The Economics of Education in Timor-Leste

Ekonomia Edukasaun nian iha Timor-Leste

Education and the Economic Development Agenda

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Centre for Development Economics and Sustainability

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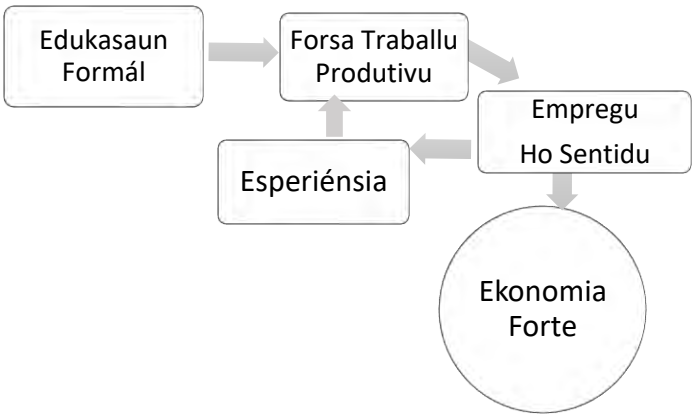
1. Introdusaun

Planu Estratéjiku ba Dezenvolvimentu Timor-Leste mak enfazia Kapitál Umanu nu'udar prioridade boot ida ba Nasaun nia dezenvolvimentu. Kapitál Umanu sei fornese fundamentu ba sosiedade ida-ne'ebé susesável no prósperu.

Relatóriu ida-ne'e sei buka atu fó hanoin fali lee-na'in sira kona-ba importánsia investimentu iha Edukasaun nian, no ke'e tan edukasaun formál iha nivel-eskolár nian.

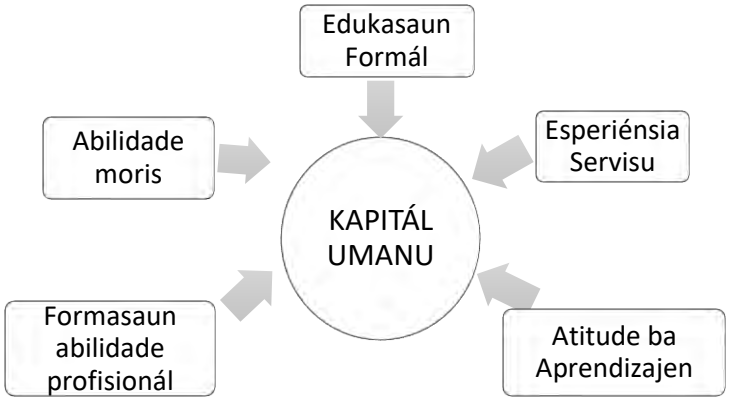


1.1 Edukasaun no Dezenvolvimentu Ekonómiku

Ekonomia ida sei labele iha kresimentu lahó ema edukada …

Kapitál umanu mak define nu'udar nivel kompeténsia, koñesimentu, abilidade, valór, ábitu, kapasidade sosiál no atributu pesoál sira-seluk ne'ebé loke dalan ba ema ida atu halo servisu hodi produs "rezultadu" ruma ne'ebé iha valór ekonómiku.

Oinsá atu bele hasa'e kapitál umanu



Evangelino nu'udar Xefe Ezekutivu iha empreza kafé Timorense. Evangelino foin hakotu nia estudu Mestradu iha UNTL. Ho koñesimentu ne'e no esperiénsia seluk, Evangelino hahú atu haboot nia negósiu. Ohin-loron, Evangelino nia empreza sei esporta kafé ba rain 3 ne'ebé konsume kafé.

1.2 Oinsá Edukasaun nia Importánsia ba Dezenvolvimentu Ekonómiku?

1.2.1 Edukasaun bele hamosu diferensa boot!

Rain sira ne'ebé investe barak liu ba edukasaun hetan benefísiu boot ba dezenvolvimentu no kresimentu ba prosperidade. Iha longu-prazu, ekonomia ida bele realiza kresimentu lalais liu dala rua bainhira nia halo investimentu boot liu dala rua ba edukasaun.

1.2.2 Sei han tempu

Edukasaun ba jerasaun ida hosi joven sira ho lubuk abilidade kognitivu maka'as liuhosi sistema edukasaun formál ho kualidade aas sei labele prodús retornu lalais de'it. Joven sira-ne'e presiza sai adultu, hetan esperiénsia no oportunidade sira molok sira bele realiza benefísiu tomak hosi produtividade traballu ne'ebé aas liu no hosi kresimentu ekonómiku.

1.2.3 Kresimentu lidera-hosi-Edukasaun bele sustenta no akumula momentu bá oin

Efeitu di'ak liu hosi edukasaun sei akumula – hafoin adultu sira sai edukadu, sira kontinua hasa'e sira rasik nia kapitál umanu ho aprendizajen ne'ebé sei nunka hakotu, no mós sira sei investe tan iha sira-nia oan rasik nia edukasaun.

1.2.4 Kualidade Kualidade Kualidade

Buat ne'ebé sei kontribui atu hasa'e kresimentu mak la'ós tinan hira edukasaun ema ida-nian, maibé koñesimentu no abilidade ne'ebé ema ne'e hetan ona. Ida-ne'e sei depende kritikamente ba kualidade hosi esperiénsia edukasionál ne'ebé nia hetan.

Nivel abilidade matemátika no siénsia populasaun jerál nian sai nu'udar indikadór forte liu ba kresimentu ekonómiku di'ak liu.

1.2.5 Efeitu ekonómiku sira bele iha variasaun tuir nivel Edukasaun

Melloria sira iha edukasaun primária, sekundária no FETP[1] nian sei hamosu melloria sira ba produtividade iha empregu sira-ne'ebé menus kompleksu.

Melloria sira iha edukasaun superiór hamosu hela aumentu ba produtividade liuhosi inovasaun barak liu.

1.2.6 Dezenvolvimentu ekonómiku lidera-hosi-Edukasaun sei suporta Igualdade Jéneru

Retornu sira hosi eskolarizasaun iha tendénsia atu sai bele aas liu ba feto duké ba mane sira iha maioria hosi nasaun sira.

Hafoin hakotu kursu estudu kona-ba negósiu iha universidade ida iha Austrália, Jonia fiar an rasik tan iha nia servisu. Nia muda ba knaar jestaun iha negósiu setór ospitalidade ne'ebé hatudu kresimentu, no aplika abilidade no estratéjia solusiona-problema sira ne'ebé nia aprende hosi nia estudu sira iha li'ur.

1.2.7 Edukasaun: fatór importante liu mak mobilidade ekonómiku

Mobilidade Ekonómiku Interjerasionál; nu'udar oinsá jerasaun ida iha família ida bele sa'e ba estadu ekonómiku aas liu sira-nia inan-aman sira-nian.

Juliana moris hamutuk ho nia família iha LosPalos, no tuir eskola primária lokál. Nia inan-aman sira nu'udar to'os-na'in. Nia Aman hakarak nia oan-feto sira atu kontinua iha eskola atu bele hetan edukasaun di'ak. Juliana hetan biban atu kontinua eskola sekundária iha eskola kualidade aas tebes dook hosi nia uma, depois bá tiha estuda iha Estadus Unidus. Ohin-loron Juliana iha servisu hodi suporta empreza sira iha Timor-Leste. Nia sempre fó aten-barani ba nia maluk Timoroan foinsa'e sira atu estudu didi'ak no aproveita hosi oportunidade ne'ebé bele hetan hosi edukasaun. Bá oin nia hakarak atu loke nia negósiu rasik fó-apoiu ba negósiu sira-seluk nia kresimentu iha Timor-Leste. Balu hosi negósiu hirak-ne'e sei iha setór agrikultura atu nune'e joven edukadu sira bele kontribui ba modernizasaun iha setór agrikultura.

[1] FETP Formasaun no Edukasaun Tékniku no Profisionál (*iha Inglés bolu TVET*)

1.2.8 Edukasaun sei halo kontribuisaun pozitivu ba kuaze indikadór hotu-hotu bein estar sosiál ninian

Hakbiit feto, violénsia bazeia-iha-família ne'ebé menus, saúde no nutrisaun di'ak liu ba ema no oan sira, no abilidade atu hasoru no rekupera hosi dezastre naturál no xoke oioin moris nian, …

MAIBÉ EDUKASAUN MESAK SEI LATO'O

Dalaruma ema dehan katak edukasaun sei la hamosu prosperidade ekonómiku. Ema balu dehan:

> *"Dili ne'e nakonu ho joven sira ho edukasaun sekundária no universitáriu, no sira laiha empregu! Edukasaun ne'e hamosu de'it esperansa no espetativa falsu, ne'ebé sei harahun bainhira sira la hetan empregu."*

Iha ne'e hato'o resposta balu.

> *Dahuluk, maske edukasaun mak estratéjia importante liu hotu ba kresimentu ekonómiku longu-prazu, ho baze-luan, nia labele sai estratéjia úniku. Tenke iha investimentu oioin iha kriasaun empregu, fó apoiu ba negósiu foun sira, hadi'ak infraestrutura xave, nst.*
>
> *Daruak, dezafiu úniku ne'ebé joven edukadu sira hasoru iha Timor-Leste prinsipalmente mai hosi kualidade edukasaun ninian. Maske joven barak hakotu sira-nia eskolarizasaun ka estudu universitáriu, iha evidénsia katak abilidade numerasia no literasia bázika hela menus tebes, no katak estudante barak la preparadu didi'ak atu servisu iha setór formál.*

Gotys hetan nia edukasaun sekundária iha eskola rurál iha dékada 1990 nia laran. Iha tempu ne'ebá profesór sira fó tulun ba estudante sira atu aprende iha sala-aula hosi loron Segunda to'o Sesta, depois fó-tulun ba sira atu aprende abilidade prátiku hodi servisu iha to'os laran iha loron Sabadu. Gotys haree fali tempu ne'ebá nu'udar importante la'ós de'it tanba aprende buat prátiku, maibé mós tanba valór sira hosi planeamentu, servisu konsistente, no servisu hodi alkansa objetivu ida.

Gotys hahú aprende abilidade informatika hosi servisu voluntáriu iha negósiu lokál IT nian. Nia aprende oinsá hanorin nia an rasik – "Google iha resposta ba pergunta barak, hafoin Ita hatene oinsá husu".

Gotys nafatin iha planu atu kompleta kursu ida iha Universidade, tanba kualifikasaun formál mak importante. Maibé nia konsellu prinsipál mak atu:

- *Aprende liuhosi halo to'o Ita bele. Servisu voluntáriu mak fatin di'ak atu hahú.*
- *Ita-hotu presiza prátika atu bele aplika buat ne'ebé ita aprende hamutuk ho teoria sala-aula nian.*
- *Planeamentu, servisu badinas beibeik, no foku ba objetivu sei lori Ita atu hetan susesu ho Ita-nia estudu no servisu!*

Problema vontade Polítiku?

Dalabarak governu sira buka solusaun sira ba dezenvolvimentu ekonómiku ne'ebé bele fó rezultadu lalais.

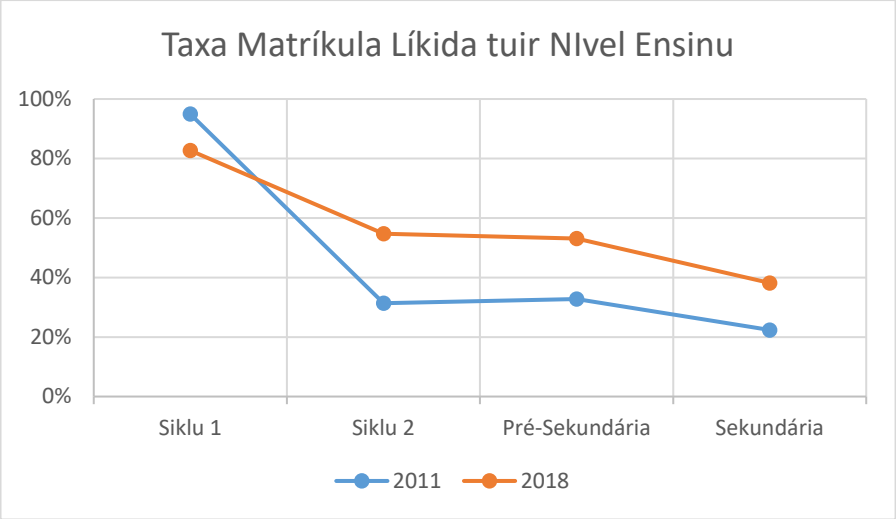
Oinsá estratéjia atu hamosu kresimentu ekonómiku lidera-hosi-Edukasaun ba sai atraiante politikamente bainhira haree katak nia progresu la'o neineik liu?

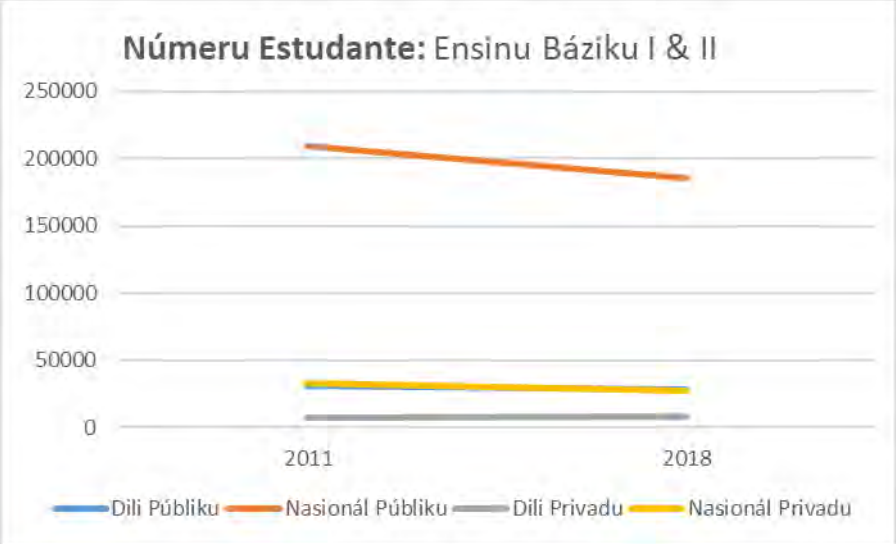
- ***Lideransa forte:*** Reforma sei iha probabilidade boot liu atu hetan susesu bainhira líder vizionáriu ida sai kampiaun ba kauza, ho motivasaun hosi fiar maka'as kona-ba valór edukasaun nian.
- ***Investimentu ho baze luan:*** Ema sei vota ba líder polítiku sira-ne'ebé hatudu kompromisu ba sira=nia sidadaun sira. Edukasaun sei afeita ita-hotu.
- ***Ideia no Evidénsia:*** Komunidade forte ida hosi ema no organizasaun sira-ne'ebé kontinua suporta nesesidade ba reforma no tulun atu formula abordajen sira-ne'ebé di'ak liu.
- ***Sasukat:*** Avaliasaun konfiavel no independente kona-ba dezempeñu estudante no profesór sira-nian sei fornese presaun ba mudansa ne'ebé susar atu reziste (e.g. Finger, 2017).
- ***Presaun Institusionál:*** Konsidera Indonézia iha tinan: emendu ida ba Konstituisaun mak aprova tiha ne'ebé mandata katak pelumenus 20% hosi despeza Governmentál hotu tenke halo ba Edukasaun.

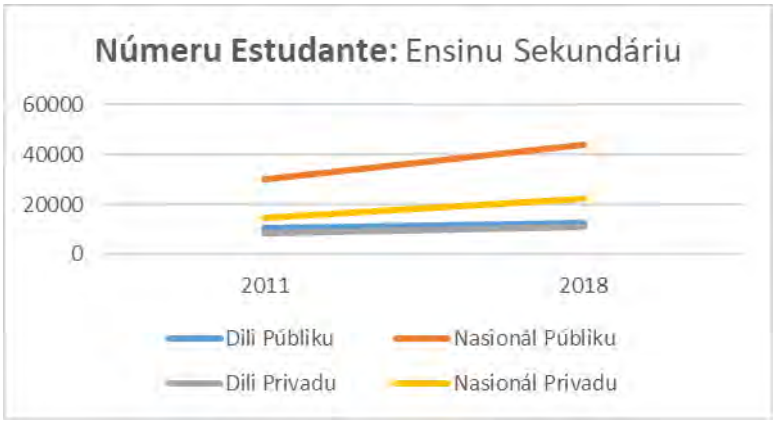
2. Saida mak Realidade Atuál?

Iha-ne'e ita sei haklaken faktu báziku balu kona-ba situasaun atuál iha Edukasaun Eskolár iha Timor-Leste.

