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Dale Heien

With the passage of the Agriculture Act of 1949, Congress and the subsequent administrations undertook the task of supporting the income of dairy farmers through the purchase of various dairy products. The act required that milk and butterfat prices be supported at 90% of parity during 1949 and required the Secretary to support prices between 75% and 90% of parity. This requirement was in effect during the period from 1950 until 1973 when it was raised to 80%. The price support program consists mainly of purchases by the Commodity Credit Corporation (CCC) of quantities of butter, cheddar cheese, and nonfat dry milk. The support prices for each of the three commodities are announced at the beginning of the marketing year (April) and generally remain in effect at the announced levels for the entire year. In addition to the purchase of these commodities, the Congress has also financed (in part) the National School Lunch Program, which requires purchases of considerable quantities of fluid milk, the Special Milk Program (milk for needy children, summer camps, etc.), and more recently has increased the demand for food in general through the food stamps program. Government expenditures on dairy price support programs (CCC programs) over the 1949-73 period totaled $7.048 billion (U.S. Department of Agriculture, 1974, p. 28).

In addition to the above program, the federal government further supports prices received by farmers for dairy products through the federal milk marketing order system. These marketing orders allow dairy cooperatives to set minimum prices for fluid grade (bottling) milk. Milk produced by dairy farmers is divided into two broad grades: milk eligible for the fluid market and manufacturing grade milk. The latter is used in processed dairy products such as cheese, nonfat dry milk, etc., but cannot be used in fluid milk since it does not meet the specified sanitary standards. On the other hand, milk eligible for the fluid market can and is used for processed dairy products as well as fresh milk. The Agricultural Adjustment Act of 1937 authorized the federal order system, mainly as a result of unstable milk prices and the resulting violence of the dairy strikes. The federal order system sets prices at various markets (61 geographical areas) which are equal to the Wisconsin-Minnesota manufacturing grade price plus a differential. The differential reflects the greater costs required to meet sanitary standards, the monopoly power of the dairy cooperatives,⁰ and the relatively inelastic demand for raw fluid grade milk. Currently about 78% of U.S. milk output meets fluid market standards while about 55% of this output is actually used in fluid products.¹ Dairy farmers in turn receive a “blend price” from the cooperative which is a simple average price for all milk received for that area. Dairy farmers also receive an implicit price support through heavy import restrictions on foreign dairy products.

The purpose of this study is to estimate, in addition to the direct costs mentioned above, the costs to consumers due to the increased prices of dairy products. The methodology employed is to specify and estimate an econometric model of the U.S. dairy sector. The model is then used to measure the impacts on consumer

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¹ The Capper-Volsted Act exempts dairy farmer cooperatives from antitrust prosecution.
² For a more detailed discussion of the federal order system, see Kessel (1967). An excellent introduction to milk pricing can be found in Manchester (1971).
prices over the 1949-73 period of the price support program and the federal order system. These retail price changes were then used as a cost of living index to measure the costs to consumers of these programs.

I. Specification of the Model

The model of the U.S. dairy industry presented here may be divided into three main sectors: retail demand equations; retail price formation relations; and farm output and price determination relations.

Total milk output at the farm level increased steadily from the early postwar years to 1964 when it peaked at 127 billion pounds. This level was achieved in spite of a decline in the dairy cow inventory. The apparent contradiction between falling herd levels and increasing output is reconciled by the increased yield per cow experienced over the postwar period. Yields have increased from 5,314 pounds per cow in 1950 to 11,419 pounds per cow in 1973. The increase in yields is due to several factors including improved sanitary conditions, higher feeding rates, enhanced veterinarian practices, mechanization of the milking process, and perhaps most importantly the change in the herd composition from lower yielding Guernsey breeds to the higher yielding Holsteins. Since the level and breed composition of the dairy cow inventory determine the level of milk output, the specification of the aggregate milk output relation requires a vintage capital production function analysis. In order to capture this vintage effect the following ex post production relation is employed:

\[ TMO_t = f(V_t, HFTC_t, CFTC_t, \lambda_t) \]  

(1)

where \( TMO \) is total milk output, \( HFTC \) is hay fed to cows, \( CFTC \) is concentrates fed to cows, \( \lambda \) is “gradual” technical change, such as better sanitary and veterinary conditions, and \( V \) is given by

\[ V_t = \sum_{i=1}^{5} g_{t-i} DCA_{t-i} \]  

