Economic Outlook

Northern Colorado Home Builders Association
June 9, 2020

Robert Dietz, Ph.D.
NAHB Chief Economist
Economic Outlook

- **2-months, 2-quarters, and 2-years perspective**

- **Housing will lead an economic recovery: 15% of GDP**

- **7 weeks of gains for mortgage purchase applications**

- **New single-family home sales strong**
  - Up 1% YTD in 2020, although Apr pace down 20% from Jan

- **Risk of a second wave of virus**
  - Protests/riots are a public health concern

- **Sharp mid-year decline, V-shape recovery for housing**
The S Curve of Community Spread

Case data is moving on logistic S curve; not an unchecked exponential path

Confirmed Cases

\[
y = 752.62e^{0.1697x}
\]

\[
y = -1.1021x^3 + 165.12x^2 + 18939x - 340000
\]
The S Curve of Community Spread

*S Curve implies a rise and then a fall in current active cases*
We Need to Talk about Density...

Strong correlation between population density and virus-related deaths

\[ R^2 = 0.6791 \]

Trend excludes New York
GDP Growth – Sharp Recession

Rebound builds momentum during 2H20 but risks remain

Source: U.S. Bureau of Economic Analysis (BEA) and NAHB forecast.
Good/Bad News: 10% to 11% U-Rate Expected at 2020 End

Duration matters: research indicates spells of 6-months or longer affects consumption
Share of Labor Force in Vulnerable Industries

Source: 2018 American Community Survey, PUMS, NAHB Estimates
Consumer Confidence Continues Declines

Will confidence be affected over long run?

Index 1985=100, SA

Source: The Conference Board.
Fed Funds Rate – Fed All In on Supporting Economy

Lender and buyer of last resort

Source: U.S. Board of Governors of the Federal Reserve System (FRB).
30-Year Fixed Rate Mortgage and 10-Year Treasury

Low interest rates thanks to aggressive Federal Reserve action

Source: Federal Reserve and Freddie Mac data and NAHB forecast.

October 31, 2016
Household Formation

Strong demand for home ownership in second half of 2019

Source: U.S. Census Bureau (BOC): Housing Vacancies & Homeownership
Homeownership Rate

Near new normal for homeownership

Source: U.S. Census Bureau (BOC): Housing Vacancies & Homeownership
Supply-Side Factors
## Virus Related Business Challenges

As of this date, has the coronavirus had a noticeable, adverse effect on any of the following aspects of your business?

### (Percent of Respondents)

<table>
<thead>
<tr>
<th>Change</th>
<th>Yes to a Major Extent</th>
<th>Yes to a Minor Extent</th>
<th>No</th>
<th>Yes-Major or Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic of prospective buyers</td>
<td>72%</td>
<td>24%</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td>Cancellations or delays of existing remodeling projects</td>
<td>56%</td>
<td>31%</td>
<td>13%</td>
<td>87%</td>
</tr>
<tr>
<td>Homeowners’ concerns about interacting with remodeling crews</td>
<td>51%</td>
<td>35%</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>How long it takes to obtain a plan review for a typical single-family home</td>
<td>45%</td>
<td>41%</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>Rate at which inquiries for remodeling work are coming in</td>
<td>67%</td>
<td>18%</td>
<td>15%</td>
<td>85%</td>
</tr>
<tr>
<td>How long it takes the local building department to respond to a request for an inspection</td>
<td>40%</td>
<td>42%</td>
<td>19%</td>
<td>82%</td>
</tr>
<tr>
<td>Willingness of workers and subs to report to a construction site</td>
<td>26%</td>
<td>51%</td>
<td>24%</td>
<td>77%</td>
</tr>
<tr>
<td>Supply of building products and materials</td>
<td>17%</td>
<td>55%</td>
<td>28%</td>
<td>72%</td>
</tr>
<tr>
<td>Ability to obtain new business loans or deal with banks on existing loans</td>
<td>21%</td>
<td>30%</td>
<td>49%</td>
<td>51%</td>
</tr>
</tbody>
</table>

Lending – AD&C Loan Conditions

Tightening conditions reported in 1Q20 NAHB survey – tightest since end of 2011

Source: NAHB survey
Building Materials – Lumber Prices

$441 per thousand board feet at end of May – highest since September 2018

Source: NAHB Analysis; Random Lengths Composite Index
Construction Sector Productivity