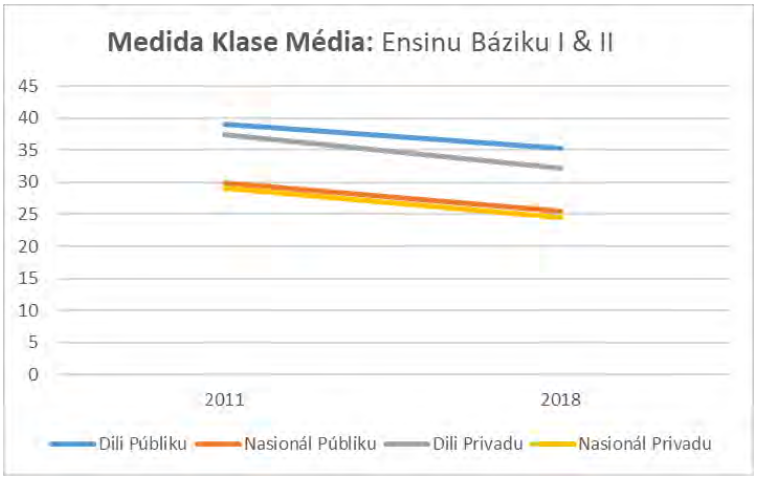
2.1 Inskrisaun

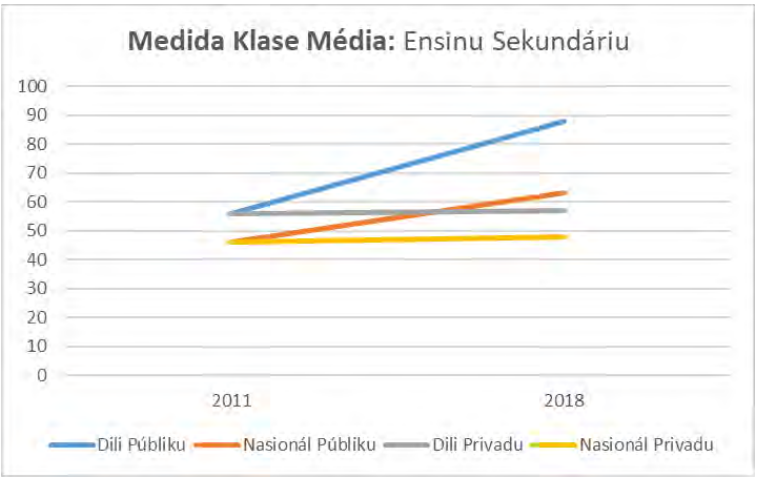






- Maioria barak liu hosi inskrisaun eskola Primária mak iha eskola Públika, la'ós privada.
- Inskrisaun eskola Sekundária sa'e maizumenus 50% durante períodu ne'e.
- 37% hosi estudante eskola Sekundária estuda iha eskola Privada sira.





- Medida klase médiu iha eskola sekundária sa'e hosi estudante na'in 47 to'o na'in 62, no iha Dili sa'e hosi na'in 57 to'o na'in 88!

2.2 Progresu

2.2.1 Estudante ne'ebé hahú tarde

Enkuantu idade hahú eskola ofisiál mak tinan 6, persentajen boot hosi estudante sira mak "hahú tarde".

> **Modelasaun kona-ba Estudante ne'ebé Hahú Tarde …**
>
> Dina: Hela iha Dili iha área urbana, iha uma ida hosi rai kualidade kapás, no inan ne'ebé iha servisu ho saláriu di'ak ne'ebé uza konta bankária.
>
> Jose: Hela iha área rurál iha Dili nia li'ur, iha uma kualidade ladi'ak ho soallu rai, no nia aman nu'udar to'os-na'in, ne'ebé la uza konta bankária.
>
> *Jose iha probabilidade pontu persentajen 32 liután atu hahú eskola tarde.*
>
> Se karik Jose iha defisiénsia ruma, iha probabilidade boot katak nia sei nunka bá eskola.

2.2.2 Estudante ne'ebé Repete Grau Eskolár

Taxa Repetisaun Grau 2018

% hosi estudante ne'ebé Repete (2018)				
	Ensinnu Báziku I & II		Ensinu Sekundáriu	
	Públika	Privada	Públika	Privada
Dili	8.82%	2.54%	3.50%	0.53%
Nasionál	16.35%	9.43%	1.84%	0.96%

2.2.3 Progresaun tuir Grau Eskolár

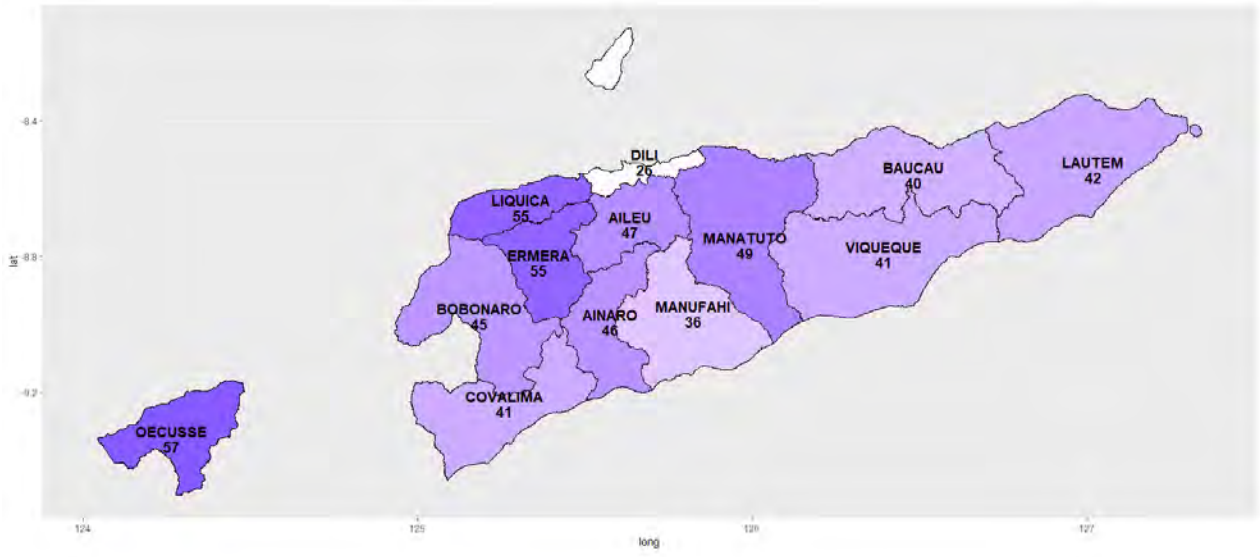
Karik estudante sira halo progresu sa'e grau eskolár tuir taxa antesipada ka lae (grau ida kada tinan ida)?.

2.2.3.1 Labarik sira-nia Progresu Eskolár ein Jerál: Estatístika Sumáriu Balu

Ami analiza tiha nivel edukasaun aas liu ne'ebé kompleta liuhosi estudante sira ho idade entre tinan 7 no 18 hosi Sensus 2015. Deskoberta xave balu mak hanesan tuirmai ne'e:

- Labarik tinan 10 ne'ebé halo progresu normál sei kompleta Grau 4 to'o idade ida-ne'e. 28% hosi estudante sira la'o grau ida ka rua ba kotuk ona.
- 59% hosi estudante tinan 16 la'o grau rua ka liu ba kotuk tuir grau antesipada tuir sira-nia idade.
- 9.4% hosi labarik sira idade tinan 12-18 ladauk kompleta grau eskolár ida de'it. Labarik barak hosi sira-ne'e mak labarik sira ho defisiénsia.

Figura 1
Persentajen hosi individúu sira ho idade tinan 8 to'o 18 la'o ba kotuk pelumenus grau 2 iha munisípiu ida-idak



2.2.3.3 Fatór sira-ne'ebé Esplika Labarik sira-nia Progresu Eskolár: Modelu Regresaun

Modelu sira mak uza atu halo estimativa hodi buka-hatene fatór sosiál no ekonómiku ne;ebé esplika variasaun iha labarik sira-nia progresu eskolár.

Modelu 1: Progresu Tuir Espetativa/Di'ak Liu, ka La'o Ba Kotuk

Dina: Hela iha Dili iha área urbana, iha uma ho soallu kualidade di'ak, sentina no bee kanalizadu, no iha aman ne'ebé iha empregu regulár ho governu. Nia inan nunka eskola.

Jose: Hela iha área rurál iha Dili nia li'ur, iha uma kualidade ladi'ak ho soallu rai de'it, no nia inan-aman sira nu'udar to'os-na'in no laiha edukasaun formál.

Jose iha probabilidade pontu persentajen 70 aas liu atu atraza grau rua ka liután iha nia progresu eskolár. Ida-ne'e nu'udar dezvantajen sosiál no ekonómiku boot tebes.

Modelu 2: Labarik sira la'o dook hira ba kotuk hosi progresu antesipada tuir sira-nia idade?

Dina vs *Jose*

Dili Urbanu vs *Rurál, hosi Munisípiu seluk*

Uma kualidade di'ak vs *Uma ho bee no saneamentu kualidade ladi'ak nst.*

Inan edukadu vs *Inan laiha edukasaun*

Xefe umakain: servisu iha governu vs *to'os-na'in baibain*

Karik sira na'in rua idade tinan 10, José, tuir médiu, sei la'o grau 3 ba Dina nia kotuk.

Karik sira na'in rua idade tinan 17, José sei la'o liu grau 6 ba Dina nia kotuk!

2.3 Rezultadu Edukasionál

Iha dadus uitoan de'it ne'ebé bele uza atu halo komparisaun esternál kona-ba rezultadu / aprendizajen estudante sira-nian iha Timor-Leste. Ida-ne'e halo susar atu sukat se karik ka lae inovasaun, reforma no melloramentu sira ba Edukasaun halo efeitu ruma ka lae.

Avaliasaun Kapasidade Lee Grau Sedu nian (EGRA) mak hala'o tiha iha 2009, no halo fali iha 2017. Objetivu hosi avaliasaun ida-ne'e mak atu buka-hatene kona-ba estudante sira iha grau 1 no 2 atu hatene sira-nia abilidade lee.

Tabela: Komparisaun hosi Rezultadu EGRA ba Klase 1 iha tinan 2009 no 2017

	EGRA 2009 (estudante na'in 319)		EGRA 2017 (estudante na'in 1,031)		
	Media nu	Kontajen porsentu zero	Medianu	Kontajen porsentu zero	Mudansa hosi kontajen medianu
Letra (/100)	27.7	23%	33.8	16%	**6.1***
Liafuan (/50)	5.1	67%	6.4	56%	**1.3***
La'ós-liafuan (/50)	4.1	71%	4.0	70%	**-0.1**
Lee testu (/58)	6.7	72%	7.1	74%	**0.4**
Fluénsia (wpm)	6.9	72%	7.2	74%	**0.3**
Komprensaun (/100)	6.9	84%	14.4	76%	**7.5***

* Indika melloramentu hosi kontajen ne'ebé signifikadu estatistikamente

Iha ona sinál ki'ik hosi melloramentu entre tinan 2009 no 2017. Maibé, pontu hahú iha tinan 2009 mak fraku ona, no melloramentu ne'ebé observa tiha mak ki'ik de'it.

Sura rezultadu sei tulun ita atu bele:

- hatene kona-ba buat ne'ebé mosu hela daudaun
- identifika fatin sira iha-ne'ebé iha ka laiha melloramentu.

3. Dalan Bá Oin

3.1 Ministériu nia Ajenda ba Reforma

Ajenda Reforma Atuál mak harii hela hosi Planu Estratéjiku Nasionál ba Edukasaun (PENE). Iha-ne'e ami aprezenta sumáriu hosi área foku prinsipál sira, tuir Programa Prioridade 13 (PP sira).

Ajenda Planu Estratéjiku Edukasaun nian:

1. **Ministériu Edukasaun nia Funsionamentu** (PP6, PP8-PP13)
   Planeamentu, Jestaun Rekursu Umanu, Sistema Informasaun, Koordenasaun ho parseiru esternu sira, estrutura ba jestaun rejionál
2. **Hasa'e Kualidade Manorin nian iha nivel hotu-hotu** (PP7)
3. **Hasa'e Kualidade Eskola nian no Hadi'ak Rezultadu sira** iha nivel hotu-hotu (PP1-PP5)
   Edukasaun Adultu nian
   Ensinu Superiór
   Ensinu Sekundáriu
   Ensinu Primáriu
   Ensinu Pré-Eskolár

3.2 Osan, Osan, Osan

Nivel finansiamentu atuál labele fornese tipu sistema edukasaun ne'ebé povu Timor-Leste sira hakarak. Presiza aumenta maka'as fundus ba Edukasaun.

1. PENE ne'e rasik

Planu 2011 mak inklui kalkulasaun kustu balu ba programa prioridade oioin.

	2011	**2015**	**2020**
Projesaun Orsamentu Edukasaun PENE	$141.6m	$258.7m	$314.4m
Orsamentu Edukasaun Atuál (fonte hotu-hotu)	$83.5m	$125.2m	$105.0m (2019)
% ne'ebé Falta	41%	52%	67%

Hahú kedas, PENE ne'e iha falta fundus 41% hosi projesaun totál nesesáriu, no falta fundus ne'e aumenta de'it, sa'e to'o 67% ohin-loron.

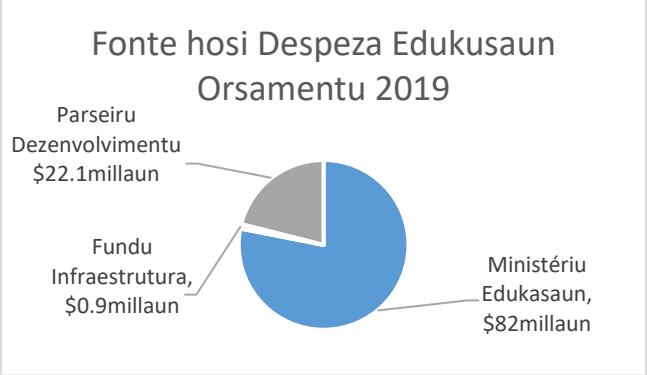
2. Komparisaun Internasionál

Análize UNESCO nian hatudu hela:

	Timor-Leste (2015)	**Indonézia (2015)**	**Malázia (2015)**	**Tailándia (2013)**
Despeza Edukasaun nian nu'udar % hosi Orsamentu Jerál Estadu	8.6%	20.5%	19.8%	19.1%

3. Komprende Orsamentu Edukasaun nian

Oinsá osan públiku mak gasta iha setór edukasaun?



- Orsamentu Ministériu Edukasaun nian mak limitadu tebes. Hafoin konta ba atividade esensiál loron-loron nian, kuaze laiha osan seluk tan atu uza ba buat seluk tan, exeptu ba melloria menór ba kualidade.

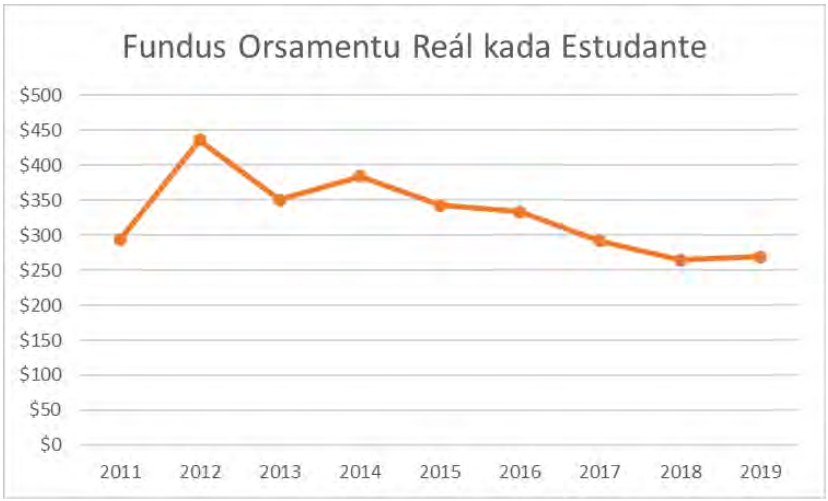
- Menus liu hosi $1 millaun hosi Fundu Infraestrutura nia $366 millaun mak aloka ba Edukasaun.

4. Orsamentu Edukasaun nian Hamenus hela badadaun

- Orsamentu Edukasaun nian sa'e to nivel másimu iha tinan 212 ho $124.8 millaun, no hela maizumenus estavel iha entre $100-$130 millaun hosi tempu ne'ebá. Orsamentu tinan 2018 no 2019 nian sira mak iha nivel menus liu hotu dezde tinan 2011.

Gráfiku iha kraik hatudu hela tendénsia iha despeza reál tuir orsamentu ba kada estudante durante tinan 9 foin lalais ne'e nia laran.

Orsamentu reál ba kada estudante tun 38% entre tinan 2012 no tinan 2019.



Valór osan bazeia ba: Dolár tinan 2019

5. Finansiamentu Bazeia-ba-Eskola mak La Adekuadu

- Eskola Governu nian simu fundus operasionál hosi Governu, ne'ebé relata hanesan sentavu 50 kada estudante kada fulan, atu kobre eskola nia kustu operasionál.

- Eskola Katólika sira rekizita estudante sira atu selu mensalidade eskolár, ne'ebé baibain mak hanesan $10 to'o $20 kada estudante kada fulan.

6. **Karik Kapasidade atu gasta osan ne'e mak problema ka lae?**

Dala ruma ema hatete katak orsamentu Edukasaun nian labele aumenta, tanba ministériu laiha kapasidade rekursu umanu atu jere orsamentu substansialmente boot liu.

Karik ida-ne'e mak argumentu válidu ka lae? Ami diskute razaun rua iha kraik atu rejeita perspektiva ida-ne'e.

1. Etapa dahuluk hosi kompromisu ida atu aumenta orsamentu Edukasaun nian mak atu kompromete fundus ne'ebé sei loke dalan atu bele rekruta jerénsia no pesoál esperiente no kompetente.

2. Argumentu ne'e laiha relevánsia ba despezas ba infraestrutura iha edukasaun, ne'ebé mai hosi Fundu Infraestrutura, ho jestaun independente hosi ministériu Edukasaun. Orsamentu Fundu Infraestrutura nian mak liu $300 millaun kada tinan. Iha tinan 2019 kahaat ida de'it hosi porsentu ida mak aloka ba infraestrutura edukasaun nian. Kompromisu jenuinu ba infraestrutura edukasaun sei aloka osan dala barak liu nivel ida-ne'e de'it.

7. **Haree liu Orsamentu Governu nian?**

Karik iha nesesidade atu buka alternativu sira, liu de'it aumentu ba orsamentu governu no despezas hosi parseiru dezenvolvimentu sira ka lae?

Folin Eskolár / Kontribuisaun hosi Inan-Aman?

Karik buka atu implementa estratéjia ida-ne'e, sei signifika katak governu tenke:

- Suporta expansaun hosi setór edukasaun privadu (prinsipalmente eskola Katólika no seluk tan ne'ebé lidera liuhosi komunidade); ka:

- Enkoraja kontribuisaun hosi inan-aman sira iha eskola Governu nian.

Karik família sira bele hasoru folin kontribuisaun boot liután hosi inan-aman sira ka lae?

