

# **Counter-Cyclical Down Payments:**

A Simple Method for Mitigating  
Future Housing Bubbles

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*With suggestions & comments from:*  
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Alex J. Pollock , and Jonathan Reiss.

# Counter-Cyclical Down Payments

## THE CONCEPT:

- Automatically increase down payments when housing prices start to rise rapidly
- ➔ Dampen or Eliminate Future Housing Bubbles

*No attempt to regulate long term asset values,  
just damp out boom-bust oscillations.*

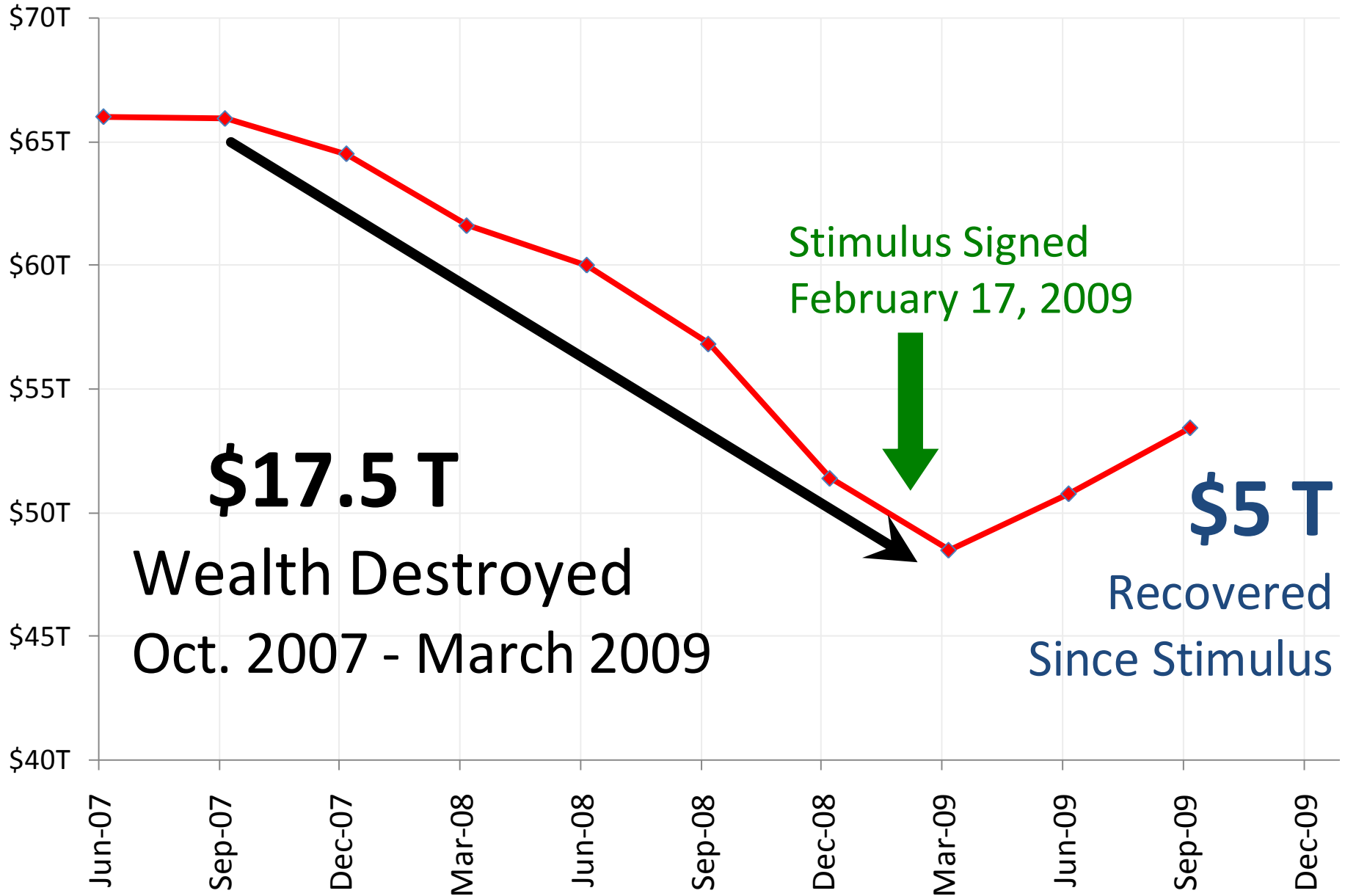
# This is a Feedback Loop

- Well known from engineering controls theory
- Some examples:
  - Thermostat
  - The “governor” on a lawn mower engine
  - “Cruise Control” on an automobile
    - Regulates fixed speed as car goes up & down hills
  - Computerized Accelerator Control on modern cars
    - programmed to limit acceleration & deceleration for passenger comfort *even while imposing no limit on car’s overall speed*

# Why Dampen Housing Bubbles?

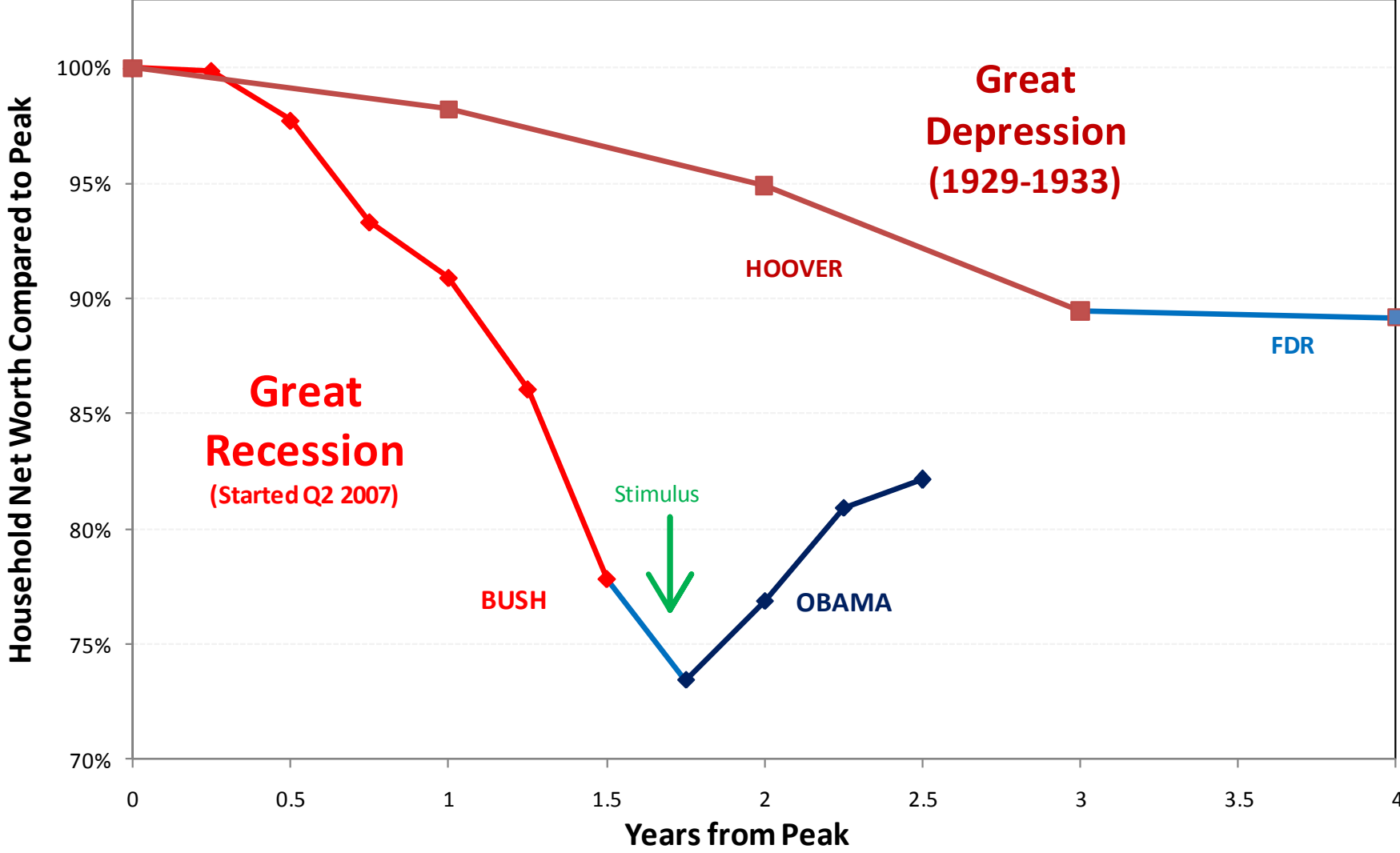
- That is where the money is:
  - Housing dominates household net worth
  - We can survive a stock bubble but not a housing bubble
- Time scale of real estate bubbles is tractable
  - Develop over months to years
- Low volatility of intrinsic worth of housing
  - Not like stock valuations based on volatile earnings
  - Housing demand changes on demographic time scales
- Good statistical measures exist for feedback
  - Large numbers of public transactions in regional housing markets

# Net Worth of U.S. Households



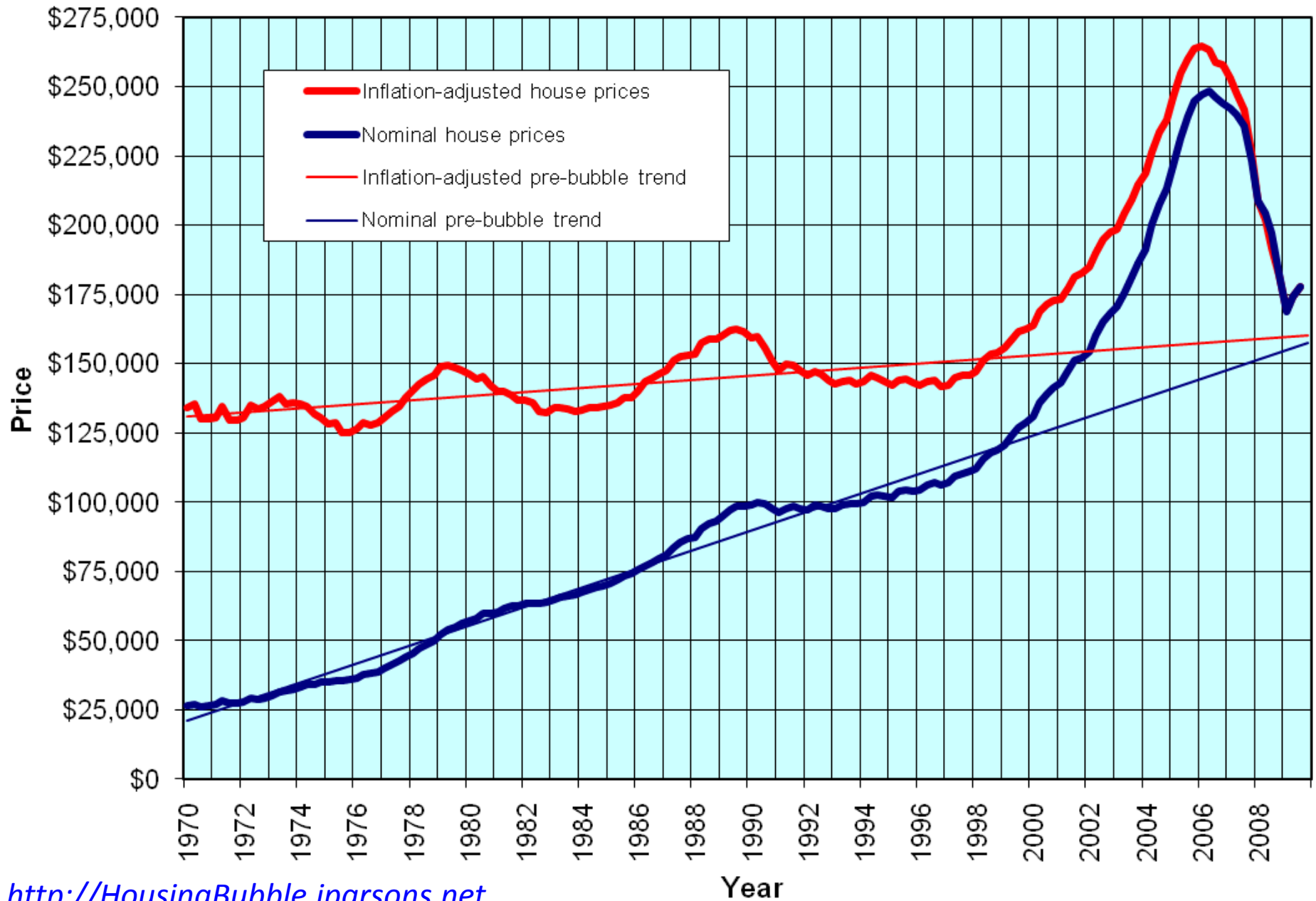
# Worse than the Great Depression

## Drop in Household Net Worth



Sources: Frederic S. Mishkin, "Household Balance Sheet and The Great Depression," J. Econ.Hist.38 (Dec.1978), p. 920. & Federal Reserve Flow-of-Funds.

# United States House Prices



# A Simple Example Damping Formula

$$\begin{array}{|c|} \hline \text{Minimum} \\ \text{Down} \\ \text{Payment} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{CONSTANT} \\ \text{(e.g.10\%)} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Percentage Increase in} \\ \text{Real Regional Housing} \\ \text{Prices Over Past 3 Years} \\ \text{(or a fraction thereof)} \\ \hline \end{array}$$

## NOTES:

1. *If the housing price increase is negative, it is treated as zero.*
2. *A fixed fraction (e.g.40%) of the price increase could be used. This controls how strong the damping of bubbles will be.*
3. *There is nothing magical about using the 3 year price rise ... anywhere between 1-5 years works OK.*
4. *LTV on Home Equity Loans, etc. would be similarly limited.*
5. *The CONSTANT term is subject to socio-political debate and will not be discussed here. Here we assume 10%.*

# Can be thought of in several ways:

1. As a feedback mechanism.
2. As a prudent countercyclical principle:  
“All mortgages have to make sense *even if housing prices retreat to where they were a few years ago*”
3. As a simple underwriting rule:  
“I will give you a mortgage against 90% of the long-term value of the property, but against only a small fraction of the recently-appreciated value.”

