by reduced margins as in the short term suppliers look to maximise resource utilisation through lowering prices and winning work on new projects. However, the fixed overhead of opening a site is currently an obstacle on live projects with employers and contractors looking to agree time/cost implications of opening sites. Industry commentary[24] ("Covid-19 safety measures could add 5-10% to house costs – CIF") has pointed to a significant increase in costs – in many current projects the true cost will not become apparent until the end of projects.

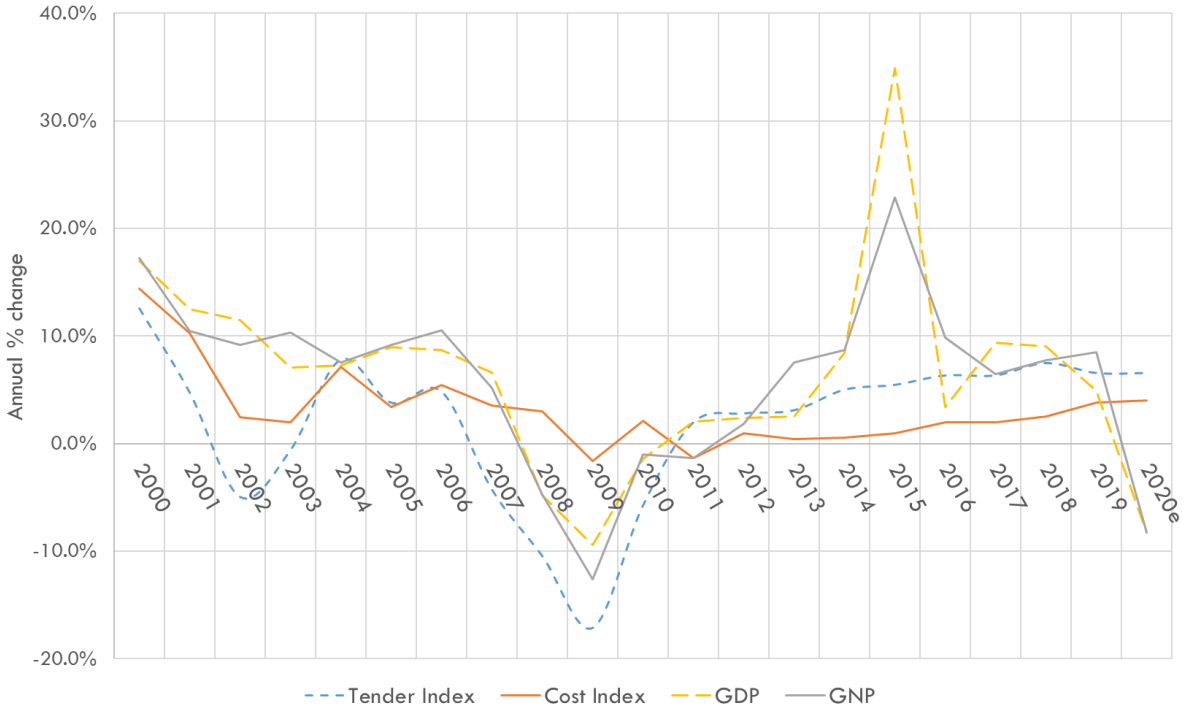

Figure 11 - Trend in GDP, GNP, Tender Index & Construction Cost Index

[21] 1,100 sq. ft semi-detached house priced at €325,000
[22] Q2 2020 including parking excluding siteworks
[23] Mid range urban development not greater than 6 floors. Excluding basement & site development.
[24] https://www.rte.ie/news/ireland/2020/0519/1139398-construction-coronavirus/

Our calculations (Table 3) indicate that a 10% increase in base construction cost would add approximately €20k to the price of a viable 1,100 sq ft house (+6.15% price increase). Construction cost is of course one element of the overall price of delivery – to this base cost must be added site purchase, allowances for Part V costs, planning contributions, bank finance, design and VAT where applicable.

	A	B	C	D
	1,100 sq ft House	Apartment average size 91 sq m	91 sq m unit in Build to Rent[25]	1,100 sq ft House +10% Construction Cost
Construction Cost	136,400	223,500	240,000	149,900
Development Contribution	15,400	14,400	14,800	15,400
Part V Cost (est.)	5,000	5,000	5,000	5,000
Design	10,900	17,900	19,200	12,000
Site Development Works	18,600	13,400	13,400	18,600[26]
Site Purchase (incl. Stamp)	50,000	50,000	50,000	50,000
Development Finance	6,600	19,400	21,500	6,800
Overhead, Marketing, Legal etc.	8,600	12,300	4,300	9,100
Construction Contingency	8,900	18,300	19,700	9,700
	260,400	**374,200**	**387,900**	**276,500**
Risk, Profit, Overhead	26,000	37,400	38,800	27,700
Sale Price (ex VAT)	286,400	411,600	426,700	304,200
VAT	38,700	55,600	57,600	41,100
Breakeven Sales Price (incl VAT)	**325,100**	**467,200**	**484,300**	**345,300**

Table 3 – Estimated Price Build-up – Houses, apartment for sale & rent, affordable house. Q2 2020

Based on the house sales price:

- A household income above c. €83.5k will be required to purchase a 3-bed house at this price level. This would rise to c. €88.8k with a +10% increase in construction costs being passed on as an increase in unit price.
- A household income of c. €120k required to purchase a 2-bed apartment at this price level.

