# A FISCAL IMPACT MODEL FOR MONTGOMERY COUNTY
## PRACTICUM IN PLANNING

by

Du, Zhi-cang

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in

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APPROVED:

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John M. Levy, Chairman
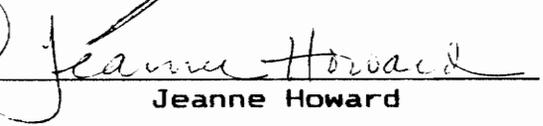
_____          _____
James R. Bohland                              Jeanne Howard

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# ACKNOWLEDGMENTS

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A Fiscal Impact Model for Montgomery County

Practicum in Planning

Du, Zhi-chang


Montgomery County is a community with moderate population growth. Housing development is one of the major components of Montgomery County's growth. As in many other communities, a dominant theme at county planning board meetings concerned with housing development is the potential impact on the school system and county services. Fiscal impact analysis can closely project the direct, current, public costs and revenues associated with residential growth to the County in which growth is taking place.

Fiscal impact analysis is concerned with public (governmental) costs and revenues. It does not consider private costs of public actions. It only projects direct impact, i.e., the primary costs that will be incurred and the immediate revenues that will be generated. In the case of new housing developments, direct costs include the costs to the county resulting from the new development, such as salaries for instructors to teach new students, or for the extra policemen to control traffic at shopping centers. Direct revenues include local attributes (property and sales taxes, charges, and miscellaneous revenue) and state and federal intergovernmental transfer monies generated as a consequence

1

of the specific growth increment.

Fiscal Impact Analysis projects "current" costs and revenues. Current costs and revenues refer to the sum of the financial effects of a planned new development by considering the costs and revenues such development would generate if they were completed and operating today. It should be clear that development often requires several years, and that inflation will increase costs and revenues over time. However, the rising costs of providing public services will be matched by an essentially comparable increase in revenues. This model does not consider the inflation factor. It presumes that the relative relationship of costs and revenues will change little over time.

Fiscal impact analyses are often time-consuming. Planners are typically faced with repeating the entire process should they desire to calculate either variations of a specific proposal or alternative growth strategies. Since most calculations are routine and repetitive, a computer model is often designed to increase the speed of computations. Computerized models can play an important part in applying fiscal impact analysis in Montgomery County. They simplify the tasks of county agencies. They provide quick and sophisticated analysis of a specific development. This project will build a per capita multiplier fiscal impact model which would enable Montgomery County to estimate the potential

additional revenues and additional costs of proposed new residential development. It will be follow two steps: first, project costs with per capita multiplier method; then, project revenues.

## COST PROJECTION

In practice, there are two basic approaches to local government cost allocation: average costing and marginal costing. There are three methods in the average costing approach: Per Capita Multiplier, Service Standard, Proportional Valuation. This model will employ Per Capita Multiplier Method to project development cost to the County.

Per Capita Multiplier Method is a classic average costing approach for projecting the impact of population change on local government and on school district costs and revenues. It relies on detailed demographic information by housing type (total household size and number of school-age children) and the average cost per person and per pupil of county and school district operating expenses to project an annual cost assignable to a particular population change. There are four presumptions in applying this method:

1. current average operating costs per capita and per student are the best estimates of future operating costs

caused by growth.

2. current local service levels are the indicators of future service levels and that they will continue on the same scale in the future.

3. the current composition of the population is similar to that in the future.

4. the current distribution of expenditures among the various sectors of county service will remain constant in the short run and will serve as the primary indicator of the way in which additional expenditures will be subsequently allocated.

This method does not consider existing excess or deficient capacity that might exist for particular services or the possibility that a new development might fall at the threshold level, calling for major new capital construction to accommodate increased growth. It represents ad hoc analysis techniques for estimating the likely cost-revenue impact of different land-use development patterns, based upon recent historical expenditure experience in Montgomery County. It makes use of demographic multipliers to predict the county and school populations that will result from new housing development. The multipliers which describe the two principal users of local services (residents for county services and school age children for school services) are expressed by number of bedrooms in different type of houses. The following

multipliers will be used in the computer model.

Table 1
Demographic Characteristics
South

| Housing type | Total household size | School-age children |
|---|---|---|
| Town-house | | |
| One bedroom | 1.650 | 0.137 |
| two bedrooms | 2.107 | 0.197 |
| Three bedrooms | 2.702 | 0.519 |
| Low-rise Apartments | | |
| One bedroom | 1.445 | 0.044 |
| Two bedrooms | 2.157 | 0.225 |
| Three bedrooms | 3.340 | 0.911 |
| Single Family Homes | | |
| Two bedrooms | 2.375 | 0.276 |
| Three bedrooms | 3.191 | 0.741 |
| Four bedrooms | 3.953 | 1.371 |
| Five bedrooms | 4.664 | 1.903 |
| Mobile Homes | | |
| One bedroom | 2.061 | 0.196 |
| Two bedrooms | 2.391 | 0.249 |
| Three bedrooms | 3.572 | 0.994 |

Source: US Department of Commerce, Bureau of the Census, US
Census of Population and Housing (Public Use Sample),1980.

The multipliers are developed from household surveys.
They are found in the US Census Public Use Samples for
constructed housing. The multipliers are interpreted, for
example, "An average of 2.375 residents and 0.276 school-age
children live in a two-bedroom, single family home in the
South, in which Montgomery County situates. An average of
3.572 residents and 0.994 school-age children are found to
live in three-bedrooms mobile homes in the same area."

New residents generated from development = number of planned housing units * related multiplier

New pupils generated from development = number of planned housing units * related multiplier


If two-bedroom single family homes or three-bedroom mobile homes are proposed to be developed locally, the product of demographic multipliers and the number of forthcoming housing units provides an estimate of the number of new residents and school-age children for whom county and school services must be provided.

