

\$TITLE Model M10-3: Small open economy model with an Armington
* *formulation.*

\$ONTEXT

	<i>Production Sectors</i>					<i>Consumer</i>	
<i>Markets</i>	<i>X1</i>	<i>X2</i>	<i>E</i>	<i>M</i>	<i>W</i>	<i>CONS</i>	
<i>P1</i>	150		-100	50	-100		
<i>P2</i>		50	-25	75	-100		
<i>PL</i>	-100	-20				120	
<i>PK</i>	-50	-30				80	
<i>PW</i>					200	-200	
<i>PFX</i>			125	-125			

\$OFFTEXT

PARAMETERS

PE2 Export price of good 2,
 PM1 Import price of good 1,
 PE1 Export price of good 1,
 PM2 Import price of good 2,
 TM2 Import tariff for good 2,
 ESUB Armington elasticity of substitution;

```
PE1 = 1;  
PM2 = 1;  
PE2 = 1;  
PM1 = 1;  
TM2 = 0;  
ESUB = 20;
```

```
$ONTEXT
```

```
$MODEL:M10_3
```

```
$SECTORS:
```

```
    X1      ! Production index for good 1  
    X2      ! Production index good 2  
    E1      ! Export index for good 1  
    E2      ! Export index for good 2  
    M1      ! Import index for good 1  
    M2      ! Import index for good 2  
    W       ! Welfare index
```

```
$COMMODITIES:
```

```
    P1      ! Price index for good 1  
    P2      ! Price index for good 1  
    PF1     ! Price index for imported good 1  
    PF2     ! Price index for imported good 2
```

PFX *! Read exchange rate index*
PW *! Welfare price index*
PL *! Wage index*
PK *! Capital rental index*

\$CONSUMERS:

CONS *! Income level for representative agent*

* *Cobb-Douglas production in both sectors:*

\$PROD:X1 s:1

O:P1 *Q:150*
I:PL *Q:100*
I:PK *Q:50*

\$PROD:X2 s:1

O:P2 *Q:50*
I:PL *Q:20*
I:PK *Q:30*

* *We scale the export price for good 1 and the import price*
* *for good 2 to both be unity:*

\$PROD:E1

O:PFX *Q:(PE1*100)*
I:P1 *Q:100*

\$PROD:E2

O:PFX Q:(PE2*25)
I:P2 Q:25

\$PROD:M1

O:PF1 Q:50
I:PFX Q:(PM1*50)

\$PROD:M2

O:PF2 Q:75
I:PFX Q:(PM2*75) A:CONS T:TM2

\$PROD:W s:1 G1:ESUB G2:ESUB

O:PW Q:200
I:P1 Q:50 G1:
I:PF1 Q:50 G1:
I:P2 Q:25 G2:
I:PF2 Q:75 G2:

\$DEMAND:CONS

D:PW Q:200
E:PL Q:120
E:PK Q:80

```
$OFFTEXT  
$SYSINCLUDE mpsgeset M10_3
```

```
PW.FX = 1;
```

```
M10_3.ITERLIM = 0;  
$INCLUDE M10_3.GEN  
SOLVE M10_3 USING MCP;  
M10_3.ITERLIM = 2000;
```

```
TM2 = 0.05;
```

```
$INCLUDE M10_3.GEN  
SOLVE M10_3 USING MCP;
```

```
TM2 = 0.10;
```

```
$INCLUDE M10_3.GEN  
SOLVE M10_3 USING MCP;
```