Osan hira mak Família sira gasta ba edukasaun daudaun ne'e? Tuirmai ne'e ami aprezenta estimativa sira ne'ebé hetan hosi TLSLS 2014 (Levantamentu kona-ba Padraun Moris iha Timor-Leste):

Tabela: Gastus Umakain nian ba Edukasaun ba kada labarik ida iha eskola

	Despeza Anuál Médiu		
Iten	Labarik ba Eskola Governu	Labarik ba Eskola Privada	Jerál
Folin Eskolár	$2.80	$34.48	$8.05
Folin Asosiasaun Inan-Aman	$0.55	$10.50	$2.20
Farda/Roupa	$12.89	$33.51	$16.27
Livru Didátiku	$0.62	$4.17	$1.21
Papelaria, nst.	$6.53	$11.85	$7.41
Transporte, hahán, alojamentu	$4.33	$12.78	$5.73
Folin ba klase Eskolár tan	$0.46	$9.80	$2.00
Despeza seluk	$0.29	$0.95	$0.43
Médiu kada Labarik - Totál	$28.47	$118.04	$43.30

Labarik hira ba duni eskola hosi umakain nominál?

Númeru Labarik iha Eskola kada Umakain	
Númeru oan iha eskola	Proporsaun hosi Umakain
0	28.9%
1	17.7%
2	19.2%
3	16.0%
4	10.7%
5	4.3%
6	1.8%
7	0.8%
8	0.4%
9	0.1%
10	0.0%
11	0.1%

Labarik sira hosi umakain kiak ba eskola iha-ne'ebé? Karik ema kiak bele hasoru folin atu bá eskola privada ka lae?

Pobreza iha Timor-Leste halo efeitu dezproporsionál ba labarik sira.

Taxa pobreza entre umakain ne'ebé laiha labarik idade eskola: 26%

Ba umakain sira ho labarik idade eskola taxa pobreza ne'e mak 45.1%

Ho oan 3 ka liután, taxa pobreza ne'e sa'e to'o 50.3%

Nune'e, karik problema kona-ba finansiamentu ba eskola ne'e bele hadi'a ho kontribuisaun boot liu hosi inan-aman sira ka lae?

- Iha ezijénsia ne'ebé aumenta badadaun ba edukasaun privadu, liuliu iha nivel eskola sekundária
- Eskola privada sira fornese opsaun ho kualidade aas liu ba ema ne'ebé bele hasoru folin ladún boot liu.
- Modelu ba finansiamentu la presiza muda atu kria insentivu boot liu atu hili edukasaun privadu.
- Kestaun ida iha Timor-Leste mak katak ema ne'ebé iha rendimentu aas liu la gasta parte boot liu hosi sira-nia rendimentu ba edukasaun.

Iha Sri Lanka, 64% hosi umakain sira gasta osan ba tutoria privada. Halo tuir TLSLS 2014, mesak 5.5% de'it hosi labarik Timoroan sira simu tutoria privada iha eskola nia li'ur. Tutoria privada iha probabilidade atu aumenta maka'as iha tinan balu oinmai nia laran.

Sumáriu: Osan no Edukasaun

- Alokasaun orsamentu ba edukasaun presiza aumenta maka'as – orsamentu anuál besik liu $200 millaun bele lori Timor-Leste besik liu norma ASEAN nian.

- Iha fatin dunik atu aumenta fundus ba edukasaun liuhosi kontribuisaun hosi inan-aman sira; abordajen ne'ebé iha probabilidade atu serbí di'ak liu mak atu aumenta eskola privadu sira-nia persentajen hosi estudante hotu, no mós atu promove prosesu hili fundus voluntáriu hosi komunidade ho maneira diresionada.

- Iha nesesidade atu kria ezijénsia boot liu ba edukasaun ho kualidade, iha-ne'ebé inan-aman no labarik sira haree importánsia hosi investimentu tempu no osan tan atu buka edukasaun ho kualidade. Ida-ne'e sei signifika kresimentu iha indústria tutoria privada.

3.3 Reforma ba abordajen ba Reforma Edukasionál

Iha seksaun ida ikus ne'e, ami konsidera asuntu balu tan relasiona ho oinsá atu harii setór edukasaun.

3.3.1 Lasu sira

Iha lasu rua ne'ebé bele sulan Governu bainhira haka'as an atu dezenvolve setór edukasionál ida-ne'ebé joven no inesperiente.

Lasu 1: Tenta atu halo buat hotu-hotu (Lori Todan Sedu Liu)

Planu Estratéjiku ba Edukasaun, ne'ebé ami refere ba iha leten, mak lista baruk tebes hosi buat barak ne'ebé presiza halo.

> Lori todan sedu liu: hanoin habosok an kona-ba velosidade progresu no espetativa la realista kona-ba nivel no taxa kapasitasaun nian sei hamosu estrés no ezijénsia ba sistema sira ne'ebé bele hafraku kapasidade ne'e."
>
> Pritchett et al. (2010, p.1)

Bainhira *Tenta atu halo buat hotu-hotu*, tarefa ne'e sai boot liu. Ministériu sira hasoru reforma barak lahalimar, hamutuk ho problema orsamentu no rekursu umanu limitadu. Nu'udar rezultadu ida, dalabarak laiha progresu duradouru.

Lasu 2: Abordajen la kriativu ba dezenvolvimentu sistema (Mimetizmu Isomórfiku)

Lasu ne'e mak atu harii sistema edukasaun ida-ne'e mímika forma hosi sistema edukasaun sira iha rain ne'ebé dezenvolve tiha ona, maibé ne'ebé la han-malu ho kontestu, no nune'e la lori efeitu ne'ebé hakarak hosi edukasaun efetivu.

> "Mimetizmu isomórfiku: nu'udar abilidade organizasaun nian atu sustenta lejitimasia liuhosi kopia de'it forma sira hosi instituisaun modernu lahó funsionalidade loloos."
>
> Pritchett et al. (2010, p.1)

3.3.2 Karik bele tuir abordajen oinseluk ka lae?

PDIA (Adaptasaun Iterativu Motiva tuir Problema), nu'udar prosesu ida ne'ebé hakbiit ema ne'ebé servisu iha governu atu dezenvolve no implementa melloria etapa-tuir-etapa ba oinsá sira funsiona.

1. **Aprende hosi *Ita-nia* Susesu**

Iha ezemplu di'ak balu hosi eskola sira-ne'ebé iha dezempeñu komparativamente di'ak liu iha sistema edukasaun iha Timor-Leste.

Ita presiza halo estudu kazu kona-ba eskola hirak-ne'e no husu *sira* pergunta "Saida mak xave ba Ita-boot sira-nia susesu?" Husu sira atu define kritériu ba eskola ida-ne'ebé susesavel, envezde lori "modelu prátika di'ak liu" hosi li'ur.

2. **Aprendizajen Ativu**

Buat ne'ebé presiza mak forma aprendizajen ne'ebé hanorin hela ema oinsá atu aprende, envezde hanorin koñesimentu. Abordajen ida iha-ne'ebé estudante sira hetan enkorajamentu atu husu pergunta sira, no atu buka rasik resposta ba pergunta hirak-ne'e.

Abordajen ida-ne'e ba edukasaun sei menus liu ba nia kurríkulu, no barak liu ba progresu.

3. **Teknolojia no Internet ne'e la'ós buat Liután ne'ebé Opsionál**

Abilidade importante liu hotu ne'ebé estudante sira bele dezenvolve mak abilidade atu aprende no aplika informasaun. Abilidade Internet no IT sira mak esensiál ba ida-ne'e. Sistema Edukasaun ida ne'ebé harii relasiona ho teknolojia no internet sei presiza investimentu ba lubuk rekursu oinseluk:

- Internet kualidade di'ak no lalais ho folin asesivel
- Ekipamentu iha eskola sira ne'ebé asesivel dunik ba estudante sira
- Rekursu no ambiente aprendizajen sira-ne'ebé enkoraja estudante sira atu buka-hatene.

Summary

The Timor-Leste Strategic Development Plan highlights Human Capital as a high priority for developing the Nation. Human Capital provides the foundation of a successful and prosperous society. This report will provide a reminder of the vital importance of investing in Education, and explore school-level formal education.

The report first explores some of the evidence internationally for the link between education and economic growth. The evidence is clear: countries that invest more in education benefit greatly in terms of development and growth in prosperity. For example, an economy can grow twice as fast as otherwise if its investment in education is doubled. The evidence also highlights a number of other benefits of education-led economic growth, especially for women, for helping inter-generational mobility, and for many aspects of social development.

The report explores some of the reasons this approach to development is not always adopted. Politically, investing in education is often not seen as attractive, as the economic benefits are slow and not directly attributable to the investment. Overcoming this resistance requires visionary leadership and a strong community of people and organisations that support the need for reform in education and help shape the best processes. We also discuss the puzzle of there being many young, educated Timorese who are unable to gain productive employment. This highlights the need for investments in other aspects of economic development, but does not undermine the clear economic benefits of education.

Section 2 of the report looks at current realities in the education sector. The demand for education has grown significantly, with an increasing number of school-aged children, and rapidly improving enrolment rates. This places great stress on the system, with limited resources meaning that class sizes are large and growing rapidly, especially in secondary education.

Beyond enrolment data, it is useful to look closely at progress through schooling, as one (imperfect) indicator of how well children are learning. There is evidence of some children commencing school late, repeating grades and missing years. This amounts to a situation where a large proportion of children are not progressing through the grades in school at the normal rate (one grade per year). The report looks closely at 2015 Census data regarding progression, and finds, for example, that 28% of 10 year-olds are two or more grades behind their expected level, and this increases to 59% for 16 year-olds. This problem of "falling behind" is much more serious with certain children than others. For example, our modelling results suggest that by the age of 17, a child from a poor subsistence farming family in a rural, non-Dili municipality, with a mother who has no formal education, will be 6 grades behind a "middle class" child in Dili. This social inequality of access to education is a major challenge for Timor-Leste's future development.

Turning to consider ways forward, the report first focuses on the funding gap, and makes the case that current levels of funding are not able to deliver the kind of education system the people of Timor-Leste desire. Funding needs to increase substantially. Evidence for this claim is presented from a number of points of view, including:

- Current budget allocations are one-third of what the National Education Strategic Plan specified as necessary in order to implement the plan.
- Education spending as a percent of government budget is consistently less than 8%; for most ASEAN countries, this percentage is around 20%.
- The Education Ministry Budget is very tight. Once essential daily activities are accounted for, there is virtually no money for investing in anything, except minor quality improvements.
- Less than $1 million of the $366 million Infrastructure Fund is allocated to Education. This amount is well below 1% of the national education infrastructure needs.
- The Education budget reached a peak in 2012 of $135.7 million, and has been around $100-$130 million since. The 2018 and 2019 budgets were the lowest since 2011.
- Real budget funding per school student declined by 43% between 2012 and 2019.
- School-Based Funding is Inadequate to meet the general running costs of schools, with virtually no resources for minor improvements, IT equipment, extra-curricular activities, libraries, etc.

It is often said that the reason for a low budget allocation to Education is to do with execution: the claim is made that there is not capacity to spend additional funding well. We suggest that this argument is not valid: a government commited to education would actively take on the task of finding capable leadership for the ministry (including funding that task itself), even if this means relying on external advisors in early years. With capable leadership in place, sizeable increases in funding can then follow.

The report examines data from a recent household survey to look at the costs of education for households. Despite the provision of free public education, households still incur costs, including uniforms, stationery, etc, and school fees for those who attend private schools. For children in government schools, the average annual cost to parents is estimated to be $28 per child, and $118 for those in private schools. Most households have 1-4 children in schools, so total cost would typically be much higher. Comparing these costs to poverty lines, and looking at poverty rates for families with school-aged children (significantly higher than national rate), the report concludes that it would be unwise to move in the direction of requiring greater compulsory parent contributions towards education.

The choice to access private education (mainly catholic schools) is common, with 37% of secondary students in private schools. Private school fees are low by international standards, although still beyond the reach of most households in Timor-Leste. Interestingly, the use of private tuition is relatively low, with only 5.5% of Timorese children accessing

this. In other countries with a relatively weak education system, private tuition is very popular; indications are it is likely to grow in Timor-Leste in the future.

The final section of the report considers how the process of developing the education sector can be undertaken. We first highlight two common traps, discussed in the wider literature and very relevant to the Timor context:

Trap 1: Trying to do everything (Premature Load-bearing), to the point that the task becomes overwhelming;
Trap 2: Uncreative Approaches (Isomorphic Mimicry): building an education system that imitates the form of education systems in developed countries, but that does not suit the context.

Experts advocate a more localised approach, known as PDIA (Problem Driven Iterative Adaptation) - a process that empowers people working in governments to develop and implement step by step improvements to how they function. In the context of Timor-Leste, we suggest this will mean three specific focuses.

4. **Learning from *Our* Best:** Let's identify the comparatively well-performing schools in Timor-Leste, ask *them* "What is the key to your success?", and seek to pass on their wisdom and experience to others.

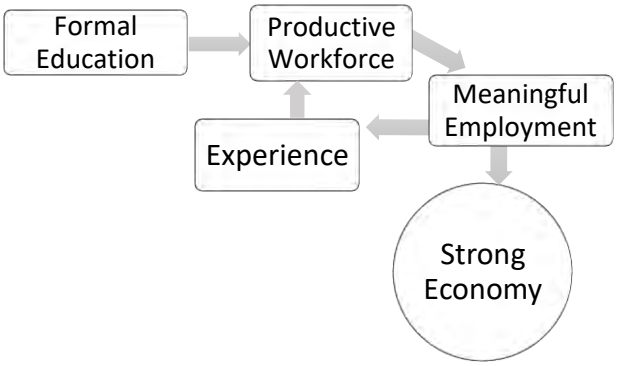
5. **Active Learning:** Developing an approach to curriculum and a form of learning where students are encouraged to ask questions, and to work out the answers to those questions for themselves.

6. **Technology and Internet are not Optional Extras:** An Education system built around technology can actually save money and resources in the long run. But it will mean investments in high speed internet, adequate equipment, online resources.

1.Introduction

The Timor-Leste Strategic Development Plan highlights Human Capital as a high priority for developing the Nation. Human Capital provides the foundation of a successful and prosperous society. During Timor-Leste's period of occupation by Indonesia, it was difficult for a whole generation of adults to gain consistent access to quality education. In the period since independence, the nation has faced many challenges, not least of which is to build an education system from very small beginnings, with all its required physical and human resources.

This "nation-building" project is still very much work-in-progress. Over the past 20 years, great progress has been made in a number of areas, but much remains left to be done. For the wellbeing of the people of Timor-Leste to flourish in a sustainable way, it is essential to build a sound, growing economy on the foundation of a productive workforce. That productive workforce will emerge on the foundation of a strong, high quality formal education system that prepares young people for the working world they will face into the future.



With so many competing demands on the limited human resources and finances of government, it is helpful to step back and remind ourselves of the vital role of education to economic development. It is easy for a Government to take its eye off this kind of investment, where the benefits are slow to come and not immediately recognisable. This report will provide a reminder of the vital importance of investing in Education. It will also take a realistic look at where things are at currently, and offer some creative and new directions worth considering.

Our focus is primarily on the economics and financing side of education, emphasising the role education plays in preparing people to contribute to the workforce and hence towards economic development. We do not want to undervalue the many benefits of education for wider social development and cohesion. These are vital, and provide even greater impetus for a strong commitment to education for all.

What will this report cover?

- The critical importance of education in economic development
- The role education plays in reducing social and economic inequality
- Financing education – what is the appropriate level of government investment in education? Are there alternative financing models such as private education?
- What can we learn from the data about the current state of formal education in Timor-Leste?
- What to do next - What is the current agenda? What other approaches and priorities can be pursued?

1.1 Education and Economic Development

An economy will not grow without well educated people …

To make sense of this statement, it is helpful to consider how, at the most basic level, economists see economic activity and production taking place.

The level of economic activity of a firm, industry or economy depends on inputs, which are placed in three categories: Land, Capital and Labour. Businesses need:

- Land to base their activities on
- Capital – buildings, equipment, access to finance to pay for supplies
- Labour – people to "do the work".

Different businesses will have a different mix of these inputs. E.g. Land is the key input for farmers, and equipment and labour are used to work the land. At the other extreme, an IT company will need a small amount of office space, but may have quite expensive computer equipment, and need highly skilled specialist labour.

The key to increasing economic activity and hence wealth is to improve labour productivity (Inder and Cornwell, 2017). Labour Productivity can be improved via two channels:

1. Increases in Capital (quantity or quality) that mean workers can be more productive. For example, a farmer with better tools and equipment will be able to produce more in the same amount of time.
2. Direct increases in "human capital" that means workers can undertake more complex tasks and work more effectively.

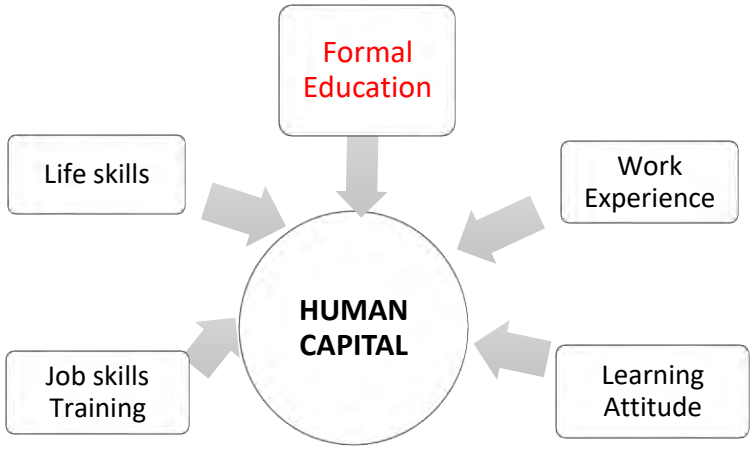
The more knowledge, skills and competencies a person has, the more productive they can be, even with the same level of equipment. Those skills we think of as Human Capital. Consider an example: it is common to meet two farmers with the same access to tools and other resources, but one is much more productive than the other. Why is this? Most likely, the more productive farmer has greater human capital: more knowledge and experience that helps them work out better ways to farm their land, such as careful selection of crops to suit the conditions, etc, etc, making it possible for this farmer to achieve higher productivity.