When the number, type and configuration of incoming housing units and therefore the magnitude of the new population are known, estimates of public service requirements and costs can easily be projected. The total cost to the county would be equal to per capita and per pupil costs multiplied by the estimates of the population change resulting from growth:


(total educational expenditure / total pupil) * new pupil generated from development + (total non-educational expenditure / total residents) * new residents generated from development

For example, assume that one hundred, two-bedroom single family homes are being considered for Montgomery County. Locally it costs $204.6 per person to provide county (general government, public safety, public works, health/welfare, recreation) services and $4,263.8 per pupil to provide school (primary and secondary education) services (see demographic characteristics provided below). Using the demographic multipliers shown above, one hundred two-bedroom single family homes would, on average, generate 237.5 people (2.375 * 100) and 28 school-age children (0.276 * 100). Multiplying these population estimates by per capita and per pupil servicing costs indicates that roughly $167,978.9 will be the cost to provide public services to the new development ((237.5 * $204.6) plus (28*$4,263.8)).

## REVENUE PROJECTION

Revenues are all monies the County receives from its own sources and from external intergovernmental transfers as a result of the development.

Of its own revenue sources, real property tax is by far the most significant local revenue source. It makes up over 70% of the County's undesignated resources. In this model, revenue from real property is estimated by multiplying the expected assessed value of the new development by the local

real property tax rate:

Total value from new development * real
property tax rate = revenue realized

The expected assessed values of the new development are
to be input from the key board.  The real property tax rate in
Montgomery County (including the school district) is 0.81%.

As population increases, other local taxes, such as the
sales tax and motor vehicle licenses, also increase.  As
general revenues increase, more tax money is available for
investment.  The per capita amount of revenues resulting from
investment, sales and other local taxes remains essentially
the same, however.

(total miscellaneous taxes and interest /
population in the County) * new population
generated from development = revenue realized

Revenues accruing from fees and permits are sometimes
estimated via fees per local dwelling units instead of fees
per capita.  Since none of them amounts to very much money, I
will calculate revenues from various undesignated fees,
permits, and charges together, on a per capita base.

(Total undesignated fees, permits, charges and other miscellaneous / population in the County) * new population generated from development

The County provides water and sewerage services for certain areas. These services are operated by the public service authority, a distinct authority. The net revenue from this source is so small that the general treasury is unaffected.

Intergovernmental transfers are aid from state and federal to local government. The amount of state and federal aid to the County is affected by changes in population, and it is not affected by changes in per capita assessed value. So they are also estimated on a per capita basis.

(transfers from federal and state / total population) * new population

This project is to build a computer model to analyze the impact on the County's fiscal base from different development strategies.

## COMPUTER MODEL

In order to build a computer model, I first contacted the county planning office, the budget commission, the tax office, and the public service authority in the county to get some related demographic and fiscal information in Montgomery County.

Montgomery County has a total population of 72,892, and the public schools in the county serve 8,431 pupils. The county budget shows that in 1989, the County collected total revenue: $50,863,496. Of the total, over $2.5 million came from the federal and $22,7 million from the state government. The rest came from local funds. The County spent $35,948,284 on education, and $14,915,213 on non-education services.

The following summarized information are gathered for the computer model:

Table 2
Montgomery County Demographic and fiscal Characteristics

| | |
|---|---|
| Per Capita service expenditure | $204.6 |
| Per Pupil School expenditure | $4263.8 |
| Per capita federal transfers | $34,3 |
| Per capita state transfers | $311.4 |
| Per capita fees, charges | $21.0 |
| Per capita non-property taxes | $68.9 |
| Property tax rate (including school district) | 0.81% |

With the above theoretical guide lines and the County's demographic characteristics, I approach a basic computer program following the steps in the flow chart (see figure 1):

"Introduction" tells the user what the program is good for;
"Initialization" coded the existing demographical and fiscal
characteristics in the program, which can be changed easily by
following special instructions in the program;  "Input" is the
interface area between the program and the user, which asks
for number, type, and value entry of proposed development;
"Compute" processes data entered by user;  "Output" gives the
user a result: the cost to Montgomery County, the cost to
school district, the revenue the County would receive from the
new development. More detailed program steps are presented in
figures: 2.1, 2.2, 2.3.

