Title:

# An investigation into unfinished housing, "ghost estates" in Ireland between 2012 and 2017



DATA8008, Assignment 1


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# Contents

# 1. Abstract

The aim of this project is to provide detail about the trend of property building in the republic of Ireland, between the period 2012 and 2017. The source of the datasets used for this investigation were published by the Department of Housing, Local Government and Heritage, licensed under Creative Commons Attribution 4.0, through the website https://data.gov.ie/dataset. The data was analysed using R studio, version 4.0.3.

"Ghost estates" are generally defined as unoccupied housing estates, build during the period of economic growth known as the Celtic Tiger between 1994 and 2007. This resulted in a massive surplus of housing, combined with the recession in the late 2000's and a large number of estates being abandoned, unoccupied and incomplete. This data shows that many estates are lacking critical infrastructure such as roads, lighting and waste water which prevents them from being used and economically viable.

"A development will be regarded as finished if an inspector considers, on the basis of a normal visual on-site inspection, that the following have been substantially completed: dwellings, roads and footpaths, lighting, water supply, waste water infrastructure, open spaces, as defined for the purposes of this survey" ,Hosford, Paul, *TheJournal.ie, April 2017*

Various packages were employed during the course of this investigation to aid with the data analysis and generate the visualisations included throughout this report. These are listed in the References section. Tables and multiple types of graphs such as histograms, bar charts, line charts were used to present the results of the analysis in a readable and accessible manner. Sections of the R code have been included throughout the report.  QGIS Desktop, version 3.20.3 was also used to process the shape files for the locations of the housing developments around the country.

```
#reading in shape and csv files

unfinished_housing17_s <- readOGR(dsn = ".", layer = "Unfinished_Housing_Survey_2017%2C_Ireland")

unfinished_housing12_s <- readOGR(dsn = ".", layer = "Unfinished_Housing_Survey_2012%2C_Ireland")

counties <- readOGR(dsn = ".", layer = "7829fd91-e0c3-4246-8fb5-100f3b62f8272020329-1-8mtzfa.iikfy")


unfinished_housing12_t<-read.csv("Unfinished_Housing_Survey_2012%2C_Ireland.csv", header = T,encoding = "UTF-8")

unfinished_housing17_t<-read.csv("Unfinished_Housing_Survey_2017%2C_Ireland.csv", header = T,encoding = "UTF-8")

quantities_types<-read.csv("quantities_types.csv", header = T,encoding = "UTF-8")

summary_rep<-read.csv("2016_unfinished_housing_report_final_national_figures_by_county.csv", header = T,encoding = "UTF-8")

munster_summary<-read.csv("sum_muns.csv", header = T,encoding = "UTF-8")
```
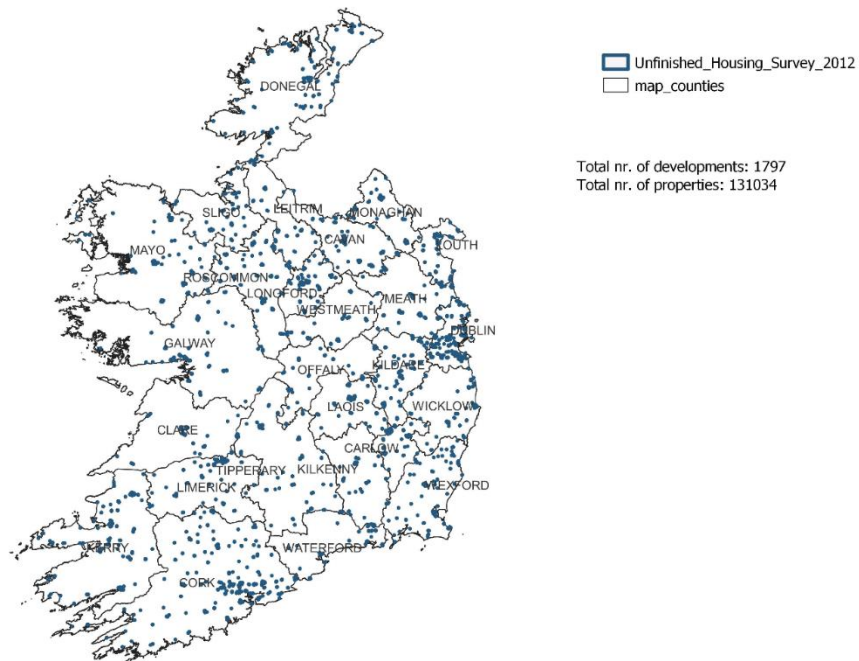
## 2. Locations of unfinished estates