→ *Treats skeptically the value of recently-appreciated assets!*

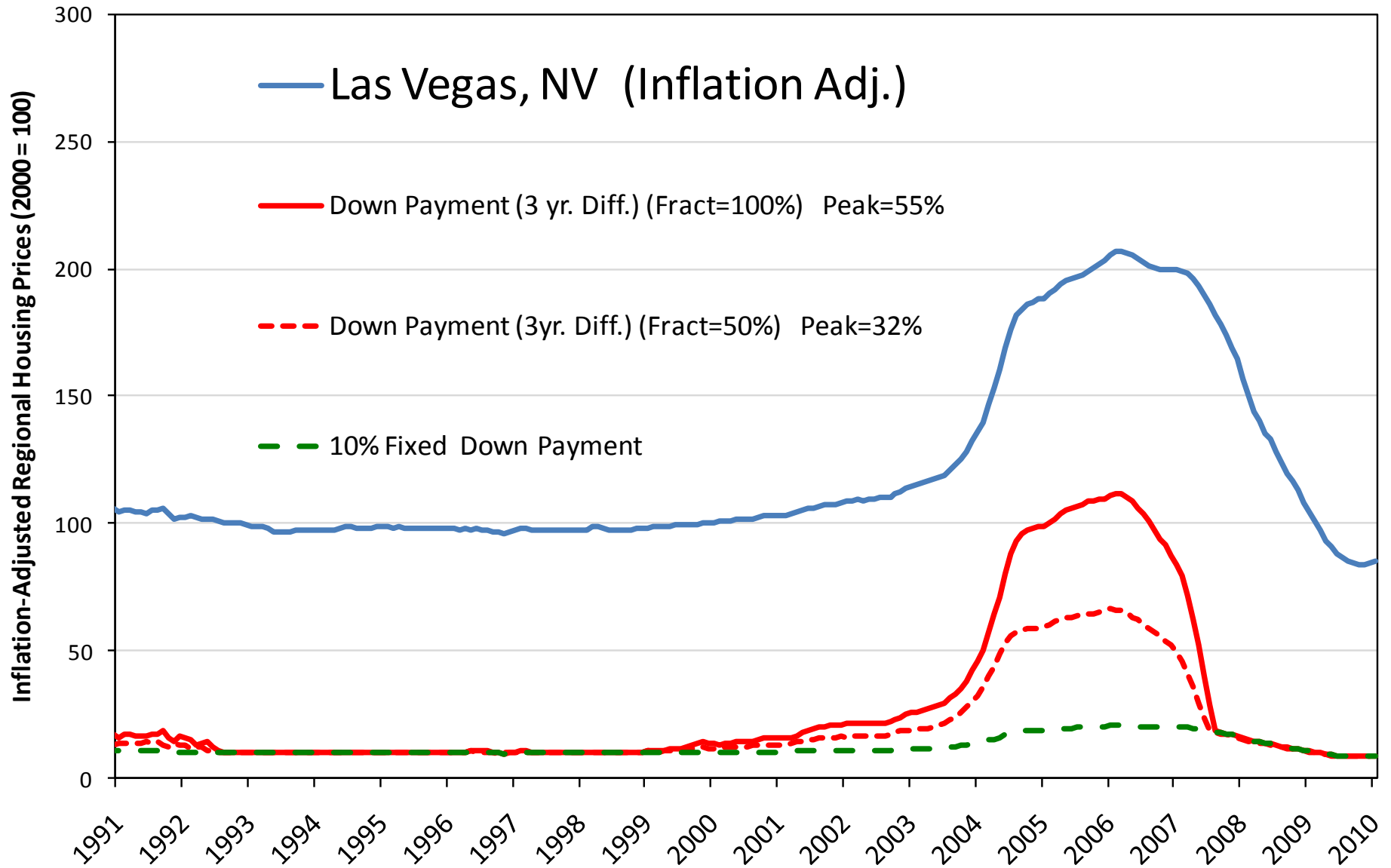
# How This Would Have Worked

- The following plots show how this formula would have applied to price bubbles in regional markets over the last 20 years.
- In reality, the big increases in counter-cyclical down payments would have absorbed speculative capital and largely squelched the bubbles.
- There are also higher-order psychological effects since even the specter of large counter-cyclical down payments would have discouraged any large inrush of speculative capital.

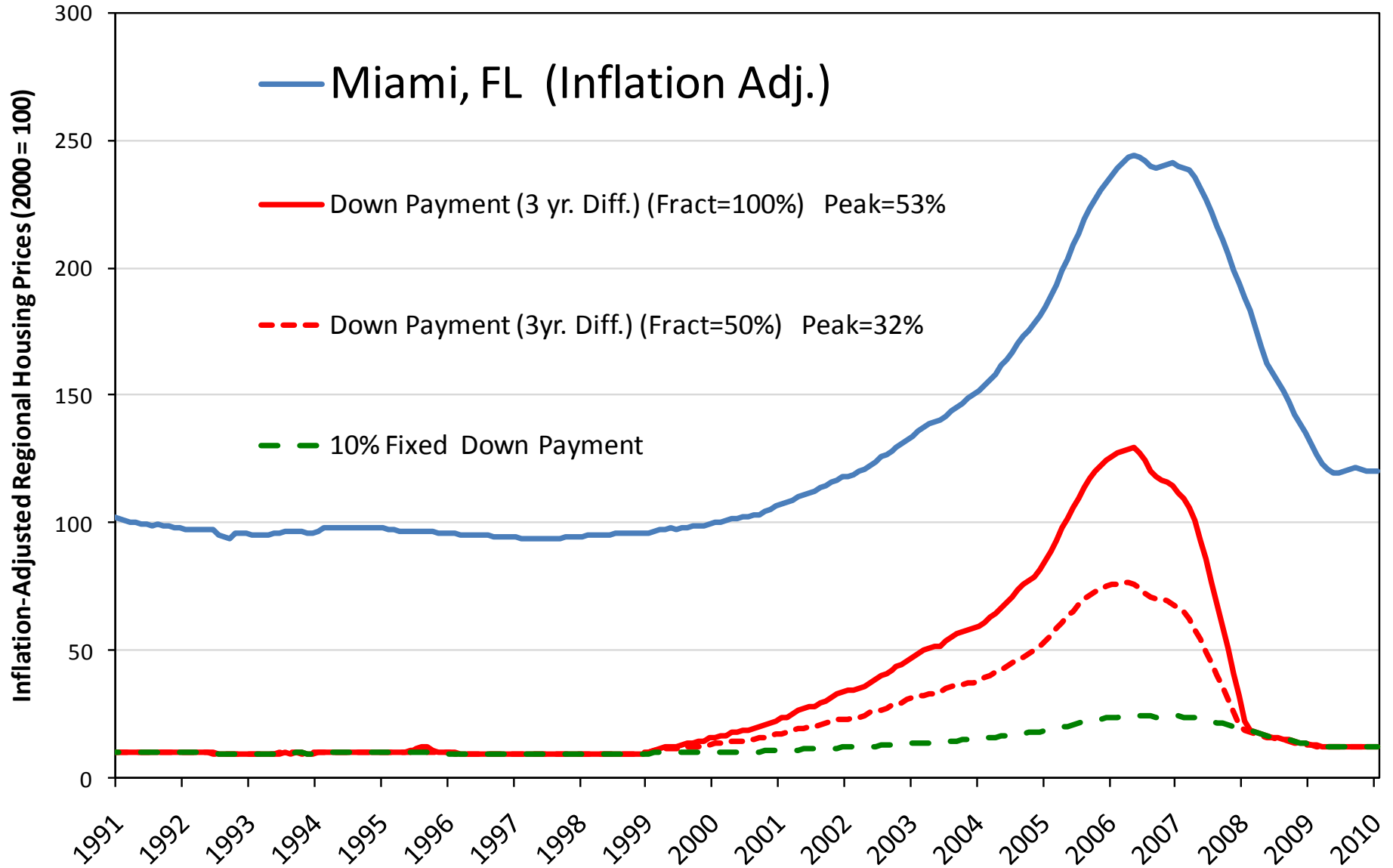
# Input Data

- Housing Price Data (S&P / Case-Shiller)
  - Seasonally Adjusted to avoid yearly ripples
  - Regional since markets have individual bubbles
- Inflation Adjustment using CPI-U
  - excluding Food and Energy (less noisy)

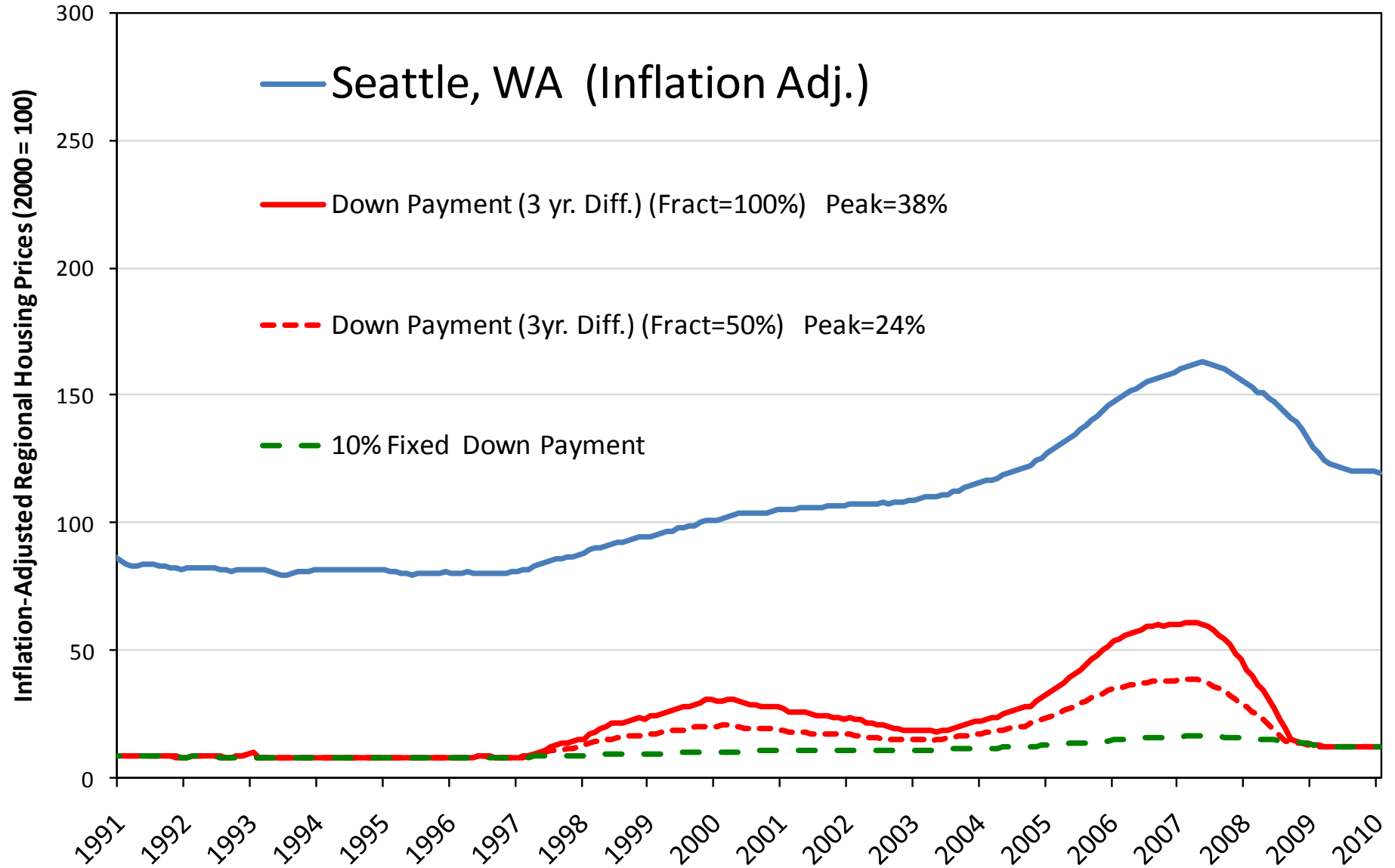
# Countercyclical Down Payment Based on Recent Rise in Regional Real Estate Price