This high household income requirement creates demand risk for a developer which impacts on the overall viability of a scheme and a decision to start. This has been the case in the recent past.

[25] An allowance of €15K is made for furnishing each unit. Amenity areas are included in the gross allowance for each unit

[26] Assume same cost as current as minimally impacted by social distancing measures due to nature of work packages.

Viability of House & Apartment[27] Delivery to Costs & Sales Price Changes

Given uncertainty re construction costs and market prices moving forward the following presents an analysis of the sensitivity of overall development viability to changes in construction costs and sales price. There are a number of critical operational and financial risks to consider:

Risk	
New safe working practices	Programme delays
Supply chain capacity	Cashflow and finances
Output and productivity	

Table 4 - Critical Construction & Development Risks

The combined impact of these risks on cost is unclear at the moment but there are a number of key mitigation measures that should be immediately considered:

Get delivery going	Strong suppliers are the best suppliers	Plan for future
Scenario planning – contractor assess impact and advise clients accordingly	*Contract conditions* – consider compromising to share burden and costs with contractors and supply chains	*Supply chain finances* – big shock possible in Q4 2020. Monitor
Longer working hours – work with local authorities to review planning conditions and seek if sites can be operated in shifts over longer working hours	*Adjust payment conditions* – change to fortnightly to ease cash flow issues	*Extension of time* – consider awarding time for Covid-19 delay and non application of damages
Off site material payment – consider how may ease the impact of reduced cash flow through the supply chain	*Manage material price changes* – adjust to reflect the current situation	*Future procurement* – ensure long term risks shared and avoid excessive pricing of risk into contracts
	Preliminary cost sharing – share delay costs to ensure supply chain relilience	*Workflow mapping* – use burning bridge of cost increases and profit decreases to reengineer site processes

Table 5 - Managing impact and risks on construction

The following analysis indicates that a 10% increase in construction costs would reduce profit on costs for a developer from 10% to 2.9%. A cost increase of 15% would mean a loss on the project. The price of a 3-bed housing unit would need to increase from €325k to €345k to cover the increased costs and achieve the same profit on costs (10%). The price of an apartment would need to increase from €467k to €505k to cover increased costs and achieve same margin.

[27] Based on a 5 storey 140-unit development of apartments on a 0.3HA site in the Greater Dublin region. There are higher risks in smaller scale developments given the ratio of fixed to variable costs in residential developments..

		Construction Costs (€ per sq m)					
		-10%	-5%	1,340	+5%	+10%	+15%
Sale Price € incl VAT 1,100 sq ft House	293,000	6.5%	2.7%	(0.9%)	(4.2%)	(7.3%)	(10.2%)
	309,000	12.3%	8.3%	4.6%	1.1%	(2.2%)	(5.3%)
	325,000	18.1%	13.9%	10.0%	6.3%	2.9%	(0.3%)
	341,000	23.9%	19.5%	15.4%	11.6%	8.0%	4.6%
	358,000	29.6%	25.0%	20.8%	16.8%	13.0%	9.5%
		Profit on Development Cost					
		at site price € 50K per site					

Table 6 - House Sale Price & Actual Construction Cost v DevCo Profit on development cost

In period 2017 – 2020 construction cost inflation ran at 6%+ it is clear that input prices had increased in the market through 2019 and these prices would be likely to increase further should demand for the trades involved in home building increase – our previous estimates had assumed a construction cost increase of +5% to +7% through 2020. Thus, construction cost savings that may facilitate a price reduction would be difficult in a continued scarce resource scenario – this may now not be the case. Additionally the basic specification of the homes leaves little to eliminate in addition to NZEB targets coming on stream .

		Construction Costs (€ per sq m)					
		-10%	-5%	1,337	+5%	+10%	+15%
Sale Price € incl VAT 1,100 sq ft House	293,000	15.8	6.8	(2.2)	(11.3)	(20.3)	(29.3)
	309,000	29.9	20.9	11.9	2.9	(6.1)	(15.1)
	325,000	43.9	35.0	26.0	17.1	8.1	(0.9)
	341,000	57.9	49.0	40.1	31.2	22.2	13.2
	358,000	72.0	63.1	54.2	45.2	36.3	27.4
		Profit/(Loss) Before Tax (€,000) per unit					
		at site price € 50K per site					

Table 7 - Sensitivity Analysis - House Sales Price & Construction Rate v Pre-Tax Profit per Unit

The story is similar for apartment delivery:

		Construction Costs (€ per sq m)					
		-10%	-5%	2,460	+5%	+10%	+15%
Sale Price € incl VAT 981 sq ft Apartment	420,000	7.5%	3.2%	(0.7%)	(4.4%)	(7.7%)	(10.9%)
	444,000	13.3%	8.8%	4.7%	0.8%	(2.8%)	(6.1%)
	467,000	19.1%	14.4%	10.0%	6.0%	2.2%	(1.3%)
	490,000	24.8%	19.9%	15.3%	11.1%	7.2%	3.5%
	514,000	30.5%	25.4%	20.6%	16.2%	12.1%	8.3%
		Profit on Development Cost					
		at site price € 50K per site					

Table 8 - Apartment Price & Actual Construction Cost v DevCo Profit on development cost

This analysis illustrates that a developers return (and thus a developments feasibility) is highly sensitive to cost and price movements. Budgets must contain enough contingency to cover the risk inherent in an apartment project and give some headroom. Opportunities to value engineer a solution for a site within planning constraints must be examined but this can be difficult. For example, where possible Developers have looked to provide on grade parking on sites in commuter towns outside the M50, however, there has been some pushback from planning authorities re this parking solution with a planning requirements for undercroft parking adding a base construction cost of €15k – 20k per space to developments – this asks to risk and could possible half a developers return if not included up front.