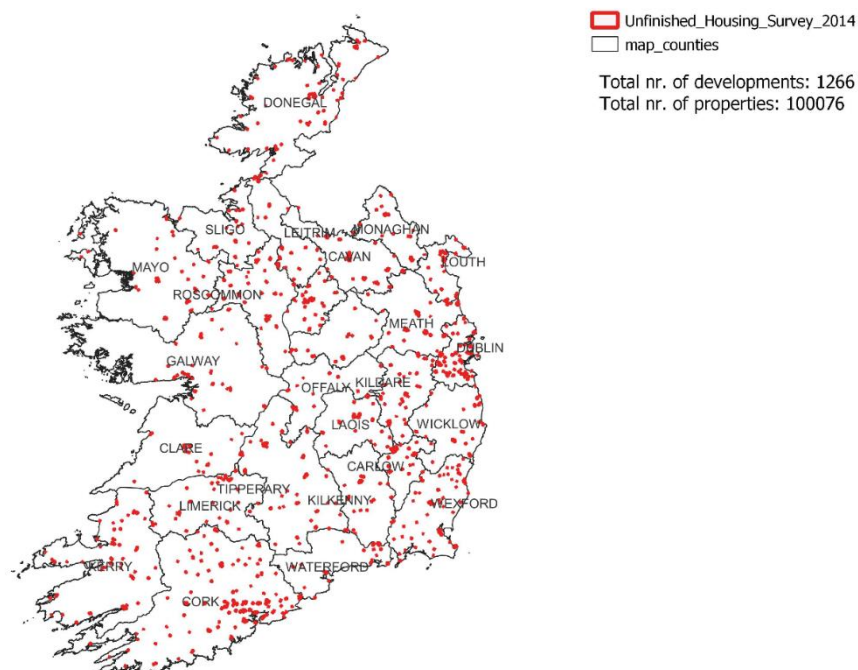*Figure 1. unfinished estates in Republic of Ireland, 2012*



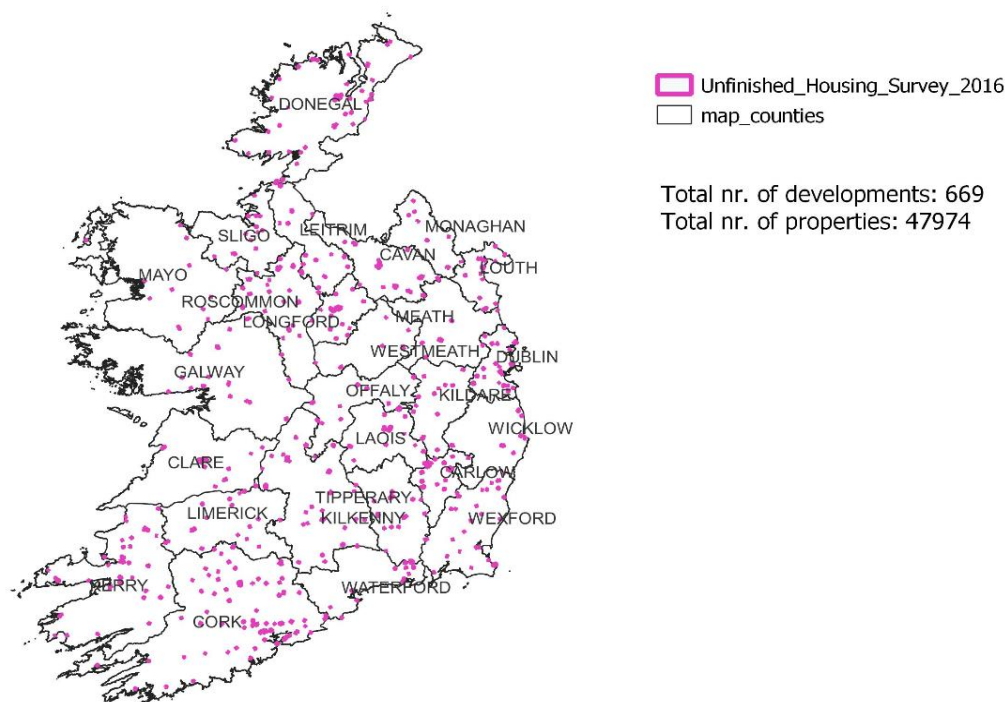*Figure 2. unfinished estates in Republic of Ireland, 2014*