> Human capital is defined as the level of competencies, knowledge, skills, values, habits, social skills and other personal attributes that enable the person to work and produce "output" of economic value.

Human capital is almost always the main constraint to economic progress. If a country or a firm has a well-educated and experienced workforce, then other obstacles can be overcome, because there are people who can (usually) work out how to overcome these obstacles.

Evangelino is CEO of a local Timorese coffee company that supports over 600 farmers in Ermera, and exports green beans. For years, they only had one buyer in one country. Evangelino recently finished studying for a Masters degree at UNTL, where he researched about the coffee industry, and about accessing new opportunities for international markets for the coffee. Armed with this knowledge and other experience, Evangelino set about addressing some of the challenges with ensuring a consistent supply of export quality coffee, and also began to negotiate for access to new markets so the exports can grow. The company now exports to 3 different destination countries.

How Human capital is improved:



We will focus on school-age Formal Education in this report – in fact, on School-level education. There is much to explore on all the other avenues of building human capital, but formal education is the foundation for this, so is the most appropriate place to start.

1.2 How important is Education for Economic Development?

1.2.1 Education makes a big difference!

Countries that invest more in education benefit greatly in terms of development and growth in prosperity.

Quantifying the impact of education on economic growth is difficult, but long term studies that look at major changes in levels and quality of education over many decades show that a large proportion of the economic growth (typical estimates are around 50%) can be attributed to increases in the level and quality of education.

> In the long run, an economy can grow twice as fast as otherwise if its investment in education is doubled.

Not only does investment in education contribute to overall economic development, it also brings enormous benefits to individuals and their families.

A 2015 study of countries in Asia, including Timor-Leste, shows sizeable "private" returns to education. More schooling means higher incomes relative to others with less education.

"Primary education yields an average return of 7.3% per year of schooling, secondary education yields average returns of 6.5% per year, and tertiary education yields average returns of 8.2% per year" (Peet et al., 2015, p. 70).

1.2.2 It takes time

Educating a generation of young people with a strong set of cognitive skills through a high quality formal education system will not produce quick returns. These young people need to grow into adults, obtain experience and opportunities before they can reap the full benefits of greater labour productivity and economic growth from this investment.

> "While the rewards are large, they also imply that policies must be considered across long periods, requiring patience" (Hanushek and Woessmann, 2010, p.251).

1.2.3 Education-led Growth is sustained and builds momentum

Human capital is a "stock" – once we have a well-educated population, they remain well educated for the rest of their lives. So the productivity gains that arise from improved human capital will be sustained.

Improved educational outcomes also build on themselves – once adults are well educated, they continue to build their own human capital with ongoing learning, plus they invest more in their own children's education. So the "stock" of human capital continues to grow, and the economic growth benefits also continue.

1.2.4 Quality Quality Quality

What matters to improving growth is not how many years of education a person has, but the knowledge and skills they acquire. This depends critically on the quality of their educational experience.

International evidence shows the importance of educational outcomes as a predictor of the benefits of education for economic development. The purpose of attending school is to learn, to add to a child's knowledge and skills. Whether education has any effect on economic outcomes depends on how much was learned. In turn, learning is all about quality of the educational experience.

The evidence in the table here from Hanushek and Woessmann (2012) is very instructive. It presents three different models seeking to show how long run economic growth can be explained by the level of education and skills.

Model (1) suggests that more years of schooling appear to result in better growth.

Model (2) suggests that the higher cognitive skills of adults (mainly literacy and numeracy skills), the better the level of economic growth.

Model (3) includes both of these factors, and shows that by far the most important of these is skills.

Table 1
Alternative estimates of long run growth models.

	(1)	(2)	(3)
Cognitive skills (*A*)		2.015	1.980
		(10.68)	(9.12)
Years of schooling 1960 (*S*)	0.369		0.026
	(3.23)		(0.34)
GDP per capita 1960	−0.379	−0.287	−0.302
	(4.24)	(9.15)	(5.54)
No. of countries	50	50	50
R^2 (adj.)	0.252	0.733	0.728

Source: Hanushek and Woessmann (2012a).
Notes: Dependent variable: average annual growth rate in GDP per capita, 1960–2000. Regressions include a constant. *t*-Statistics in parentheses.

In fact, once you control for level of skills, the evidence suggests that having more years of education actually adds nothing to economic growth.

> "Differences in economic growth across countries are closely related to cognitive skills as measured by achievement on international assessments of mathematics and science. In fact, once cognitive skills are incorporated into empirical growth models, school attainment has no independent impact on growth." (Hanushek, 2013, p. 211)

As with other studies, this paper also shows that it is especially the level of skills in maths and science that are the strongest indicator of improved economic growth.

How are the numeracy levels of secondary school students in Timor-Leste compared to other countries? Are they improving? The short answer is that we do not know. There is little hard data to help us answer that question. Given its importance to economic growth and development, it would seem to be a high priority to address this deficit in information – more about that later in Section 2.3.

> **"…** one standard deviation higher cognitive skills of a country's workforce is associated with approximately two percentage points higher annual growth in per capita GDP. This magnitude is clearly substantial" (Hanushek e al., 2012, p.300).

1.2.5 Economic effects vary by Levels of Education

A survey of empirical studies by Peet et al (2015), shows that:

- Improvements in primary, secondary and TVET education produce productivity improvements in jobs that are less complex, that involve following standard processes.

- Improvements in higher education lead to increases in productivity through greater innovation. Higher education can produce innovators, people with the capacity to study and learn about how things are currently working, and explore ways to improve things. This mindset is the heart of innovation, and the key to economic development (Aghion et al., 2009).

  "The average return to each year of primary education is 7.3%, secondary education is 6.5%, and tertiary education is 8.2%" (Peet et al, 2015, p. 74).

A study of education returns in Thailand has identified the potential importance of vocational secondary education, in preference to general secondary. The results show that "Workers with vocational secondary education receive higher wages than workers with general secondary education" Blunch, N. (2016, p.243).

1.2.6 Education-led economic development supports Gender equality

Several studies have shown that education has higher income effects for women than men.

"The returns to schooling tend to be higher for women than for men in most countries…this is true in lower income countries" (Montenegro and Patrinos, 2013, p.17).

After taking the opportunity to study a business course in a university in Australia, Jonia has grown in confidence in her work. She has moved into a management role in a growing hospitality business, applying the skills and problem-solving strategies she acquired during her studies.

1.2.7 Education: the biggest factor in economic mobility

Intergenerational Economic Mobility is a term that describes how one generation in a family is able to move to a higher economic status than that of their parents. Consider a child brought up in a rural areas with parents who have virtually no formal education and who work as subsistence farmers. How does that child forge a different economic future for themselves? The key is education. It is the key that unlocks the door of opportunity. Of course, the well educated young adult must still open the door and take the initiative to pursue economic opportunities that make use of their education, but the first step that makes these opportunities possible is still education.

Juliana grew up with her family in LosPalos, and attended the local primary school. Her parents work in small-scale agriculture, and she grew up in a simple home with no electricity, using just horses for transportation. Unlike most others in her community, her Dad really wanted his daughters to stay in school and get a good education. Events created an opportunity for Juliana to spend some time in a top quality secondary school away from home, where she learned a great deal. This opened the door to studying at university in the USA, and now Juliana has a job in Dili supporting businesses in Timor-Leste to flourish. In her spare time, she uses social media to mentor students in essay writing, preparing CVs, completing scholarship applications, preparing for interviews – always encouraging her fellow young Timorese to study hard and take the opportunities that education can bring. Remarkably, despite her success already, Juliana has developed a passion to learn and make the most of her learning. Her next step will be Masters degree study so she can be better equipped to contribute even more effectively in her work. She hopes in future to start her own business supporting business incubation and business growth in Timor-Leste. Some of these businesses will be in agriculture, so educated young people can contribute to modernising the agriculture sector.

"... the role of education to promote the intergenerational income mobility and social equity is getting stronger" (Guo and Min, 2008).

1.2.8 Education contributes positively to almost every indicator of social well being

Empowerment of women, reduced family-based violence, health and nutrition of adults and children, ability to cope with natural disasters and life shocks, …

Empirical study after study show that higher levels of education are associated with better outcomes in all of these dimensions, and more.

> *"A population that is better educated has less unemployment, reduced dependence on public assistance programs, and greater tax revenue. Education also plays a key role in the reduction of crime, improved public health, and greater political and civic engagement. Investment in public education results in billions of dollars of social and economic benefits for society at large" (Mitra, 2015).*

BUT EDUCATION IS NOT ENOUGH

A well argued objection can be put to this emphasis on education as the key to economic prosperity. Here is one Timor-specific way to express this contrary view.

> *"Dili is full of secondary-educated and university educated young adults, and there are no jobs for them! Education provides a recipe for creating false hope and expectations, only to be dashed in light of lack of employment."*

Is there an answer to this objection? Here are a couple of responses.

> *First, while education is the most important strategy for long term, broad-based economic growth, it cannot be the only strategy. There must be a range of investments in job creation, supporting new businesses, improving key infrastructure, etc. Education is the most important but not ONLY factor to a growing and prosperous economy.*

> *Secondly, the unique challenge facing educated young people in Timor-Leste is primarily with quality of education. While many have completed schooling or even courses at local universities, there is evidence that basic numeracy and literacy skills remain quite low, and that these students are not well equipped for work in the formal sector.*

In countries with high youth unemployment, evidence suggests that it is the less educated who are far more likely to experience long term unemployment. OECD (2019) presents some examples: compare the unemployment rate for those who did not finish high school with those who had completed a Tertiary course, summarised in this table.

Country	Unemployment rate	
	Did not finish high school	Completed a Tertiary course
Spain	23.4%	9.3%
South Africa	27%	6.2%
Slovak Republic	27.3%	2.6%

Why does this disparity exist? Those with better education have several options available to them. First, they are first in line for any skilled jobs that are available. Second, the well educated are often able to claim the lower skilled jobs over the less educated. Even though the jobs do not require their higher level of education, the soft skills of discipline, capacity to learn, communication etc mean that the better educated person is more attractive to employers. Thirdly, and importantly for the Timor-Leste context, a quality education gives young people the skills, confidence and resourcefulness to be able to pursue creative opportunities for employment. They start businesses, relocate in search of work, are confident to retrain for other types of work, etc. Education is also seen as essential for

producing both the basic literacy and numeracy, technical skills, and problem-solving skills and confidence that make the ideal entrepreneur. Entrepreneurs create their own work!

> Education is important for stimulating entrepreneurship for several reasons.
> - First, education provides individuals with a sense of autonomy independence and self-confidence.
> - Second, education makes people aware of alternative career choices.
> - Third, education broader the horizons of individuals, thereby making people better equipped to perceive opportunities.
> - Finally, education provides knowledge that can be used by individuals to develop new entrepreneurial opportunities.
>
> Ropaso and Finisterra do Paço (2011, p.453)

So why are so many educated young people unable to find work in Dili? The unique challenge facing educated young people in Timor-Leste is primarily with quality of education. Despite high levels of formal education achievement, the low levels of basic numeracy and literacy skills means that the experience of these young people is more similar to that of low-educated young people in other countries, who are not able to secure high-skilled employment, not able to create alternative employment, and not able to seize the entrepreneurial opportunities that exist in Timor-Leste.

This analysis is not meant to diminish the many challenges young people experience in finding employment in Timor-Leste. The main point is that those with high levels of cognitive skills and work-related skills are far more equipped to overcome these challenges.

Gotys received his secondary education in a rural school in the 1990s. In those days teachers would help students learn in the classroom on Monday to Friday, then help them learn practical skills of working the land on Saturdays. Gotys looks back on that time as invaluable in learning not just practical things, but also the values of planning, working consistently, and working towards a goal.

Progressing to higher education in Dili was not such a highlight for Gotys. He was learning about computers in a class with more than 50 students, and only one computer to practice on. Most of the "learning" was purely theoretical, and Gotys felt he learned very little.

Gotys saw the value of hands-on experience, so began to learn his computer skills by volunteering with a local IT business. Through that experience, he learned how to teach himself – "Google has the answers to many questions, once you know the way to ask them".

Gotys still plans to finish that course at University, because cementing his learning in a formal qualification is important. But his main advice is:

- *Learn by doing as much as you can. Volunteering is often a good place to start.*
- *We need practice at applying what we learn alongside the classroom theory.*
- *Planning, consistent hard work, and being goal focused make you much more likely to succeed in both study and work!*

A problem of Political will?

Often governments are looking for economic development solutions that deliver comparatively fast results (Hickey and Hossain, 2019). This may be because of the need to impress voters before the next election, or simply because the pressing social and economic needs associated with being a low income country create an impatient desire to grow out of that situation quickly.

Education-driven development is often not seen as politically attractive: there is just not the patience to wait for a whole generation of well-educated young people to slowly populate the labour market and stimulate innovation, improved productivity, and increasing growth.

How can an Education-led economic growth strategy be more politically attractive?

Much international research has explored the politics of education reform. Some lessons:

- ***Strong leadership:*** Reform is most likely to succeed when a visionary leader becomes a champion for the cause, driven by a strong conviction for the value of education, and possessing the political skill and capital to be able to influence change (Bruns and Luque, 2015).
- ***Broad-based commitment:*** People will vote for political leaders who show a commitment to their citizens. Education affects all – virtually every household in the country has a school-aged child. What better act of faith in one's citizens than to invest in them, entrusting the future of your country to the people, empowering them to create wealth and prosperity.
- ***Ideas and Evidence:*** Reform is more easily achieved when there exists a strong community of people and organisations that continually support the need for reform and help shape the best approaches.
- ***Measurement:*** reliable and independent evaluation of student and teacher performance provides irresistible pressure for change (e.g. Finger, 2017).
- ***Institutional Pressure:*** Consider Indonesia in 2005, when a Constitutional amendment was passed mandating that at least 20% of all Government expenditure ought to be in Education (World Bank, 2018; McLeod, 2008). This innovative response was seen as one factor that led the re-election of the President in 2009 with an vastly increased majority. For Timor-Leste to achieve that level of spending would require almost three times the current Education ministry budget allocation.

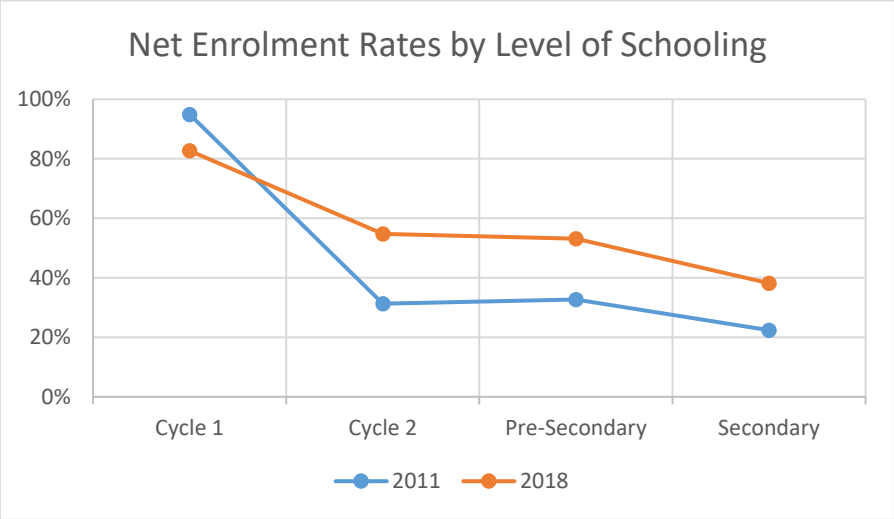
It is hard to imagine a government being rejected by the citizens in an election if they showed a strong commitment to investing in their children …

2.What are Current Realities?

This section will highlight some basic facts about the current situation in School Education in Timor-Leste. This is not a comprehensive overview, more a snapshot that highlights some of the issues that need to be addressed into the future.

2.1 Demand for Schooling

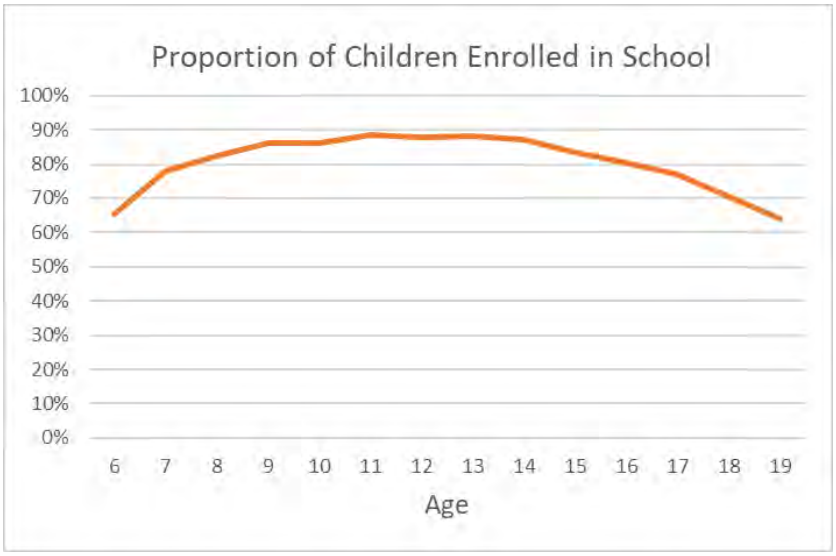
In the first ten years since independence, there was a rapid growth in the number of teachers and in the number of children attending schools. Enrolment rates for primary aged children increased substantially. The following graph shows how Net Enrolment Rates (the percentage of children in a given age group who are attending the appropriate level of school) have changed since then, between 2011 and 2018.