		Construction Costs (€ per sq m)					
		-10%	-5%	2,456	+5%	+10%	+15%
Sale Price € incl VAT 981 sq ft Apartment	420,000	25.9	11.6	(2.6)	(16.9)	(31.1)	(45.4)
	444,000	45.9	31.7	17.4	3.2	(11.1)	(25.3)
	467,000	65.9	51.7	37.4	23.2	8.9	(5.3)
	490,000	85.9	71.7	57.4	43.2	28.9	14.7
	514,000	105.9	91.7	77.4	63.2	48.9	34.7
		Profit/(Loss) Before Tax (€,000) per unit					
		at site price € 50K per site					

Table 9 - Sensitivity Analysis - Apartment Sales Price & Construction Rate v Pre-Tax Profit per Unit[28]

From Figure 12 - Breakeven Analysis for Apartment Development it can be seen that the breakeven point on the model apartment development is on the sale of the 92nd unit (66 percent units sold). A 10% increase in construction costs will push breakeven out to the 120th unit (86 percent units sold). Thus, it can be seen how a developer has to fund an apartment development for a significant period before capital can be recycled – this period will now increase on account of the increased programmes caused by site measures that must be in place.

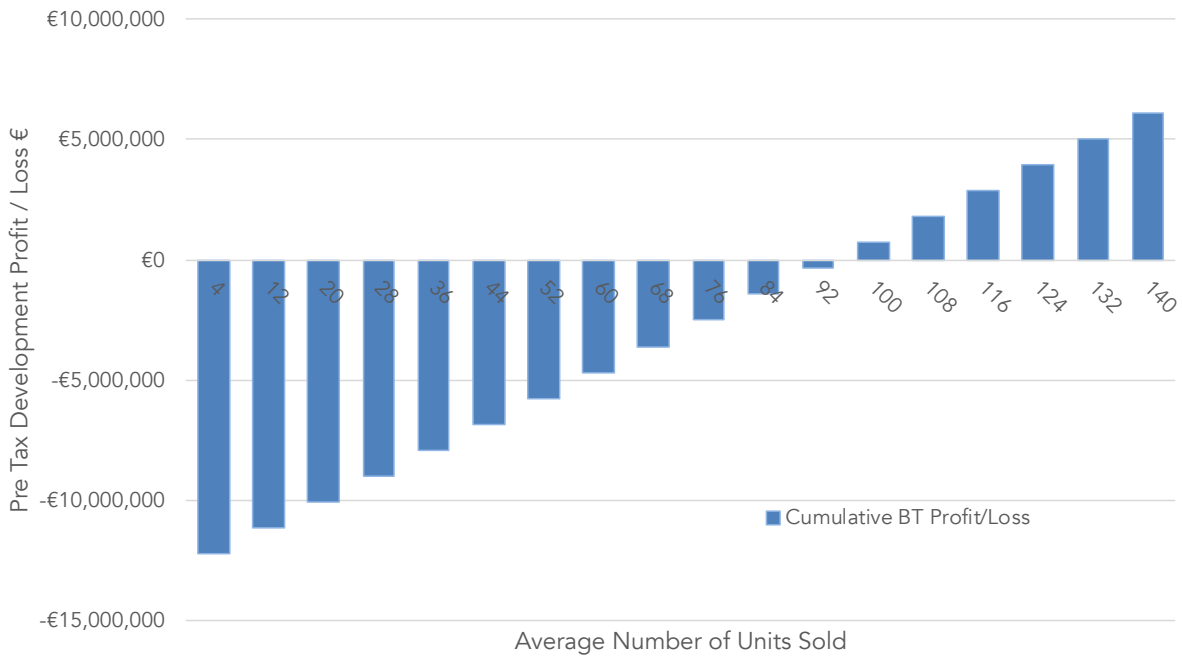

Figure 12 - Breakeven Analysis for Apartment Development

Commercial viability for apartment development for private purchase is still marginal given difficulties regarding affordability for the purchasers (leading to low private demand) and sensitivity of breakeven to input costs. Thus, there is considerable financial risk in developing housing of this type at this price level given a) the riskiness of the returns involved, and, b) current levels of construction tender inflation and the total market size. These market conditions are resulting in large scale apartment schemes being progressed with the objective of selling on to institutional buyers as rental properties with forward funding arrangements in place.

[28] Based on a 5 storey 140-unit development of apartments on a 0.3HA site in the Greater Dublin region. There are higher risks in smaller scale developments given the ratio of fixed to variable costs in residential developments..

Can affordability be improved for FTB purchasers?

VAT Offset Scheme

VAT at 13.5% is currently chargeable on the value of house at the time of sale as indicated in the following diagram.