(2)

where \( DCA \) is the number of cows (added to the herd) of the \( t - i \)th vintage and \( g_i \) is the productivity (yield) of that vintage animal. The relation given by (2) leads to consideration of the definition of the dairy cow inventory

\[ DCI_t = DCI_{t-1} + DCA_t - DCS_t \]  

(3)

where \( DCI \) is the dairy cow inventory, \( DCA \) is dairy cow additions, and \( DCS \) is dairy cow slaughter plus dead cows. The useful life of a dairy heifer which has been added to the inventory is about four to five years. Hence, most of the dairy cow slaughter is composed of animals which were added to the herd four to five years ago as well as animals which are slaughtered because farmers are quitting the business plus animals which die on the farm. There is also a price response which affects the time when these depreciated capital items are scrapped. If slaughter (beef) prices are high relative to milk prices, dairy farmers will slaughter more of the older animals than otherwise would be the case. Hence, the specification of the dairy cow slaughter relationship is

\[ DCS_t = f(DCI_t, (PNFC/BPM)_t, UR_t) \]  

(4)

where \( PNFC \) is the slaughter price of dairy cows and \( BPM \) is the blend price of milk. The unemployment rate (\( UR \)) represents the employment opportunities in the nonfarm economy. The demand for dairy cow additions is a standard investment demand relation,

\[ DCA_t = f(DCI_{t-1}, (BPM/FCD)_t) \]  

(5)

where \( FCD \) is the cost variable for dairy farming. The demand for feed consists of two inputs: concentrates (mainly corn and soybean meal) and hay and harvested other roughage. Roughage is generally produced by the dairy farmer and the desired output level depends on herd size and feed requirements, and on the level of concentrates fed. Likewise the demand for concentrates depends on output, level of hay fed and prices of concentrates relative to milk prices.

Retail level demand equations are specified for the six main dairy products: fluid milk, cheese, butter, frozen products, nonfat dry milk, and evaporated and condensed milk. Quantity demanded of each product is a function of the own price, prices of substitutes (e.g., margarine in the case of butter), the overall price level and

\[ \text{Productivity varies over the age of the cow, reaching a maximum at the fourth lactation. For this study, data on the lactation-yield profile were taken from Norman et al. (1974). The overall lactation-yield profile was assumed to grow at 2% per year.} \]
a habit component—represented by the lagged value of consumption.\(^4\) Retail prices for these products are then specified as functions of the prices paid for milk and other dairy and distributing costs (mainly wage rates). Production and consumption are tied together via an identity for each product which says that the quantity produced equals consumption plus military purchases plus U.S. Department of Agriculture (USDA) purchases (for price support purposes) plus the change in stocks plus exports minus imports. The remaining variables to be determined in the model at this point are the prices and quantities of fluid and manufacturing grade milk. As mentioned above, the federal milk marketing order system sets the price for milk eligible for the fluid market equal to the manufacturing grade price plus an administratively determined differential. This differential is taken as exogenous for purposes of the model, or

\[
P_{\text{MEFM}} = P_{\text{MG}} + F_{\text{MOD}}, \quad (6)
\]

where \(P_{\text{MEFM}}\) is the price of milk eligible for the fluid market, \(P_{\text{MG}}\) is the price of manufacturing grade milk, and \(F_{\text{MOD}}\) is the federal milk marketing order differential. The quantity of milk demanded for the fluid market is treated as a function of the total production of fluid milk at the retail level. Discrepancies between the two are due to measurement errors and to fluid grade milk being used for manufacturing purposes. Since the quantity of manufacturing grade milk \(Q_{\text{MG}}\) is determined residually via the relation

\[
Q_{\text{MG}} = T_{\text{M}} - Q_{\text{MEFM}}, \quad (7)
\]

the remaining variable is the price of manufacturing grade milk \(P_{\text{MG}}\). Manufacturing grade milk prices are determined in the large competitive milkshed market of Minnesota and Wisconsin. The model for this competitive adjustment process used here relates the rate of change of prices to the excess demand for manufacturing grade milk. In order to allow for adjustments to equilibrium the final specification is

\[
P_{\text{MG}} = f\left(\frac{L_{\text{MDPQ}}}{Q_{\text{MG}}}\right), \quad (8)
\]

where \(L_{\text{MDPQ}}\) is a Laspeyres index of manufactured dairy product quantities.

