



Economic Model

Director Costing Service (D Cost S-Economics)



INFLATION IMPACT ON DND FINANCES

Direct

ECONOMY

Inflation

Exchange Rates

Energy Prices

Economy & DND

**DND BUDGET /
EXPENDITURES**

Indirect

ECONOMY

*Real GDP
Growth*

GDP Inflation

Interest Rates

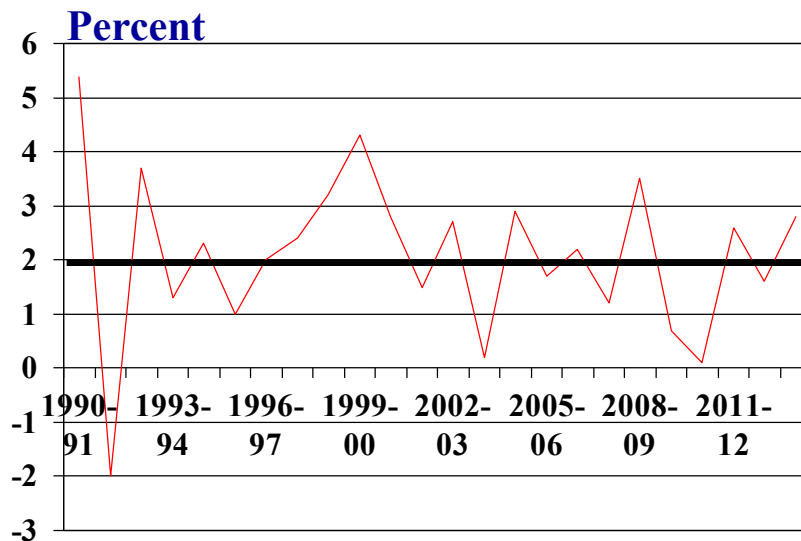


Defence Resource Allocation

DND Challenges – Inflation

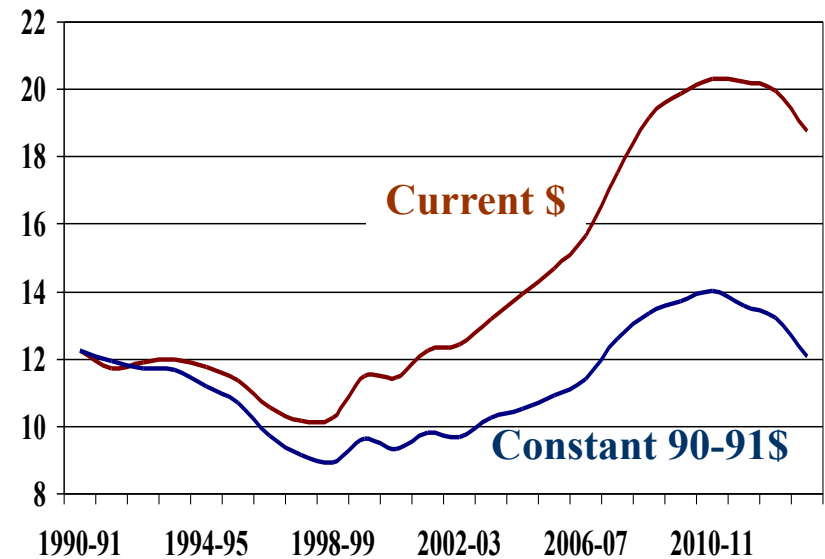
- Inflation ⇒ Loss of purchasing power if not compensated for

Defence Specific Inflation (Economic Model)



Defence Expenditures and Inflation

Billion \$





Defence Resource Allocation

DND Challenges – Inflation

- What causes Defence Specific Inflation?
 - *Market Imperfection*
 - *Basket of Goods differential*
 - *Foreign price changes,*
 - *Foreign exchange (% of project in foreign currency)*
 - *Lack of substitution*

- **Warning:** Inflation does not explain all of the costs increase. Other factors at play such as scope, military specifications, technological changes ...