Total nr. of developments: 669
Total nr. of properties: 47974

*Figure 3. unfinished estates in Republic of Ireland, 2016*



Total nr. of developments: 442
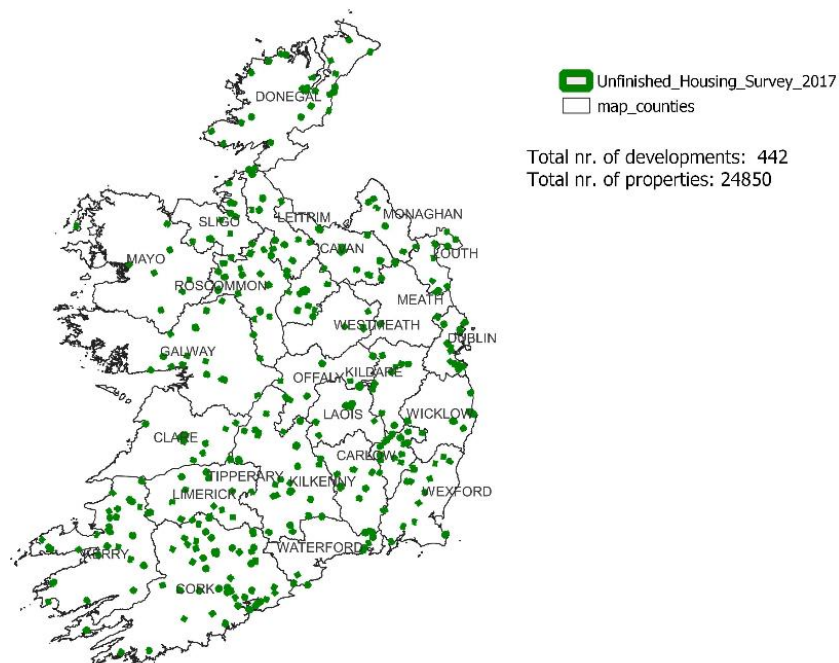Total nr. of properties: 24850

*Figure 4. unfinished estates in Republic of Ireland, 2017*

Figure 1 to 4 above show a steady decrease in the number of unfinished developments between 2012 and 2016. This is summarized in Table 1 below. Between 2012 and 2014 saw the lowest drop of 24%, and between 2014 to 2016, saw the highest drop of 52%.

| Year | Number of unfinished estates | Number of unfinished units | Perccentage Drop |
|---|---|---|---|
| 2012 | 1797 | 131034 | |
| 2014 | 1226 | 100076 | 24 |
| 2016 | 669 | 47674 | 52 |
| 2017 | 442 | 24850 | 48 |