# *FLOW CHART*

```
        ╭──────────────╮
        │    BEGIN      │
        ╰──────────────╯
                │
                ▼
        ┌──────────────┐
        │ INTRODUCTION │
        └──────────────┘
                │
                ▼
        ┌──────────────────┐
        │ INITIALIZATION 2.│
        └──────────────────┘
                │
                ▼
        ┌──────────────────┐
        │    INPUT      2│2 │
        └──────────────────┘
                │
                ▼
        ┌──────────────────┐
        │   COMPUTE     2│3 │
        └──────────────────┘
                │
                ▼
        ┌──────────────┐
        │   OUTPUT      │
        └──────────────┘
                │
                ▼
        ╭──────────────╮
        │     END       │
        ╰──────────────╯
```
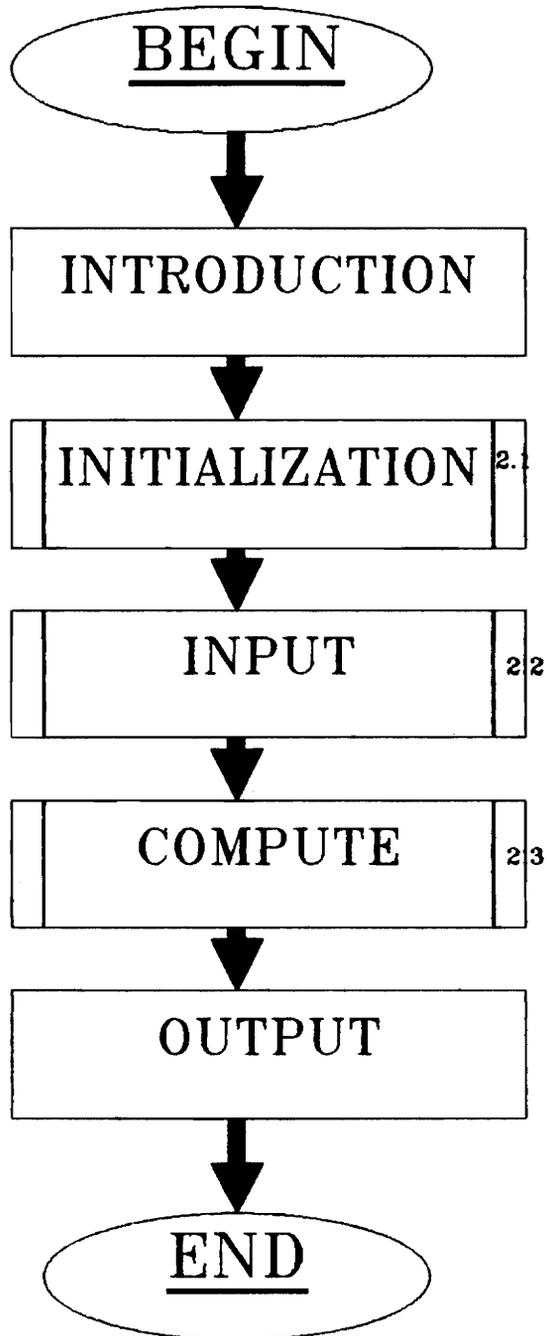
Figure 1. Fiscal Impact Model
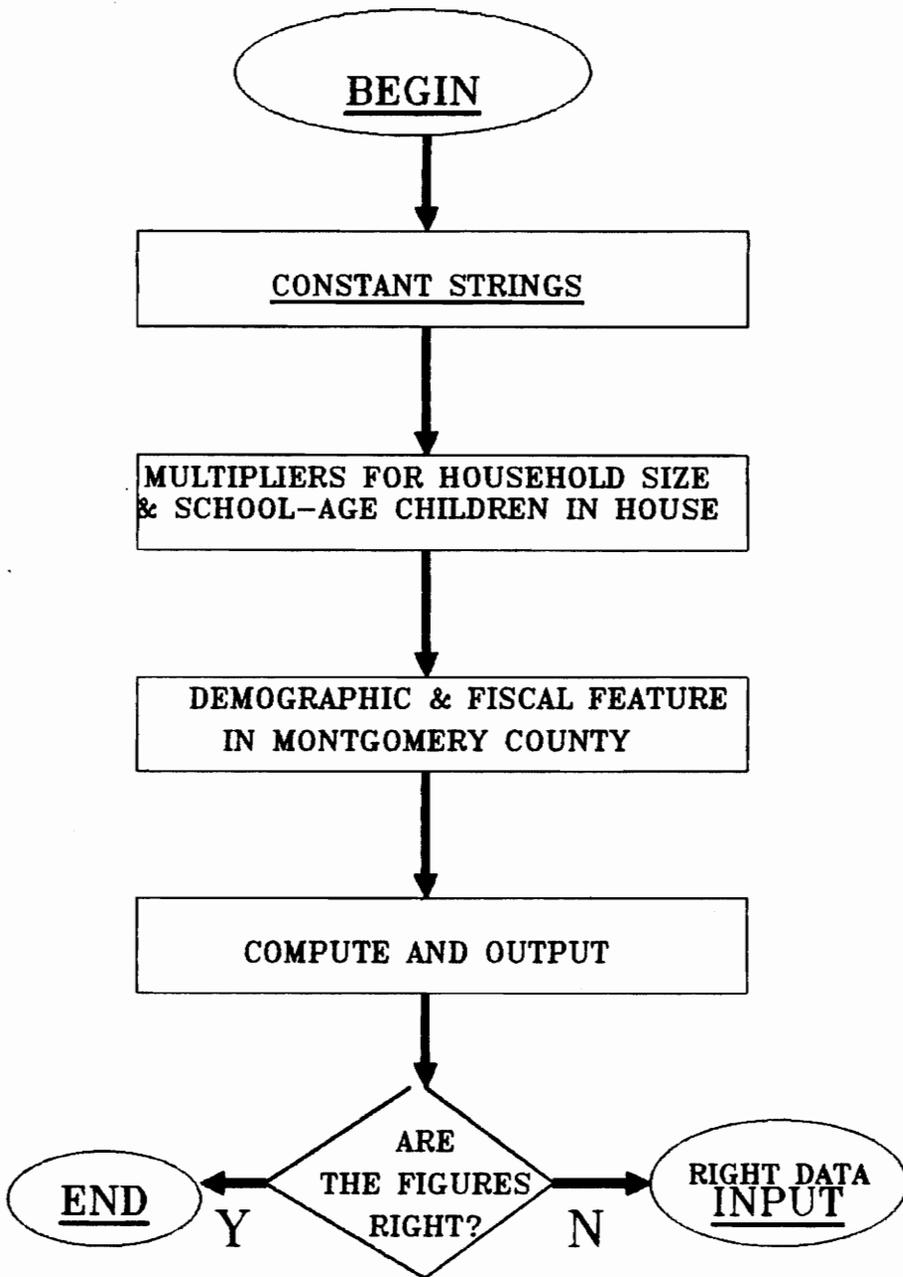
Figure 2.1 Initialization
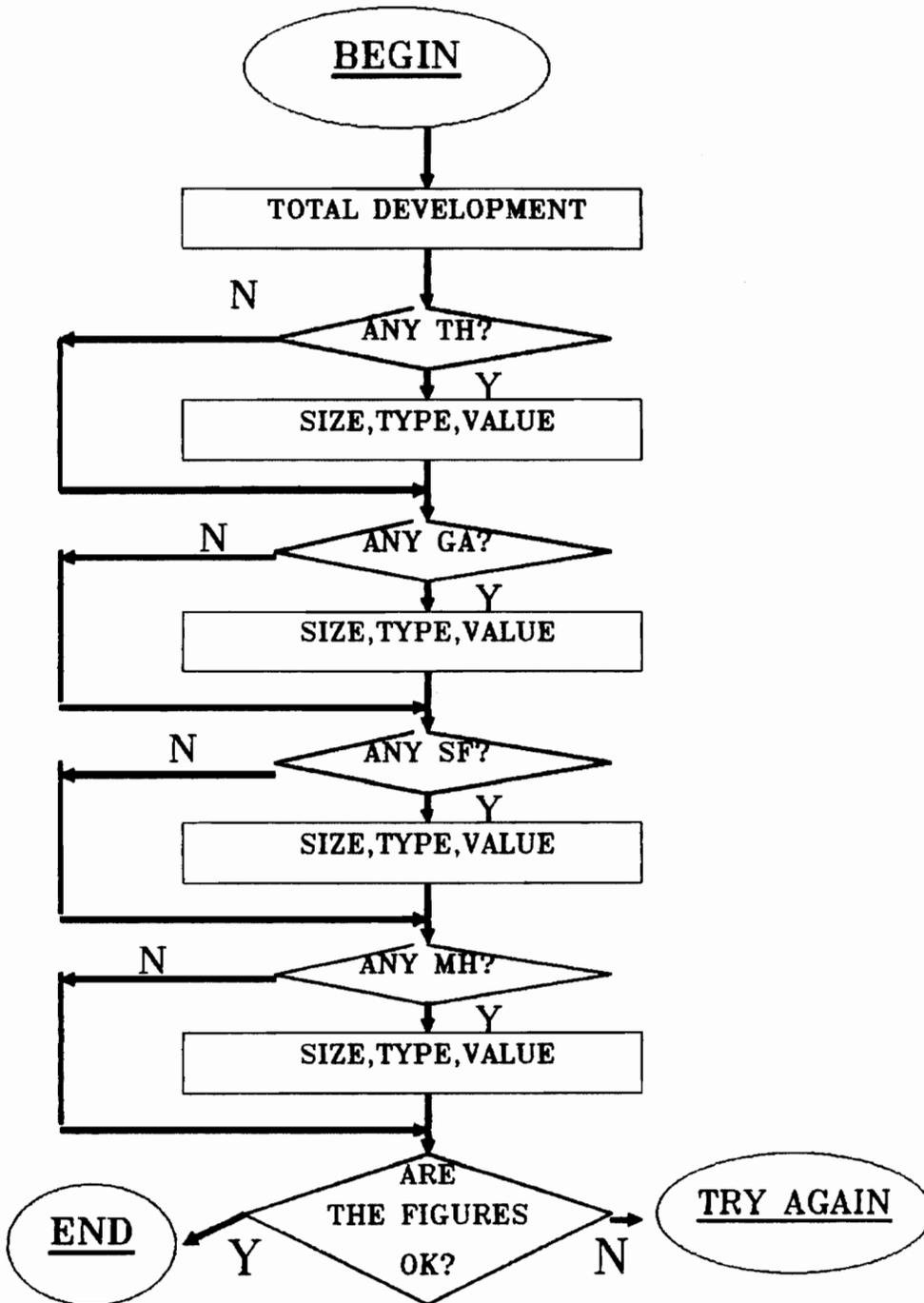
Figure 2.2 Input
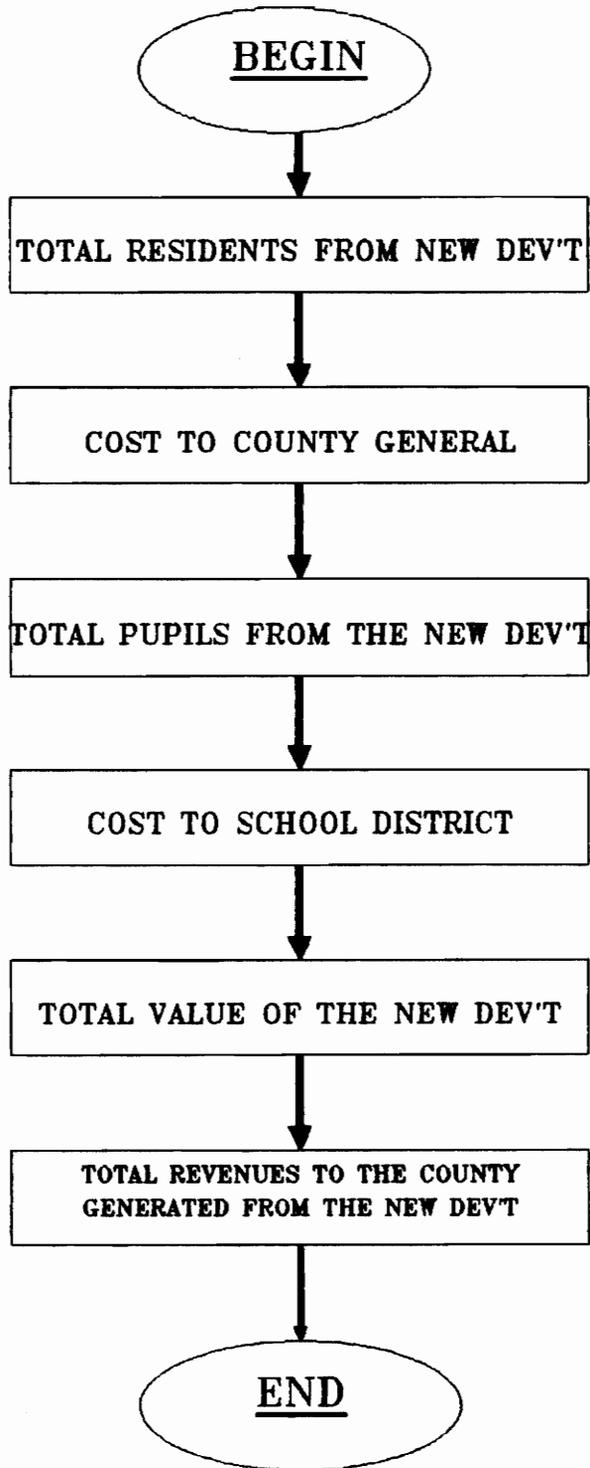
Figure 2.3 Compute

```
10 ' =========   A DEVELOPMENT IMPACT MODEL IN PLANNING   ===========
20 KEY OFF
30 '---********************************************************************
40 '---**PURPOSE: to build a per capita multiplier fiscal impact    **
50 '---**         model which would enable Montgomery County to      **
60 '---**         estimate the potential additional revenues and     **
70 '---**         additional costs of proposed new residential dev't. **
80 '---**                                                             **
90 '---**AUTHOR: DU, Zhi-chang                                        **
100 '--**                                                             **
110 '--**DATE: Dec. 28, 1990                                          **
120 '--*********************************************************************
130 PRINT
140 '--*******************************************************************
150 '--**                 introduction                          **
160 '--*******************************************************************
170 PRINT
180 CLS
190 PRINT "This program is built for Montgomery County."
200 PRINT "It will help a planner to project the impact of"
210 PRINT "a proposed new development on the County's revenue "
220 PRINT "and cost bases."
230 PRINT
240 PRINT "This program requires the input of total number of units of"
250 PRINT "the residential"
260 PRINT "development as proposed. By entering in the Housing types "
270 PRINT "and number of bedrooms, you can get the total cost to the "
280 PRINT "County estimated as a result of the new development"
290 PRINT
300 PRINT "The unit value for each type of house is needed"
310 PRINT "to project  the total revenue the County can generate from "
320 PRINT "the proposed development."
330 PRINT:PRINT:PRINT
340 PRINT "press <enter> to  go on, please."
350 INPUT ENTER
360 CLS
370 '
380 '--******************************************************************
390 '--**                 INITIALIZATION                        **
400 '--******************************************************************
410 '
420 '=========strings========
430 '
440 BEDROOM1$ = "How many one bedroom units"
450 BEDROOM2$ = "How many two bedroom units"
460 BEDROOM3$ = "How many three bedroom units"
470 BEDROOM4$ = "How many four bedroom units"
480 BEDROOM5$ = "How many five bedroom units"
```

```
490 VALUE$ = "What is the value per unit"
500 '
510 '==multipliers from US department of Commence===================
520 '==for computing costs to County for the new development========
530 '
540 ' Note: the following multipliers are stable only for short term
550 ' To get best estimate, a planner need to check the multipliers
560 ' at least every five years, and make justifications
570 '
580 MHTH1 = 1.65       'multiplier = household size for townhouse 1 br
