Community College Enrollment Projections

Update and Input Session

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Overview

- Purpose is to provide recommendations for producing enrollment projections that can be used to determine capital outlay funding.
- Specific recommendations
- Technically sound
- Sample analyses for five districts
- Feasible given limited CO resources
Review of Other Models:
Maryland Higher Education Commission

- Historical population data
- Ratio of in-state to out of state students is consistent over time
- High school graduates
- Community college enrollments (for predicting university enrollments)
- Tuition changes
- Per-capita disposable income
- Historical non-credit enrollments and population age 20 + for non-credit enrollment forecasting
Review of Other Models: CSU Philip Garcia/ CPEC

- Persistence and graduation rates
- Scenarios with baseline and mid-range
- Enrollment demand vs. projection
- Population by age and ethnicity
- Regression model for participation rates
- Enrollment demand = participation rate x population projection
- FTES Capacity
Review of Other Models: CSU Philip Garcia/ CPEC

- Qualified prospective students + continuing students
- Headcount by age and ethnicity
- Historical population estimates by age and ethnicity
- Student fees
Review of Other Models:
Iowa Fall Enrollment Report

- Time series model / ARIMA
- Economic factors: GPD and unemployment rate
- Scenarios
- Prior year enrollment
- High school enrollment
- High school seniors and graduates
Review of Other Models:
Texas Higher Education Coordinating Board

- Regression model
- Enrollment history
- Population projections
- Age/race participation rates for five years
- Multiple forecasts
- Out-of-state enrollments added after in-state enrollments
Review of Other Models: Washington State

- Age
- County population
- Participation rate
- Unemployment rate (county vs. state)
Review of Other Models: Washington State

- Age
- County population
- Participation rate
- Unemployment rate (county vs. state)
Review of Other Models: CSU

• Spring enrollment of prior year
• Continuing enrollment (spring less grads and predicted drop outs)
• New students from applications for fall
• Add winter and spring based on historical proportions
• Convert headcount to FTES
Review of Other Models: CSU

• Long-term forecasts
  – High school graduates
  – Population by age
  – Historical participation rates
Issues Being Considered

• Data Sources
• Definition of district services area
  – Zip codes of actual students
  – Political boundaries
• Granularity
  – County
  – Zip code
  – Census track
Issues Being Considered

• Variables to Include
  – WSCH history
  – 2000, 2005 to 2010, and 2015 (projected)

Population data by
• Age,
• Ethnicity,
• Gender,
• Employment status,
• Educational attainment, and
• Poverty.

– HS Graduates
– Funded Growth
Issues Being Considered

• Allowing districts to use a menu
  – Select salient variables
  – Vary weights
  – Use different methods for combining
  – No Gaming
    • Fixed menu of choices
    • No Changes for 5 years
    • Auditable by preselected sources
Current CCCCPO Procedure

• Multiple regression run annually using:
• Fall unduplicated headcount (STD7=A,B,C,F)
• DOF county adult population projections
• Estimated student cost of attendance from Student Expenses and Resources Survey (SEARS)
• Enrollment fees
• Estimated district budgets
• Proposition 13 dummy variable
Previous Recommendations

• Explored expanded set of variables and multiple models including stepwise regression and ARIMA
• More geographic granularity
• Objectively incorporate local factors
• Segment projection by important demographics
• Use confidence intervals
- County adult population (Census 2000)
- HS Grads for district area (& capture rate)
- Fees
- Current and historical enrollment
- % FTES by Transfer/B.S./CDC-Basic Credit/College
- Age groups
- Apportionment growth cap
- Cap/Load ratio
- College operating budgets (adjusted by C.P.I.)
- Dummy variables for outliers / poor fit districts / x-factors
- Enrollment impaction / Redirected students
- Local County Data
- Participation rates
- Population characteristics by zip code or census tract
- Population density within district
- Sears cost of enrollment (Student Aid Commission report)
- Unemployment by county
- WSCH/Enrollment
Final Equation

WSCH=county popn + hs grads + fees + time
Stepwise Regression with 90% Confidence Intervals

WSCH = County Popn + Fees (R-square=0.93)
Gavilan WSCH Projections

- ARIMA
- Stepwise Regression
- CCCC CO Regression

Year 2004 to 2007 with projections for different regression models.
GIS and Projections

• CCC GIS Description and Demonstration
• Student flow analysis at Gavilan College
Santa Monica
Community College District (SMCCD)
Los Angeles County, California

The bold lines define the legal district boundary of SMCCD, as determined in Los Angeles by the County Department of Education.

Shaded regions (service areas) represent US postal zip codes in Los Angeles County, CA, with darker orange areas having higher student participation rates at Santa Monica City College.
Current Project

• Received data by zip from Claritas
• Pulling enrollments by zip
• Beginning modeling process
• Test simple and disaggregated models
  – Compare R-squares
  – Provide confidence intervals
  – Most parsimonious = all zip codes combined, single ethnicity variable, 5 to 30 variables
  – Most disaggregated = each service area zip disaggregated by ethnicity, gender, and age, etc. over 700 variables
Mean Enrollments Per Zip Code Per Fall Term

- In Legal Boundary and Service Area: 500
- In Service Area but not Legal Boundary: 100
- In Legal Boundary but not Service Area: 10
- Not in Legal Boundary or Service Area: 5

CAIR Conference | San Diego | 2010 | www.rpgroup.org
Input

- Suggestions
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