Source: EMIS, Ministry of Education

Enrolment rates in early primary school level (Cycle 1) had reached a high point in 2011, well above 90%; but this growth had not yet fed through into pre-secondary and secondary school, with rates around 30% and below. Things have improved significantly by 2019, with Pre-secondary enrolments increased to above 50%, and secondary rates around 40%. There is, however, still scope for sizeable growth in demand for pre-secondary and secondary education.

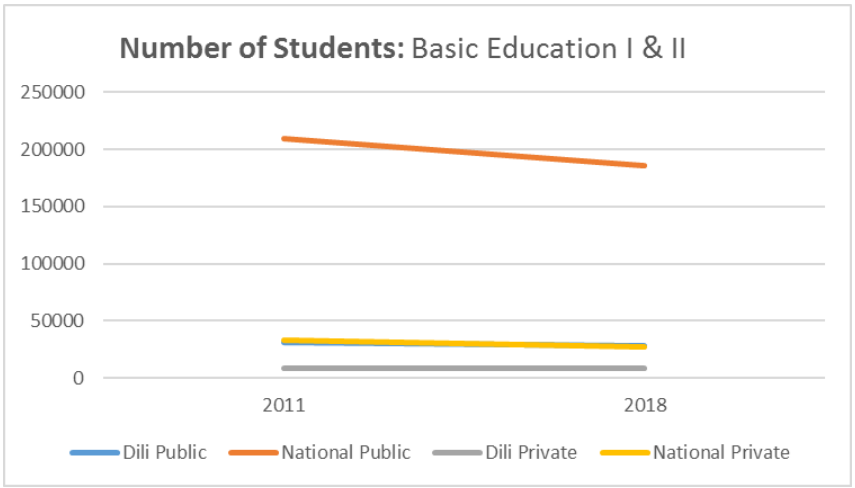
Another way to look at enrolment rates is by age. This can be done using Census data, and here is how things looked in 2015.

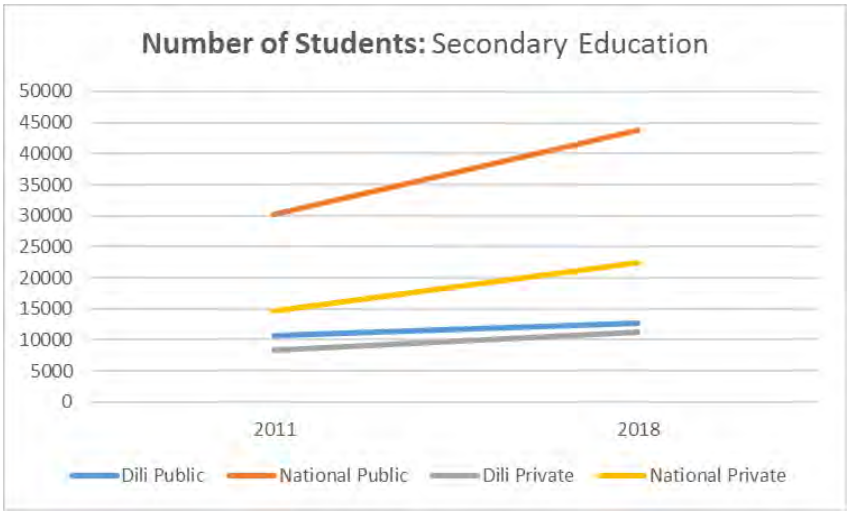


Source: Census 2015.

The lower enrolment rates for 6 and 7 year-olds suggests there remains some issue with delayed start to school. After this, enrolments are reasonably high, approaching 90%, until age 14, when rates begin to decline.

The next set of graphs show the trends in enrolments this decade in Basic and Secondary Education, separating out Dili from the rest of the country, and comparing Public and Private Education.

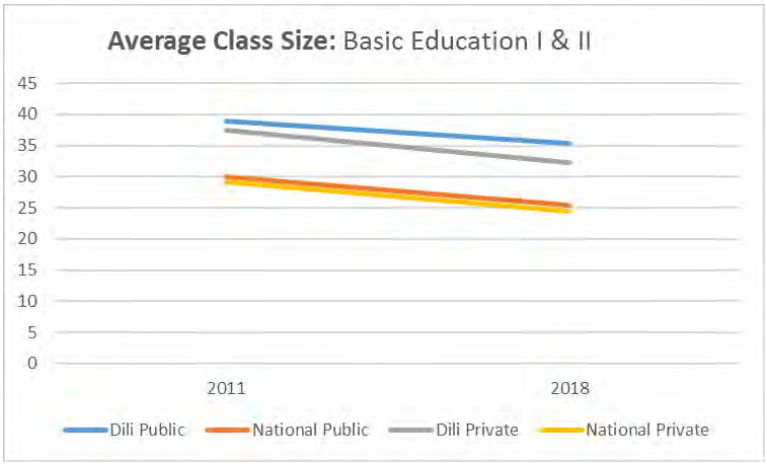


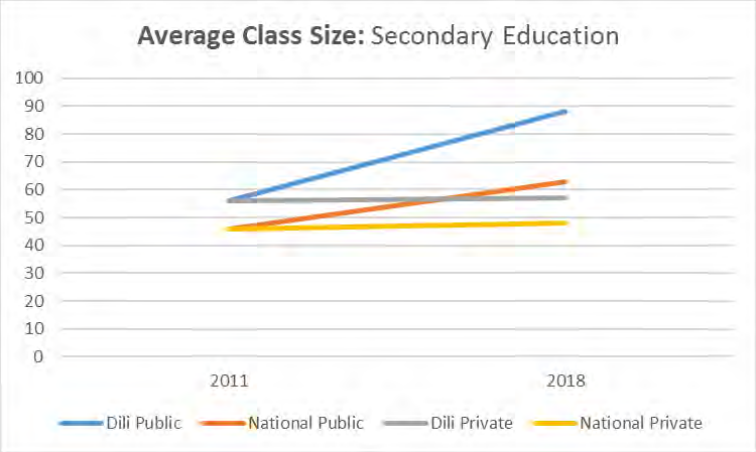


What do we learn from these graphs?

- There is a small decline in the number of students enrolled in Primary schools. This is mainly caused by a demographic trend of slowing fertility rates between 2003 and 2010, as reported in the Demographic and Health Survey (2010) report.
- The vast majority of Primary school enrolments are in Public schools, not private.
- Secondary school enrolments have grown significantly over the period, by about 50%, in both Public and Private schools. The improved Primary school enrolments during the 2000's have fed through into growing demand for secondary school during this period.
- 37% of Secondary students are in Private schools.

Not surprisingly, this rapid growth in demand for Secondary level schooling has placed additional strain on the system. Student-staff ratios have been improving in Basic education, but worsening substantially in Secondary level. This is highlighted in the next graphs, which look at Average Class Sizes.





This data shows some interesting patterns and trends:

- At basic Education levels, the average class size in Private schools is quite similar to that for public schools. Class sizes are not excessive, with average of around 30 in 2011, and a healthy decline to around 25 in 2018.

- The noticeable gap in Basic education is between Dili and the rest of the country. Dili primary schools have an average 5 more students than the national average, in both private and public.

- The situation was similar in Secondary education in 2011: little different in class sizes between private and public schools, larger classes in Dili (about 10 students more per class), and generally large classes of around 47 (nationally) and 57 (Dili).

- There has been a dramatic change in the secondary education landscape for public schools in the last few years. Nationally, class sizes grew from 47 to 62, and in Dili, from 57 to an average of 88! This is a huge growth in both areas, but especially in the Dili secondary schools. The main pressure here seems to have been growth in demand – a 48% growth in student enrolments in secondary schools between 2011 and 2018.

2.2 Quality

Measuring Quality of Education is very difficult. The ideal measures are associated with "outcomes" – what students are learning through their education. There is some evidence in Timor-Leste about outcomes from education, but it is very limited – see details later this section. In the absence of a range of outcome measures, the next best measures are those which focus on engagement with schooling. We show some brief results on late starters and grade repeaters, and then a set of more comprehensive results analysing progression through the grades.

2.2.1 Late starters

While the official school commencement age is 6, a large percentage of students are "late starters". International evidence suggests that starting late is a predictor of poor progression through schooling generally, hence it is worth a particular focus.

Using the 2015 Census data, we have developed a range of models that show the characteristics of late starters, and predict their likelihood of this disadvantage. We will not report full results here, but this is a snapshot of the magnitude of disadvantage certain children experience compared to others.

Late Starters …

Dina: Lives in urban Dili, in a house with good quality floor, and a parent who works in paid employment and uses a bank account.

Jose: Lives in a rural area outside Dili, in a poor quality house with dirt floor, and his father is a subsistence farmer, does not use a bank account.

Jose is 32 percentage points more likely to have a delayed start to school.

If Jose had a disability, he would very likely never start school.

2.2.2 Grade Repeaters

Ministry of Education data shows the proportion of students in school who are repeating the grade they were enrolled in the previous year. Here is some of this data for 2018:

	% of students who are Repeaters (2018)			
	Basic Education I & II		Secondary Educatior	
	Public	Private	Public	Private
Dili	8.82%	2.54%	3.50%	0.53%
National	16.35%	9.43%	1.84%	0.96%

These Primary School repeater rates are among the highest in the world, outside Africa. Rates are clearly much higher in public schools than private, and much lower – possibly unrealistically low – in Secondary school levels.

2.2.3 Grade Progression

Next we report a more comprehensive set of results for Grade Progression. This addresses one important question: are student progressing through the grades at the expected rate (one grade per year)?.

Progression can be measured by comparing the Grade the child has actually achieved with the Grade the child ought to have achieved given their age, if they had progressed at the expected rate.

The population of interest in this section is individuals aged between 7 and 18 in the July 2015 Timor-Leste Population and Housing Census. We are interested in measuring their school progress, and exploring the factors that explain the variation in school performance.

In Timor-Leste, children normally start school at the age of six. The first nine years of public schooling, primary education and lower secondary education, is free and compulsory. Table 1 presents the education structure in Timor-Leste.

Table 1: Education Structure in Timor-Leste

Education Level	Official entry age	Duration
Primary school	6	6 years
Pre-Secondary	12	3 years
Secondary	15	3 years
Polytechnic/Diploma	18	3 years
University	18	5 years

We use the responses to Question P31 in the 2015 Census (Appendix Figure 1) to gather the information on each individual's school attendance and education attainment. The following analysis focuses on two indicators of progression through school:

1. Whether a child progresses as expected or better, or falls behind;
2. The gap between a child's actual progress and the age-appropriate expectation.

2.2.3.1 Children's School Progress in General: Some Summary Statistics

Progressing as Expected or Better, or Falling behind

This analysis uses the 2015 Census information on each individual's age and highest level of education completed. As an example, for a 12 year-old child, the age-appropriate level of education completed is expected to be Primary school grade 6, according to Table 1. We also observe this individual's actual highest education completed from the Census. If the actual completion level is equal to or higher than the age-appropriate completion level, the individual has been progressing normally. Otherwise, the individual lags behind.

It is not uncommon for children born late of the year to start school about one year late, as the official enrolment cut-off month is March according to the law in Timor (see the detailed discussion in the Appendix). To allow for this, and to allow for other reasonable delays in progression, if a child's actual completion level is two or more grades less than the theoretical expectation, we count this child as lagging behind; otherwise as normal progress.

Table 2 shows the highest education completed for individuals aged between 7 and 18 in the 2015 Census. Values are in three categories:

Blue: Values on the diagonal are the numbers who are progressing through school at the rate predicted by their age. To the right of these values are children who appear to be progressing one year ahead of the expected grade; this is partly due to timing of birthday and school commencement etc, and also likely to be some reporting error. These students are best thought of as also being at the age-appropriate level.

Grey: These are children who are only one year behind "expected". While they are not progressing as expected, being only one year behind is not a major problem, so we do not treat these as "lagging behind".

Green: These are the children who are two or more grades behind, and we classify as "lagging behind".

Table 2 Highest Level of Education Completed for Individuals aged between 7 and 18

: Age-appropriate higheset education completed.

: One grade lower than age-appropriate higheset education completed

: Two or more grades lower than age-appropriate higheset education completed

Highest Education Completed / Age	None	Primary						Pre-Secondary			Secondary /Technical Education			University/ Diploma / Non-formal	Total
		Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 1	Class 2	Class 3	Class 1	Class 2	Class 3		
7	19%	37%	44%												
8	14%	18%	34%	34%											100%
9	10%	9%	22%	31%	28%										100%
10	10%	5%	13%	22%	26%	24%									100%
11	8%	3%	7%	15%	23%	25%	19%								100%
12	8%	3%	5%	10%	17%	23%	25%	10%							100%
13	7%	2%	4%	6%	11%	18%	23%	19%	9%						100%
14	8%	2%	3%	4%	6%	11%	17%	20%	19%	10%					100%
15	10%	2%	3%	3%	4%	8%	12%	15%	18%	16%	11%				100%
16	10%	2%	2%	2%	3%	5%	8%	11%	15%	17%	13%	11%			100%
17	11%	1%	2%	2%	2%	3%	5%	7%	11%	15%	16%	14%	11%		100%
18	13%	1%	2%	2%	2%	2%	4%	5%	8%	11%	13%	14%	17%	4%	100%

Some observations:

- As children get older, the proportion of children falling behind increases significantly. For example, for all the 9-year old children, about 19% were 2 or more grades behind the age-appropriate grade, while the statistic increases to 43% for 12-year olds, and 57% for 15-year olds.

- The proportion not having completed any grades roughly fluctuates around 10% for all ages between 9 and 17 years. This is the column labelled as "None" in Table 3, which includes:
  -Children who were attending school but hadn't completed any grade yet;
  -Children who had never attended school;
  -Children who had attended school but left without any grade completed.
  The majority of the "None" cohort was made up of children who were not currently attending school.

9.4% of children aged 12-18 have not completed any grades at school. Many of these are children with disabilities.

A 10-year old child who is progressing normally would have completed Grade 4 by this age. 28% of students are two or more grades behind already.

59% of 16 year-old students are two or more grades behind their expected grade.

Figure 1 shows the proportion of children lagging behind for each municipality. There is obvious variation between municipalities: the best is Dili, with the proportion being 26%, and the worst is 57% (Oecussi), followed by 55% (Liquica and Ermera).

Figure 1

Percentage of individuals aged 8 to 18 lagging by at least 2 grades for each municipality

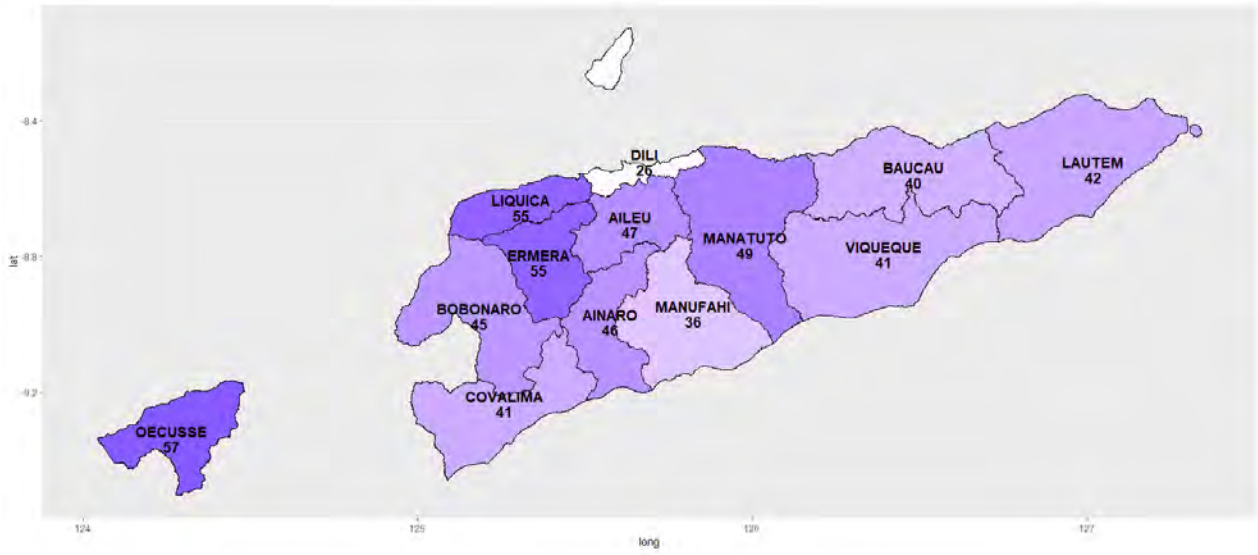


Figure 2 shows the variation in the proportion of children lagging behind across the Administrative Posts within each municipality, with the varied shading. Table 3 tabulates the actual proportions for each Administrative Post. There can be quite wide variation within a municipality. For example, in Ainaro, the proportion ranges from 27% (Ainaro Administative Post) to 60% (Hato-Builico).