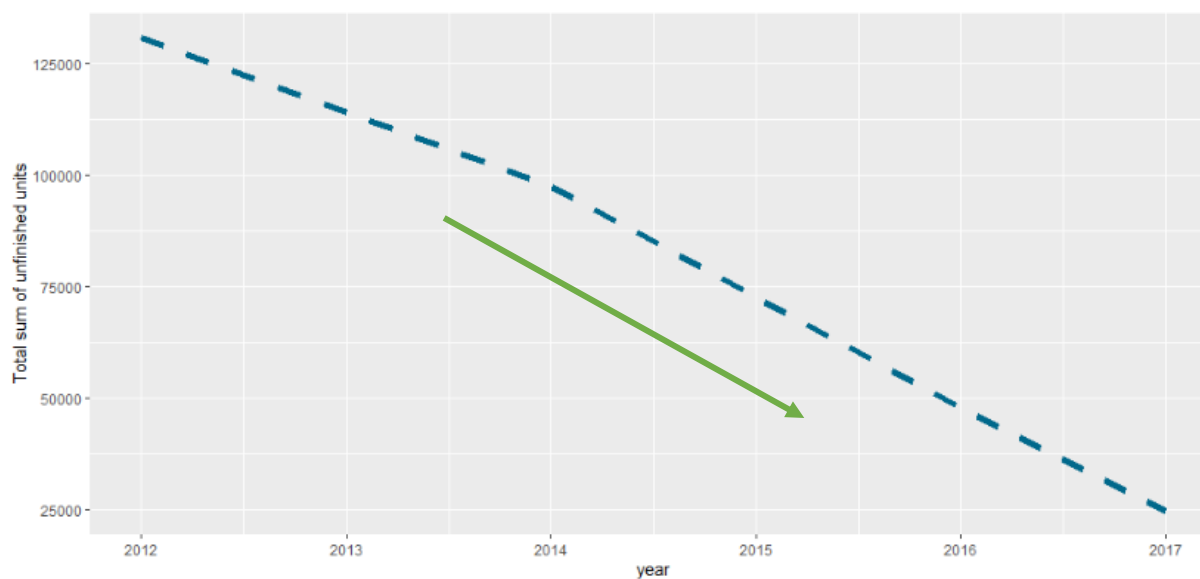Table 1 Summary of unfinished developments between 2012 and 2017



*Figure 4. Trend of total housing between 2012 and 2017*

```
ggplot(quantity_type, aes(x=year)) +

geom_line(aes(y = sum), color = "deepskyblue4", size = 2, linetype="dashed") +

ylab("Total sum of unfinished units")
```

Figure 4 above shows a steady downward trend of the total number of housing units, being left unfinished, from 131,034 in 2012 to 24,850 in 2017

# 3. Comparison between provinces

The number of housing units per province was also compared during this time period. This included all types of accommodation including detached, semi-detached, terraces, duplexes and apartments.
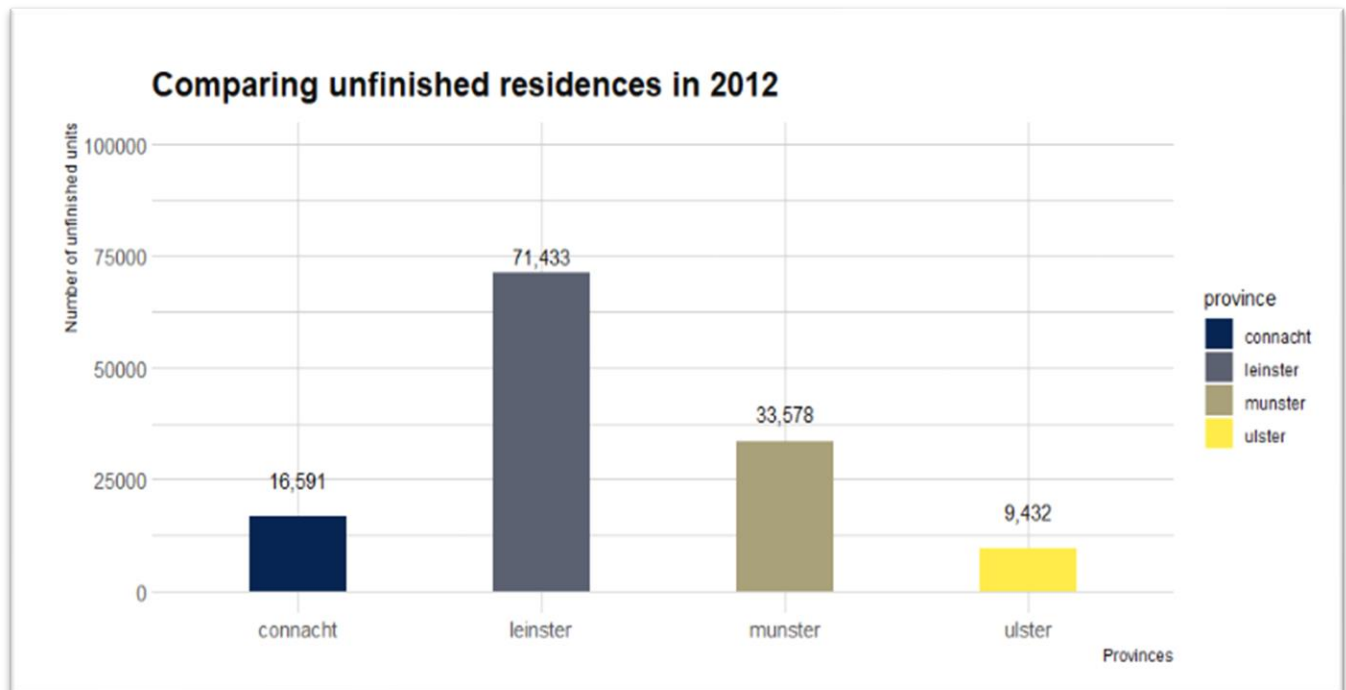