590 MSTH1 = .137 'multiplier = School-age Children for townhouse 1 br
600 MHTH2 = 2.107'multiplier = household size(HHS) for townhouse 2 br
610 MSTH2 =.197                               'SC in townhouse 2 br
620 MHTH3 =2.702              'multiplier = HHS for townhouse 3 bedroom
630 MSTH3 = .519                            'SC in 3 br townhouse
640 MHGA1 = 1.445 'multiplier = HHS for Garden Apartment(GA) 1 bedroom
650 MSGA1 = .044                              'SC for GA 1 br
660 MHGA2 = 2.157              'multiplier = HHS for GA 2 bedroom
670 MSGA2 = .225                              'SC for GA 2 br
680 MHGA3 = 3.34              'multiplier = HHS for GA 3 br
690 MSGA3 = .911                              'SC for GA 3 br
700 MHSF2 = 2.375        'multiplier = HHS for Single-Family (SF) 2 br
710 MSSF2 = .276                              'SC for SF 2 br
720 MHSF3 = 3.191              'multiplier = HHS for SF 3 br
730 MSSF3 = .741                              'SC for SF 3 br
740 MHSF4 = 3.953              'multiplier = HHS for SF 4 br
750 MSSF4 = 1.371                             'SC for SF 4 br
760 MHSF5 = 4.664              'multiplier = HHS for SF 5 br
770 MSSF5 = 1.903                             'SC for SF 5 br
780 MHMH1 = 2.061        'multiplier = HHS for Mobile Homes(MH) 1 br
790 MSMH1 = .196                              'SC for MH 1 br
800 MHMH2 = 2.391              'multiplier = HHS for MH 2 br
810 MSMH2 = .249         ' School-age children for MH 2 br
820 MHMH3 = 3.572              'multiplier = HHS for MH 3 br
830 MSMH3 = .994                              'SC for MH 3 br
840 '
850 '======= figures got from the County =========
860 '======== to help computer cost  =============
870 '
880 POPU = 72892!                         'population in Montgomery County
890 EXPENDNE = 14915213#   'total noneducation expend before new dev't
900 PUPIL = 8431        'pupils in public school before new development
910 EXPENDE = 35948284# 'total educational expenditur before new dev't
920 PTRATE = .81/100    'total property tax rate (schl district & cnty)
930 LNPT =1.102332E+07                       'local non-property taxes
940 LFC = 1527057!      'local fees, charges & misc before development
950 LWS = 615660!                    'local water and sewer charges
960 LDFC = 7779087!              'other local designated fees and charges
```

```
970 SDR = 23993440#                          'school designated resources
980 '
990 AEPCC = EXPENDNE / POPU      'annual expenditure per capita in County
1000 AEPPS = EXPENDE / PUPIL     'annual per pupil expenditure in County
1010 PCTAXES = LNPT / POPU               'per capita nonproperty taxes
1020 PCFC = LFC / POPU            'per capita fees and charges (average)
1030 PPSDR = SDR / PUPIL         'per pupil school designated resources
1040 PCWS = LWS / POPU            'water sewer charges per capita county
1050 PCDR =LDFC / POPU     'other designated resources per capita county
1060 '
1070 PRINT
1080 PRINT "Currently there are ";POPU:" people living in Montgomery"
1090 PRINT "County. The County spend $";EXPENDNE;" to serve residents"
1100 PRINT "in general."
1110 PRINT
1120 PRINT "There are";PUPIL;" pupils studying in public schools which"
1130 PRINT "have an educational expenditure of  $";EXPENDE
1140 '
1150 PRINT
1160 PRINT "Annual expenditure (excluding education) per capita in "
1170 PRINT "County currently is                        $";AEPCC
1180 PRINT "Annual per pupil expenditure in County is  $";AEPPS
1190 '
1200 PRINT
1210 PRINT "The property tax rate in county is  ";PTRATE*100;" percent"
1220 PRINT
1230 PRINT "Per capita non-property taxes is           $";PCTAXES
1240 PRINT "Per capita fees and charges is             $";PCFC
1250 PRINT "Per pupil designated transfers to school is $";PPSDR
1260 PRINT:PRINT
1270 PRINT "Are the figures reasonable ( Y or N )?"