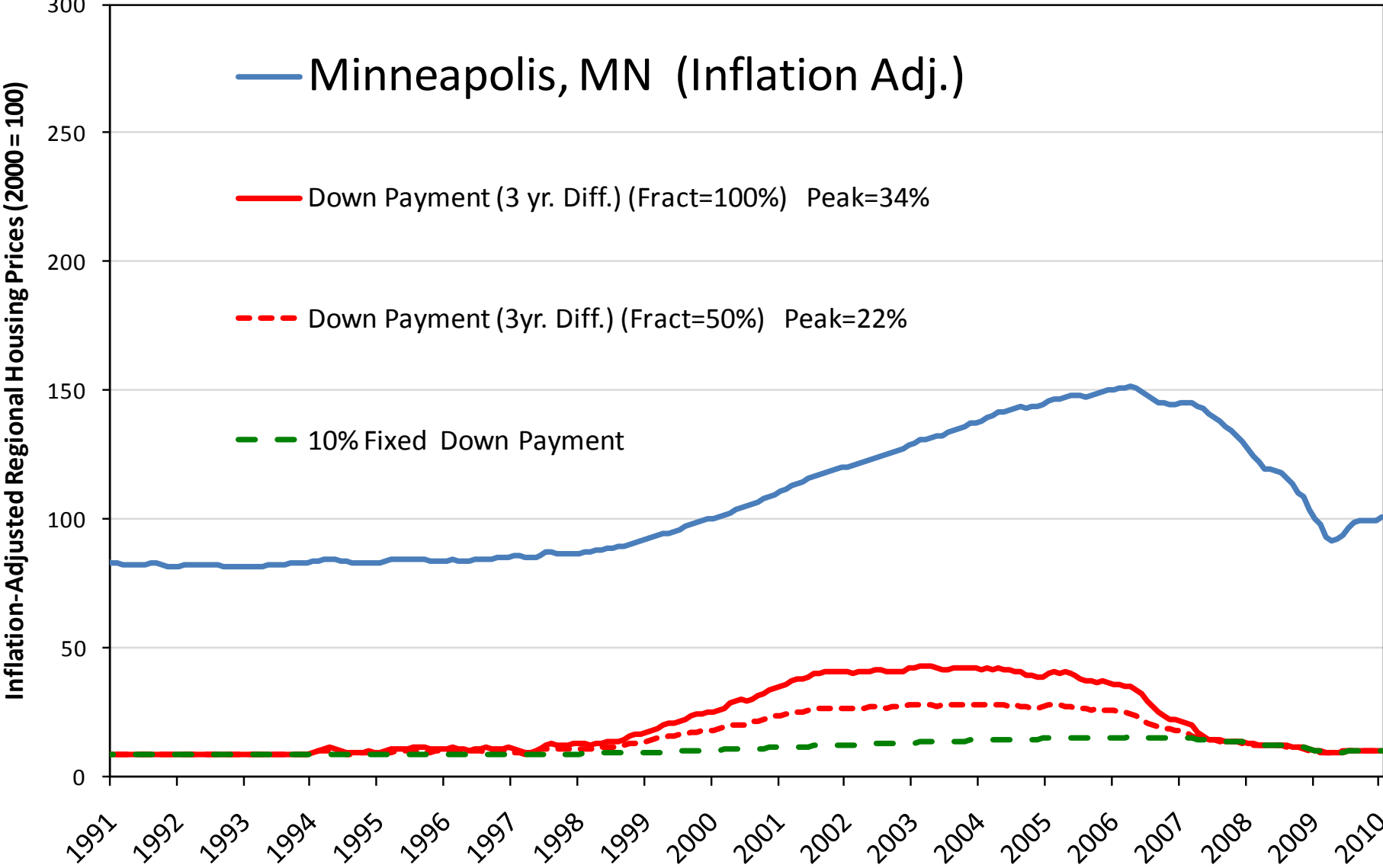
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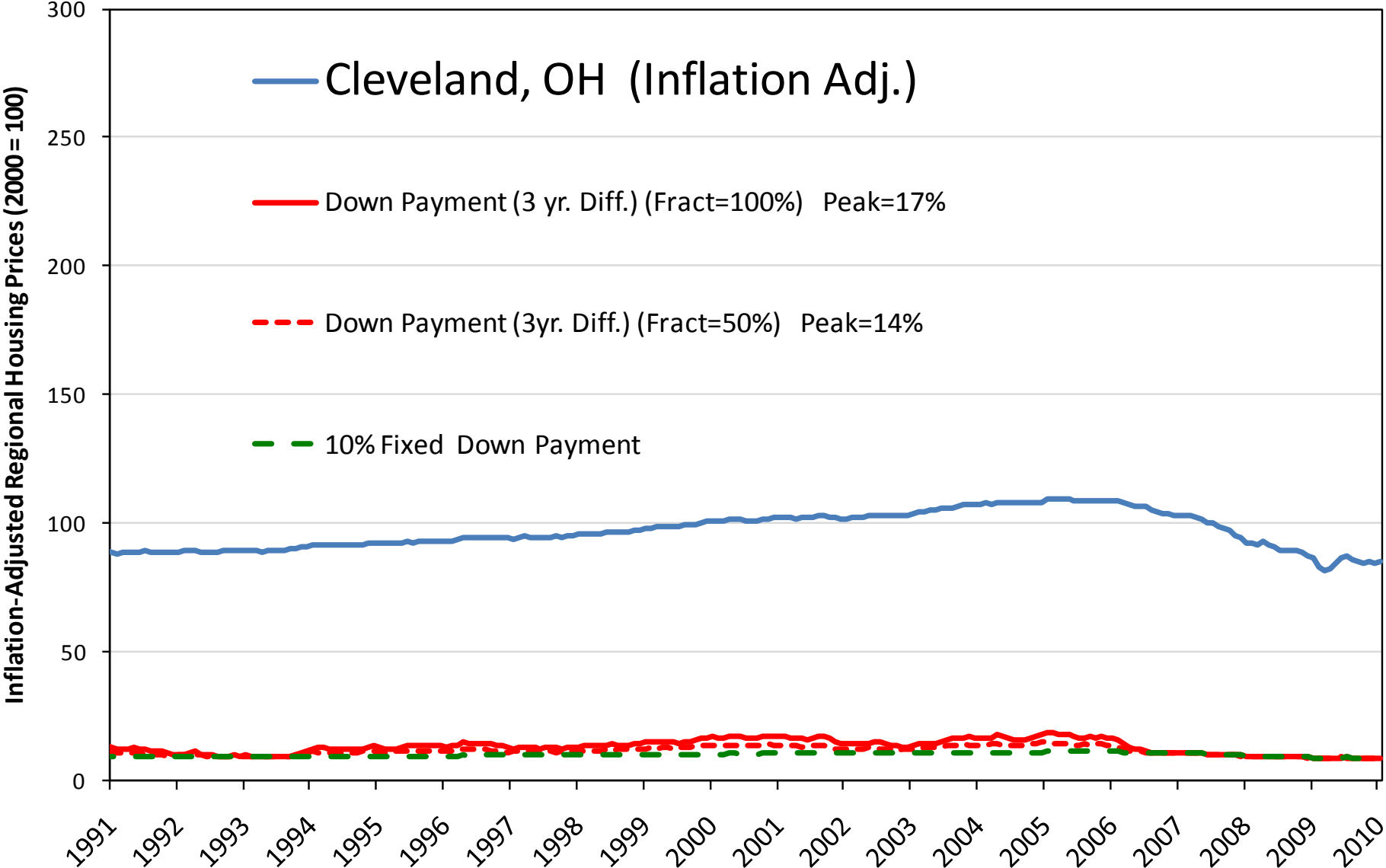
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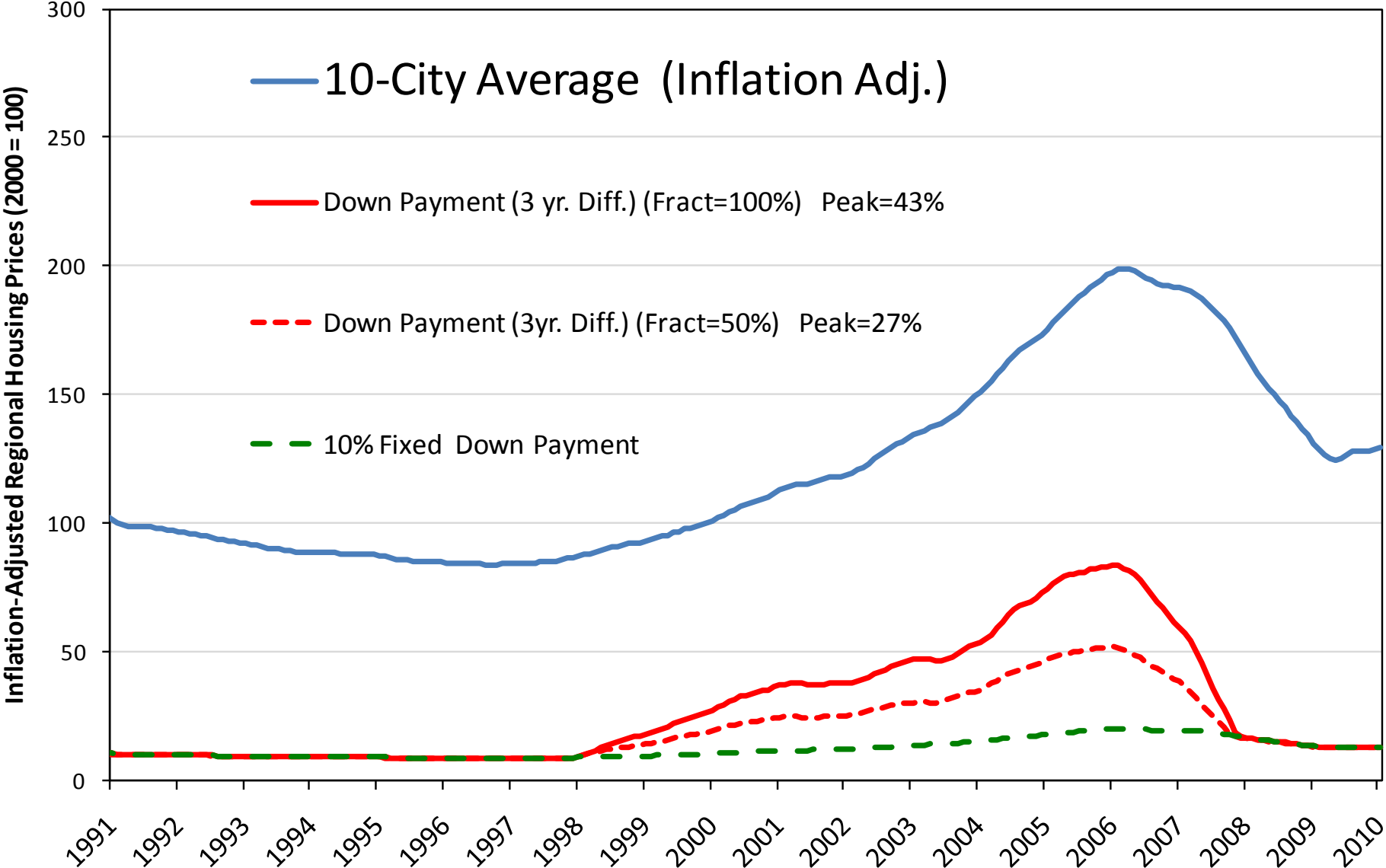
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# Countercyclical Down Payment Absorbs Capital from House Flipping

	Normal Flipping	Flipping with Countercyclical Down Payment
Initial Equity	\$10,000	\$10,000
Down Payment	10%	10%
Affordable House Price	\$100,000	\$100,000
Market Appreciation	25%	25%
Appreciated House Value	\$125,000	\$125,000
Equity after Sale	\$35,000	\$35,000
Down Payment for New House	10%	<b>35%</b>
Affordable New House	<b>\$350,000</b>	<b>\$100,000</b>



See Note

Note: Counter-Cyclical Down Payment = 10% + 25% Market Appreciation

# More Optimizations of the Feedback Loop

- What variables are best for feedback sensing:
  - Housing prices: (national, regional, sectoral?)
  - Housing volume: (sales volume or construction?)
  - Inflation-adjusted? Subtract long term trends?
  - Price/Rent ratios?
  - Incomes & creditworthiness of buyers?
  - Geographical smoothing?
- What actuators are we using for feed back:
  - Loan-to-Value (LTV) limits
  - Other underwriting requirements
  - Securitization “skin-in-the-game” for MBS

# Optimizing the Gain of the Feedback Loop

*(Ideas from Jonathan Reiss)*

Q: What is the optimum fraction of the price rise to apply to the down payment (i.e. the gain of the feedback loop)?

- Too small, and it will be ineffective
- Too large, and it may over-correct and oscillate
- Jonathan Reiss estimates  $\sim 40\%$
- Needs modeling... is there calibration data anywhere?

→ Fortunately, damping feedback loops are very insensitive to the exact value of the feedback gain (at least in electrical engineering).

# Formula vs. Omniscient Regulator

- Similar feedback could be implemented via an omniscient and independent real estate market regulator (presumably the Fed).
  - The Chinese & Israelis are doing this today.
    - study this as source of calibration data?
- Our approach of using a formula is:
  - More Transparent and Predictable
  - Simpler
  - Less prone to political interference

# Life Inside the Feedback Loop

- When real estate markets slow down, **The Lending Tree™** will start running advertisements talking about how ***NOW*** is the right time to buy a house because housing prices are not rising as fast as normal and down payments are the lowest in years!
- ➔ These ads will disappear as soon as a bubble starts.

# Squelching the Bubble Psychology

- Negative feedback removes the most powerful element in the bubble psychology:
  - ➔ *Nobody likes to be the dumb guy in the room who missed out on the big price run-up.*
- People will know that even if there is a big price run-up, counter-cyclical LTV's will remove potential speculative buyers from the market and you won't be able to flip it.

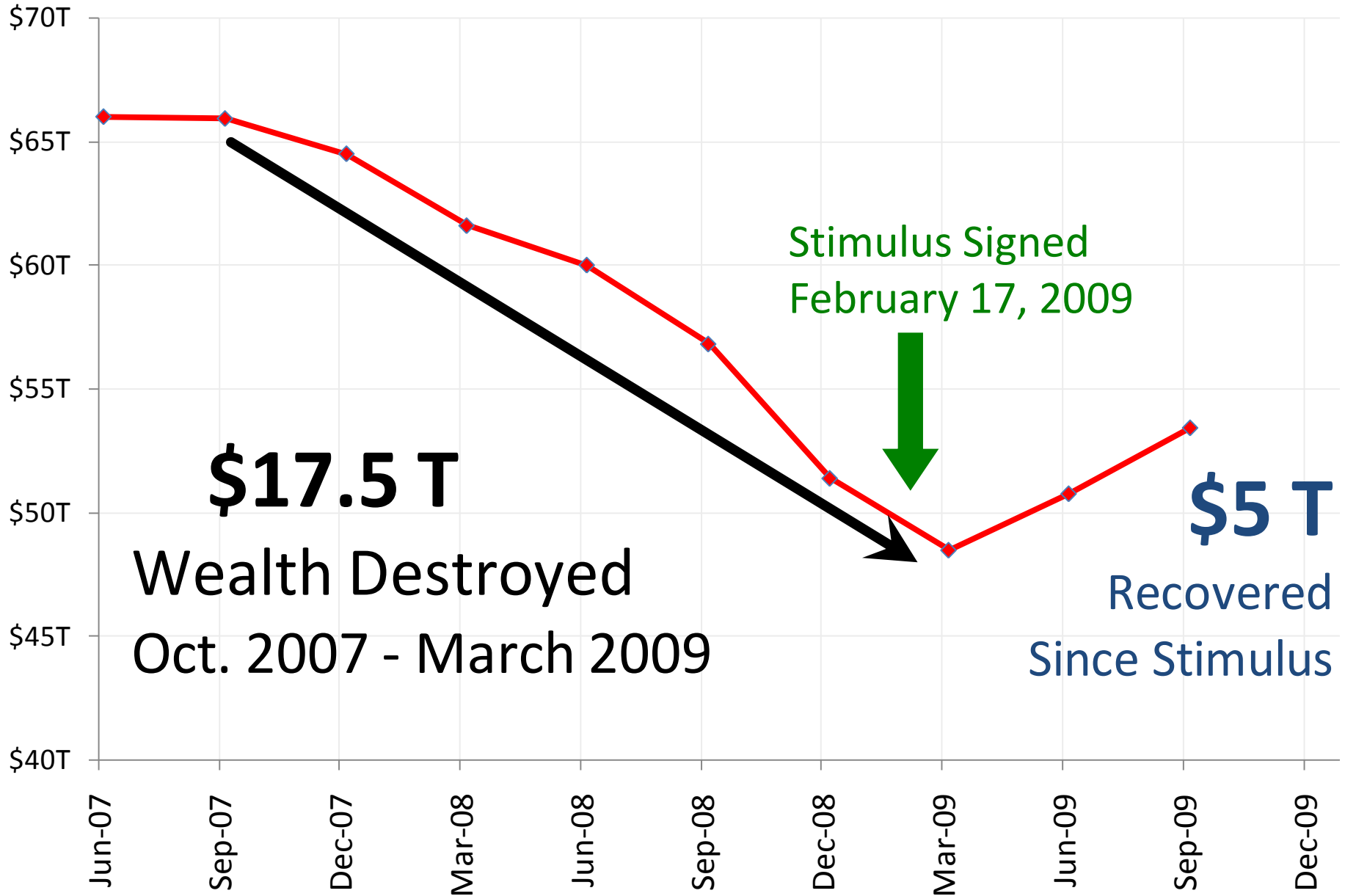
# Legislative Implementation

- As an underwriting standard:
  - Fed authority to set nationwide mortgage origination standards (for consumer protection) broadened to include LTV limits for market protection
- As a condition on government-backed MBS
  - Currently dominate the market
    - but Fannie & Freddie will have to be unwound.
  - Do not have to control 100% of the mortgages issued to dampen a housing bubble
    - ...but you still have to compete.