DND Economic Model (FM)

Analysis & Forecast

Set DND Consumption Basket

Expenditures = Weights

- *Domestic*
- *Foreign*

Source: Defence Resource Management Information System (DRMIS)

Analysis Model Components

- DND Wages (Civ + Mil)
- Domestic Inflation
- Foreign Inflation
- Currencies Fluctuations
- Forecast from Conference Board Macroeconometric model

“EM Program”

Computes specific DND inflation rates by applying weights to inflation and currencies fluctuation rates

EM Publication Output

Section 7:
Inflation rates by GL



- Section 4: Funds
- Section 5: Standard Objects & DSI
- Section 6: Tailored Models



EM Indicators

- Price indices used for the EM are called indicators
- There are two groups of indicators: domestic and foreign
- There are 234 domestic indicators and 40 foreign indicators in the EM
- Domestic indicators are primarily components of the consumer price index, producer index and earnings and wages indices
- Foreign indicators are the GDP deflators and total CPI or PPI of other countries



TO GL Inflation rates from CANSIM

GL	Indicator	Weight	Inf_Yr1	Inf_Yr2	Inf_Yr3	Inf_Yr4	Inf_Yr5	Inf_Yr6	Inf_Outyear
04404	CUSEMGNS Medical Eqpt & Sup	0.2466	0.3	0.4	1.2	1.0	1.2	1.1	1.0
04404	EUR CPI	0.0086	1.4	1.5	1.9	2.0	1.9	2.0	2.0
04404	US CPI	0.0036	2.3	2.3	2.4	2.4	2.5	2.5	2.7
04404	v1604112 W&S - General m	0.2702	3.8	2.4	3.0	2.7	2.5	2.2	2.4
04404	v1606093 W&S - Health ca	0.4711	3.7	2.8	3.3	3.0	2.7	2.5	2.5
04404 Total		1.0000	3.0	2.1	2.7	2.4	2.3	2.1	2.1



Forecasting Indicator

- Domestic indicators are forecasted using aggregated indices as independent variables
- Forecasts of these independent variables are obtained from Conference Board of Canada and IHS Global Insight
- Forecasted inflation rates of foreign indicators are adjusted for exchange rate variation

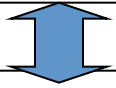


Several formulations were tested in order to relate Cansim Indicators to CoB Aggregated variables

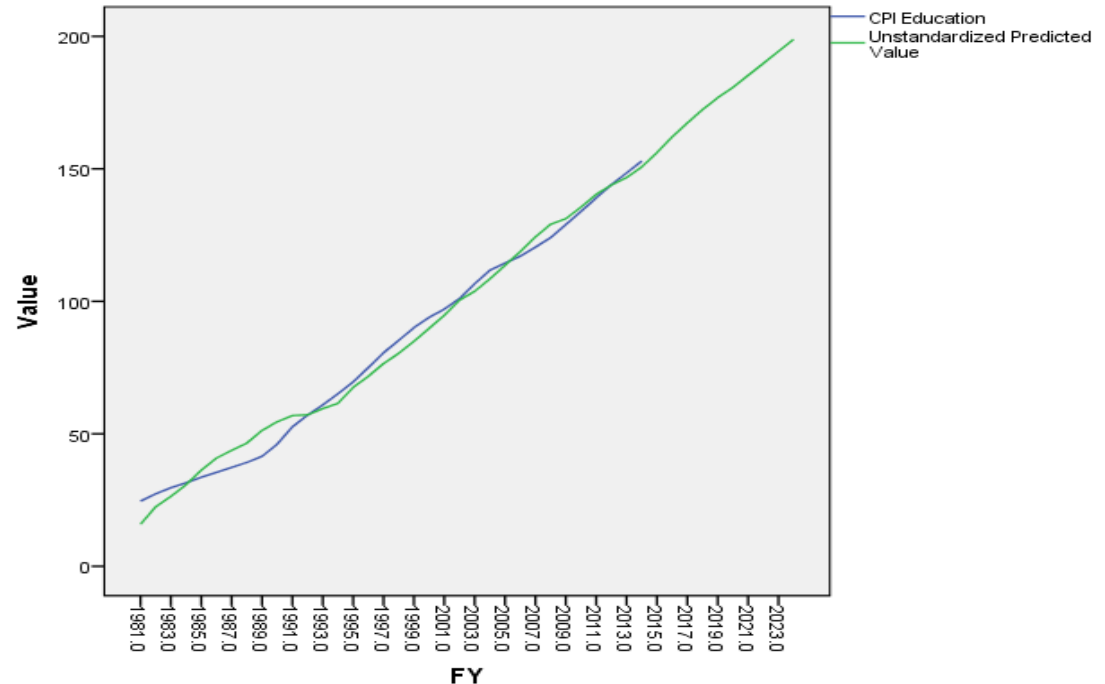
GL 4305: Education Expenses (Training, Tuition fees, exam, etc)