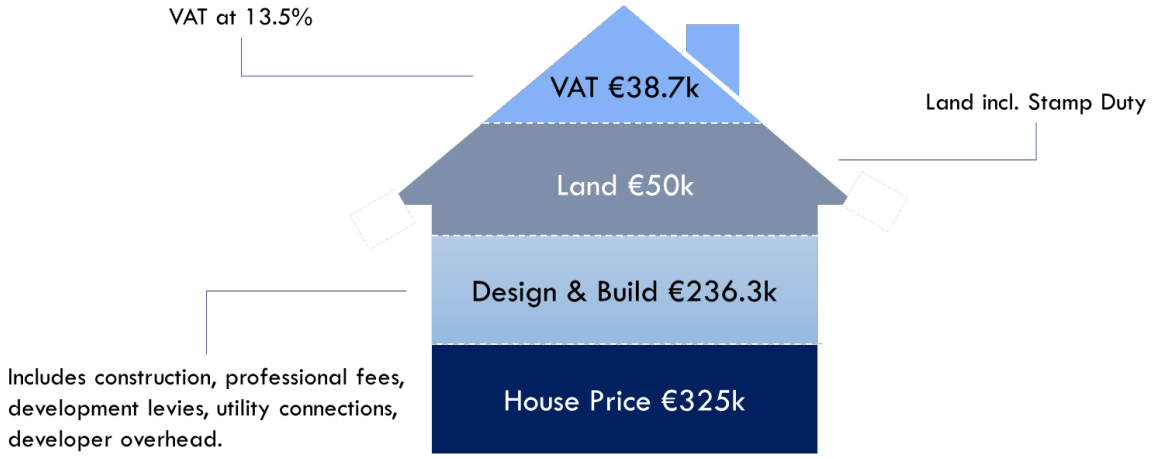

Figure 13 – Buildup of Viable House Purchase Price

If the VAT payment was spread out over a period of time it has been suggested that it may be possible to reduce the initial cost of a house so that a lower deposit and mortgage would be required. Such a scheme is illustrated in Figure 14 with the actual cost to a purchaser outlined in Table 8.

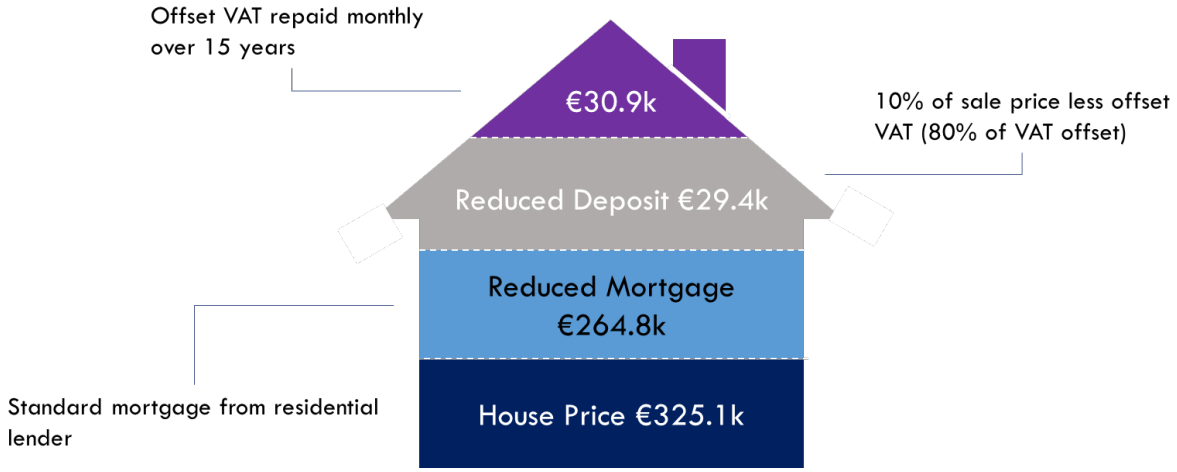

Figure 14 - Detail of Scheme Spreading VAT Payment over 15 years.

The monthly cost to the house purchaser is the payment to the Government that ensures the value of the cashflows over the extended payment period equals the VAT amount that would have been received up front i.e. no cost to Government.

	Full VAT Purchase	VAT Offset
Viable Delivery Price	325.1k	325.1k
Less: VAT Offset over 15 years	0.0k	38.7k
Up Front Sale Price	325.1k	286.4k
Deposit at 10%	32.5k	28.6k
Mortgage Required	292.6k	257.8k
Gross Income Required At 3.5 x LTI	83.6k	73.7k
Monthly Mortgage Repayment	1,362	1,200
Monthly Offset VAT Repayment	0	342
Total Monthly Payments	1,362	1,542
Monthly Payment % of Disposable Income	25.1%	30.8%

Government Discount Rate	2.66%
Shadow Cost of Public Funds	130%

Table 10 – Comparison of Proposed Scheme With Full VAT Purchase

There are 2 main levers to adjust overall affordability for a household a) extending the overall payment period, and b) increasing the amount of VAT that is taken off the initial purchase price and spread over a number of years. From Table 9, it can be seen that in order to keep the overall percentage of disposable household income spent on housing costs below 30% there combination of duration of the offset and percentage of VAT offset that works.

		Percentage of VAT Offset					
		15.00%	30.00%	40.00%	60.00%	80.00%	100.00%
Duration of VAT Offset Repayment (years)	5.0	27.5%	29.9%	31.6%	35.0%	38.5%	42.1%
	7.5	26.7%	28.3%	29.4%	31.7%	34.0%	36.5%
	15.0	25.9%	26.7%	27.3%	28.4%	29.6%	30.8%
	17.5	25.8%	26.5%	27.0%	28.0%	29.0%	30.0%
	25.0	25.6%	26.1%	26.4%	27.1%	27.9%	28.6%
		Percentage of disposable income on housing cost[29]					
		82,107	80,616	79,621	77,633	75,644	73,655
		Gross Household Income Required To Purchase					

Table 11 – Sensitivity of payment duration and VAT offset on housing cost percentage of disposable income

The total monthly cost to a household is indicated in Figure 14. Implementation of such a scheme would lower the upfront cost of purchasing a home by transferring some of the risk from a funder to the State and allow a household with lower gross income purchase a home. However, it would increase the monthly housing cost for a household – the same impact could be achieved with a LTI multiplier of 4.0x and result in a €180 per month saving over the cost of the proposed VAT offset scheme.