1280 INPUT SCN1$
1290 IF (SCN1$ = "N") OR (SCN1$ = "n") THEN GOSUB 4230
1300 IF (SCN1$="NO") OR (SCN1$="No") OR (SCN1$="no") THEN GOSUB 4230
1310 CLS
1320 '
1330 '--************************************************************
1340 '--**              INPUT                               **
1350 '--************************************************************
1360 '
1370 PRINT
1380 PRINT "How many units are proposed?"
1390 INPUT TRH                               'total residential house
1400 '
1410 PRINT
1420 PRINT "Are there any townhouses proposed (Y or N)"
1430 INPUT CTH$                              'condition on townhouse
1440 IF (CTH$ = "Y") OR (CTH$ = "y") THEN GOSUB 3210
```

```
1450 '
1460 PRINT
1470 PRINT "Are there any low-rise apartments proposed (Y or N)"
1480 INPUT CGA$                                          'condition
1490 IF (CGA$ = "Y") OR (CGA$ = "y") THEN GOSUB 3450
1500 '
1510 PRINT
1520 PRINT "Are there any Single-Family Homes proposed (Y or N)"
1530 INPUT CSF$                                          'condition
1540 IF (CSF$ = "Y") OR (CSF$ = "y") THEN GOSUB 3690
1550 '
1560 PRINT
1570 PRINT "Are there any Mobile Homes proposed (Y or N)"
1580 INPUT CMH$                                          'condition
1590 IF (CMH$ = "Y") OR (CMH$ = "y") THEN GOSUB 3980
1600 '
1610 '===========a little reminder===============
1620 '
1630 PRINT:PRINT
1640 PRINT "The total units you input is ",TRH
1650 PRINT "among them there are ";NTH;" units of townhouse"
1660 PRINT NGA;" low-rise apartments ";NMH;" units of mobile homes"
1670 PRINT "and ";NSF;" single-family homes."
1680 PRINT:PRINT:PRINT
1690 PRINT "Are the figures right (Y or N)?"
1700 INPUT SCN2$
1710 IF (SCN2$="N") OR (SCN2$="n") THEN GOSUB 4580
1720 PRINT
1730 CLS
1740 '
1750 '--*********************************************************
1760 '--**             COMPUTE POTENTIAL COSTS                **
1770 '--**               TO THE COUNTY                        **
1780 '--*********************************************************
1790 '
1800 '========== RESIDENTS =====================================
1810 '
1820 TRTH1 = MHTH1 * NTH1           'total residents in one br townhouse
1830 TRTH2 = MHTH2 * NTH2           'total residents in 2 br townhouse
1840 TRTH3 = MHTH3 * NTH3           'total residents in 3 br townhouse
1850 '
1860 TRTH =TRTH1 + TRTH2 + TRTH3         'total residents in townhouse
1870 '
1880 TRGA1 = MHGA1 * NGA1  'total residents (TR) in 1 br Apartment(GA)
1890 TRGA2 = MHGA2 * NGA2                              'TR in 2 br GA
1900 TRGA3 = MHGA3 * NGA3                              'TR in 3 br GA
1910 '
1920 TRGA =TRGA1 +TRGA2 + TRGA3                         'TR in GA
```

```
1930 '
1940 TRSF2 =MHSF2 * NSF2              'TR in 2 br Single-Family(SF) homes
1950 TRSF3 = MHSF3 * NSF3                          'TR in 3 br SF
1960 TRSF4 = MHSF4 * NSF4                          'TR in 4 br SF
1970 TRSF5 =MHSF5 * NSF5                           'TR in 5 br SF
1980 '
1990 TRSF = TRSF2 + TRSF3 + TRSF4 +TRSF5                  'TR in SF
2000 '
2010 TRMH1 =MHMH1 * NMH1               'TR in 1 br Mobile Homes (MH)
2020 TRMH2 = MHMH2* NMH2                           'TR in 2 br MH
2030 TRMH3 = MHMH3 * NMH3                          'TR in 3 br MH
2040 '
2050 TRMH = TRMH1 + TRMH2 + TRMH3                        'TR in MH
2060 '
2070 '
2080 TRND = TRMH + TRSF + TRGA + TRTH          'TR in new development
2090 '
2100 TAEM = TRND * AEPCC * 98/100      'total annual expenditure county
2110                                              'with 2% vaccuncy
2120 '
2130 '============== SCHOOL-AGE CHILDREN  ==============================
2140 '
2150 TSTH1 =MSTH1 * NTH1  'total school-age children in 1 br townhouse
2160 TSTH2 = MSTH2 * NTH2   'TSC (total school-age children in 2 br th
2170 TSTH3 = MSTH3 * NTH3                     'TSC in 3 br townhouse