Statistics Canada Indicator
V41691198: Education



CBOC, Aggregate Indicator
CPI, education, health and other personal services



EM: Construction Sector

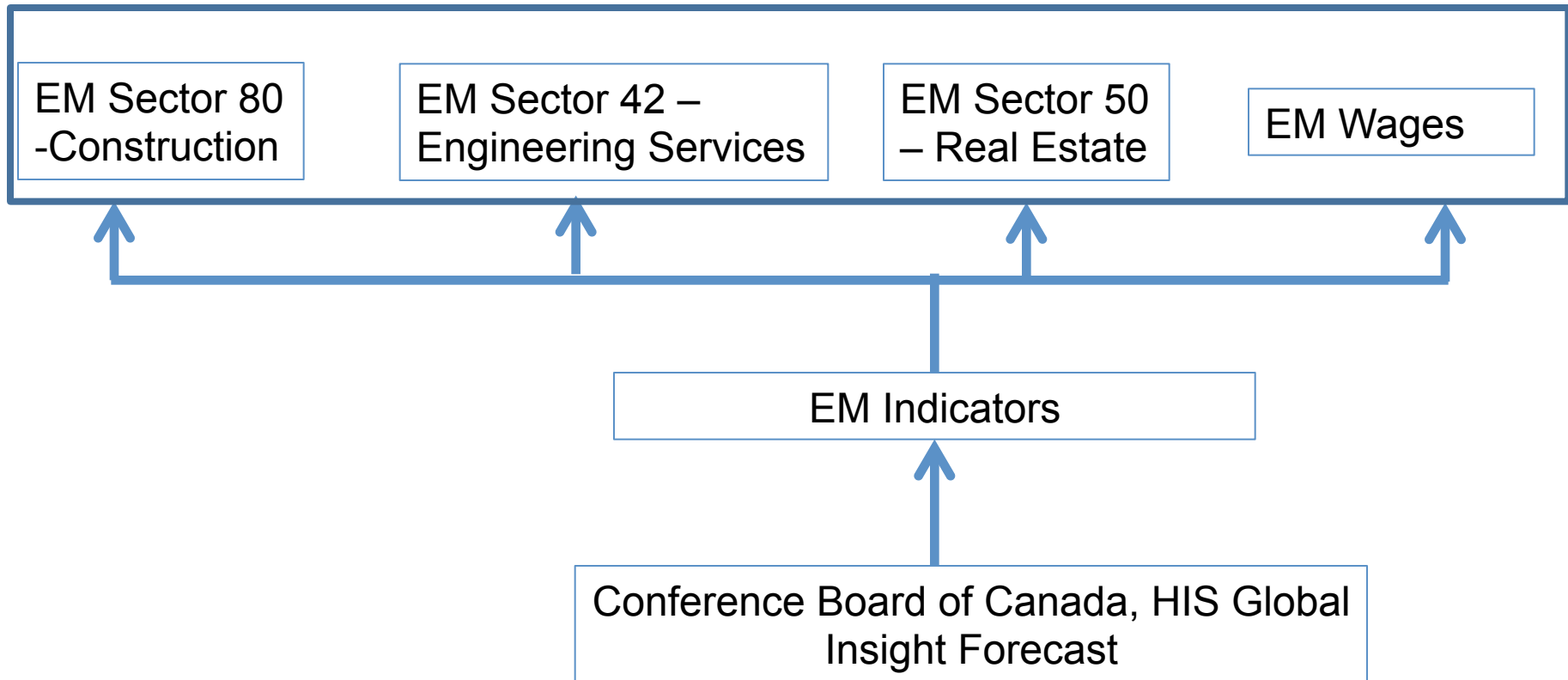


- Construction sector accounts for significant portion of DND consumption basket.
 - In FY 2014-15, Total DND spending on new Construction, Repair and Betterment of Building, Land and Works was approximately \$719 million (around 4% of total defence spending).
 - In addition, there are other infrastructure/real estate related spending: building rentals, real estate services, energy and utilities, PILT, consulting services, etc
- EM construction related inflation forecasts,