[29] Source: Keogh Consulting Calculations assuming 2 equal incomes making up gross household income.

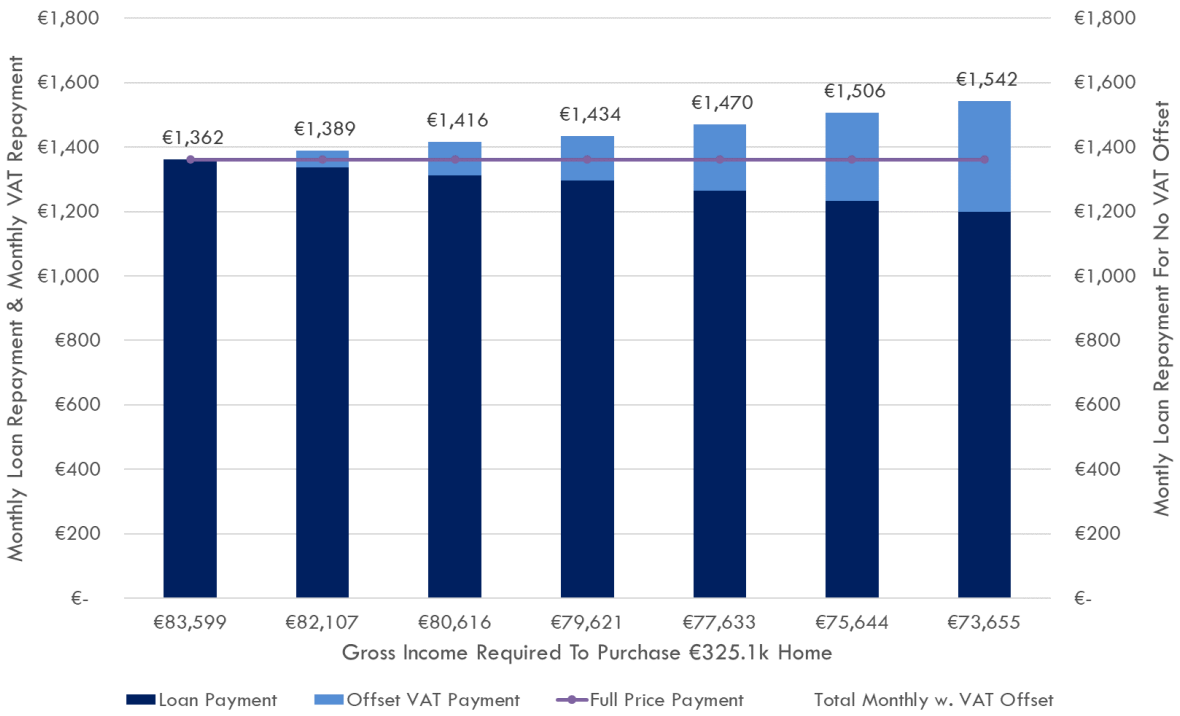

Figure 15 – Monthly Payment Costs For Varying Gross Household Income Levels

Equity Loan Scheme

Shared ownership schemes are standard features in many housing markets globally and such schemes are not a new concept in an Irish context. A government funded equity loan scheme could be an option to iprove affordability of housing on a targeted basis. A scheme would work as follows:

- The purchaser buys 100 per cent of the property but obtains an equity loan to cover part of the value along with a traditional mortgage
- Maximum purchase price set by area
- Deposit 5% of property price
- Mortgage up to 65% of the property value.
- Equity loan up to 40% through Government loan scheme – gives households a realistic chance of acquiring full ownership within a reasonable period of time.
- No fees or interest would be charged on the equity loan for the first five years of ownership. After 5 years, the cost is 1.75% p.a. increasing with CPI +1%
- Service charge set at 0.6% of initial apartment purchase price or 0.2% house.
- The equity loan must be repaid after 25-30 years, or earlier if the home is sold by purchaser
- Opportunity to pay down equity loan over term period (staircasing) with proportional equity loan interest reduction.

For an economically viable 1,100 sq ft 2-bed townhouse the scheme would be structured as per Figure 16.