The model specified above was estimated by OLS using annual data from 1950-69. The estimated equations, the various identities, and variable definitions, are contained in appendix A. The years 1970-74 were used for a prediction interval test to validate the model. The results of this test are given in appendix B for selected variables. Also of interest in the construction of an econometric model are the impact effects. Appendix C gives the elasticities for selected exogenous variables with respect to the more important endogenous variables.

II. Price Support Costs

As mentioned above, the total cost over the postwar period of the CCC dairy price support program has been $7.048 billion. In order to compute the additional costs to consumers occasioned by higher dairy product prices, the model was first run over the postwar period with all exogenous variables at their actual values.\(^5\) Next, the model was rerun over the same time period, only this time the values of government net removals of butter, cheese, evaporated milk and dry milk were set at zero, i.e., a "free market" solution. In each of these two runs the CPI item index for dairy products was computed for each year. The difference between these two indexes times the relative importance for that year of dairy products in the CPI gives the amount by which the all-items CPI would decrease in the absence of price supports. CPI for all items was computed for each year from 1949 to 1974 in this manner. Next, the CPI was used as a true cost of living index enabling the computation of the welfare loss due to higher dairy prices in dollar terms. This computation involved multiplying the ratio of the two CPI's (with and without the price support) times disposable personal income for that year. The total loss over the 1949-74 period was $3.405 billion. Hence, the total cost of the program over these twenty-six years was $10.453 billion, or an average of $402 million per year. In order to measure the impact of the

\(^4\) This habit component was found to be significant for dairy products in an independent study by Brown and Heien (1972).

\(^5\) All lagged endogenous variables (such as consumption of each of the dairy products) came from the previous period's solution.
federal milk marketing order system, the premium (or differential) for fluid market milk was set equal to zero for each year from 1949 to 1973. This is a somewhat extreme assumption since some (small) differential would presumably remain in order to cover the costs of meeting the more stringent sanitary conditions. The same procedure as outlined above was followed for this case. The resulting costs were $4.558 billion over the entire period, an average of $175 million per year. This figure appears somewhat low in view of other estimates. For example, Roberts (1975, p. 3) reports a conservative estimate of $500 million per year. However, traditional studies have been based on an assumption of inelastic demands for fluid milk. For our estimates here, demand is inelastic in the short-run only. The initial impacts (the first few years) found in the model of a removal of the differential were slightly greater than the $500 million figure. However, as time passes and past price reductions work through the system, demand increases more than proportionately. Also, other studies ignored the impact on the supply side of decreased blend prices on dairy cow additions and hence ultimately on milk output. Furthermore, decreases in fluid prices will (especially in the face of elastic demand) result in higher manufacturing grade prices and hence higher prices for those manufactured dairy products. The prices of these products in turn are an important component of the CPI for dairy products. On the other hand this study ignores other factors such as administrative costs, the effect of reconstituted milk, etc. Also no attempt is made to estimate the cost to consumers of dairy import quotas. For an interesting discussion and estimates of these costs see U.S. Department of Agriculture (1975).

APPENDIX A

BEHAVIORAL RELATIONS

1. Total Milk Output
   \[ TMO = -1098135. + 1.002 \cdot DCI + 604612. \cdot (PNFC/BPM) + 469507. \cdot T - 79651. \cdot UR \]
   \[ (2.48) \quad (1.51) \quad (2.23) \quad (6.56) \quad (1.79) \]
   \[ R^2 = .981 \quad \text{S.E.E.} = 114644500. \quad \text{D.W.} = 1.76 \]

2. Dairy Cow Additions
   \[ DCA = -21108304. + 1.227 \cdot DCI - 37308736. \cdot T \]
   \[ (2.48) \quad (1.51) \]
   \[ R^2 = .981 \quad \text{S.E.E.} = 114644500. \quad \text{D.W.} = 1.76 \]

3. Dairy Cow Slaughter
   \[ DCS = -21316227000. + 2.775 \cdot TMO - 2.136 \cdot HFTC + 2321450500. \cdot (BPM/FCD) \]
   \[ (2.28) \quad (4.29) \quad (5.18) \]
   \[ R^2 = .788 \quad \text{S.E.E.} = 1215324000. \quad \text{D.W.} = 1.36 \]