Figure 2

Percentage of individuals aged 8 to 18 lagging by at least 2 grades for each Municipality

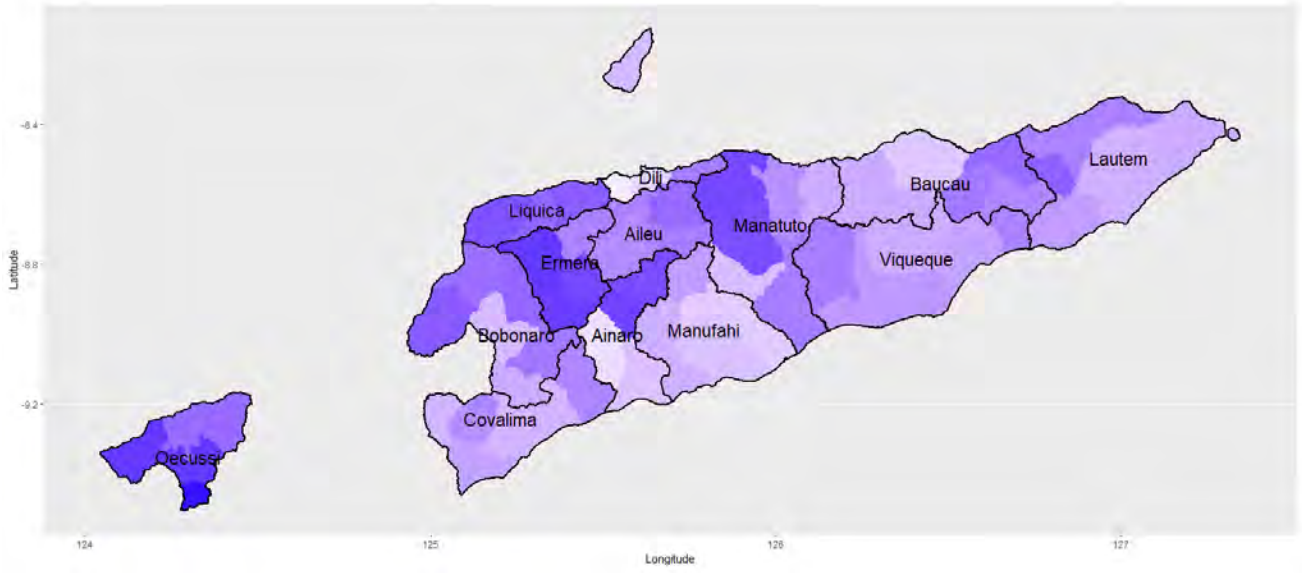


Table 3: Percentage of individuals aged between 8 and 18 lagging by more than 1 grade

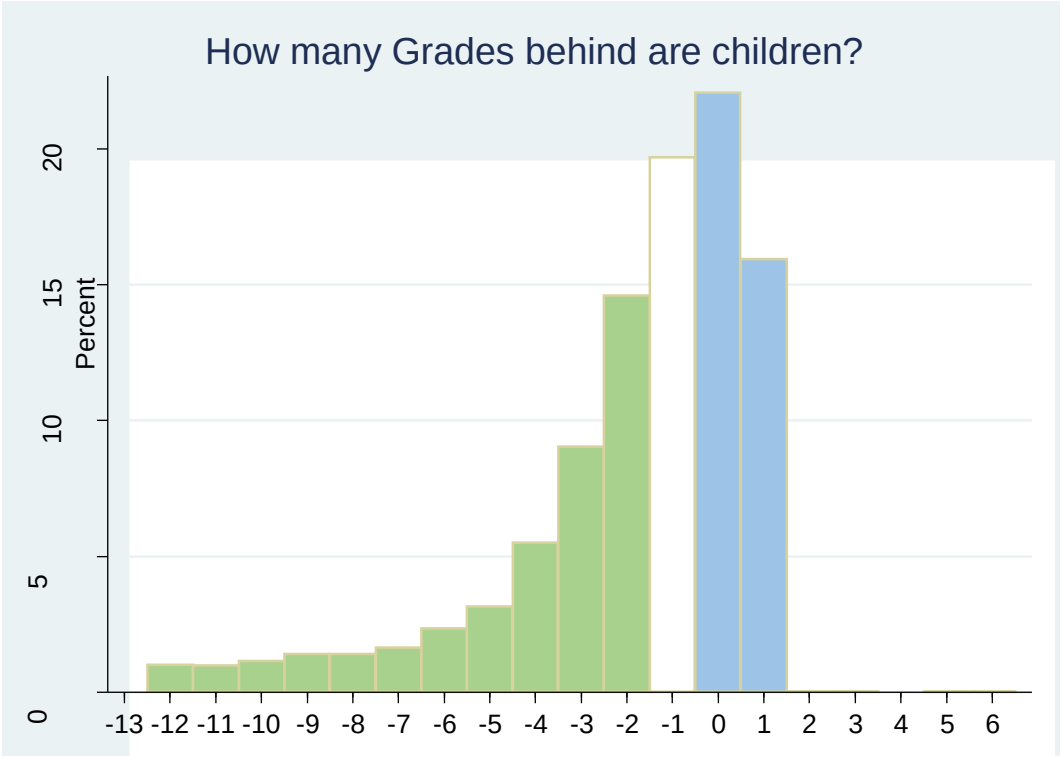
Municipality	Admin Post		Municipality	Admin Post	
Aileu	Aileu Vila	45%	Ainaro	Ainaro	27%
	Laulara	47%		Hato-Builico	60%
	Lequidoe	48%		Hato-Udo	33%
	Remexio	52%		Maubisse	58%
Baucau	Baguia	46%	Bobonaro	Atabae	51%
	Baucau	32%		Balibo	55%
	Laga	52%		Bobonaro	49%
	Quelicai	49%		Cailaco	53%
	Vemasse	38%		Lolotoe	38%
	Venilale	38%		Maliana	35%
Covalima	Fatululic	46%	Dili	Atauro	35%
	Fatumean	36%		Cristo Rei	29%
	Fohorem	44%		Dom Aleixo	24%
	Maucatar	46%		Metinaro	48%
	Suai	36%		Nain Feto	20%
	Tilomar	40%		Vera Cruz	26%
	Zumalai	50%			
Ermera	Atsabe	61%	Lautem	Iliomar	41%
	Ermera	47%		Lautém	47%
	Hatulia	62%		Lospalos	37%
	Letefoho	59%		Luro	54%
	Railaco	47%		Tutuala	38%
Liquica	Bazartete	55%	Manatuto	Barique	48%
	Liquiça	53%		Laclo	59%
	Maubara	57%		Laclubar	58%
				Laleia	38%
				Manatuto	44%
				Soibada	34%
Manufahi	Alas	33%	Oecussi	Nitibe	62%
	Fatuberlio	31%		Oesilo	62%
	Same	37%		Pante	52%
	Turiscai	41%		Passabe	68%
Viqueque	Lacluta	48%			
	Ossu	38%			
	Uato-Lari	40%			
	Uatucarbau	47%			
	Viqueque	42%			

2.2.3.2 Gap between Actual Progress and Age-appropriate Expectation

The other measure of a child's progress in school is to look at the gap between his/her actual progress and the age-appropriate expectation. This measure quantifies the number of grades/years that a child falls behind, or progresses in advance.

To examine the unconditional distribution of the progress gap, Figure 3 provides the histogram for individuals aged between 8 and 18 from the 2015 Census. For this age group, a little over 35% of children progressed as expected (or one grade in advance) (Blue colour), 18% were one grade behind (white), and the remaining 47% fell behind by at least 2 grades (green).

Figure 3
Gap in Grade progression



2.2.3.3 Factors Explaining Children's School Progress: Regression Models

This section will report two sets of regression models, using the two measures examined in the previous section. These models explore the social and economic factors that can explain the variation in children's school progress, and try to quantify their effects.

Model 1: Progressing as Expected/Better, or Falling behind

The *Progressing as Expected* variable is a binary outcome variable. In this case, we estimate a linear probability model. There are other possible model specifications, such as logit or probit models. The choice of linear probability model is largely due to its simplicity in interpreting the estimated coefficients.

The model we estimate considers a range of possible factors that might explain why some children are more likely than others to fall behind in their progress through the grades. The model results are given in Table 4. Here are some interesting results (all ceteris paribus):

- Compare girls and boys: a girl is 6 percent more likely to progress well through the grades. This is an interesting result, since in many contexts, girls tend experience educational disadvantage, as parents prioritise educating their sons. In contrast, it seems in Timor-Leste, based on this indicator, that girls are doing significantly better than boys.
- Children from rural areas are 6 percent more likely to experience delays in their progression through the grades, compared to urban children.
- Children whose mothers have some education are much more likely to progress well in school (13 percentage points more likely)
- Children with a disability experience a significant disadvantage, being 19 percentage points less likely to progress through the grades.
- What is the role of poverty? The model includes indicators of the multidimensional poverty index (MPI) (see Cornwell, Inder and Datt, 2015 for details of this Index for Timor-Leste). The six household livelihood categories of the MPI are considered: access to clean water, adequate toilet facilities, use of clean cooking fuel, access to electricity, having a concrete or wooden floor and owning a selection of basic household assets. Once included in the model, it is clear that poverty is very relevant to educational disadvantage. A child from a household which is deprived in all 6 areas is a huge 25 percentage points more likely to be falling behind their expected grade than a child with no deprivations.
- Another way of capturing economic status of a child's household is to look at the main economic activity of the household head. The model includes a range of variables showing the impact of the various categories of work, from government employee (the base) to private employee, own-account worker, etc. The results confirm that children of government employees are most likely to progress well through the grades, while the most disadvantaged are children from households

with own-account workers (i.e. subsistence farmers), where children are 10 percentage points less likely to progress through the grades as expected.

- Lastly, the model also measures differences across municipalities. A few municipalities show better progress through schools than Dili – Baucau (2% better), Viqueque (3%), Manufahi (5%). In contrast, some performed much worse than Dili – Oecusse (12%), Liquica and Manututo (11%) and Ermera (7%) being the worst performers.

Note these effects are cumulative, having been estimated within a multiple regression context. This means children who are disadvantaged in several areas will experience a cumulating effect on their school progression.

We met Dina and Jose earlier …

These (fictional, but realistic) children can illustrate the cumulative effect of social and economic disadvantage on progress through school.

Dina: Lives in urban Dili, in a house with good quality floor, a toilet and clean water supply, and has a parent who works in regular employment with the government. Her mother attended school.

Jose: Lives in a rural area outside Dili, in a poor quality house with dirt floor, and his parents are subsistence farmers with no formal education.

Jose is around 70 percentage points more likely to have a delays of two or more grades in his progress through school. This is an absolutely huge social and economic disadvantage.

One concern with the model results in Table 4 is the potential sensitivity to the age of the child. We see from Table 3 that older children are more likely to fall behind, simply because there are more years for the circumstances to arise that cause them to miss on progressing through the grades. It is thus possible that the model reported in Table 4 would be quite different for children of different ages.

To investigate this, we re-estimated the model for each age cohort separately, from age 8 to 18. Figures 4.1 to 4.3 show the estimated coefficients for these models for each age group.

The general pattern from these models is that most estimates become worse as children get older. For example, for 8-11 year-olds rural children are only a small amount (1-2 percentage points) less likely to progress through the grades than urban children. But for 14-18 year-olds, the rural-urban gap is much larger, with rural children 8-15 percentage points more likely to fall behind.

Table 4

Modeling *Progression through Grades as Expected*

Data: Children Aged between 8 and 18 (Census 2015) 257,307 Observations R-squared: 0.24

	Coefficient	P value
Female	.06	0
Rural	-.06	0
Disability	-.19	0
Mother with schooling	.13	0
Age	-.05	0
Multidimenional Poverty:		
1 dimension deprived	-.03	0
2 dimensions deprived	-.10	0
3 dimensions deprived	-.14	0
4 dimensions deprived	-.19	0
5 dimensions deprived	-.23	0
6 dimensions deprived	-.25	0
Household head economic activity:		
Employee (private)	-.08	0
Employer	-.04	0
Own-account worker	-.10	0
Contributing family worker	-.09	0
Member of a producers' cooperative	-.04	0
Not employed	-.08	0
Household Agricultural Activity:		
Producing mainly for home consumption	-.01	0
Producing mainly for sale	-.02	0
Municipality		
Aileu	-.03	0
Ainaro	.00	0.35
Baucau	.02	0
Bobonaro	-.05	0
Covalima	-.02	0
Ermera	-.07	0
Lautem	-.04	0
Liquica	-.11	0
Manatuto	-.11	0
Manufahi	.05	0
Oecusse	-.12	0
Viqueque	.03	0
Constant	1.42	0

The Comparison Household: Urban; Resides in Dili Municipality; No MPI dimensions deprived; Government Employee; No Agricultural Activity.

Figure 4.1 Estimated coefficients when regression conducted on various age groups

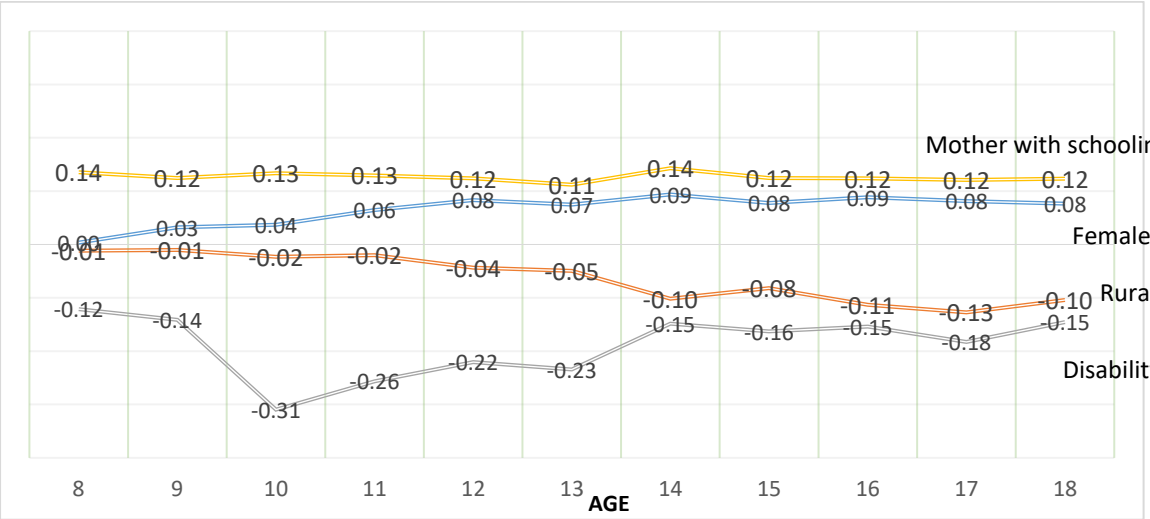


Figure 4.2

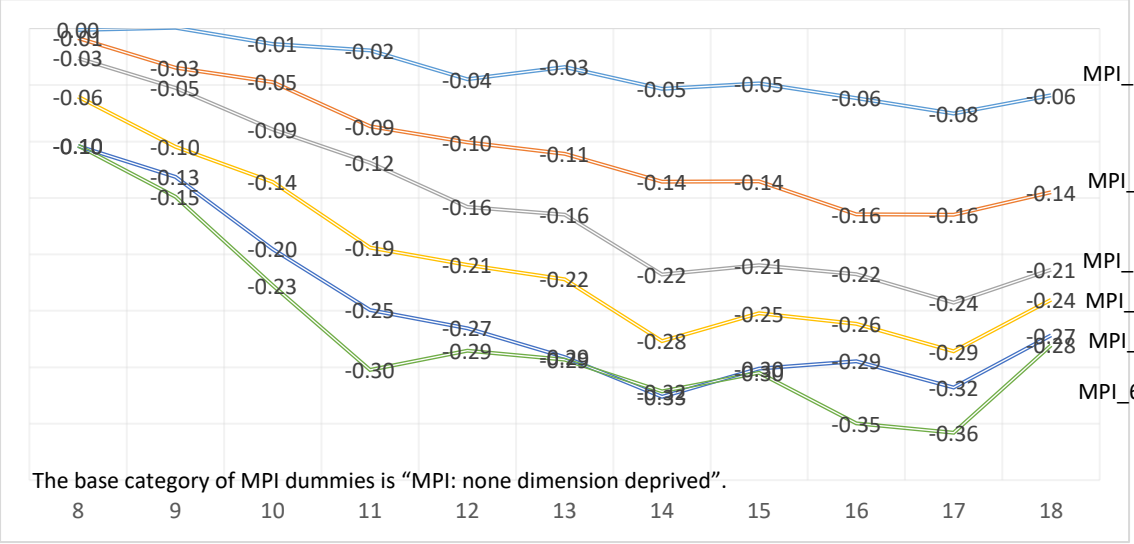
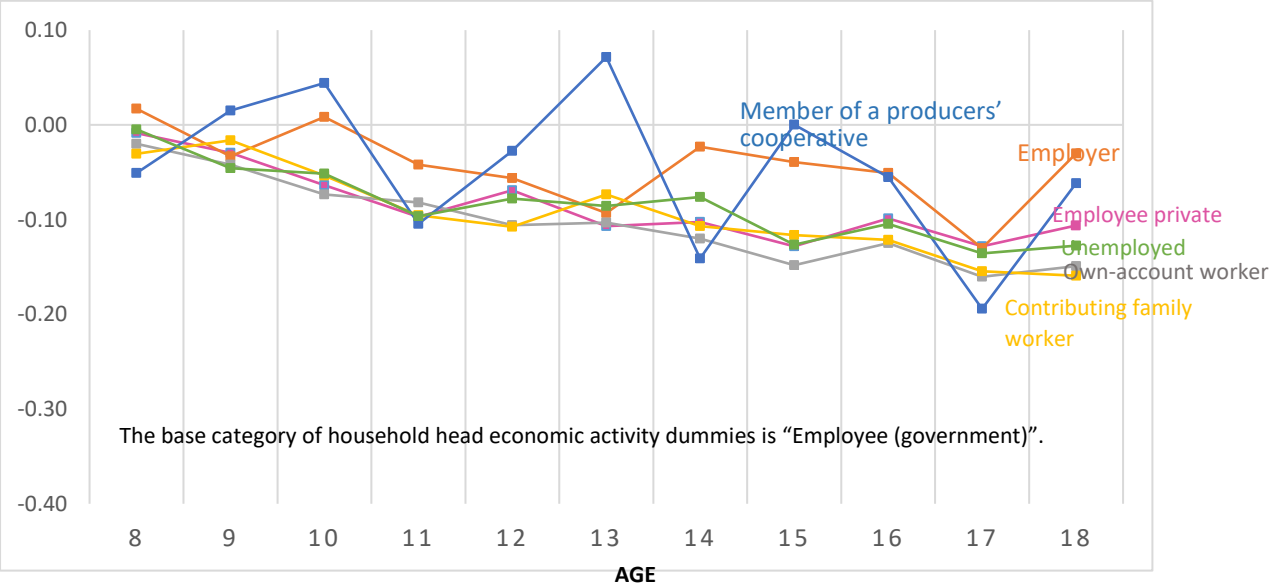


Figure 4.3



Model 2: How far are children behind their expected progress?