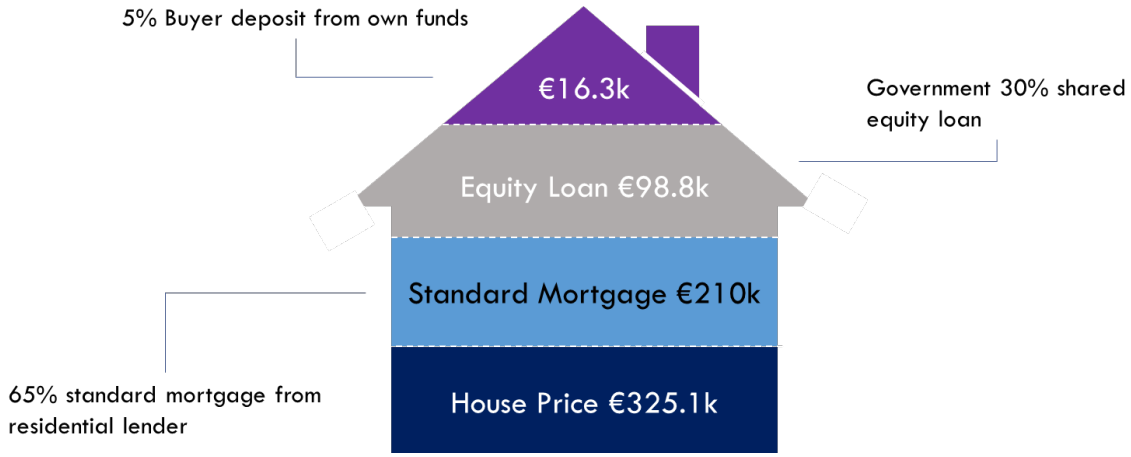

Figure 16 - Equity Loan Funding Structure

There is an interest free period for 5 years at the beginning of the equity loan period. A service charge is paid to cover estate maintenance at a fixed percentage of home value. Detailed breakdown of the payment sunder the scheme are detailed in Table 12

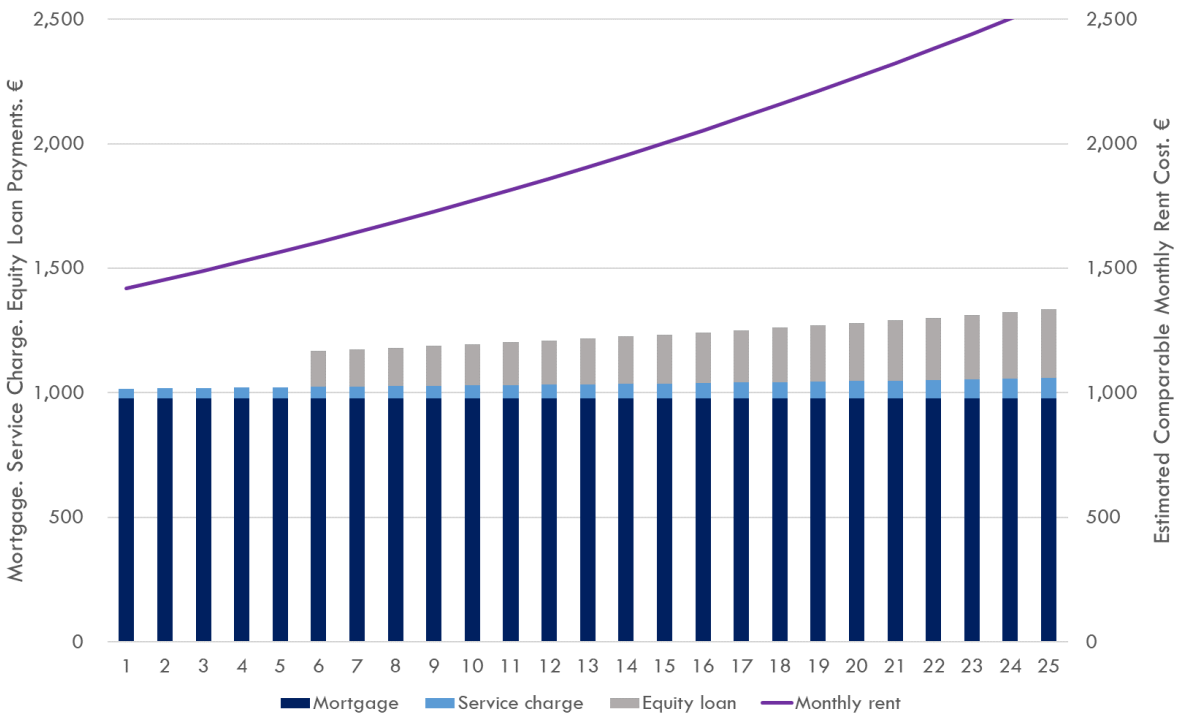

Figure 17 - Equity Loan Scheme Payment Profile v Expected Rent

Year	Interest Fee percentage	Annual interest fee due	Estimated monthly payment	Estimated monthly mortgage[30]	Estimated monthly service charge	Total monthly cost	Market average monthly rent	Saving v average market rent
1	0.00%	€0	€0	€977	€40	€1,017	€1,418	€401
2	0.00%	€0	€0	€977	€41	€1,018	€1,453	€435
3	0.00%	€0	€0	€977	€42	€1,020	€1,490	€470
4	0.00%	€0	€0	€977	€44	€1,021	€1,527	€506
5	0.00%	€0	€0	€977	€45	€1,022	€1,565	€543
6	1.75%	€1,730	€144	€977	€46	€1,168	€1,604	€437
7	1.81%	€1,790	€149	€977	€48	€1,174	€1,644	€470
8	1.87%	€1,853	€154	€977	€49	€1,181	€1,686	€505
9	1.94%	€1,918	€160	€977	€51	€1,188	€1,728	€540
10	2.01%	€1,985	€165	€977	€52	€1,195	€1,771	€576

Table 12 - Detailed equity loan scheme payment year 1-10

Owners are able to repay the equity loan throughout the loan period (staircasing). Any remaining equity loan is repayable at the end of the equity loan period (or on sale of the home).