 - Section 7 – General Ledger (GL) Account Report : Provides National average forecasted rates for various repair, construction, consulting, rental related GLs
 - Section 6 – Tailored Model Report : Provide Provincial non residential construction inflation forecasts (subscribe to CBOC provincial non residential construction price deflator forecasts).



EM: Infrastructure and Real Estate

General Ledger (GL) Accounts





Section 80: GLs to Forecast Link

Types of Infrastructure

- Operational Building
- Administrative Building
- Support Buildings
- Roads, Airports, Runway
- Accommodation Building – Residential
- Waterworks and Sewage
- Hospitals and Clinics
- Armories, Barracks
- Other

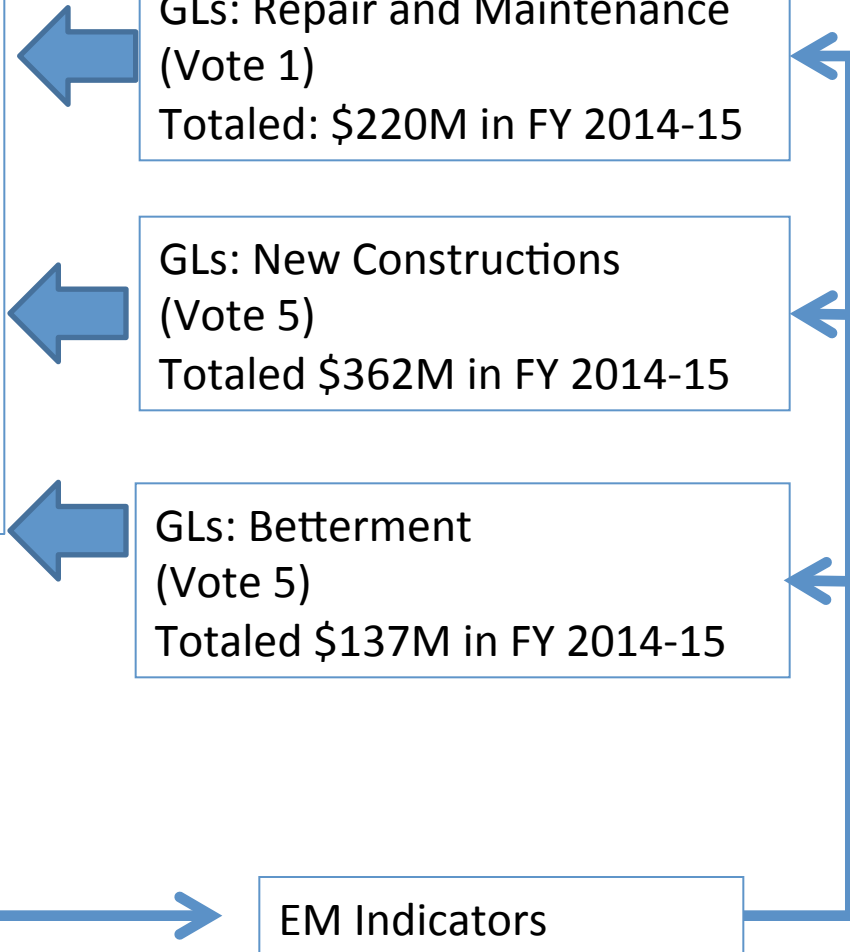
GLs: Repair and Maintenance
(Vote 1)
Totalled: \$220M in FY 2014-15