# Some Down Sides of Regulating Bubbles

1. Will slow down the re-deployment of capital in response to real changes in the economy
  - The misallocation of capital due to this effect is *tiny* compared to the recent housing bubble.
2. Will distort the economy by punishing one sector for a “nearby” bubble
  - “Gary is not Chicago”
  - Will be small under the non-bubble conditions that should be typical with bubble damping
3. Politicization of the housing indexes

# Net Worth of U.S. Households

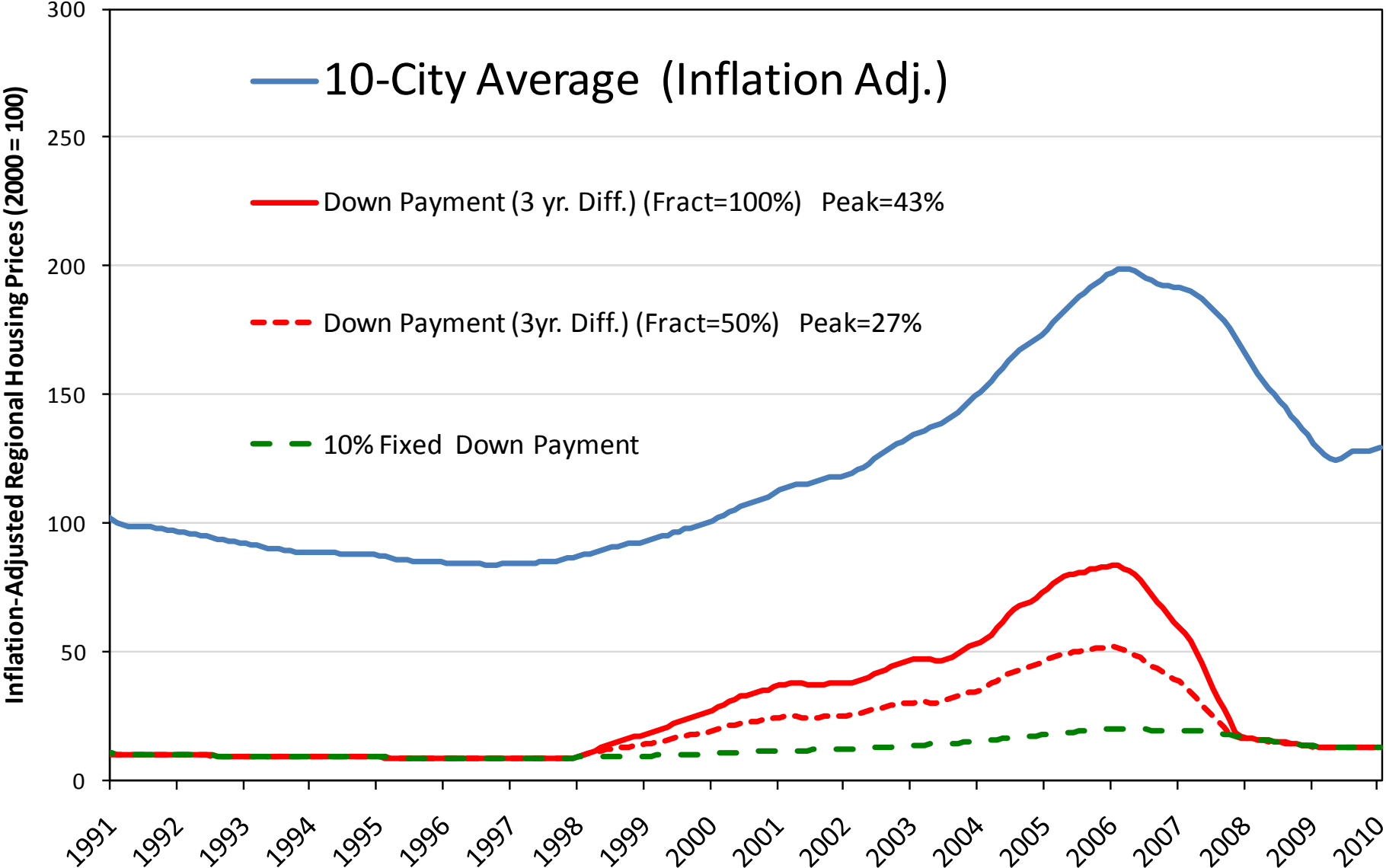


# **Backup Slides: GALLERY**

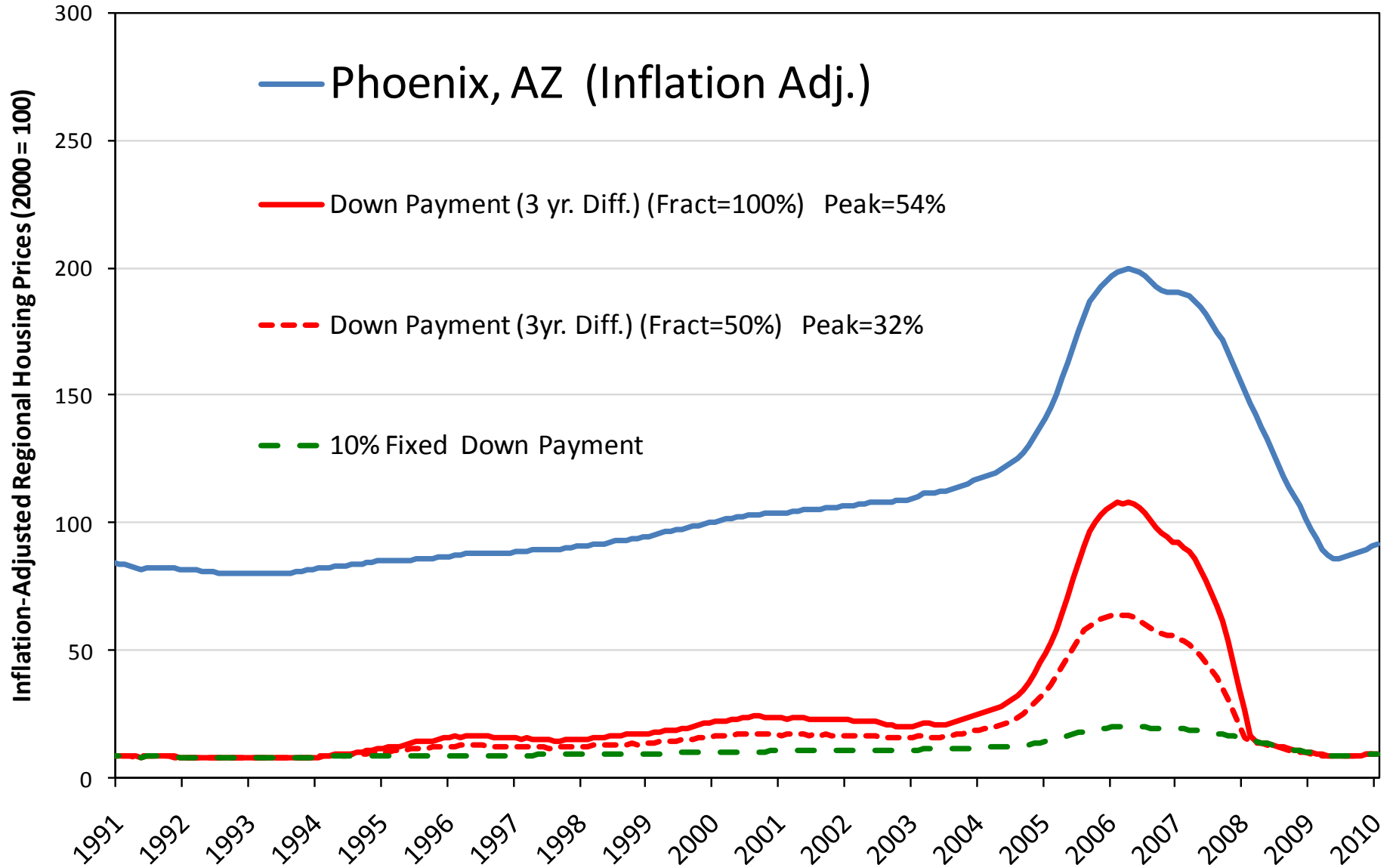
**OF REGIONAL  
INFLATION-ADJUSTED  
HOUSING PRICES**

**with counter-cyclical down payments**

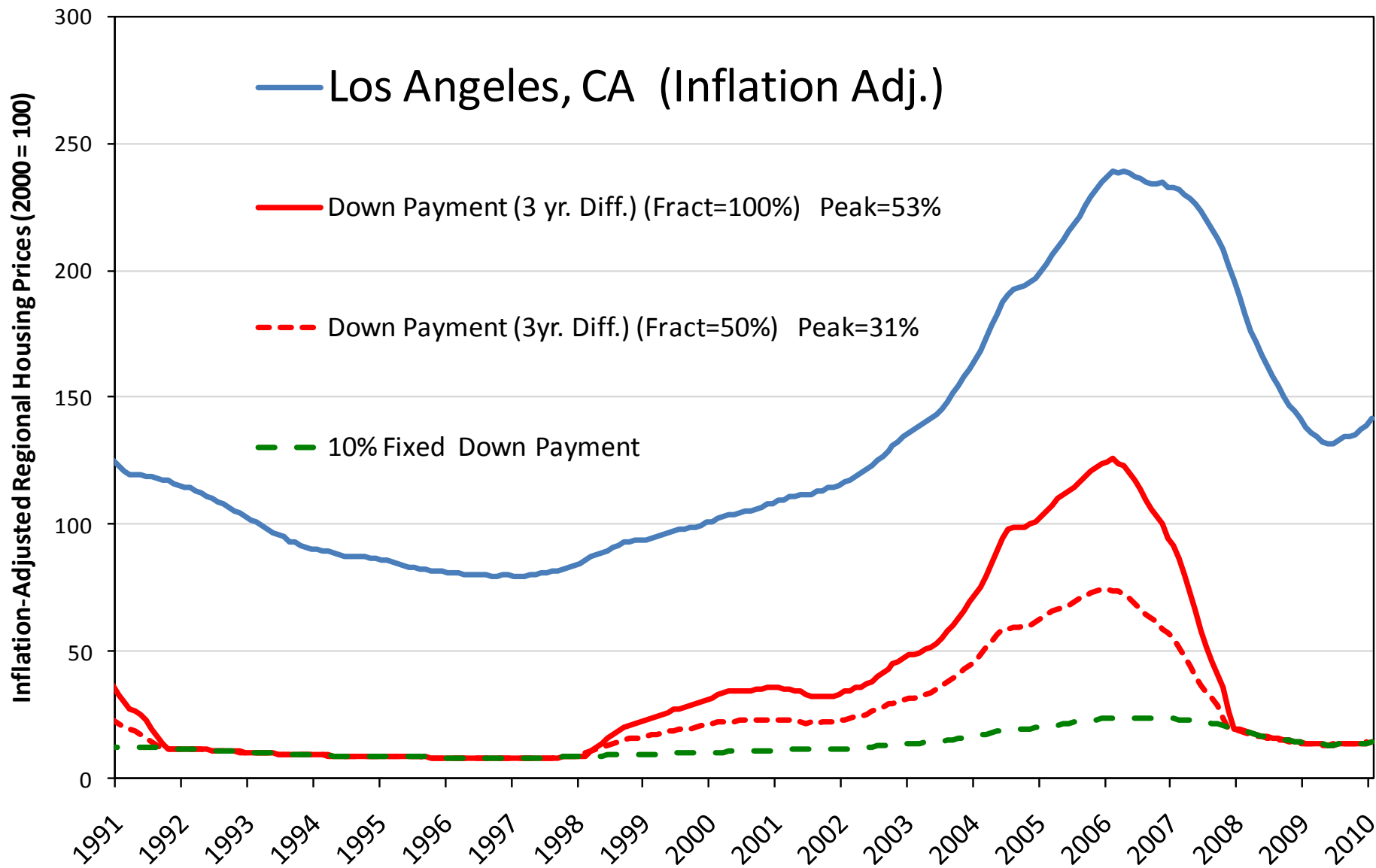
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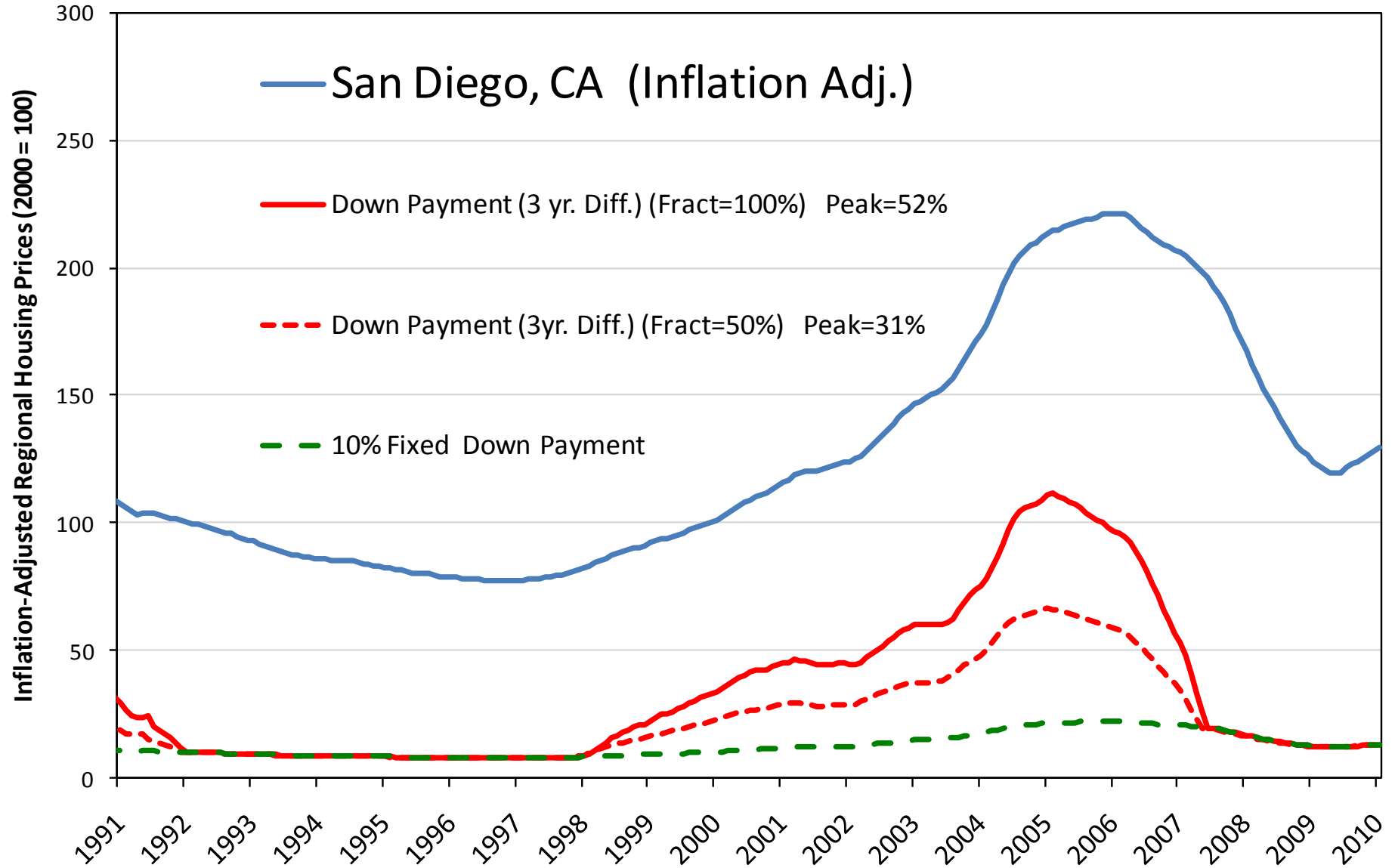
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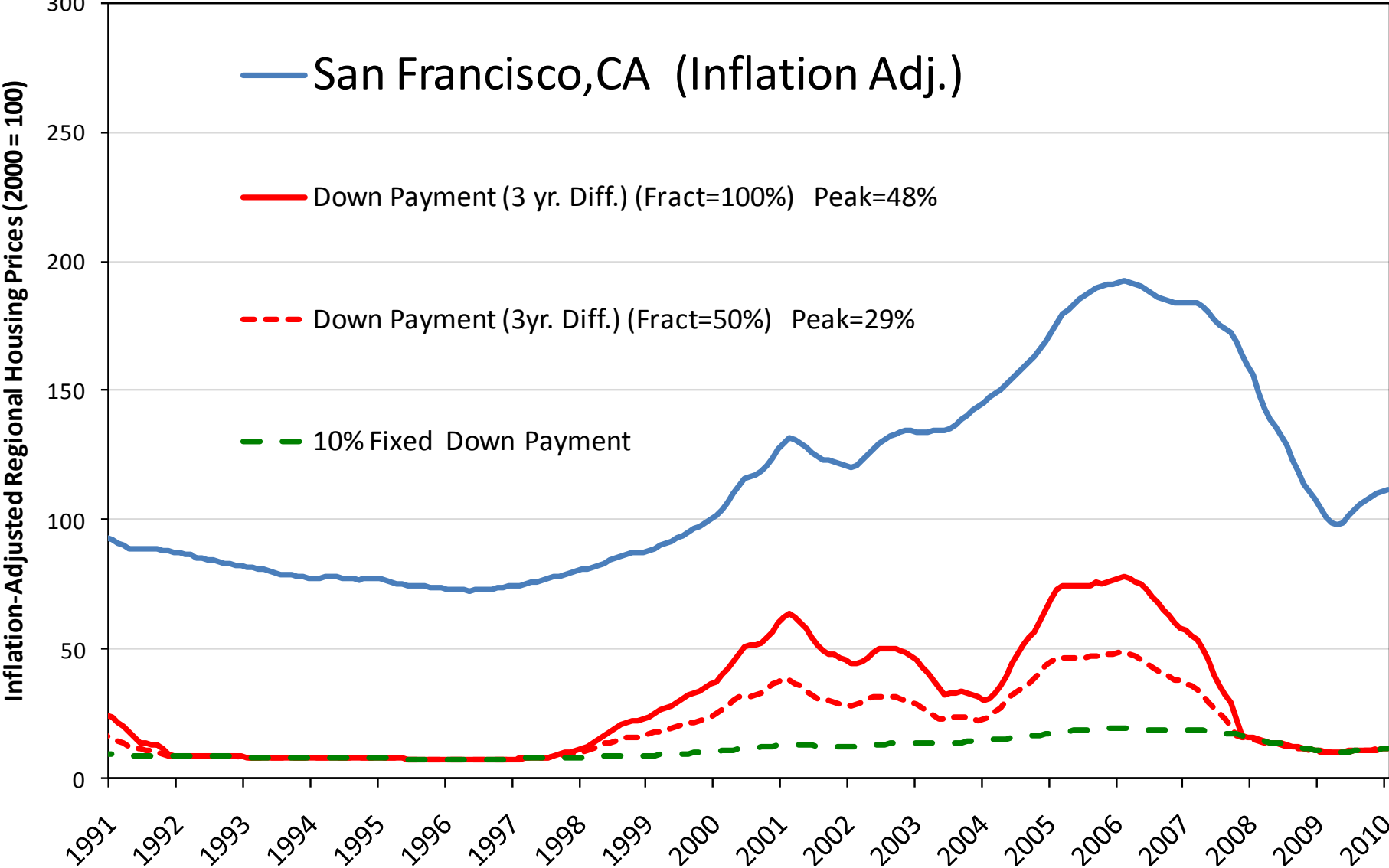