2180 '
2190 TSTH = TSTH1 + TSTH2 + TSTH3                 'TSC in townhouse
2200 '
2210 TSGA1 = MSGA1 * NGA1          'TSC in 1 br Garden Apartment (GA)
2220 TSGA2 = MSGA2 * NGA2                        'TSC in 2 br GA
2230 TSGA3 = MSGA3 * NGA3                        'TSC in 3 br GA
2240 '
2250 TSGA = TSGA1 + TSGA2 + TSGA3                      'TSC in GA
2260 '
2270 TSSF2 = MSSF2 * NSF2        'TSC in 2 br Single-Family (SF) homes
2280 TSSF3 = MSSF3 * NSF3                         'TSC in 3 br SF
2290 TSSF4 = MSSF4 * NSF4                         'TSC in 4 br SF
2300 TSSF5 = MSSF5 * NSF5                         'TSC in 5 br SF
2310 '
2320 TSSF = TSSF2 + TSSF3 + TSSF4 + TSSF5             'TSC in SF
2330 '
2340 TSMH1 = MSTH1 * NMH1              'TSC in 1 br Mobile Homes (MH)
2350 TSMH2 = MSTH2 * NMH2                        'TSC in 2 br MH
2360 TSMH3 = MSTH3 * NMH3                        'TSC in 3 br MH
2370 '
2380 TSMH = TSMH1 + TSMH2 + TSMH3                    'TSC in MH
2390 '
2400 '
```

```
2410 TSND = TSMH + TSSF + TSGA + TSTH        'total school-age children
2420                                         'in new development
2430 '
2440 TAES = TSND * AEPPS * 98/100  'total annual expenditure in school
2450                                         'district with 2% vaccuncy
2460 '
2470 '================== Grand total  =============
2480 '
2490 TOTALCOST = TAEM + TAES         'total cost to county induced by the
2500                                         'new development
2510 '
2520 '==========output for costs=====================================
2530 '
2540 PRINT:PRINT
2550 PRINT "The new development will house";TRND;" more people for the"
2560 PRINT "county, and it will add about";TSND;" school-age children"
2570 PRINT "to the school district. It will cost the county about "
2580 PRINT "$";TOTALCOST;" to maintain new development with the same"
2590 PRINT "service standard as pre-development."
2600 PRINT
2610 PRINT "Total cost:       $";TOTALCOST
2620 PRINT "$"; TAEM;   for non-education
2630 PRINT "$"; TAES; " for public education"
2640 '
2650 '
2660 '--+*****************************************************************
2670 '--**     estimate the total value of new development        **
2680 '--+*****************************************************************
2690 '
2700 TVTH1 = VTH1 * NTH1             'total value of 1 br townhouse (TH)
2710 TVTH2 = VTH2 * NTH2                     'total value of 2 br TH
2720 TVTH3 = VTH3 * NTH3                   'total value (TV) of 3 br TH
2730 '
2740 TVTH = TVTH1 + TVTH2 + TVTH3                        'TV of TH
2750 '
2760 TVGA1 = VGA1 * NGA1     'total value of 1 br Garden Apartment (GA)
2770 TVGA2 = VGA2 * NGA2                          'TV of 2 br GA
2780 TVGA3 = VGA3 * NGA3                          'TV of 3 br GA
2790 '
2800 TVGA = TVGA1 + TVGA2 + TVGA3                     'TV of GA
2810 '
2820 TVSF2 = VSF2 * NSF2   'total value of 2 br single-family(SF) homes
2830 TVSF3 = VSF3 * NSF3                          'TV of 3 br SF
2840 TVSF4 = VSF4 * NSF4                          'TV of 4 br SF
2850 TVSF5 = VSF5 * NSF5                          'TV of 5 br SF
2860 '
2870 TVSF = TVSF2 + TVSF3 + TVSF4 + TVSF5              'TV of SF
2880 '
```

```
2890 TVMH1 = VMH1 * NMH1            'total value of 1 br mobile homes(MH)
2900 TVMH2 = VMH2 * NMH2                      'total value of 2 br MH
2910 TVMH3 = VMH3 * NMH3                              'TV of 3 br MH
2920 '
2930 TVMH = TVMH1 + TVMH2 + TVMH3                          'TV of MH
2940 '
2950 TVND = TVTH + TVGA + TVSF + TVMH  'total value of new development
2960 '
2970 '================== revenues estimated ==========================
2980 '
2990 TNPTAX = TVND * PTRATE                   'total new property taxes
3000 OLTAXES = TRND * PCTAXES        'other local taxes from new dev't