*Fig.5 Number of unfinished units per province in 2012*

```
ggplot(unfinished_housing2012, aes(fill=province, y=total_unfinished_units, x=province)) +

  geom_bar( stat="identity",width = 0.4)+

  scale_fill_viridis(discrete = T,option = "E") +

  ggtitle("Comparing unfinished residences in 2012") +

  theme_ipsum() +

  xlab("Provinces") + ylab("Number of unfinished units")+

  ylim(0,100000)+

  annotate("text", x = 1, y = 25000, label = "16,591")+

  annotate("text", x = 2, y = 75000, label = "71,433")+

  annotate("text", x = 3, y = 40000, label = "33,578")+

  annotate("text", x = 4, y = 18000, label = "9,432")
```
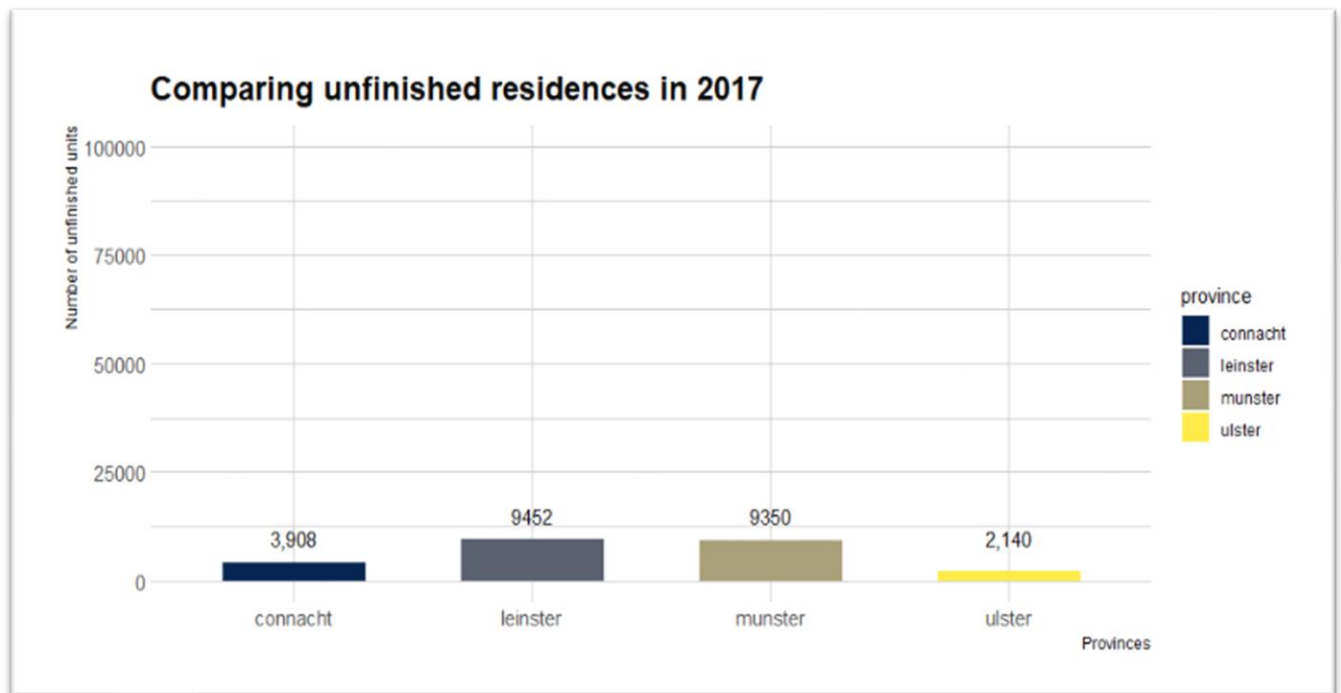
*Fig. 6 Number of unfinished units per province in 2017*

```
ggplot(unfinished_housing2017, aes(fill=province, y=total_unfinished_units, x=province)) +
  geom_bar( stat="identity",width = 0.6)+
  scale_fill_viridis(discrete = T,option = "E") +
  ggtitle("Comparing unfinished residences in 2017") +
  theme_ipsum() +
  xlab("Provinces") + ylab("Number of unfinished units")+
  ylim(0,100000)+
  annotate("text", x = 1, y = 10000, label = "3,908")+
  annotate("text", x = 2, y = 15000, label = "9452")+
  annotate("text", x = 3, y = 15000, label = "9350")+
  annotate("text", x = 4, y = 10000, label = "2,140")
```