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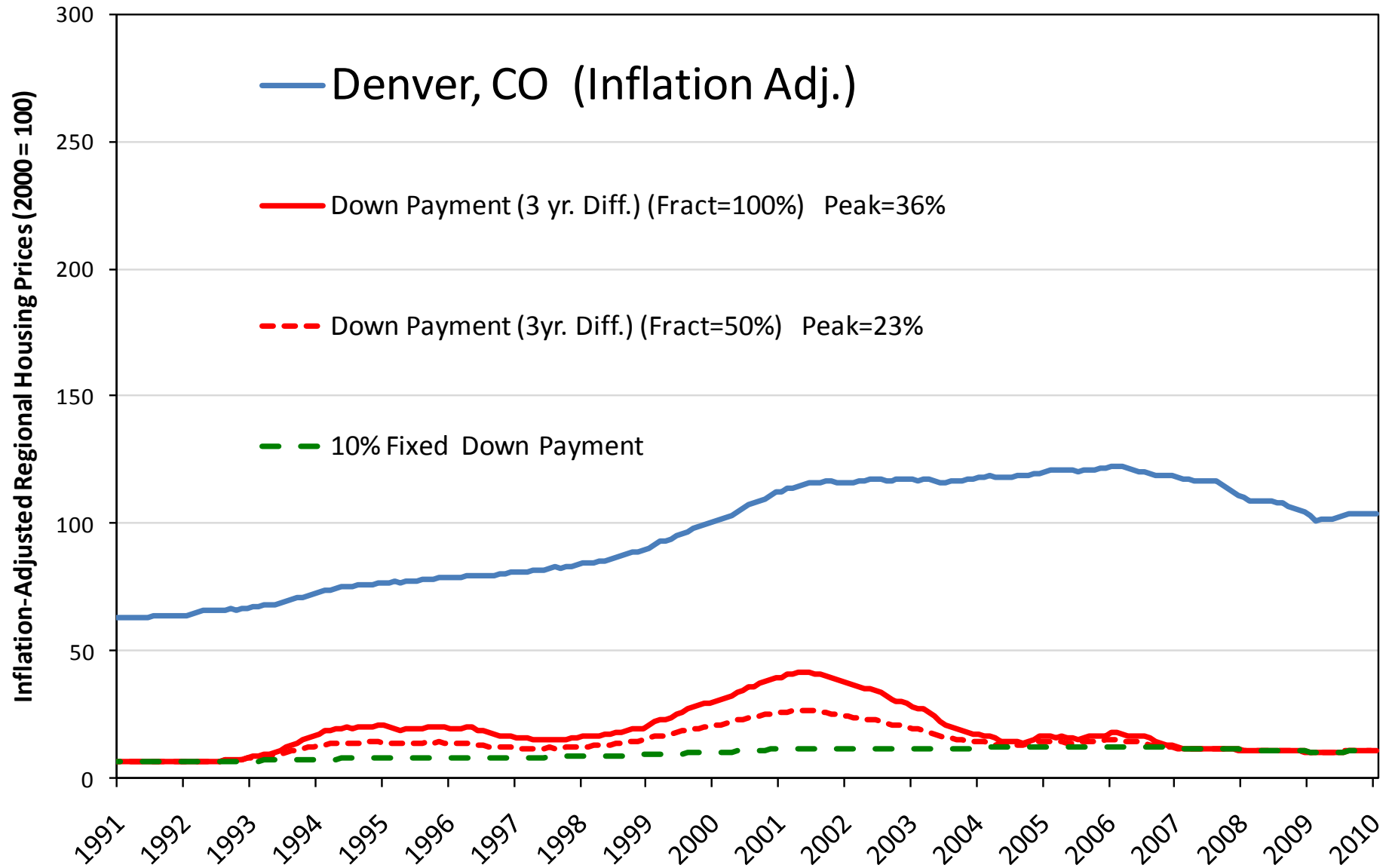
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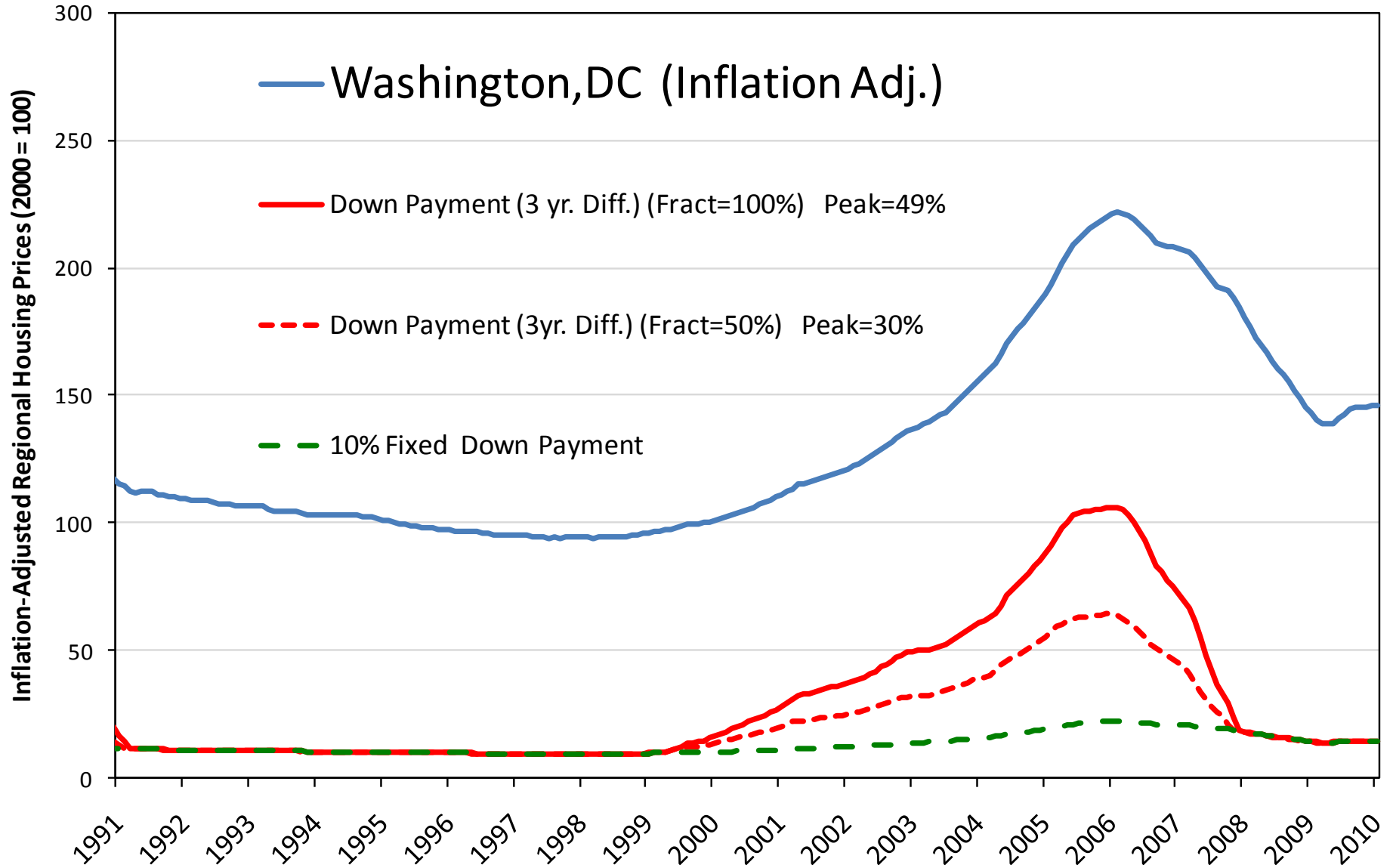
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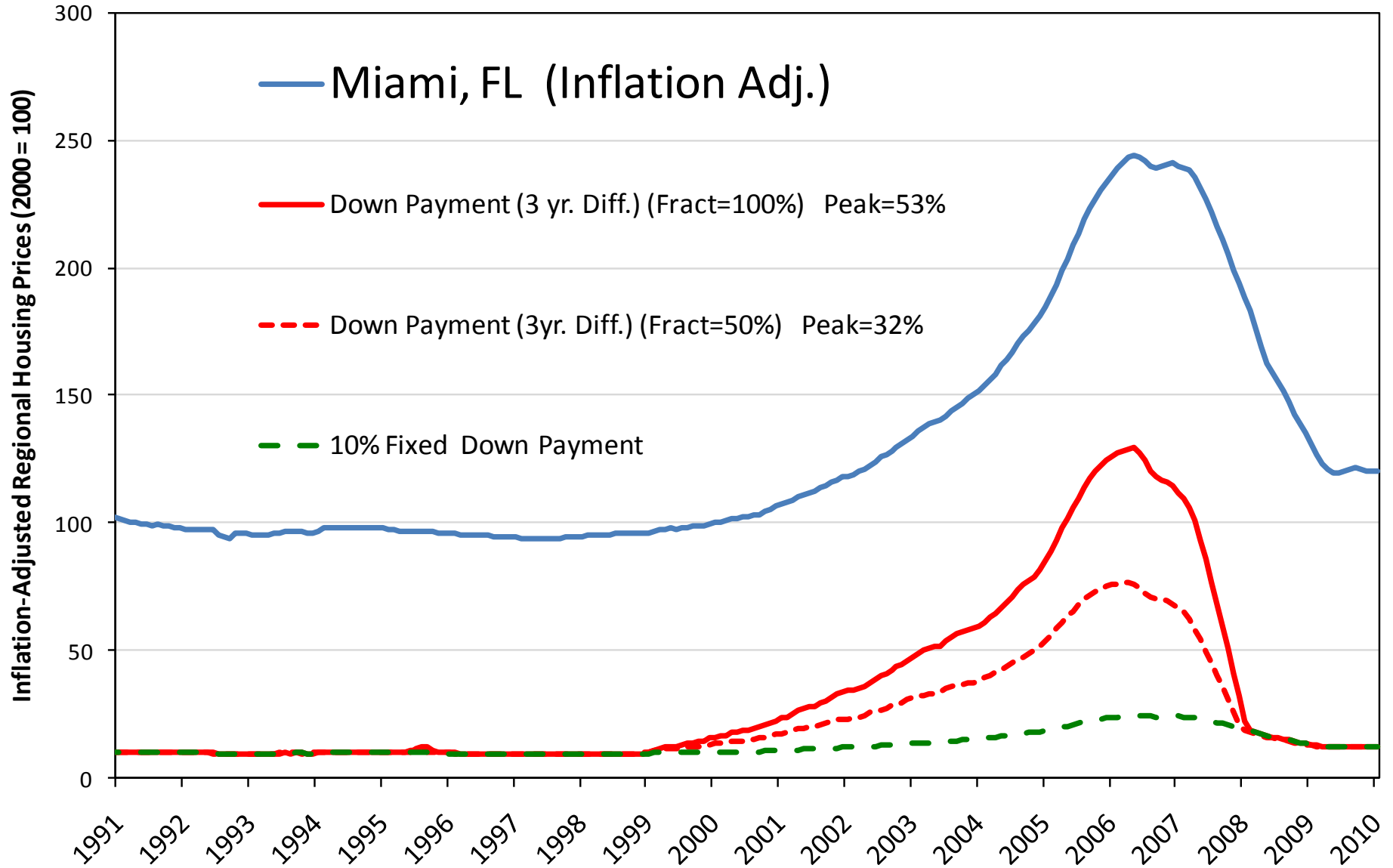
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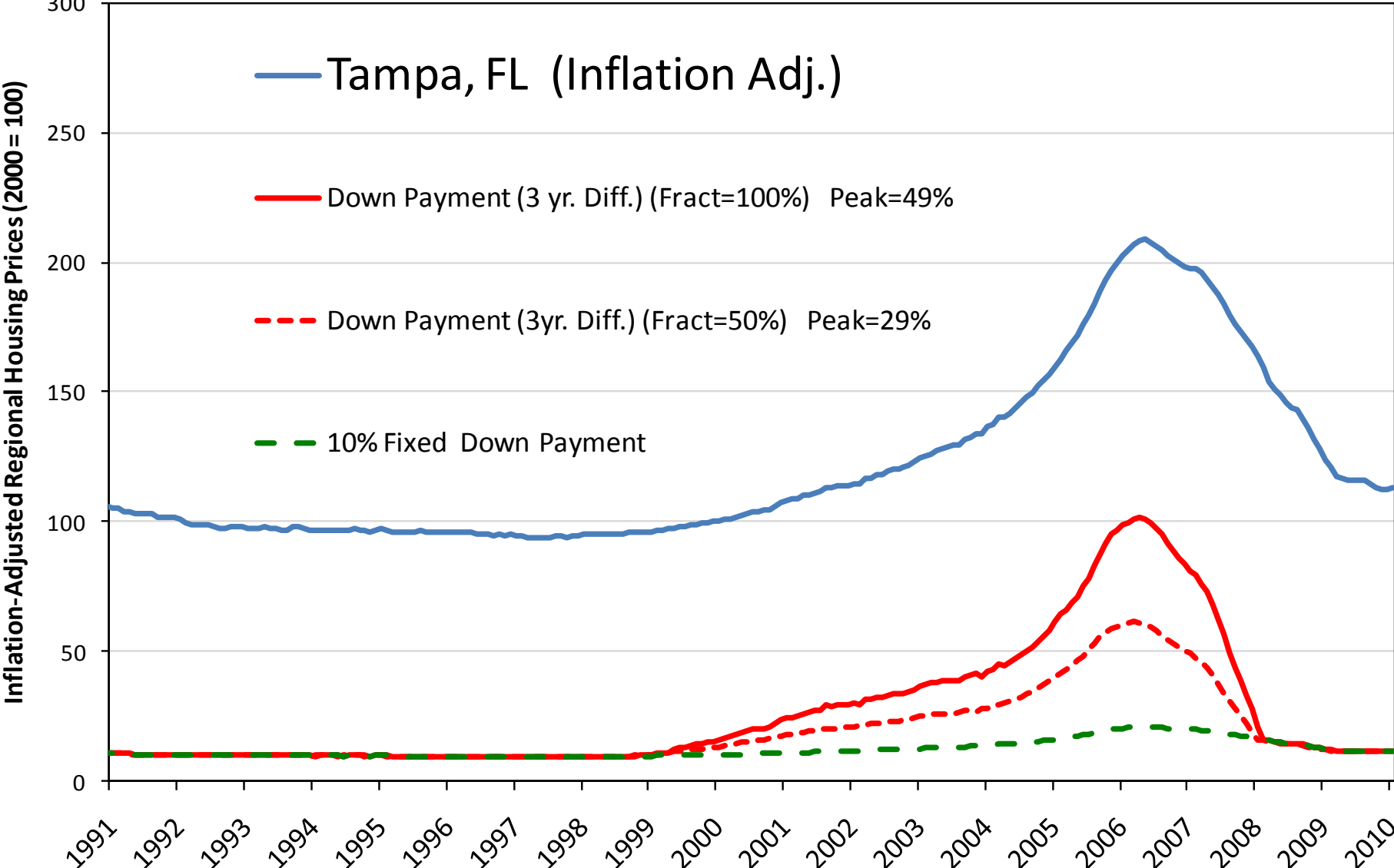
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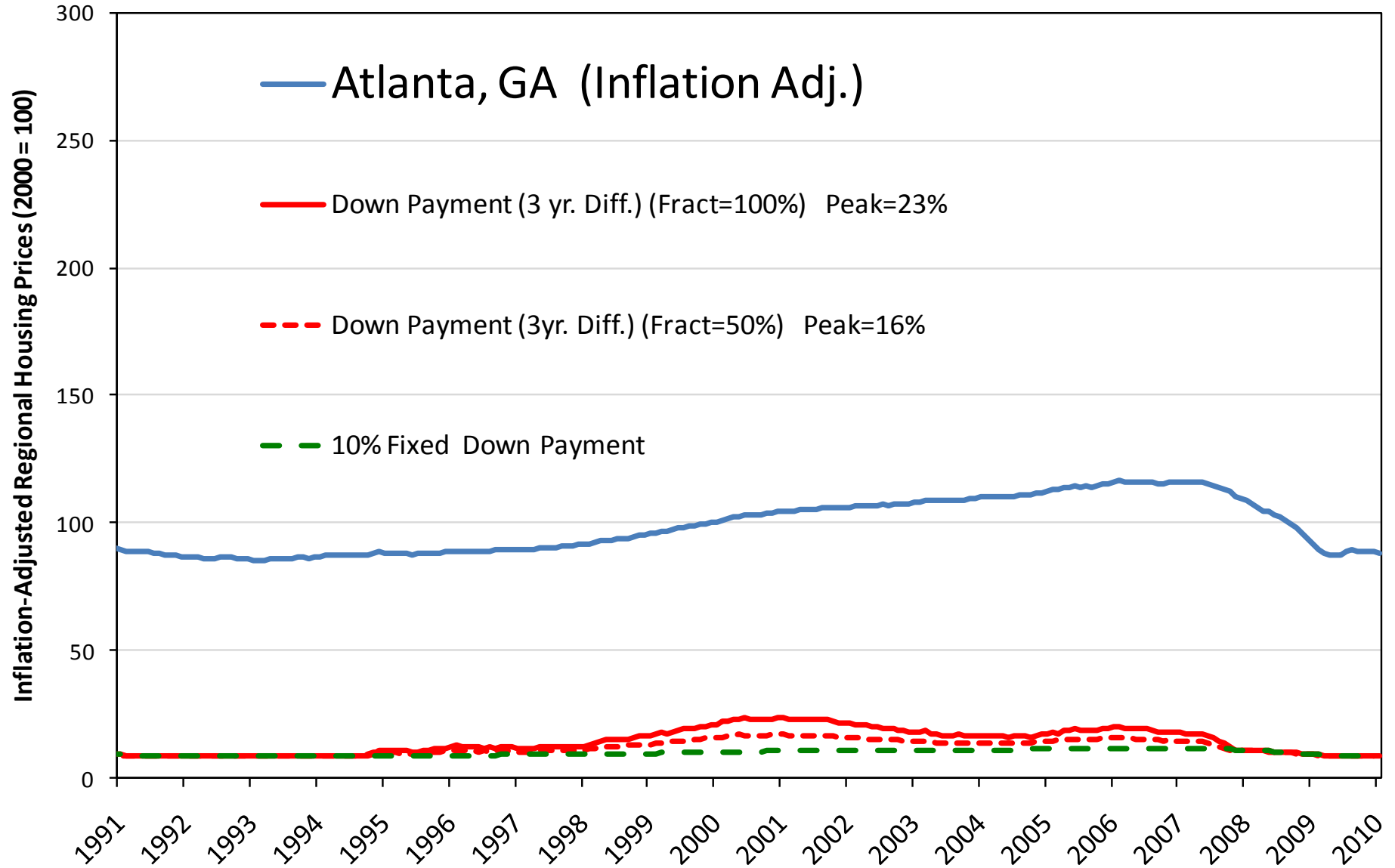