3010 TNFC = TRND * PCFC           'total new generated fees and charges
3020 NSDR = TSND * PPSDR            'new designated resources to school
3030 NWS = TRND * PCWS           'new water and sewer charges from dev't
3040 NDR = TRND * PCDR            'new designated resources from dev't
3050 '
3060 TREVENUE = TNPTAX+OLTAXES+TNFC+NSDR+NWS+NDR          'total revenue
3070                                    'generated from new development.
3080 '
3090 '================= revenue output  ============================
3100 '
3110 PRINT:PRINT
3120 PRINT "Including transfers from federal and state governments, "
3130 PRINT "the new development will generate gross revenue for the "
3140 PRINT "County by $";TREVENUE
3150 PRINT
3160 PRINT "Comparing with the cost $";TOTALCOST
3170 PRINT "the new development will have an net impact on the"
3180 PRINT "County's fiscal base by $";TREVENUE-TOTALCOST
3190 KEY ON
3200 END
3210 '
3220 '--***************************************************************
3230 '--**       SUBROUTINE FOR TOWNHOUSE INPUT                    **
3240 '--***************************************************************
3250 '
3260 PRINT "How many units of townhouses?"
3270 INPUT NTH                                    'units of townhouses
3280 '
3290 PRINT "How many one bedroom"
3300 INPUT NTH1                        'number of townhouse 1 bedroom
3310 PRINT "What is the value per unit"
3320 INPUT VTH1                               'value of townhouse 1 br
3330 '
3340 PRINT "how many two-bedroom townhouse units"
3350 INPUT NTH2                                    'number of 2 br unit
3360 PRINT "What is the value per unit"
```

```
3370 INPUT VTH2                                    ' value of 2 br unit
3380 '
3390 PRINT BEDROOM3$
3400 INPUT NTH3                                    'number of 3 br unit
3410 PRINT VALUE$
3420 INPUT VTH3                                    'value of 3 br unit
3430 '
3440 RETURN
3450 '
3460 '--************************************************************
3470 '--**        SUBROUTINE FOR LOW-RISE APARTMENT INPUT        **
3480 '--************************************************************
3490 '
3500 PRINT "How many units of low-rise apartments?"
3510 INPUT NGA                          'units of low-rise apartments
3520 '
3530 PRINT BEDROOM1$
3540 INPUT NGA1              'number of 1 bedroom low-rise apartment
3550 PRINT VALUE$
3560 INPUT VGA1
3570 '
3580 PRINT BEDROOM2$
3590 INPUT NGA2                                    '# of 2 br GA
3600 PRINT VALUE$
3610 INPUT VGA2                      'value per 2 br low-rise apartment
3620 '
3630 PRINT BEDROOM3$
3640 INPUT NGA3                        '# of 3 br low-rise apartment
3650 PRINT VALUE$
3660 INPUT VGA3                      'value per 3 br low-rise apartment
3670 '
3680 RETURN
3690 '
3700 '--************************************************************
3710 '--**        SUBROUTINE FOR SINGLE-FAMILY HOME INPUT        **
3720 '--************************************************************
3730 '
3740 PRINT "How many units of Single-Family Homes"
3750 INPUT NSF                          'units of single-family homes
3760 '
3770 PRINT BEDROOM2$
3780 INPUT NSF2                        '# of single-family 2 br homes
3790 PRINT VALUE$
3800 INPUT VSF2                      'value per single-family 2 br unit
3810 '
3820 PRINT BEDROOM3$
3830 INPUT NSF3                              '# of SF 3 br homes
3840 PRINT VALUE$
```

```
3850 INPUT VSF3                      'value per single-family 3 br unit
3860 '
3870 PRINT BEDROOM4$
3880 INPUT NSF4                                '# of SF 4 br homes
3890 PRINT VALUE$
3900 INPUT VSF4                      'value per single-family 4 br homes
3910 '
3920 PRINT BEDROOM5$
3930 INPUT NSF5                      '# of Single-family 5 bedroom homes
3940 PRINT VALUE$
3950 INPUT VSF5                      'value per single-family 5 br home
