Replication files for:
The Elusive Costs of Inflation: Price Dispersion during the U.S. Great Inflation
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This document describes Matlab code that replicates the theoretical results in the paper. The file main_run_all.m is a "master script" that list all the scripts that should be run and in which order they should be run to obtain the theoretical figures in the paper. The objective of this master script is to make clear which are the relevant files to run. The combined runtime of all of the scripts is quite significant. Each script that contains the term "LongRun" in its title solves a model for a range of inflation rates. This takes significant time in some cases (especially ge1CalvoLongRun_7.m). Each of these scripts can, however, be run separately.

Output from running the various model scripts called in main_run_all.m is saved in the subfolder "output_codes" for the model in question. For example, the output for "ge1CalvoLongRun_7" is saved in "calvo_model/output_codes/Stats_7".

Once all the scripts called in main_run_all.m have been run, create_figures.m can be run to construct the figures in the paper. These figures are saved in the folder "figures". If some of the scripts called in main_run_all.m have not been run when create_figures.m is run, this will result in an error (since create_figures.m will not be able to find the inputs it needs to create the figures). However, certain portions of create_figures.m can be run without first running all the scripts in main_run_all.m. Also, the figures can easily be edited to eliminate certain elements if desired.

## 1 LongRun codes

All the "LongRun" files work in a similar way. Take the menu cost model with $\theta = 4$ as an example (i.e., ge1BasicLongRun.m). This script solves the menu cost model described in the paper for a range of steady state inflation rates. The vector mu_vec defines the rates of steady state inflation that will be considered. The code goes through each inflation rate and solves the model as explained in Nakamura and Steinsson (2010). The solution of the model for each inflation rate is saved in a file called Stats_4. For details on the algorithm to solve the model for a given inflation rate, please refer to the readme files for Nakamura and Steinsson (2010).

## 2 Fixed-Effects Price Gap

The code SimulateRelativesRRKillingProds.m in the folder menu_cost_model creates a panel of firm price observations (after a burn-in period). It takes as an input the structure called GE1Model (which is produced by running ge1Basic.m. You need to run this file before running SimulateRelativesRRKillingProds.m). Using the policy function of the model, the code simulates price series for hypothetical products which exit the data with a constant hazard. The code then computes the true

price dispersion in the model and also the fixed-effects price gap discussed in the paper. It saves a file named "fixed_effect_price_gap" with the relevant information in the subfolder "output_codes".

## 3 Partial Equilibrium Codes

These codes solve the Calvo and menu cost model in partial equilibrium. They solve the model for a sequence of observed inflation rates, and save scatter plots of the main statistics (frequency of price changes, size of price changes, and standard deviation of price changes) as inflation changes.

## 4 Changing Volatility

The "changing_volatility" folder replicates the results where we vary the volatility of the idiosyncratic shocks. The folder contains one subfolder for each model, "calvo_model " and "menu_cost ". Each folder has three main scripts for different values of the volatility of idiosyncratic shocks. The files terminated with "_bmk" produce the results with 0 inflation and the benchmark calibration. The files terminated with "_high" double the idiosyncratic volatility and in the case of the menu cost model, recalibrate the menu cost in order to achieve the same frequency of price changes. Each file prints the statistics of frequency, and size. The variable PCStats has all the statistics of each model, including the welfare costs.

## References

Nakamura, E. and J. Steinsson (2010): "Monetary-Non-Neutrality in a Multi-Sector Menu Cost Model," *Quarterly Journal of Economics*, 125, 961–1013.