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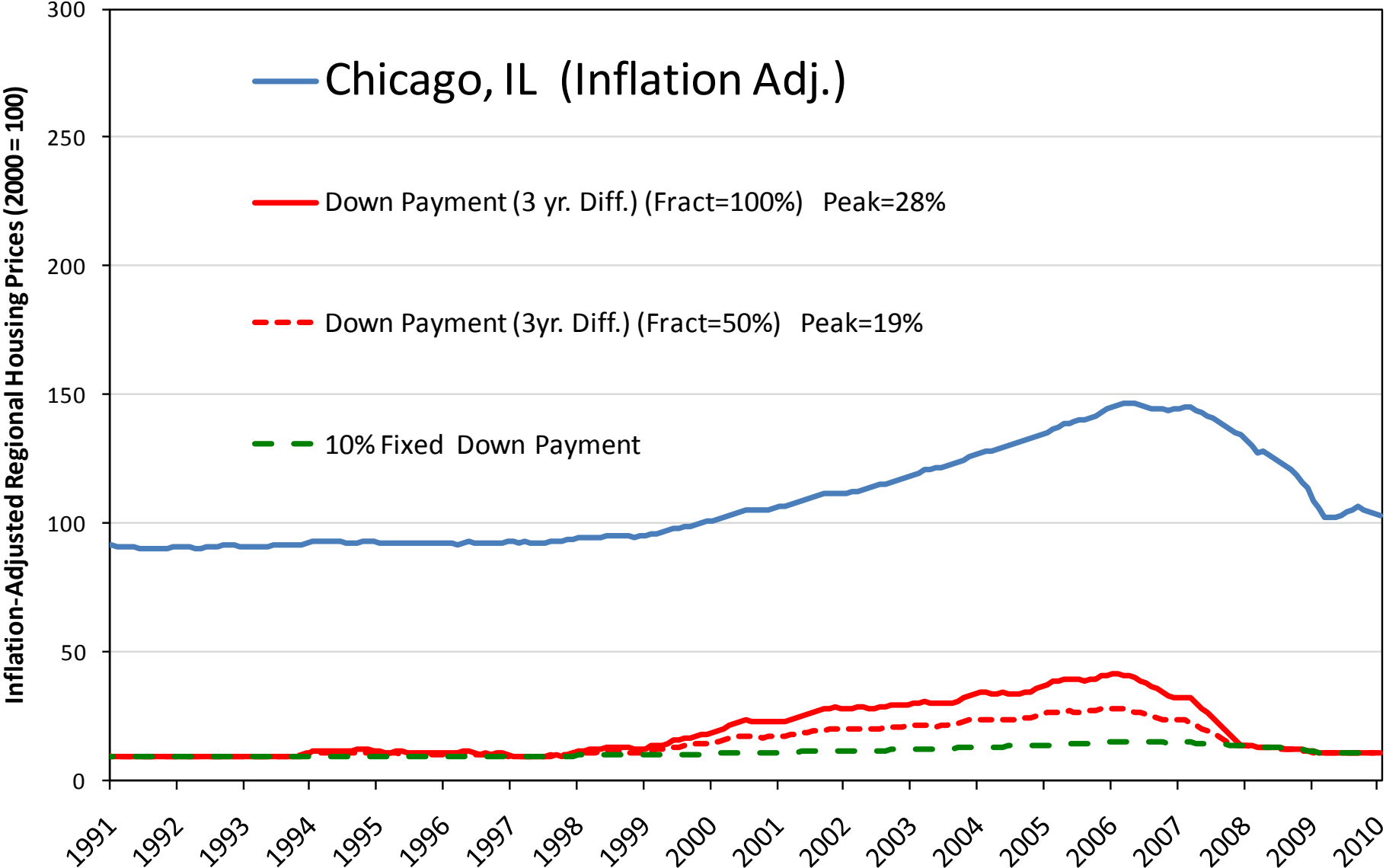
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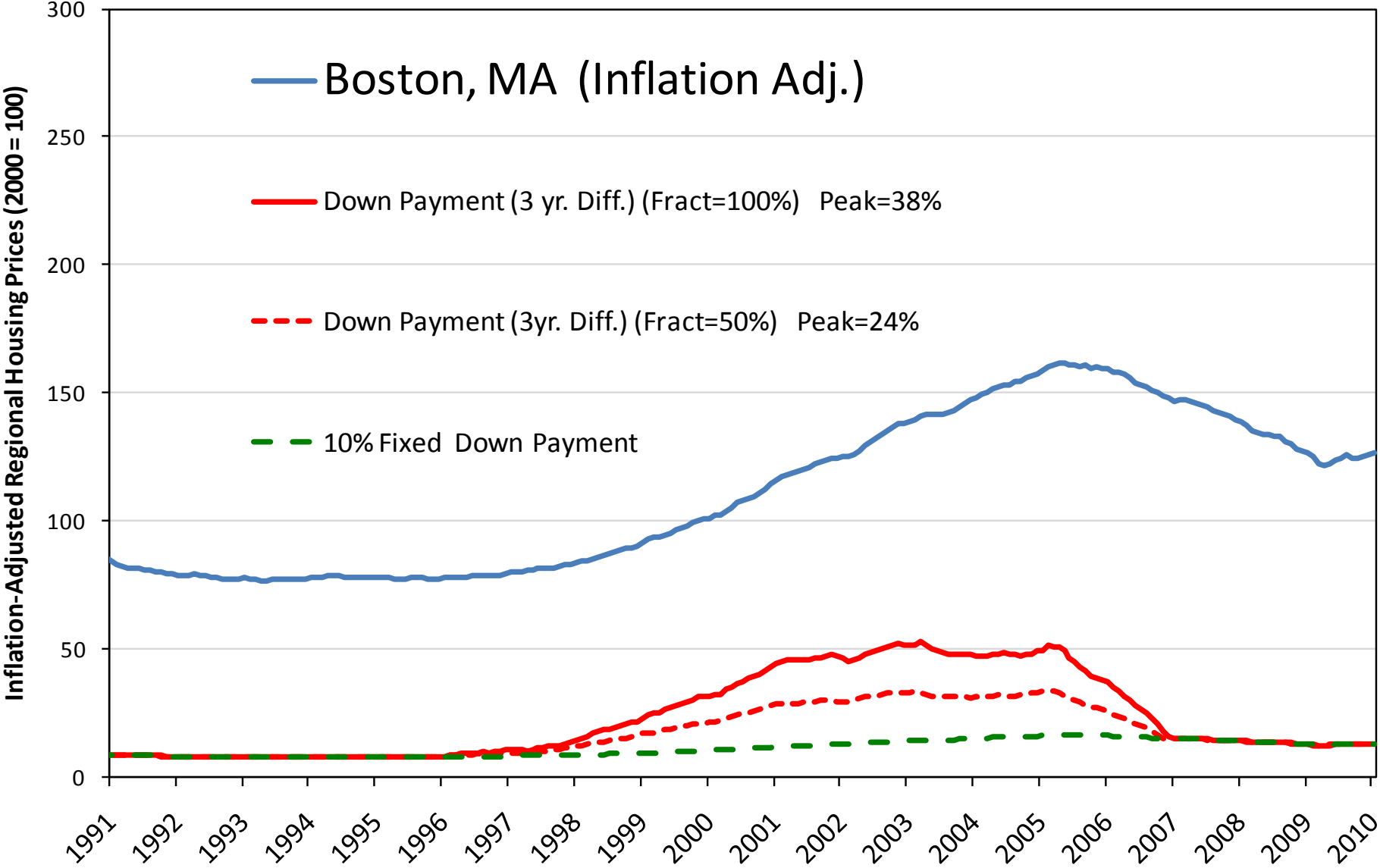
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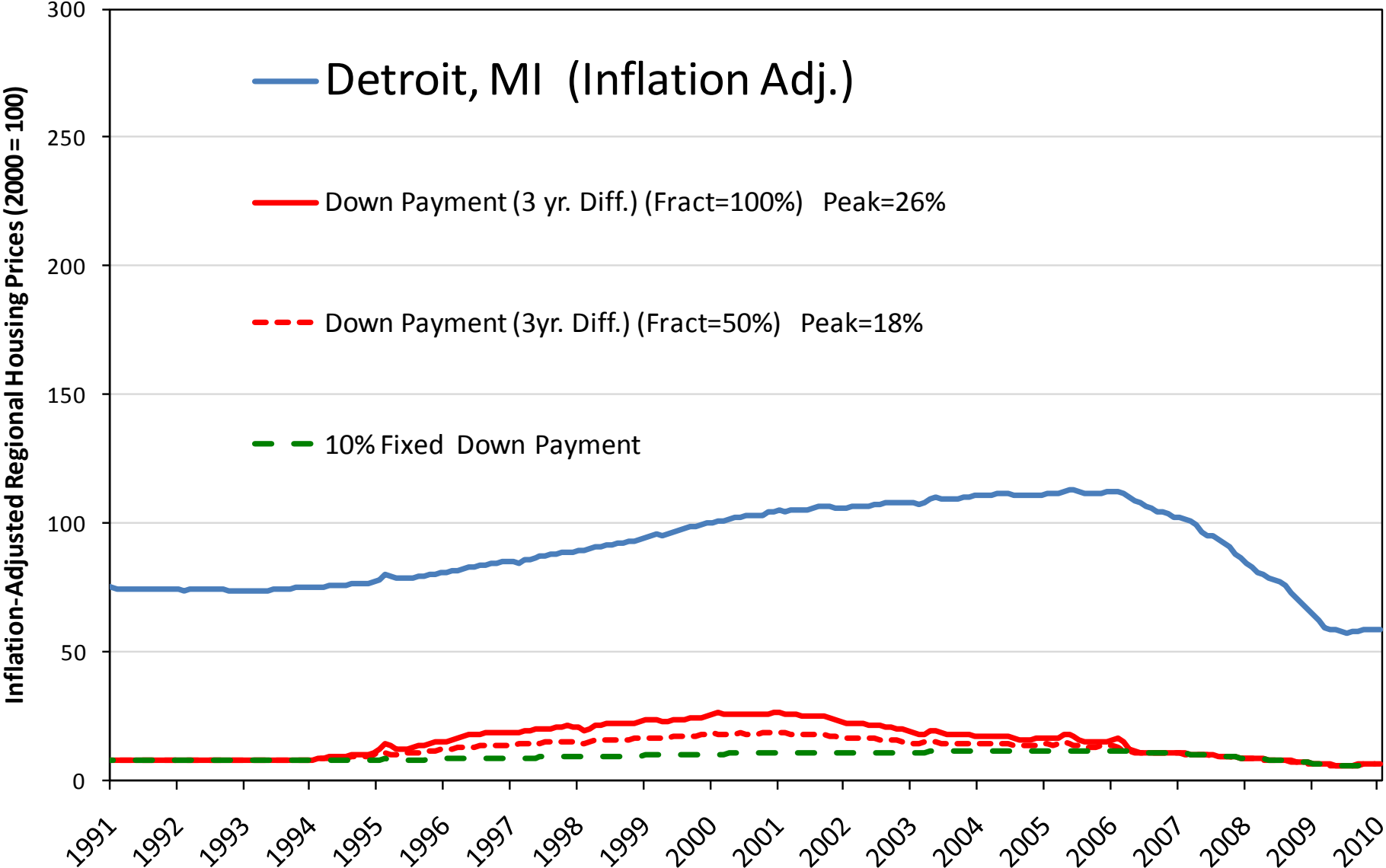
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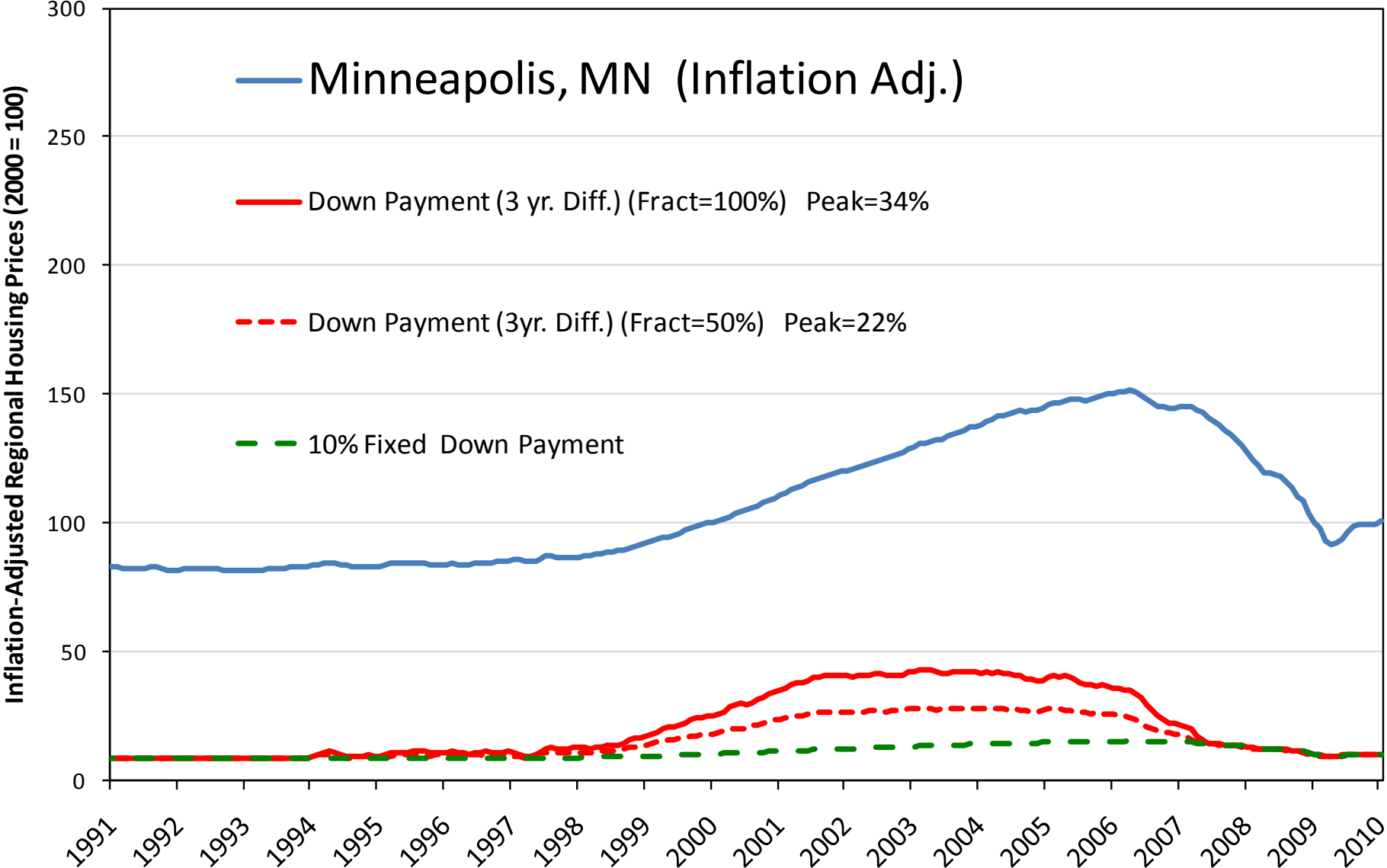
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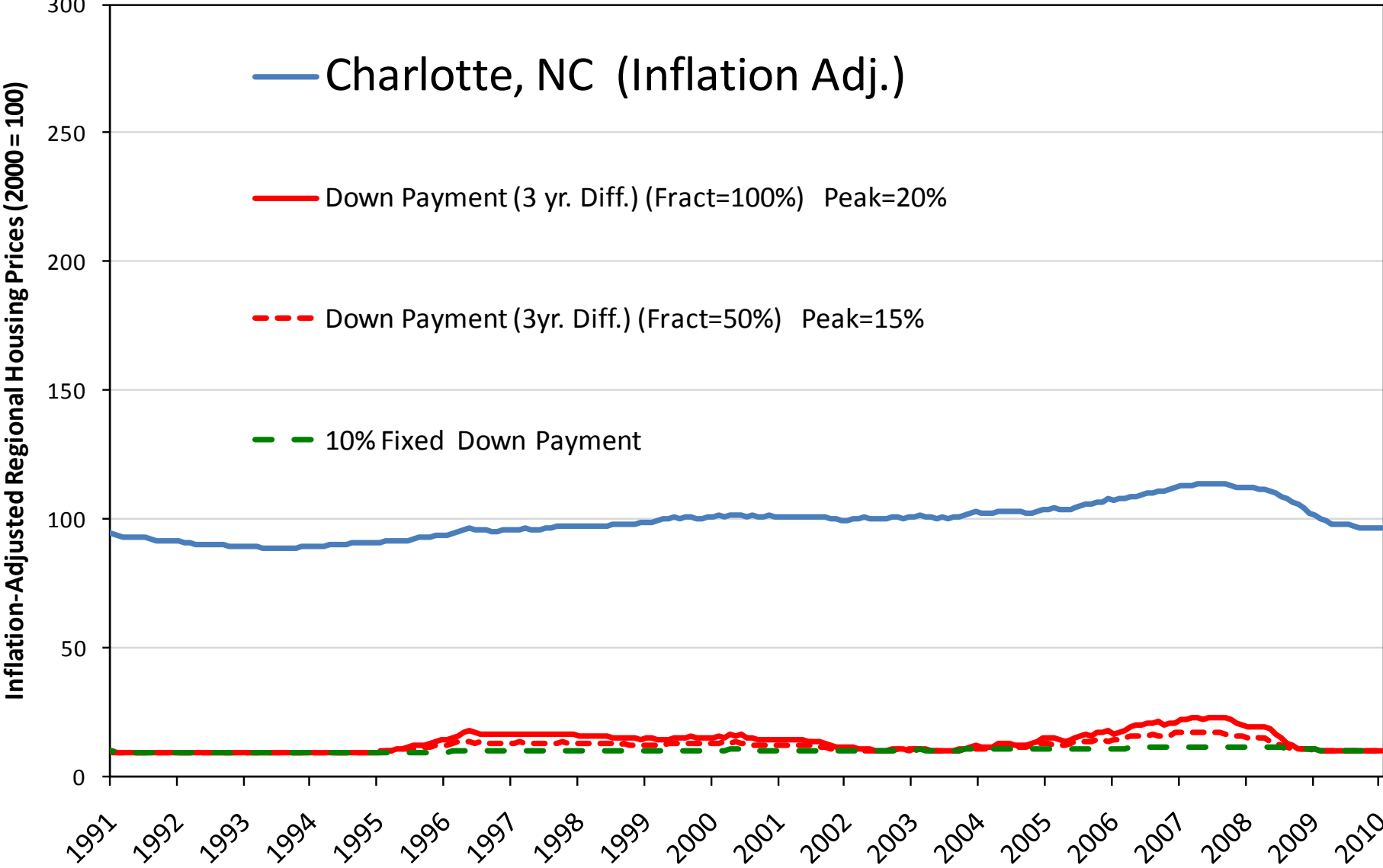