Lagging overall economy

Index, 1993 = 1

Construction Worker Productivity
Overall Worker Productivity

Construction Outlook
Single-Family Starts by Decade: Population Adjusted

<table>
<thead>
<tr>
<th>Decade</th>
<th>Starts per Million Population (averaged)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>47,998</td>
</tr>
<tr>
<td>1970s</td>
<td>53,138</td>
</tr>
<tr>
<td>1980s</td>
<td>41,588</td>
</tr>
<tr>
<td>1990s</td>
<td>41,710</td>
</tr>
<tr>
<td>2000s</td>
<td>41,671</td>
</tr>
<tr>
<td>2010s</td>
<td>21,288</td>
</tr>
</tbody>
</table>

Source: Census Bureau and NAHB analysis
Rebound in May after historic drop

Source: Census Bureau and NAHB/Wells Fargo HMI survey
Single-Family Starts

Upward revisions for the 2020 outlook but still a down year

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>852,000</td>
<td>8%</td>
</tr>
<tr>
<td>2018</td>
<td>873,000</td>
<td>2%</td>
</tr>
<tr>
<td>2019</td>
<td>893,000</td>
<td>2%</td>
</tr>
<tr>
<td>2020</td>
<td>760,000</td>
<td>-15%</td>
</tr>
<tr>
<td>2021</td>
<td>893,000</td>
<td>17%</td>
</tr>
<tr>
<td>2022</td>
<td>1,005,000</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC) and NAHB forecast
47% Single-Family Construction in Low Density Markets

These areas have outpaced higher density markets over the last four quarters

Source: NAHB HBGI
Typical New Home Size

End of declines ahead?

Source: U.S. Census Bureau (BOC)
Townhouse Market Stalls

Expansion expected as high-density markets decline

Thousands, NSA

SF Starts: Attached

Townhouse Share: 1-Year Moving Average

Source: U.S. Census Bureau (BOC)
Single-Family Built-for-Rent Construction
A window of opportunity

Thousands, NSA

<table>
<thead>
<tr>
<th>Year</th>
<th>Built for Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3.78%</td>
</tr>
<tr>
<td>2016</td>
<td>4.35%</td>
</tr>
<tr>
<td>2017</td>
<td>4.36%</td>
</tr>
<tr>
<td>2018</td>
<td>4.91%</td>
</tr>
<tr>
<td>2019</td>
<td>4.22%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC)
Multifamily Housing Starts

Sharp decline and a return to trend – less high-rise, more lower density ahead

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>357,000</td>
<td>-9%</td>
</tr>
<tr>
<td>2018</td>
<td>377,000</td>
<td>6%</td>
</tr>
<tr>
<td>2019</td>
<td>403,000</td>
<td>7%</td>
</tr>
<tr>
<td>2020</td>
<td>319,000</td>
<td>-21%</td>
</tr>
<tr>
<td>2021</td>
<td>379,000</td>
<td>19%</td>
</tr>
<tr>
<td>2022</td>
<td>411,000</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC) and NAHB forecast
Multifamily Buildings Completed By Units

More concentration in 50+ unit properties

Thousands

Source: U.S. Census Bureau (BOC).
Residential Remodeling

Remodeling will weather the crisis well due to ongoing needs for home improvement

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-2019 Avg</td>
<td>5%</td>
</tr>
<tr>
<td>2020\textsuperscript{f}</td>
<td>0%</td>
</tr>
<tr>
<td>2021\textsuperscript{f}</td>
<td>5%</td>
</tr>
<tr>
<td>2022\textsuperscript{f}</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC) and NAHB forecast

Note: In the analysis, 1-year moving average is used for adjusted data to smooth the trend
Share of Home Buyers Who Want a Home Office

Source: NAHB’s consumer preference study “What Home Buyers Really Want”.

- 55% in 2003
- 69% in 2007
- 68% in 2012
- 63% in 2015
- 65% in 2018
Share of Home Buyers Who Want an Exercise Room

Source: NAHB’s consumer preference study “What Home Buyers Really Want”.
60.9% of single-family construction takes place in Red Counties

Q4 2019
4-Quarter MA of YOY growth rate:
1.9% in red counties
-1.4% in blue counties

Source: NAHB Analysis of Census data (Building Permits)
Economic/Housing Conclusions

At the end of the forecasted 8 week pause

Virus spread will slow – but risks remain

Baby boom???

Keep in mind the 2-month, 2-quarter, 2-year targets

Very weak mid-year economic performance, bounce back after
Thank you

Questions?
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