Leinster saw the biggest drop in the number of unfinished housings from 71,433 to 9,452, a massive 86% drop. Ulster dropped from 9,432 to 2,140, 88% drop. Munster dropped from 33,578 to 9350, 72% and Connacht dropped from 16,591 to 3,908, 66%. All provinces showed a significant drop in the number of residential units being left unfinished.

## 4. Focus on critical infrastructure, Munster



Status of Building Residential units, Munster 2017 Snapshot
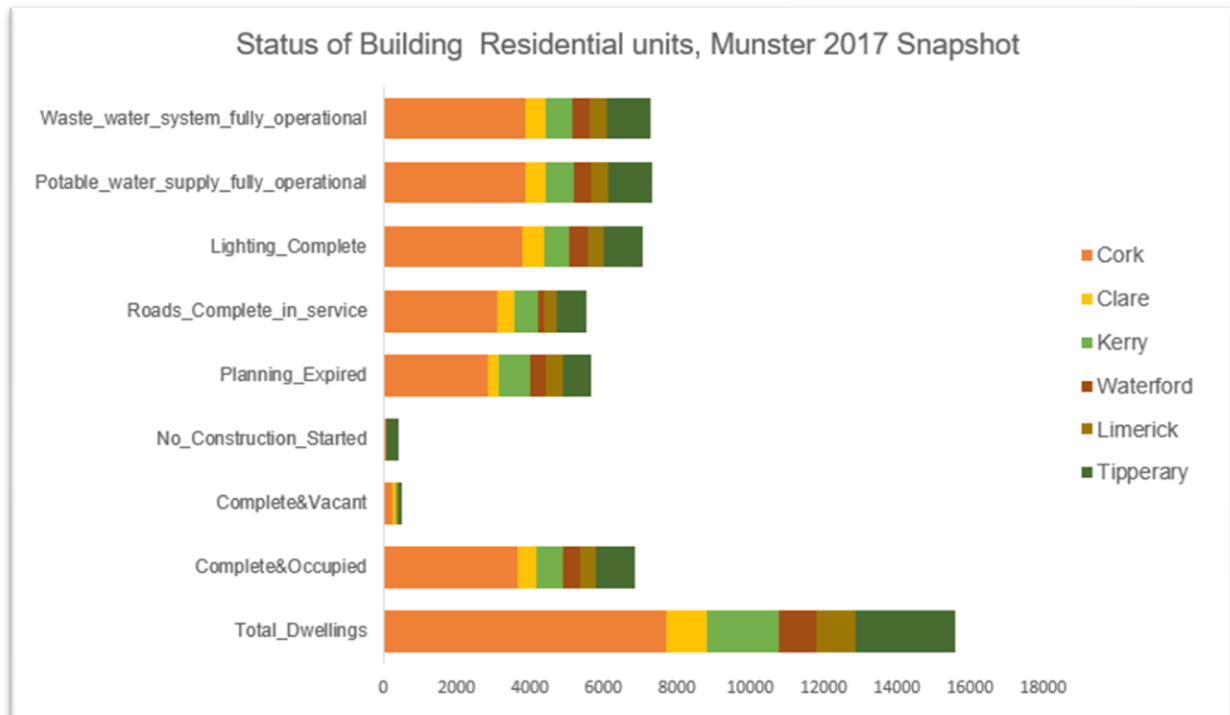
*Fig. 7 Status of critical services, focus on Munster region*