4. Milk Fed To Calves
   \[ MFTC = 963957760. + 114. \cdot DCI - 37308736. \cdot T \]
   \[ (2.48) \quad (1.51) \]
   \[ R^2 = .981 \quad \text{S.E.E.} = 114644500. \quad \text{D.W.} = 1.76 \]

5. Concentrates Fed To Cows
   \[ CFTC = -21316227000. + 2.775 \cdot TMO - 2.136 \cdot HFTC + 2321450500. \cdot (BPM/FCD) \]
   \[ (2.28) \quad (4.29) \quad (5.18) \]
   \[ R^2 = .788 \quad \text{S.E.E.} = 1215324000. \quad \text{D.W.} = 1.36 \]

* The numbers below the regression coefficients are the t-ratios. The numbers below the t-ratios are the elasticities.
6. Hay and Harvested Roughage Fed To Cows
\[ HFTC = -61782852000. + 1.74 \cdot TMO - 1.544 \cdot CFTC \]
\[ R^2 = .674 \quad \text{S.E.E.} = 4632000000. \quad \text{D.W.} = 1.31 \]

7. Quantity of Milk Eligible for the Fluid Market
\[ (QMEFM/TPFWM) = 1.366 - .0114 \cdot T + .001 T^2 \]
\[ R^2 = .852 \quad \text{S.E.E.} = .036 \quad \text{D.W.} = .61 \]

8. Price of Manufacturing Grade Milk
\[ PMGM = -.456 + .672 \cdot (LIMDPQ/QMGM) + .66 PMGM_{-1} \]
\[ R^2 = .936 \quad \text{S.E.E.} = .16 \quad \text{D.W.} = 1.63 \]

9. Retail Price Index for American Cheese
\[ RPIAC = .043 + .132 PMGM + .147WRDP \]
\[ R^2 = .974 \quad \text{S.E.E.} = .019 \quad \text{D.W.} = 1.11 \]

10. Retail Price Index for Butter
\[ RPIBUT = .393 + .1347 \cdot PMGM + .0173 \cdot WRDP \]
\[ R^2 = .950 \quad \text{S.E.E.} = .0147 \quad \text{D.W.} = .97 \]

11. Retail Price Index for Fluid Milk
\[ RPIFM = .0856 + .0613 PMEFM + .052 \cdot WRFM + .443 RPIG \]
\[ R^2 = .976 \quad \text{S.E.E.} = .013 \quad \text{D.W.} = .88 \]

12. Retail Price Index for Evaporated Milk
\[ RPIE = .208 + .068 \cdot PMGM + .28 \cdot WRDP - .014 \cdot T \]
\[ R^2 = .945 \quad \text{S.E.E.} = .02 \quad \text{D.W.} = 1.07 \]

13. Retail Price Index for Ice Cream
\[ RPIIC = .486 + .019 \cdot PMGM + .224 \cdot WRIC + .304 \cdot RPIG - .0275 \cdot T \]
\[ R^2 = .947 \quad \text{S.E.E.} = .013 \quad \text{D.W.} = .90 \]

14. Retail Price of Dry Milk
\[ RPDM = -17.06 + 4.29 \cdot PMGM + 13.86 \cdot WRFM - 1.09 \cdot T \]
\[ R^2 = .835 \quad \text{S.E.E.} = 1.23 \quad \text{D.W.} = 1.10 \]

15. Civilian Consumption of American Cheese
\[ (CCAC/POP) = 1.68 - 1872.7 ZAC + .873 (CCAC/POP)_{-1} \]
\[ R^2 = .968 \quad \text{S.E.E.} = .22 \quad \text{D.W.} = 2.44 \]

16. Civilian Consumption of Butter
\[ (CCB/POP) = .894 - 4220.7 ZBUT + 4011.8 ZMAR + .824 (CCB/POP)_{-1} \]
\[ R^2 = .958 \quad \text{S.E.E.} = .143 \quad \text{D.W.} = 2.84 \]
17. Civilian Consumption of Fluid Whole Milk

\[
(CCFWM/POP) = -22.5 - 42833.5 ZFM + 76736.6 ZAO + .982 (CCFWM/POP)_{-1}
\]

\[
(\begin{array}{ccc}
(6) & (1.0) & (8.2) \\
.09 & .18 & .99 \\
\end{array})
\]

\[
R^2 = .997 \quad \text{S.E.E.} = 3.60 \quad \text{D.W.} = 1.61
\]