3960 '
3970 RETURN
3980 '
3990 '--*********************************************************
4000 '--**      SUBROUTINE FOR MOBILE HOMES INPUT             **
4010 '--*********************************************************
4020 '
4030 PRINT "How many units of Mobile Homes are proposed"
4040 INPUT NMH
4050 '
4060 PRINT BEDROOM1$
4070 INPUT NMH1                              '# of 1 br mobile homes
4080 PRINT VALUE$
4090 INPUT VMH1                             'value per 1 br mobile home
4100 '
4110 PRINT BEDROOM2$
4120 INPUT NMH2                              '# of 2 br mobile homes
4130 PRINT VALUE$
4140 INPUT VMH2                             'value per 2 br mobile home
4150 '
4160 PRINT BEDROOM3$
4170 INPUT NMH3                              '# of 3 br mobile homes
4180 PRINT VALUE$
4190 INPUT VMH3                             'value per 3 br mobile home
4200 '
4210 RETURN
4220 '
4230 '--*********************************************************
4240 '--**      subroutine for re-initialization             **
4250 '--*********************************************************
4260 '
4270 PRINT:PRINT:PRINT
4280 PRINT "Do you want to re-initialize the above figures (Y or N)?"
4290 INPUT ANRI$
4300 IF (ANRI$ = "N") OR (ANRI$ = "n") THEN RETURN
4310 IF (ANRI$="NO") OR (ANRI$="No") OR (ANRI$="no") THEN RETURN
4320 PRINT "What is the per capita annual expenditure (County)?"
```

```
4330 INPUT AEPCC
4340 PRINT "What is the per pupil expenditure (School)?"
4350 INPUT AEPPS
4360 PRINT "What is the property tax rate in percentage in county?"
4370 INPUT REPTRATE
4380 PTRATE = REPTRATE / 100
4390 PRINT "What is the per pupil designated transfers to school?"
4400 INPUT PPSDR
4410 PRINT "What is the per capita fees and charges?"
4420 INPUT PCFC
4430 PRINT "How much non-real-property taxes per capita"
4440 PRINT "does the County get?"
4450 INPUT PCTAXES
4460 PRINT:PRINT
4470 PRINT "You entered:"
4480 PRINT "$"AEPCC:" per capita;"
4490 PRINT "$" AEPPS; " per pupil expenditure:"
4500 PRINT REPTRATE;" percent property tax in county; "
4510 PRINT "$"PPSDR; " per pupil transfers to school (designated)"
4520 PRINT "$"PCTAXES;" per capita non-real-property taxes to county"
4530 PRINT:PRINT
4540 PRINT "Are these figures right (Y or N)?"
4550 INPUT RTR$
4560 IF (RTR$ = "N") OR (RTR$ = "n") THEN GOTO 4320
4570 RETURN
4580 '
4590 '--***********************************************************
4600 '--**     subroutine for re-input                        **
4610 '--***********************************************************
4620 '
4630 PRINT:PRINT:PRINT
4640 PRINT "Do you want to reter your data?"
4650 INPUT RRT$
4660 IF (RRT$="Y") OR (RRT$="y") THEN GOTO 1370
4670 RETURN
4680 '
4690 '===================END===========================
4700 END
```

## STEPS TO RUN THE PROGRAM

1. Turn on an IBM or compatible computer.

2. Put disk provided in drive A.

3. Type "A:", press <enter> to enact drive A.

4. Type "GWBASIC", press <enter> to get into basic program.

5. Type "LOAD DUPRAC.BAS", press <enter> to load the program.

6. After see "OK" on the screen, type "LIST", press <enter> to check if the program is installed.

7. Type "RUN", press <enter> to run the program.

8. Follow the instructions on the screen closely.

9. Print output on the screen by pressing <print screen>.

10. End or start again.


Notes: Computer programs are very dumb. To run a program, you have to follow the instructions very, very closely. Otherwise, it will not run properly. For example, the instruction ask you to enter "Y", a capital letter, for "yes", if you enter "y", a lower letter, you may not get what you want.

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# REFERENCE

Robert W. Burchell, David Listokin, William R. Dolphin THE NEW PRACTITIONER'S GUIDE TO FISCAL IMPACT ANALYSIS, 1985.

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