Year	Estimated change in property price %	Total Property Value	Owner entitlement to 70% of property value	Cost to Owner staircasing by 5%	After staircasing Owner entitlement to 75% of value	New estimated total monthly cost
1	2.50%	€325,100	€226,255	N/A	N/A	€1,017
2	2.50%	€333,228	€231,911	€16,661	€248,573	€1,020
3	2.50%	€341,558	€237,709	€17,078	€254,787	€1,022
4	2.50%	€350,097	€243,652	€17,505	€261,157	€1,023
5	2.50%	€358,850	€249,743	€17,942	€267,686	€1,024
6	2.50%	€367,821	€255,987	€18,391	€274,378	€1,163
7	2.50%	€377,016	€262,386	€18,851	€281,237	€1,169
8	2.50%	€386,442	€268,946	€19,322	€288,268	€1,175
9	2.50%	€396,103	€275,670	€19,805	€295,475	€1,182
10	2.50%	€406,005	€282,561	€20,300	€302,862	€1,189

Table 13 - Equity loan scheme staircasing workings

For the example of an economically viable €325k 2-bed townhouse the proportion of shared equity ownership to bridge the affordability gap is as detailed in Table 14. At household income levels below €40k it is estimated that the annual cost would be above 33% of household disposable income and thus likely that a different solution would be required for households at this income level – minimum thresholds should be set to prevent very low income households from over-leveraging.

[30] 3.5x LTI multiplier. 25 years at 2.75%

	Equity Loan % Required	Annual Cost	Annual Saving/(Cost) v Rent	% of est disposable income
30,000	49.8%	11,999	5,017	42.0%
40,000	51.9%	11,252	5,764	33.0%
50,000	41.2%	12,594	4,422	27.8%
60,000	30.4%	13,936	3,080	25.1%
70,000	19.6%	15,277	1,739	23.1%
80,000	8.9%	16,619	397	22.1%
90,000	0.0%	18,069	(1,053)	21.2%

Table 14 - Equity loan required at differing income levels. Annual cost v average rental cost[31]

Thus a very specific and targeted state shared equity scheme could help to lower barriers to home ownership for households and mitigate affordability challenges enhancing the ability of prospective buyers with average household incomes to get a foothold on the property ladder. Careful consideration would have to be given to the design of the scheme to ensure fairness, transparency, effectiveness and affordability while making sure that it takes account of the Central Bank macro prudential rules.

Cost and benefit of exchequer funding of such schemes

With exchequer receipts generated on account of construction of an apartment estimated to be €134k per unit (house €99k per unit) – assuming a 130% shadow cost of government funding would imply that a stimulus programme costing up to €103k per apartment (house €76k per unit) would be possible.

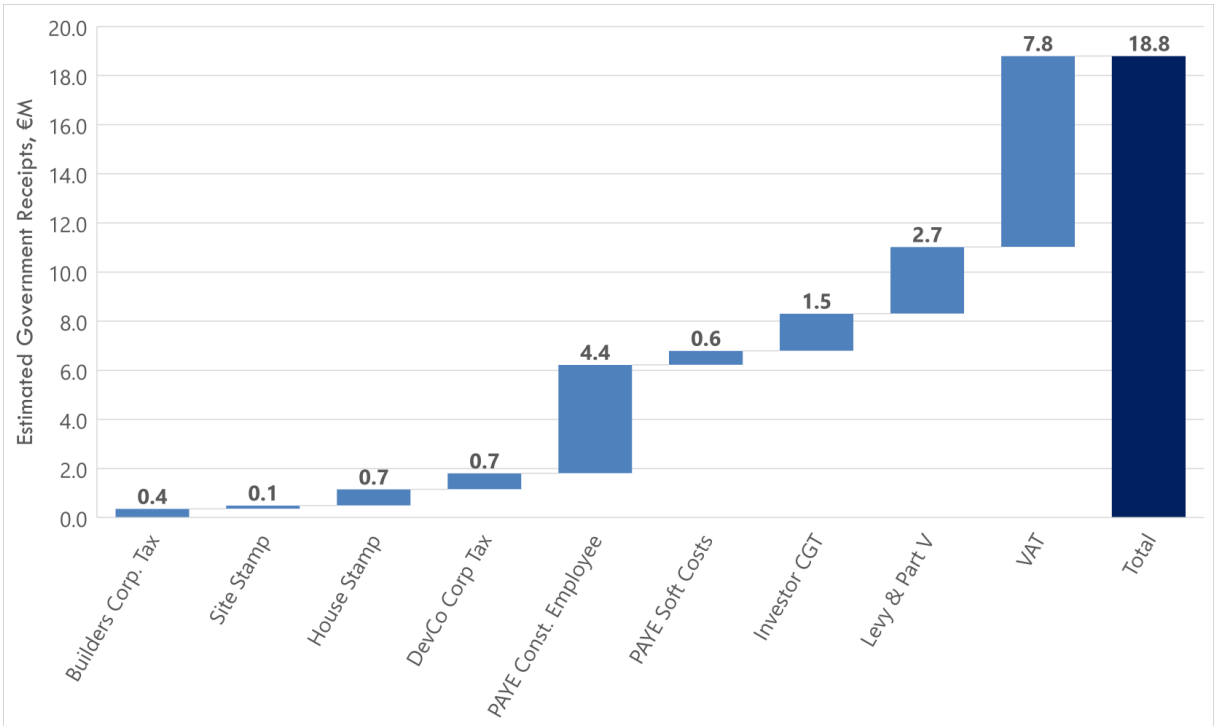

Figure 18 - Government Receipts for model 140 Unit Apartment Development

With full employment and a deficit of construction capacity such a measure may have had negligible stimulus impact up to now and resulted in input price increases. However, given that the current crisis has reduced manning levels of construction sites and consequently employment, there may be spare construction capacity that could be put to use on opening sites that up to now were not viable but with a stimulus could become viable – getting homes that otherwise would not be built, built!