Figure 6 above shows that there were nearly 16,000 total dwellings in Munster in 2017. Of these nearly half were complete from a construction point of view and occupied. Less than 2000, of the 16,000 had not started construction and another 2000 were complete, but not occupied. For half of the 16,000, it is visible that the basic critical services are in places such as waste water, potable water, lighting and roads.
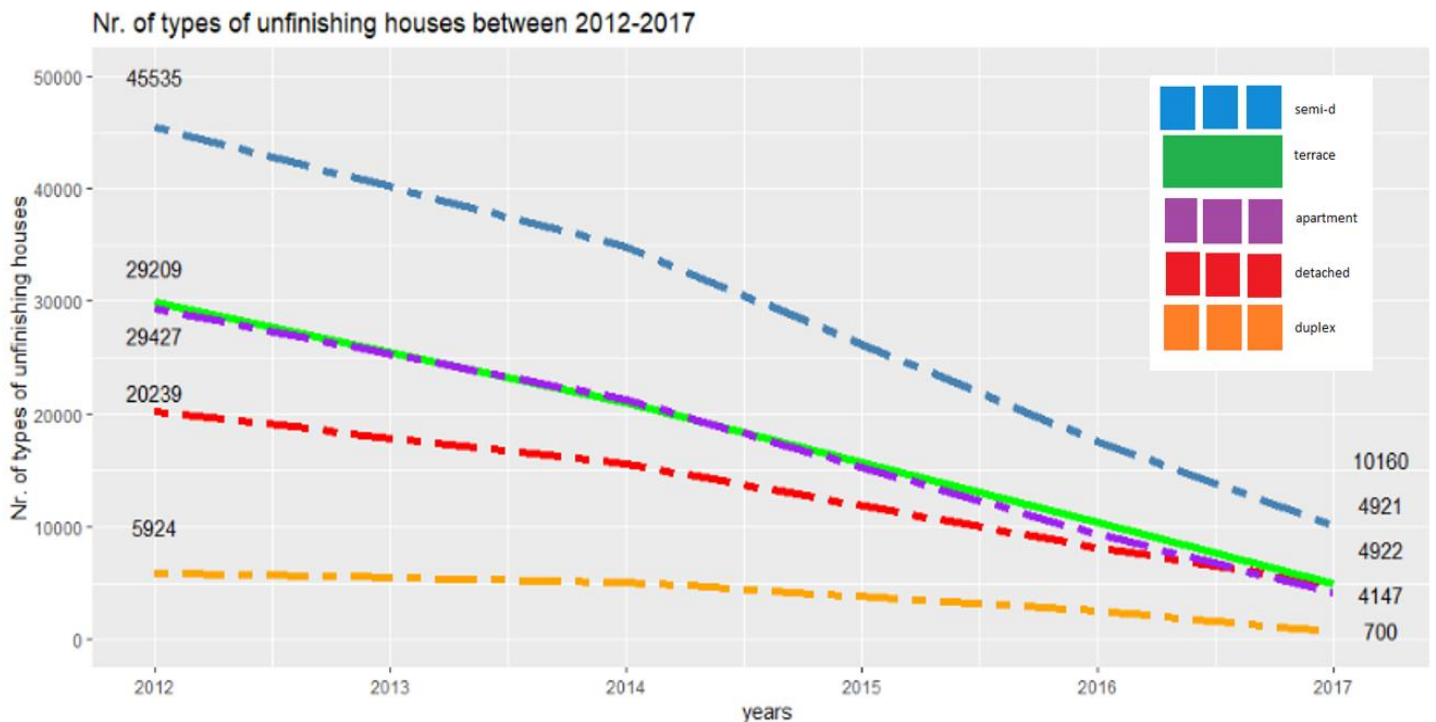
## 5. Types of Housing