GLs: New Constructions
(Vote 5)
Totalled \$362M in FY 2014-15

GLs: Betterment
(Vote 5)
Totalled \$137M in FY 2014-15

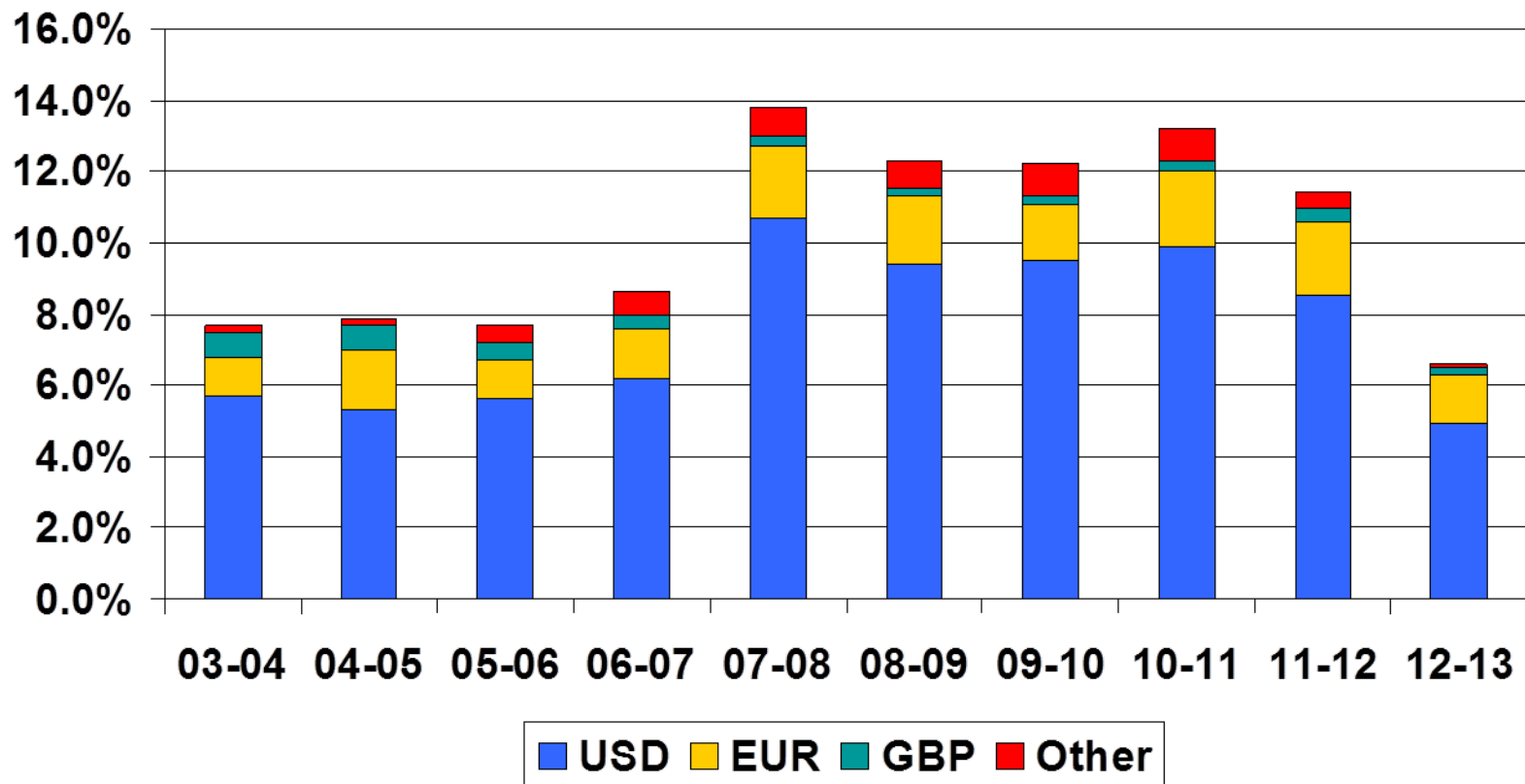
CBOC, HIS Global Insight
Forecasts

EM Indicators





Foreign Expenditures as % of DSP





Risk Assessment

- EM provides most likely inflation forecasts - point estimates
- Conduct risk analysis to quantify the variability of forecasted inflation rates and exchange rates.
 - Used by project cost analysts in developing contingencies/ risk adjusted cost estimates in compliance with Treasury Board/DND costing guidelines.
- Currently risk analysis conducted based on historical volatility of the underlying price indices.
- Evolving process:
 - Incorporate variances of CBOC forecasting model in the risk analysis.