Next we conduct the same exercise as the previous section, but with a different dependent variable: the difference between children's actual progress and the age-appropriate expectation, in the units of grades/years. Table 5 tabulates the regression results , and Figure 4 plots the estimated coefficients as a function of children's age in the same fashion as in Figure 3.

All the factors considered are statistically significant and show a similar pattern to the results of Model 1. Children from rural, poor households who rely on subsistence farming are the most disadvantaged educationally, potentially falling several years behind their age-appropriate grade.

The effect of poverty becomes much more pronounced as age increases. For example, see Figure 5.2, for a 16-year old child from a household with all the six MPI livelihood categories deprived, this individual is on average 2.36 grades behind a similar child from a household with none of the MPI livelihood categories deprived.

Back to Dina and Jose …

Dina vs *Jose*

Urban Dili vs *Rural, from a non-Dili Municipality*

Good quality house vs *House with poor water, sanitation, etc*

Educated mother vs *Mother with no education*

Household head working for the government vs *a subsistence farmer*

If they were both 10 years old, Jose will already be 3 grades behind Dina (on average).

If they were both 17 years old, Jose will be more than 6 grades behind Dina!

Table 5

Modeling Gap between Actual Grade and Age-appropriate Grade

Data: Children Aged between 8 and 18 (Census 2015) 257,307 Observations R-squared: 0.31

	Coefficient	P value
Female	.3	0
Rural	-.3	0
Disability	-1.6	0
Mother with schooling	.8	0
Age	-.4	0
Multidimenional Poverty:		
1 dimension deprived	-.1	0
2 dimensions deprived	-.4	0
3 dimensions deprived	-.7	0
4 dimensions deprived	-.9	0
5 dimensions deprived	-1.2	0
6 dimensions deprived	-1.3	0
Household head economic activity:		
Employee (private)	-.4	0
Employer	-.2	0
Own-account worker	-.5	0
Contributing family worker	-.4	0
Member of a producers' cooperative	-.1	0
Not employed	-.3	0
Household Agricultural Activity:		
Producing mainly for home consumption	-.1	0
Producing mainly for sale	-.0	0.9
Municipality		
Aileu	-.0	0.8
Ainaro	-.1	0
Baucau	.1	0
Bobonaro	-.3	0
Covalima	.0	0.1
Ermera	-.4	0
Lautem	-.2	0
Liquica	-.6	0
Manatuto	-.5	0
Manufahi	.3	0
Oecusse	-.5	0
Viqueque	.2	0
Constant	3.7	0

The Comparison Household: Urban; Resides in Dili Municipality; No MPI dimensions deprived; Government Employee; No Agricultural Activity.

Figure 5 Estimated coefficients when regression conducted on various age groups
Dependent variable: disparity between actual progress and age-appropriate expectation

Figure 5.1

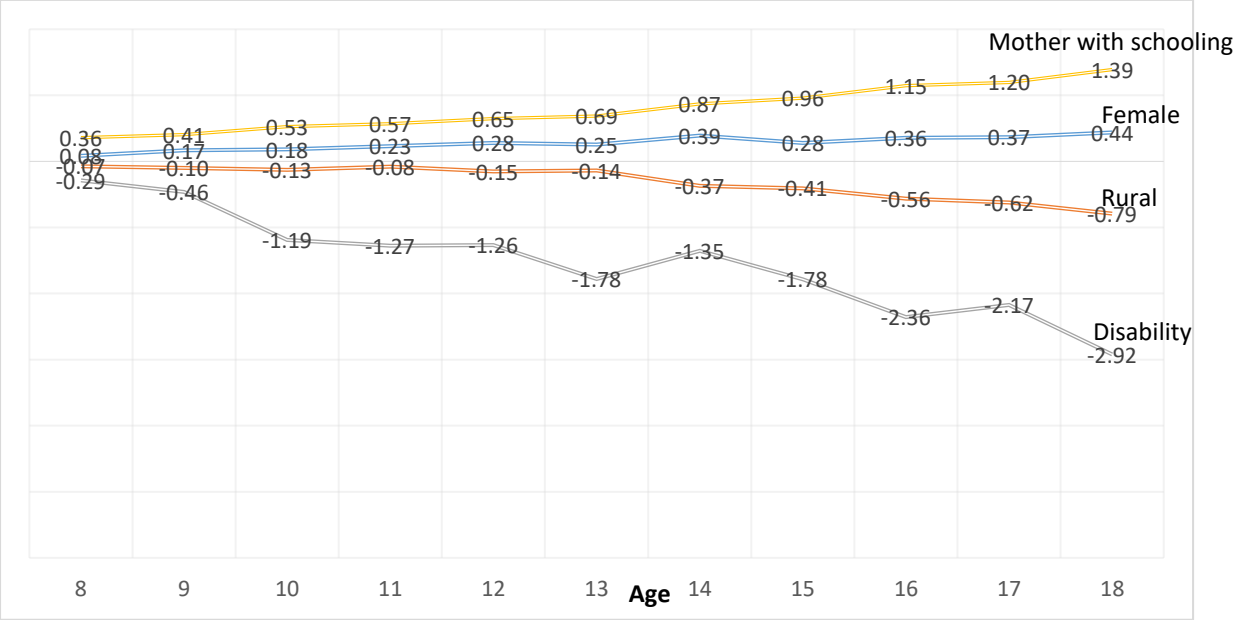


Figure 5.2

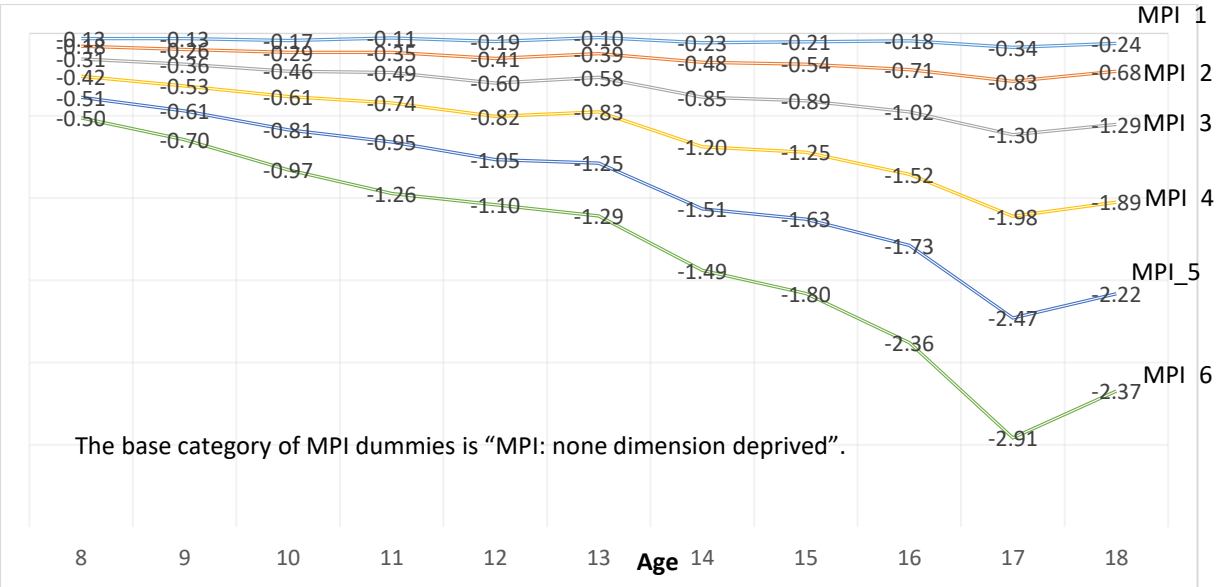
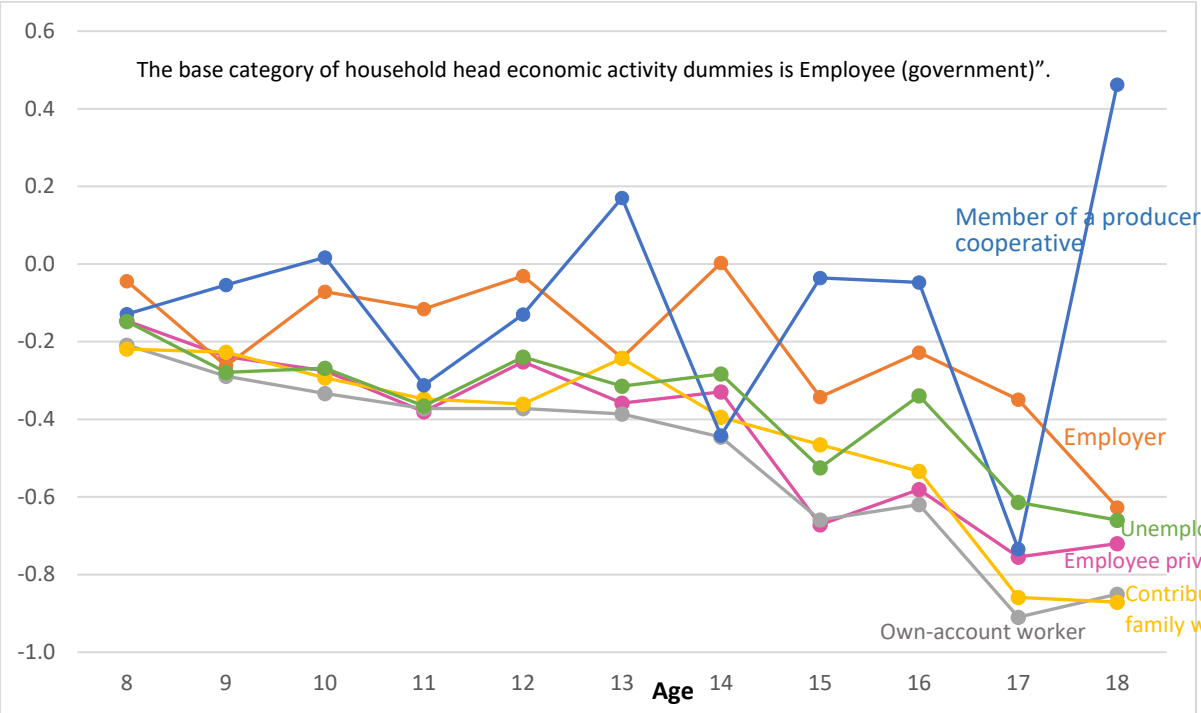


Figure 5.3


0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
The base category of household head economic activity dummies is Employee (government)".
Member of a producers' cooperative
Employer
Unemployed
Employee private
Contributing family worker
Own-account worker
8
9
10
11
12
13
Age
14
15
16
17
18

2.3 Educational Outcomes

We have focused so far on inputs to education, and on indicated progress. However, the ideal measures are based on outcomes and outputs. Education is all about students, and about learning, so clearly the best measure of a successful education program is how much students are actually learning.

At this stage there is very little externally comparable data on student outcomes / learning in Timor-Leste. There is no regular national standardized, externally verified testing of performance. This makes it difficult to measure whether or not innovations, reforms and improvements are actually having an effect, and to get a status quo indication of how the education system is working at present.

One exception to this is the Early Grades Reading Assessment (EGRA). This was performed in 2009, and repeated again in 2017 with some variations. The purpose of this was to study students in grades 1 and 2 and to learn something about their reading abilities across a number of different dimensions of reading abilities.

The EGRA was a valuable tool in the first instance in 2009, serving as a baseline prior to a program of education reform that began soon after, and continues to this day. The outcomes of the 2009 EGRA suggested that the early stages of learning were at a quite weak level. Many of the student achievement results were low. It was hoped that when the EGRA was undertaken again in 2017, there would be some significant improvement in a number of dimensions.

We have created one table here that shows how things have changed between 2009 and 2017 on a subset of the results that are reasonably comparable across the two surveys. This is one sample of EGRA results that at the least, illustrates the benefits of this kind of analysis.

Table 6: Comparison of EGRA Results for Class 1 in 2009 and 2017

	2009 EGRA (319 students)		2017 EGRA (1,031 students)		
	Mean	Percent zero scores	Mean	Percent zero scores	Gain in mean scores
Letters	27.7 /100	23%	33.8 /100	16%	**6.1***
Words	5.1 /50	67%	6.4 /50	56%	**1.3***
Nonwords	4.1 /50	71%	4.0 /50	70%	**-0.1**
Text reading	6.7 /58	72%	7.1 /58	74%	**0.4**
Fluency	6.9 wpm	72%	7.2 wpm	74%	**0.3**
Comprehension	6.9 /100	84%	14.4 /100	76%	**7.5***

* Indicates a statistically significant improvement in score

What do we learn from this table? Firstly, we can see small signs of improvement between 2009 and 2017. Across the six different types of reading ability tests, there was a statistically significant improvement in three of those six: letters, words and comprehension. That is the good news story. There is objective concrete evidence of improvement in aspects of reading abilities. Secondly, while there has been some improvement, the starting point in 2009 was quite weak, and the improvement in practical terms is still quite small. Take for example, letters: a score of 27.7 out of 100 in 2009 is a comparatively low score, and the improvement to nearly 34 over the 8 years since, while significant, is still a long way short of what one would be aiming for with students.

Even more interesting is the two columns that show the percentage of scores which were zero. This is the percentage of students who when they did these tests could not successfully attempt any of it, so they scored zero on the test. In most cases, the percentage of students who scored zero was very high. Apart from letters, the proportion of zero scores in 2009 ranged between 67% and 84%, and in 2017 between 56% and 76%. There is a very small improvement between 2009 and 2017 in the percentage of students who scored zero (statistically significant for three of the categories). The message of this aspect of the results is that there is a large percentage of students who have not engaged yet with learning and appear to have made little or no progress in these areas of reading and literacy. Whilst they are attending school, they appear to have learned little or nothing so far. This problem does not seem to have improved very much between 2009 and 2017.

Let us step back just a little from this example. The purpose here was not to do a comprehensive analysis of the EGRA results and the evaluation of the primary school education curriculum. Instead we want to illustrate the benefits of this kind of data, and of gathering this objective information. Governments and development partners can claim progress in education through evidence of increased spending or introducing new and innovative programs, but at the end of the day, it is results like this that gives us a clue about how we are actually performing. They tell us in stark reality about our current situation, and also allow us to identify if and how things are improving over a period of time.

This is the benefit of measuring outcomes first of all, but also of measuring the outcomes in an objective way. It helps us to face reality and to learn about what is currently happening, and to identify where things may be improving or not improving. We would argue that there is need for a much greater emphasis on this kind of testing. It is not about saying individual students are doing well or badly, it is about looking at the overall education system, and evaluating how it is progressing. International evidence suggests that this kind of mesurement is critical as a driver for reforms in education.

There is progress towards a greater emphasis on standardising testing that has a particular focus on the South-East Asia region. The Southeast Asia Primary Learning Metrics (SEA-PLM) is a coordinated program across South-East Asian countries, developing a range of standardized tests which will measure outcomes and allow international benchmarking for this region (ACER, 2017). This offers a great deal of potential value for Timor-Leste, who are part of that program, although progress thusfar has been quite slow, and so it will not help in the short term. What is needed in the short term is focused testing to examine the current situation, and also to provide us with accurate ways of evaluating and measuring progress as new programs of reform are introduced.

> "Standardised assessments … are powerful tools in building a strong evidence base for education policy and practice". (ACER, 2017)

3. Ways Forward

3.1 The Ministry Reform Agenda

The Current Reform Agenda is built on the National Education Strategic Plan (NESP). There is a great deal of detail in this plan (NESP, 2011), but here we summarise the main focus areas, given by the 13 "Priority programmes".

The Education Strategic Plan agenda can be summarised in three broad categories:

1. **Functioning of the Ministry of Education** (PP6, PP8-PP13)
   Planning, Human Resource management, Information Systems,
   Coordination with external partners, regional management structures

2. **Improving Teacher Quality at all levels** (PP7)

3. **Improving School Quality and Outcomes** at all levels (PP1-PP5)
   Adult Education
   Higher Education
   Secondary Education
   Primary Education
   Pre-School Education

Details of the Programmes are given in the Table on the next page.

This impressive Reform Agenda provides an excellent roadmap for developing the sector. The challenge will be with implementation, which relies on two key resources: **Funding** and **Human Resources** to lead the reform process. We will discuss these two resource constraints next, starting with funding.

Priority Programme	Categories
PP 1 "By 2015 at least half of the total population of children between three and five years old will be enrolled and receive quality Pre-School Education" (p. 54).	Growth in Enrolments in pre-school Program
PP 2 "By 2015, 95% of eligible students will be enrolled and receive quality Basic Education and student retention to Grade 9 will be significantly improved" (p. 54).	Growth in enrolments and quality of basic education
PP 3 "There will be a paradigm shift in terms of quality and relevance of Secondary Education allowing students to learn the core of scientific and humanistic knowledge needed to continue studies in Higher Education or to enter employment" (p. 55).	Major shift in quality and relevance of secondary education
PP 4 "A comprehensive system of Higher Education is expanded, which is regulated by rigorous quality standards and meets the development needs of the country (p. 55)"	Comprehensive systems for quality higher education
PP 5 "By 2015, completely eradicate illiteracy in all age groups of the population and complete the introduction of the NEP that will allow accelerated completion of Basic Education for all graduates of Recurrent Education (p. 55)"	Illiteracy eliminated and Adult education expanded
PP 6 "By 2015, a Social Inclusion Policy is developed, fully implemented and adequately financed"	Social Inclusion Policy developed
PP 7 "Improve the quality of education by substantially increasing the quality of teaching Pre-school, Basic, Secondary and Recurrent Education" (p. 56)	Improve Teacher Quality at all levels
PP 8 "Ensure that the general management functions are strengthened to provide the capacity to manage the strategic and administrative processes necessary to achieve the outcomes of the NESP" (p. 148)	Strengthen all management functions
PP 9 "Human resource management functions are strengthened to provide the capacity to manage all processes necessary to improve the quality education service delivery" (p. 148)	Strengthen Human Resource Management Functions
PP 10 "Ensure the Ministry's regional and district structures, operating systems, and HR systems are sufficiently robust to support the implementation of the NESP" (p. 148)	Develop Regional structures to support implementation
PP 11 "The Ministry will be capable of developing effective management systems by appropriately using Information Technologies and integrated Management Information Systems at the central, regional and school management levels"	Effective Management Information Systems
PP 12 "The Ministry will be capable of producing quality plans based on evidence and precise information which will be integrated into transparent and well-defined budgets in programmes that will sustain the process management by results" (p. 149)	Quality planning and budgetting
PP 13 "A Sector-Wide Approach is established between the Ministry and Development Partners to coordinate implementation of the NESP" (p. 149)	Good Coordination with Development Partners

3.2 Money, Money, Money

This section explores the funding problem. Money is very important: any reform or improvement in the sector costs money, and with almost 400,000 students in school, the scale of spending needs to be sizeable. The evidence we present here will demonstrate that current levels of funding are not going to deliver the kind of education system the people of Timor-Leste desire. Funding needs to increase substantially. It is unrealistic to expect any significant improvements in quality of education without a substantial increase in funding.