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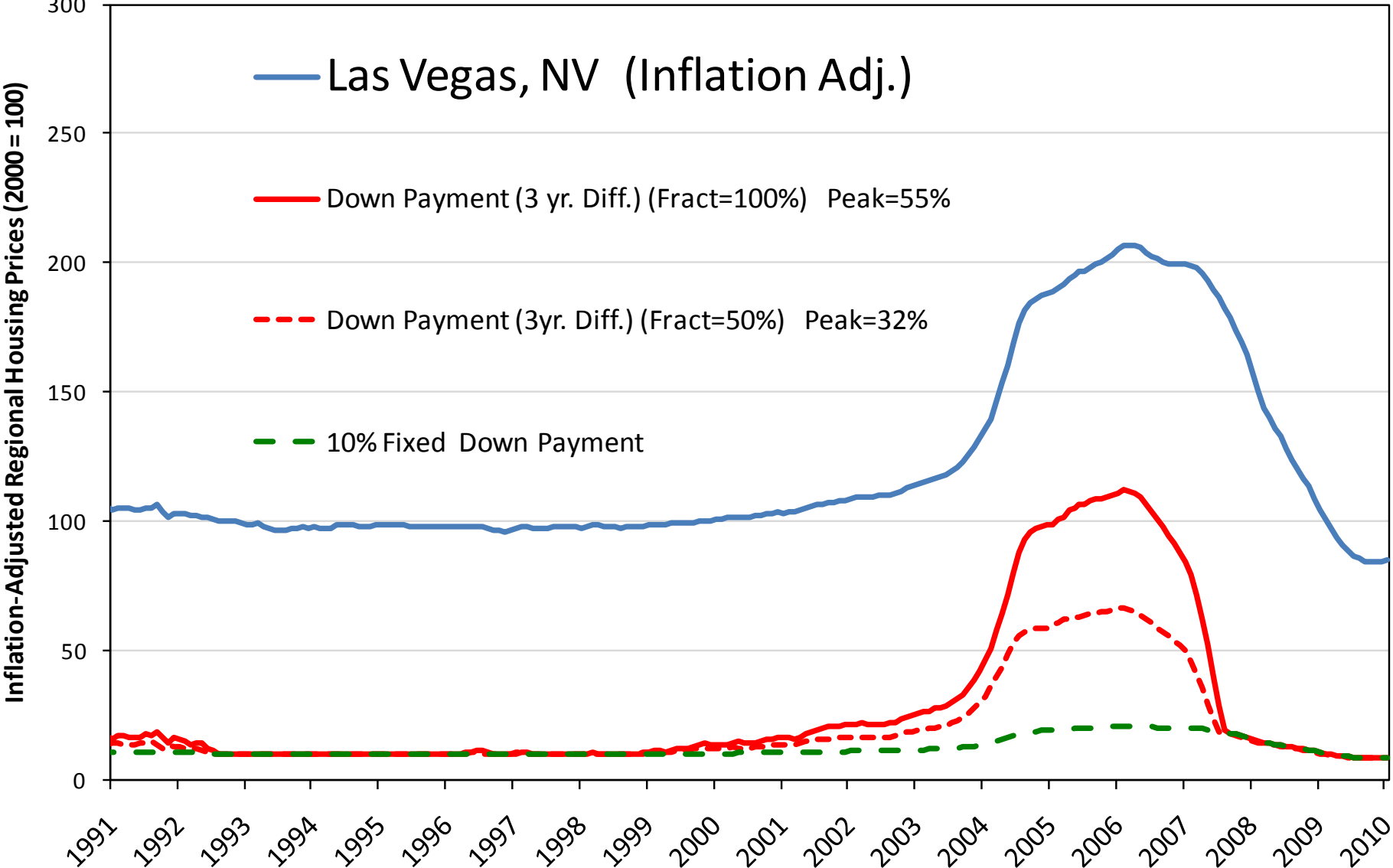
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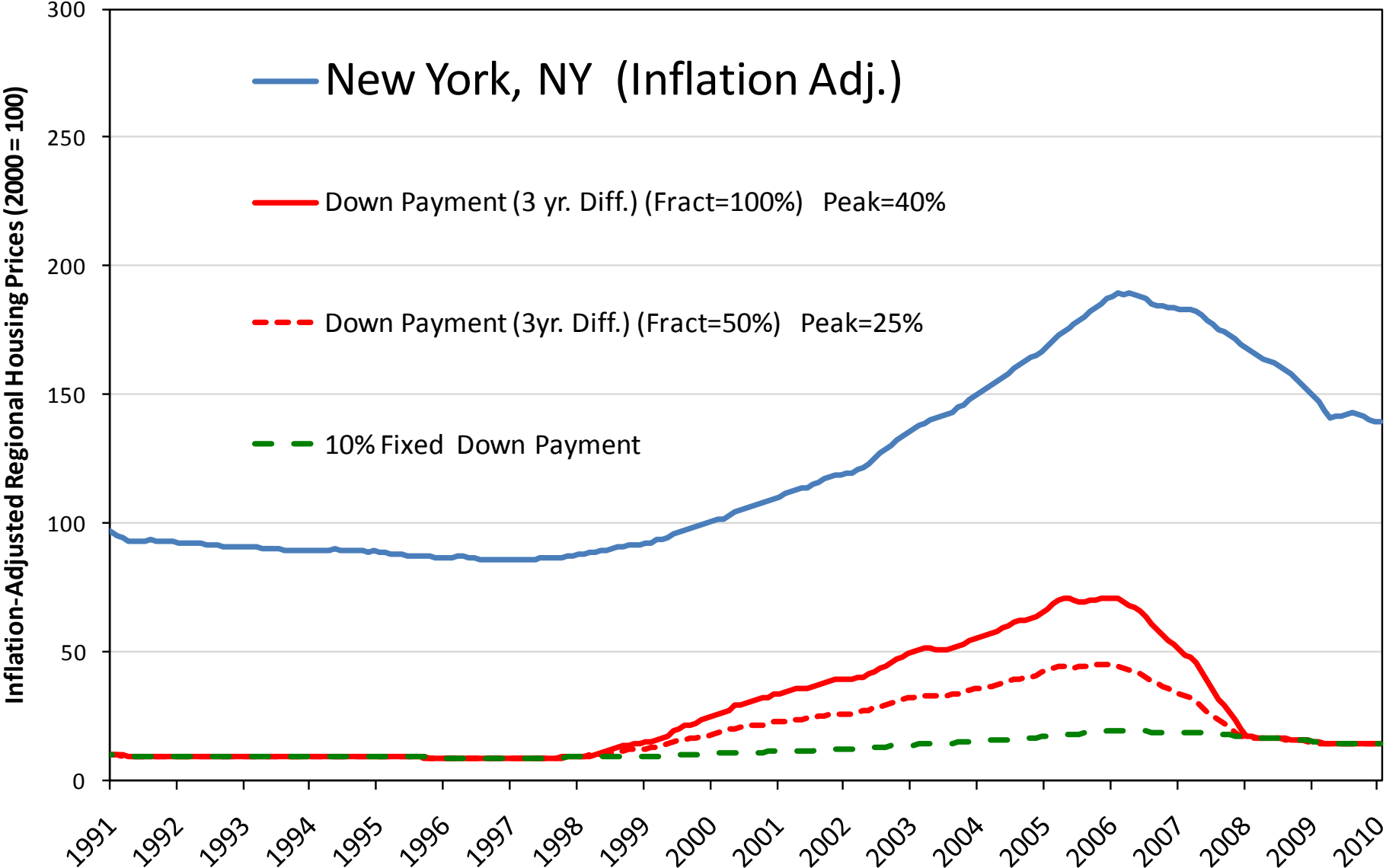
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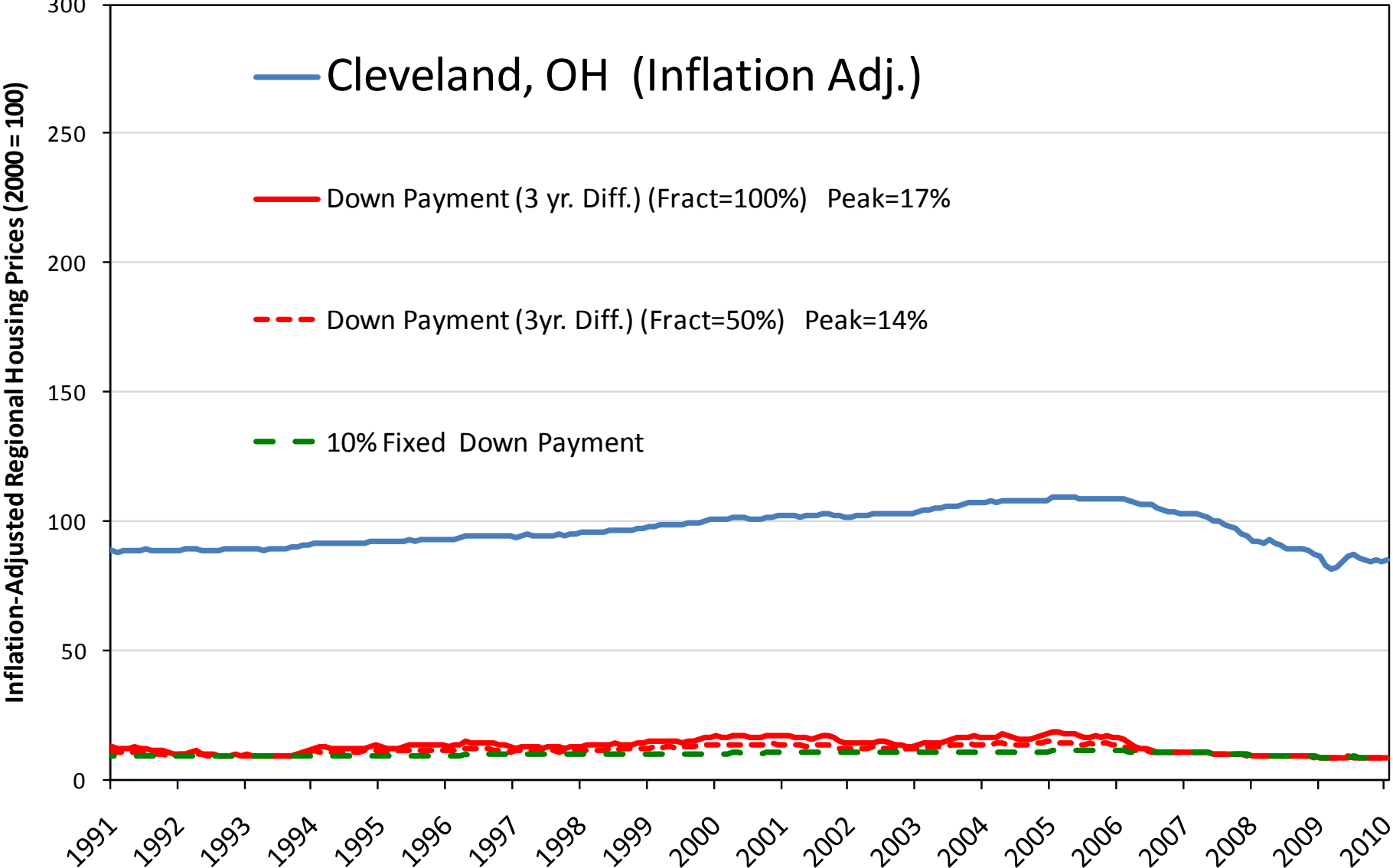
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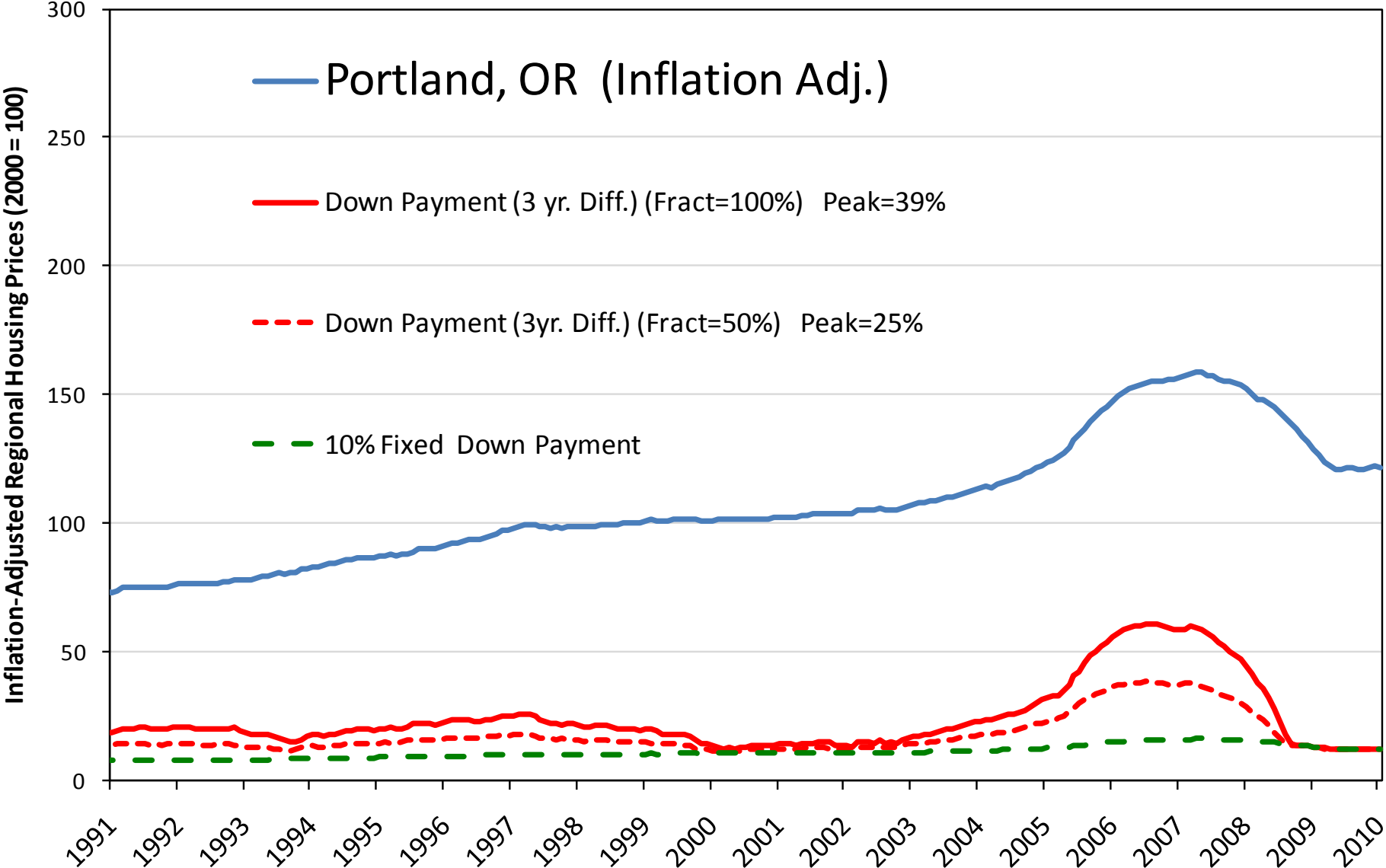
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