18. Civilian Consumption of Dry Milk

\[
(CCDM/POP) = 8.19 - 176. ZDM - 19973. ZAO + 19076. ZFM \\
(\begin{array}{ccc}
(1.7) & (2.0) & (1.9) \\
.37 & 2.6 & 2.2 \\
\end{array})
\]

\[
+ .184 (CCDM/POP)_{-1}
\]

\[
(\begin{array}{c}
(8) \\
.18 \\
\end{array})
\]

\[
R^2 = .902 \quad \text{S.E.E.} = .372 \quad \text{D.W.} = 2.16
\]

19. Civilian Consumption of Evaporated and Condensed Milk

\[
(CCEACM/POP) = -4.01 - 9661. ZEM + 9840.9 \cdot ZFM + 8755.8 \cdot ZAO \\
(\begin{array}{ccc}
(1.3) & (8) & (7) \\
.40 & .41 & .42 \\
\end{array})
\]

\[
+ .817 (CCEACM/POP)_{-1}
\]

\[
(\begin{array}{c}
(4.5) \\
.86 \\
\end{array})
\]

\[
R^2 = .996 \quad \text{S.E.E.} = .29 \quad \text{D.W.} = 2.56
\]

20. Civilian Consumption of Frozen Products

\[
(CCFP/POP) = 13.92 - 8884.8 ZIC + 15284. ZAO \\
(\begin{array}{cc}
(2.9) & (2.5) \\
.32 & .56 \\
\end{array})
\]

\[
R^2 = .995 \quad \text{S.E.E.} = .28 \quad \text{D.W.} = 2.14
\]

21. Dairy Cow Inventory

\[
DCI = DCL_{-1} + DCA - DCS - .02DCL_{-1}
\]

22. Quantity of Milk Processed

\[
QMP = TMO - MFTC
\]

23. Quantity of Manufacturing Grade Milk

\[
QMGM = TMO - QMEFM
\]

24. Blend Price of Milk

\[
BP\$ = (QMGM \cdot PMGM + PMEFM + QMEFM)/(QMGM + QMEFM)
\]

25. Price of Milk Eligible for Fluid Market

\[
PMEFM = PMGM + FMMOD
\]

26. Total Production of Butter

\[
TPBUT = CCB + XBUT
\]

27. Total Production of Cheese

\[
TPC = CCAC + XC
\]

28. Total Production of Fluid Whole Milk

\[
TPFW = CCFW + XFWM
\]

29. Total Production of Dry Milk

\[
TPDM = CCDM + XDM
\]

30. Total Production of Evaporated and Condensed Milk

\[
TPFM = CCEAC + XEACM
\]

31. Total Production of Frozen Products

\[
TPFP = CCFP
\]

32. Consumer Price Index Dairy Products

\[
CPIDP = .0774 \cdot RPIB + .0933 \cdot RPIAC + .0275 \cdot RPIEM + .1253 \cdot RPIIC \\
+ .0231 \cdot RPDM + .6537 \cdot RPIFM
\]
DAIRY PRICE SUPPORT PROGRAM