Figure 8. Trend of types of unfinished houses between 2012 and 2017

```
ggplot(quantity_type, aes(x=year)) +
  geom_line(aes(y = detached), color = "red",size = 2, linetype="twodash") +
  geom_line(aes(y = semi), color="steelblue", linetype="twodash",size = 2)+
  geom_line(aes(y = terrace), color = "green",size = 2, linetype="solid") +
  geom_line(aes(y = duplex), color="orange", linetype="twodash",size = 2) +
  geom_line(aes(y = apartment), color = "purple", linetype="twodash", size = 2)+
  scale_colour_manual("", breaks=c("detached", "semi", "terrace", "duplex", "apartment"),
            values = c("darkred", "steelblue","yellow","green","pink")) +
  xlab("years") +
  scale_y_continuous("Nr. of types of unfinishing houses", limits = c(0,50000)) +
  labs(title="Nr. of types of unfinishing houses between 2012-2017")+
  theme(legend.position = "top")+
  annotate("text", x = 2012, y = 10000, label = "5924")+
  annotate("text", x = 2012, y = 22000, label = "20239")+
  annotate("text", x = 2012, y = 27000, label = "29427")+
  annotate("text", x = 2012, y = 33000, label = "29209")+
  annotate("text", x = 2012, y = 50000, label = "45535")+

  annotate("text", x = 2017.2, y = 800, label = "700")+
  annotate("text", x = 2017.2, y = 4000, label = "4147")+
  annotate("text", x = 2017.2, y = 8000, label = "4922")+
  annotate("text", x = 2017.2, y = 12000, label = "4921")+
  annotate("text", x = 2017.2, y = 16000, label = "10160")
```

Figure 8 above demonstrates that all types of residential properties being left unfinished, decreased between 2012 and 2017.  Five types of residential properties were included: semi-detached, terrace, apartment, detached and duplex.  The highest drop was in semi-detached from 45,355 in 2012 to 10160 in 2017.  Results are summarized in table 2 below for clarity purposes.

| Year | semi-d | terrace | apartment | detached | duplex |
|------|--------|---------|-----------|----------|--------|
| 2012 | 45535 | 29909 | 29427 | 20239 | 5924 |
| 2014 | 34786 | 21000 | 21241 | 15607 | 5036 |
| 2016 | 17591 | 10391 | 9356 | 8123 | 2513 |
| 2017 | 10160 | 4921 | 4147 | 4922 | 700 |

*Table 2. summary of types of residential units*

# Conclusion

The aim of this project is to provide detail about the trend of residential property building in the republic of Ireland, between the period 2012 to 2017. The visualizations and tables show a strong downward trend of the number of properties being left "unfinished". Figure 4 above confirms this with the total number of housing units, being left unfinished, from 131,034 in 2012 to 24,850 in 2017. This decrease is consistent across all four provinces in the republic; Munster, Connacht, Leinster and Ulster as confirmed in figure 5 and figure 6. Figure 7 shows an insight into the status of critical services in the 6 counties of Munster region in 2017. For half of the 16,000 units in Munster in 2017, it is visible that the basic critical services are in places such as waste water, potable water, lighting and roads. This is an indication of the number of estates which were incomplete at this time. Data on whether the remainder of these houses are occupied or vacant was not available at the time of this investigation. Figure 8 shows the spread of the decrease in the number of residential units across the country, across different types of residential units. Semi-detached and terrace houses saw large decreases as summarized in Table 2. These would typically be the more in-demand, affordable/ "family type" units. What actually happened to these estates is attributed to a variety of solutions including bonds and securities, a number of the estates being handed over for social housing and some being completely demolished. These resolutions are not in the scope of this project.

# 6. References

- 5 datasets were used for the sources of this analysis

"Unfinished Housing Survey 2012, Ireland", "Unfinished Housing Survey 2014, Ireland", "Unfinished Housing Survey 2016, Ireland", "Unfinished Housing Survey 2017, Ireland" and "2016, unfinished housing report final national figures by county". These were sourced from the Department of Housing, Local Government and infrastructure.

"Datasets - Data.gov.ie." *Data.gov.ie*, 2019, data.gov.ie/dataset.


-Carswell, Simon. "Weekend Read: The Ghost Estates That Still Haunt Ireland." *The Irish*

*Times*, www.irishtimes.com/life-and-style/people/weekend-read-the-ghost-estates-

that-still-haunt-ireland-1.3181498. Accessed 14 Nov. 2021.

-Hosford, Paul. "Ghost Estates Are Disappearing, but What's Actually Happening with

Them?" *TheJournal.ie*, www.thejournal.ie/ghost-estates-whats-happening-3308561-

Apr2017/.

-R packages used included dpylr, ggplot2, tidyverse, viridis, ggmap, rgdal, maptools and

gridExtra