[31] Source: Daft.ie rental report Q1 2020

Conclusion

Housing demand - In 2020 & 2021 our forecasts indicate that there may be a change in overall demand due to migration changes on account of COVID-19. With no emigration or immigration due to global travel restrictions, we estimate a net migration decrease on account of these restrictions from 34k to c17k. This forecast indicates that overall demand for housing may fall to below 25,000 in 2020 & 2021 before rising again in 2022 to above 30,000 as hopefully migration flows resume. This demand will be made up of a range of tenure types.

Housing supply – Covid-19 has halted construction activity in Ireland since the beginning of March. A phased restart of construction activities on sites has commenced since 18th May. Reduced completions will create further supply difficulties in the housing market and increase the housing supply deficit. We estimate the reduced construction output could increase housing supply deficit by 21k units in period to 2022.

Construction Industry Economic Output - With the reduced number of completions a reduction in residential construction output of €4.6bn in 2020 & €3.8bn in 2021 is forecast – this will have significant impact on employment, GNP & exchequer returns. The exact impact on construction costs is unclear at present – the cost of site safety measures and programme extensions will have to be recovered of profitability will be impacted.

Housing Prices – On account of the COVID-19 lockdown there have been little or no transactions in the market since early March[32]. The impact on home prices is unclear but will depend on a number of factors including speed of recovery, unemployment, average incomes and global economic trends including FDI landscape moving forward. This will make affordability more difficult with a lowering of the number of potential purchasers for new homes (with consequent increase in demand for other tenure types).

Gross Household Incomes – Given current economic conditions it is likely that income levels will at best stay flat and in all lilklihood decrease through 2020. Banks probable unwillingness to advance loans to potential purchasers on reduced incomes on account of temporary COVID-19 measures will stop transactions, make affordability for potential purchasers (particularly those workers in high-contact sectors) more difficult and reduce demand for housing at current price levels.

Impact on FTB Numbers – Our calculations indicate that at the economically viable house delivery price of €325k there may be potentially 12.5% less households able to purchase over pre Covid period (approximately 225k households may have fallen out of the affordability net[33]).

Affordability – Based on uplifted CSO[17] household income data adjusted for Covid-19 impact:

- FTB household with the estimated median income level of €50.8K now have an affordability limit of €213.0K,
- FTB household in 75th percentile with earnings of €78.4K have an affordability limit of €349.2K assuming the Help-To-Buy scheme is still in place.

Based on the estimate of current economically viable home sales price:

- A household income above c. €83.5k will be required to purchase a 1,100 sq ft house. This would rise to €88.8k with a 10% increase in construction costs being passed on as an increase in unit price.
- A household income of c. €120k required to purchase an economically viable 2-bed apartment, €467k.

[32] Source: Irish Times. 3rd April, 2020. "Housing market grinds to a halt as Covid-19 crisis takes hold".
[33] This is the Total Adressable Market – the number of potential purchasers will be lower of course.

Sensitivity of viability to cost and price chages – Our analysis indicates that a 10% increase in construction costs would reduce profit on development costs for a developer from 10% to 2.9%. A construction cost increase of 15% would lead to a loss on the project (assuming no increase in prices). The price of a 1,100 sq ft housing unit would need to increase from €325k to €345k to cover the increased costs and achieve the targeted profit on costs of 10%.

Could offsetting VAT payments for a purchaser help – Some commentators have suggested that payment of VAT over an extended period could help affordability. We have analysed such a scheme – implementation of such a scheme would lower the upfront cost of purchasing a home by transferring some of the risk from a funder to the State and allow a household with lower gross income purchase a home. However, it would increase the monthly housing cost for a household – the same impact could be achieved with an increase in LTI multiplier of 4.0x and result in a €180 per month saving over the cost of illustrated VAT offset scheme.

Shared equity scheme – A specific and targeted state shared equity scheme could help lower barriers to home ownership for households and mitigate affordability challenges facilitating prospective buyers with average household incomes to get a foothold on the property ladder. Careful consideration would have to be given to the design of the scheme to ensure fairness, transparency, effectiveness and affordability while making sure that it takes account of Central Bank macro prudential rules. A household with a €60k income would save €3,080 per annum over annual average rental cost for a 2 bed townhouse with a combination of 30.4% shared equity loan and a standard mortgage for the remainder.

Filling the Housing Supply Gap – With exchequer receipts generated on account of construction of an apartment estimated to amount to €134k per unit (house €99k per unit) – assuming a 130% shadow cost of government funding would imply that a stimulus programme costing up to €103k per apartment (house €76k per unit) would have a cost benefit ratio of 1. With full employment and a deficit of construction capacity such a measure may have had negligible stimulus impact up to now and perhaps resulted in price increases. However, given that the current crisis has reduced manning levels of construction sites and consequently employment, there may be spare construction capacity that could be put to use on opening sites that up to now were not viable but with a stimulus could become economically viable – getting homes that otherwise would not be built, built!

Now is a time to reappraise and stress test projects under differing scenarios regarding input costs and achievable price targets. Priority should be given to those with highest risk adjusted returns and where possible these projects should be progressed through preliminary design, planning, procurement to get to a shovel ready state. Understanding delivery costs, the affordability levels of potential purchasers and number at each price point is key in prioritising projects.