LIST OF VARIABLES

BPM — Blend price of milk—USDA
CCB — Civilian consumption of butter—USDA
CCAC — Civilian consumption of American cheese
CCFWM — Civilian consumption of fluid whole milk—USDA
DCA — Dairy cow additions—USDA
DCI — Dairy cow inventory (January 1)—USDA
DCS — Dairy cow slaughter—USDA
FCD — Feed cost dairy = .82 \cdot PC_{1.12} + .18 \cdot PSM/2.8^a
FMMODb — Federal milk marketing order differential—computed from 25
LIMDPQ — Laspeyres index of manufactured dairy product quantities
MFTC — Milk fed to calves—USDA
PAOb — Price index of all nondurables and services less beef, pork and poultry—BLS
PC — Price of corn—USDA
PCENDSb — Personal consumption expenditures on nondurables and services—BEA
PMEFM — Price of milk eligible for fluid market—USDA
PMGM — Price of manufacturing grade milk—USDA
PNFCb — Price of non-fed cattle—USDA
POpb — Population—Census
PRBFDP — Prices received by farmers for dairy products—USDA
PSMb — Price of soybean meal—USDA
QMEFM — Quantity of milk eligible for fluid market—computed from 24
QMGMb — Quantity of manufacturing grade milk—computed from 23
QMP — Quantity of milk consumed—USDA
RPDM — Retail price of dry milk—USDA
RPIAC — Retail price index for American cheese—BLS
RPIBUT — Retail price index for butter—BLS
RPIEM — Retail price index for evaporated milk—BLS
RPIFM — Retail price index for fluid milk—BLS
RPIGb — Retail price index for gasoline—BLS
RPIHC — Retail price index for ice cream—BLS
RPIMb — Retail price index for margarine—BLS
7b — Time trend; 1950 = 1, 1951 = 2.0...
TMO — Total milk output—USDA
TPBUT — Total production of butter—USDA
TPC — Total production of cheese—USDA
TPDM — Total production of dry milk—USDA
TPEA CM — Total production of condensed milk—USDA
TPFP — Total production of frozen products—USDA
TPFWM — Total production of fluid whole milk—USDA
VIN — (11055 \cdot DCA - 12139 \cdot DCA_{-1} - 13250 \cdot DCA_{-2} + 13250 \cdot DCA_{-3}
+ 14000 \cdot DCA_{-4} - 18900 \cdot XR - 420 \cdot XR = DCI - DCA) - DCA_{-1}
+ DCA_{-2} - DCA_{-3} - DCA_{-4}
WRDPb — Wage rate in dairy processing industry—BLS
WRFMb — Wage rate in fluid milk industry—BLS
WRICb — Wage rate in the ice cream industry—BLS
EXBUTb — TPBUT - CCB: consisting of change in commercial stocks, imports, exports, military consumption and USDA net purchases
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$X_C^b$ — $TPC - CCC$
$X_DM^b$ — $TPDM - CCDM$
$X_EACM^b$ — $TPEACM - CCEACM$
$X_FW^b$ — $TPFW - CCFWM$
$ZAC$ — $RPIA/(PCENDS/POP)$
$ZAO$ — $PAO/(PCENDS/POP)$
$Z_BU$ — $RPIBU/(PCENDS/POP)$
$Z_DM$ — $RPDM/(PCENDS/POP)$
$Z_EM$ — $RPIEM/(PCENDS/POP)$
$Z_FM$ — $RPIFM/(PCENDS/POP)$
$Z_IC$ — $RPIIC/(PCENDS/POP)$
$Z_MAR$ — $RPIM/(PCENDS/POP)$


a The ratios of 82% and 18% reflect the historical proportions of corn and soybean meal used in the dairy feed ration.

b Denotes exogenous variable.

APPENDIX B. — PREDICTION INTERVAL TEST — PER CENT CHANGE FOR ACTUAL (A) AND PREDICTED (P) SELECTED ENDOGENOUS VARIABLES: 1970-74

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<td>$DCA$</td>
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<td>-6.4</td>
<td>-8</td>
<td>-6.2</td>
<td>-2.9</td>
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<tr>
<td>$DCS$</td>
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<td>-4.6</td>
<td>-3.0</td>
<td>-3.5</td>
<td>-7</td>
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<tr>
<td>$CPI-DP$</td>
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<td>3.1</td>
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<td>$TMO$</td>
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<td>$BPM$</td>
<td>4.0</td>
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<td>3.4</td>
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<tr>
<td>$CCFWM$</td>
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<td>-4</td>
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</tr>
<tr>
<td>$QMEFM$</td>
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<td>2.9</td>
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APPENDIX C. — SHORT RUN IMPACT ELASTICITIES FOR SELECTED ENDOGENOUS VARIABLES

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<th>$PPCENDS$</th>
<th>$PCENDS$</th>
<th>$XBU$</th>
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<td>0.11</td>
<td>0.03</td>
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<td>0.02</td>
</tr>
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<td>-0.03</td>
<td>0.02</td>
<td>-0.01</td>
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<td>$PMGM$</td>
<td>-0.10</td>
<td>0.40</td>
<td>0.09</td>
<td>-0.05</td>
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<td>0.00</td>
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<td>-0.18</td>
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<td>0.00</td>
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<td>0.08</td>
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</tr>
<tr>
<td>$TPBU$</td>
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<td>-0.02</td>
<td>0.03</td>
<td>0.17</td>
</tr>
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<td>0.05</td>
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REFERENCES