This section explores this assertion from a few points of view.

1. The NESP itself

The 2011 plan, summarised above, wisely included some costings for the various priority programs outlined above. They provide one perspective on this funding gap. Compare the projected budget from the NESP (NESP, 2011, Figure 4.1) with the reality of the past 10 years in the Table below.

	2011	**2015**	**2020**
NESP Education Budget Projections	$141.6m	$258.7m	$314.4m
Actual Education Budget (all sources)	$77.1m	$125.2m	$105.0m (2019)
% Shortfall	45%	52%	67%

Right from the beginning, the NESP was underfunded by 41%, and that shortfall has only increased, to 67% currently. Funding to Education would need to be **three times** its current level in order to implement the Government's own strategic plan for Education.

2. International Comparisons

UNESCO analysis in the Table below shows the following:

	Timor-Leste (2015)	**Indonesia (2015)**	**Malaysia (2015)**	**Thailand (2013)**
Education spending as % of Government Budget	8.6%	20.5%	19.8%	19.1%

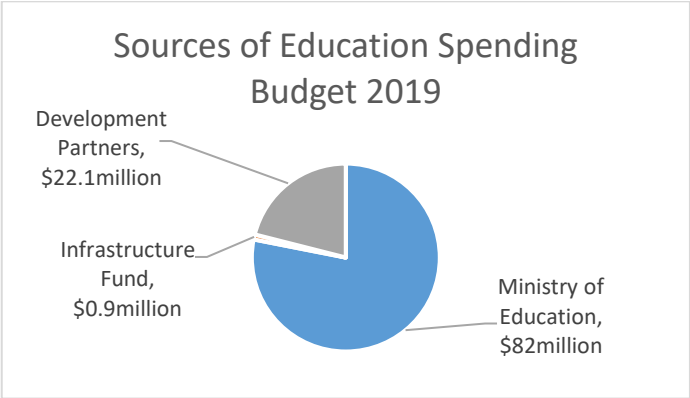
Source: UNECSO Institute for Statistics (uis.unesco.org)

Timor-Leste's education spending as a percent of the total Government Budget is much less than half of that of its neighbours.

3. Understanding the Education Budget

How is public money spent in the education sector? In this report we will focus on Ministry spending and other categories that relate to pre-school and school-level education, as well as overall education policy. Hence several other education-related expenditures are not included – funding for UNTL, and the Human Capital Development Fund, which is mainly for post-secondary training for government employees.

First, not all public spending on Education originates from the Ministry of Education. The Consolidated Budget shows spending from three sources: the Ministry, the Infrastructure Fund, and Development Partner programs. Here is how the total budgetted spending for 2019 of $105 million divides up between these sources.



The next Table shows the allocations of these funds into the broad categories as follows:

Ministry of Education	**2019 Budget ($ million)**
Salaries (includes teachers)	60.6
Staff Travel	0.8
Training	1.5
Building maintenance and minor capital, Vehicle Expenses, Office Expenses	3.3
Materials and Supplies (includes classroom resources)	6.4
Professional Services	7.5
Grants to Schools	1.9
Major Capital Expenditure	0.2
Total Ministry Budget	**82.0**
Infrastructure Fund	
School Infrastructure	**0.9**
Development Partner Programs	
Reference Schools	6.9
Teacher Training	4.9
School Leadership, Curriculum	6.2
Pre-school Development	1
Other	3.1
Total Development Partners	**22.1**

Some observations on this budget:

- The vast majority of the Ministry spending is on people – salaries alone are 75% of the total budget, with another 10% allocated to professional services, which mostly also involves spending on human resources.

- It is not clear what proportion of the $60.6 million of salaries is for teachers and staff based in school, but estimates based on teacher numbers and estimated average salaries suggest that about half of this spending is for school-based staff.

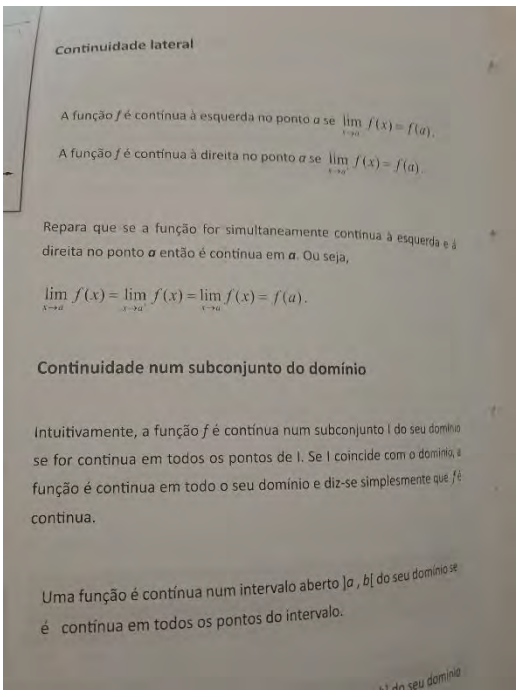
- Once salaries are accounted for, there is very little funding available to the Ministry for the remainder of their activities – little more than $12 million. Funding is simply not there for investing in anything other than minor quality improvements.

The Education Ministry Budget is very tight. Once essential daily activities are accounted for, there is virtually no money for investing in anything other than minor quality improvements.

- The 2019 National Budget allocates $366m to Infrastructure investment (excluding certain major projects), and only 0.25% ($0.9million) of that to infrastructure in the Education sector.

Less than $1 million of the $366 million Infrastructure Fund is allocated to Education.

- Development Partner investment appears to be the main place for significant investment in improving quality, primarily based on the development of Reference Schools and on school leadership and curriculum development.



Continuidade lateral

A função f é contínua à esquerda no ponto a se $\lim_{x \to a^-} f(x) = f(a)$.

A função f é contínua à direita no ponto a se $\lim_{x \to a^+} f(x) = f(a)$.

Repara que se a função for simultaneamente contínua à esquerda e à direita no ponto a então é contínua em a. Ou seja,

$$\lim_{x \to a} f(x) = \lim_{x \to a^-} f(x) = \lim_{x \to a^+} f(x) = f(a).$$

Continuidade num subconjunto do domínio

Intuitivamente, a função f é contínua num subconjunto I do seu domínio se for contínua em todos os pontos de I. Se I coincide com o domínio, a função é contínua em todo o seu domínio e diz-se simplesmente que f é contínua.

Uma função é contínua num intervalo aberto $]a, b[$ do seu domínio se é contínua em todos os pontos do intervalo.

4. The Education Budget is Declining

The table below, and the graph which follows, give us some idea of historical trends in education budget allocations, including comparisons with the overall government budget.

Education Expenditure: Budget Trends 2011-2019 (Units: $ million)

	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Ministry of Education	63.7	83.9	92.0	106.6	99.9	100.6	86.1	72.7	82.0
Infrastructure Fund: Schools	2.4	11.3	12.4	9.5	8.0	0.6	2.4	1.7	0.9
Development Partners: Education	11.0	29.6	13.8	12.6	17.3	24.4	23.9	28.9	22.1
Total Education Funding	**77.1**	**124.8**	**118.2**	**128.7**	**125.2**	**125.6**	**112.4**	**103.3**	**105.0**
Total Government Budget (including Development partners)	1,501	1,863	1,851	1,678	1,736	1,706	1,543	1,459	1,990
% of Government Budget for Education	**5.1%**	**6.7%**	**6.4%**	**7.7%**	**7.2%**	**7.4%**	**7.3%**	**7.1%**	**5.3%**

- The Education budget reached a peak in 2012 at $124.8 million, and remained steady at around $100-$130 million since. 2018 and 2019 budgets were the lowest since 2011.

- As a percent of the total budget, Education has fluctuated around 7%, reaching a peak of 7.7% in 2014. 2019 is the lowest in percentage terms, dropping to 5.3%.

- The budget allocation to Education from the Infrastructure Fund has decreased enormously between 2012-14 (averaging $11.1million) and recent years – the 2017-19 average was a tiny $1.7million.

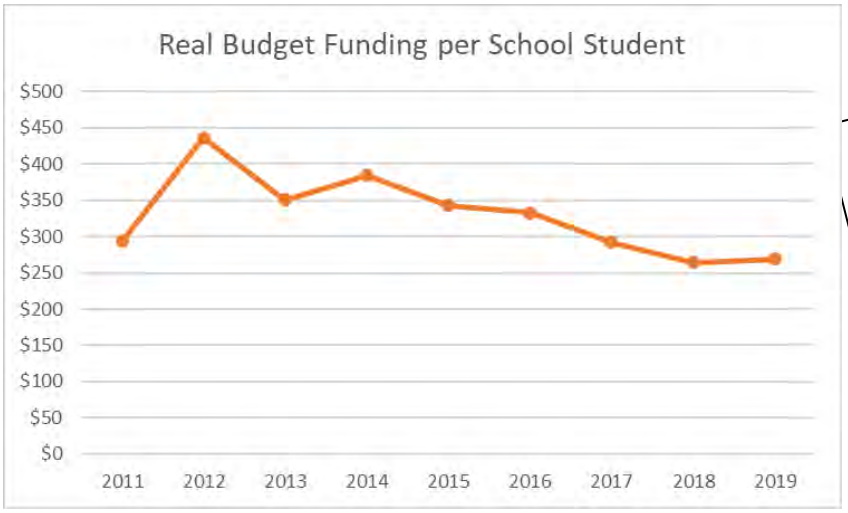
> "There are currently 2,100 public school classrooms in basic education. Of these 2,100 classrooms, it is estimated that 1,883 (or 87 percent) need repair. In addition, it estimated that basic education needs an additional 1,500 classrooms to accommodate current basic education enrollment." (World Bank, 2019)

What is the Infrastructure challenge at the school level?

The basic cost of major repair or rebuild is approximately $30,000 per new classroom, and $15,000 to repair and replace furniture. Total cost for Basic and Secondary education would be around $100 million. This is not a full budget for School infrastructure, just classrooms. For example, it does not include improvements to school offices, libraries, IT facilities, water and sanitation, etc etc. Current funding via the Infrastructure Fund would barely address 1% of the needs in a given year.

There are two adjustments that need to be made in order to properly compare education budgets across time. First, prices have risen over the time period, so $1 in 2019 is worth less than $1 in 2011. To deal with this, we can calculate "real" spending, where the effect of inflation has been removed. Secondly, the number of enrolled students will change over time – total numbers have increased by almost 10% between 2010 and 2018. It is best to deal with this by using measures of spending as a per-student calculation.

The graph below shows the trend in real budgetted spending per student for the last 9 years. Compared to the peak level in 2012, budgetted spending has dropped by 38% up to 2019. There is a steady downward trend for past 7 years.



Real budget funding per school student has declined by 38% between 2012 and 2019.

Base year: 2019; Units: dollars

5. School-Based Funding is Inadequate

Let us now look at funding from the school point of view, where education actually takes place on a day by day basis.

Government Schools

- Most major Government school expenses are covered centrally by the Ministry budget, which covers:
    - cost of school buildings.
    - teacher salaries.
    - provision of teaching materials.
- Schools receive Government operational funding, which is reported to be 50 cents per student per month, for other running costs of the school.
- In a government school, parents typically pay no fees.

Private Schools (mostly church-based schools)

- These schools are provided with Government-funded teachers based on the same student: staff ratio as government schools.

- A Catholic school will then charge student fees, which typically range from $10 to $20 per student per month.

- These funds are used to employ additional teachers, which is why the Student: staff ratio in private schools are typically so much lower than for government schools – for example, the average class size in a Dili Secondary school is 88 for Government schools, and 58 for Private schools (EMIS data 2018).

- These Student fees also pay for other facilities like libraries, technology, extra-curricular activities etc. Government schools have virtually no capacity to invest in these quality-enhancing aspects of school life.

At the Basic education level, around 14% of students are enrolled in fee-based Private schools. This increases to around 33% for secondary education level. While these fees are high for many families, especially for those with several school-aged children, families often make great sacrifices to give their children greater opportunities. For example, it is reported that school fees are a prime use of funds saved while family members were working on overseas placements in Australia, Korea and other places.

6. Is Capacity to spend really the problem?

It is sometimes said that "we can't increase budget to Education because the Ministry does not have the capacity to spend". i.e. The argument is put that the human resource capability is not there in the ministry to manage a substantially increased budget.

Is this a valid argument? We will discuss two reasons to reject this view.

1. The first step of a commitment to an expanded Education budget is a commitment of funds that allows experienced and competent management and staff to be recruited. With that expanded capacity, will come the ability to manage a much larger budget.

> Instead of saying, "We are not going to give you more money, because you do not have the capacity to spend it well", why not say: "We will give you more money so you can build your capacity to manage your Ministry – recruit more experienced staff and advisers, train and develop more existing staff. As that capacity grows, we will further expand your funding".

2. The argument is completely irrelevant to infrastructure spending in education, which takes place via the Infrastructure Fund. The Infrastructure Fund budget is around $300m or more every year. This budget is not constrained by questions about the capacity of the Fund Board or other implementing bodies to spend this money. A genuine commitment to education infrastructure would allocate many times more than the current less than one quarter of one percent of that Fund to Education Infrastructure. No extra "human resource capacity" is needed to substantially increase education infrastructure spending.

So why would a Government choose to underinvest in education?

A key stumbling block to increased investment is likely to be the lack of a plan for how the additional leadership resources are to be put in place to manage a sizeable increase in funding. It is true that it does require some creative thinking: how are the extra human resources, especially at the leadership and management level, recruited and trained rapidly? This is not at all impossible, but does require an investment of effort to clarify the goal and set up good plans and processes.

It is also plausible that the budget decision makers are looking for "quicker" and more visible spending that shows progress in a more obvious way. It is easier to spend money on a road and an airport, and to see the effect of that spending, than spending on school improvements and on providing more resources for schools and training for teachers. The economic payoffs of a road and airport, if they will happen, can potentially be quite quick – more tourists, more trade and local economic activity can emerge rapidly. The "economic returns to education" take almost a whole generation, and the link from spending on

education now to future economic development cannot easily be identified. So the political incentives, which often have election cycles in mind, are for shorter term, and more directly measurable impacts. Comments at the end of Section 1 of this document addressed some of these political disincentives for investing heavily in education, and suggested that in fact, these investments can produce great electoral and social benefits quite quickly, with likely economic returns to be slower but more assured and sustained.

The roadmap for major education reform already exists – the Education Strategic Plan is not perfect, but it lays out a sensible agenda for education reform that requires at least triple the current budget (on an ongoing basis) to implement. That would not finish the task, but it would be a good start.

> Investments in education can produce great electoral and social benefits quickly. While the economic returns are likely to be slower, they are more assured and sustained than most other economic development strategies.

7. Looking beyond the Government Budget?

Do creative alternatives need to be explored, beyond just an increase in government budget and development partner spending?

Fees / Parent Contributions?

International literature suggests that sometimes a parent contribution to the cost of education can be helpful, both in easing the funding problem, and in increasing parental engagement in education. If this was pursued, it would mean:

- Supporting expansion of the private education sector (mainly catholic and other community-led schools).

  and / or:

- Encouraging parent contributions with Government schools.

Note the following case study:

A Dili government school has funded a computer room, with 30 computers and desks, by contributions from parents of $1 per month. The total expense of $16,000 would have been made possible by raising $10 per child over a year, for the 1,600 students in the school.

Homepage › News

The Minister of Education ind Computer Room at 5 de Maio Becora.

Tue. 16 of July of 2019, 16:59h

The Minister of Education, Youth and Sport (MEJD), Dulce de Jesus Soares, inaugurated, on July 16, 2019, the computer room at the 5 de Maio school, in Becora-Dili. In addition, the Minister also laid the foundation stone for the construction of two new classrooms.

"I thank the students' parents and the educational community who contribute to the computer lab including the purchase of the computer and the construction of two classrooms," she said.

The Minister further added that "The parents made the sacrifice and their great contribution in supporting the students to learn better at school. That is why I ask students to take good care of and value their parents' efforts, show your dedication, discipline, respect each other, focus on studies because your parents want them to succeed in the future".

The Director of the 5th of May School, Manuel Verdial, explained that before carrying out this work and following the teachers' advice he met with the parents to discuss how the construction will be carried out.

According to the Principal, parents agreed with this idea, because through it can help their children to learn science well.

He also reports that the total budget for the rehabilitation of the computer room, the purchase of 30 computers and the computer desk was $ 16,000.00 (sixteen thousand US dollars). This fund comes from the contribution of $ 1.00 (one US dollar) that each parent paid every month.

The UNESCO Executive Secretary in Timor-Leste, the Police Chief from the Station of the Cristo Rei Administrative Post, the Administrator of the Cristo Rei Administrative Post, the National Director of General Secondary Education, the National Director of School Infrastructure, the Education Director of the Municipality of Dili, the teachers, parents and their representatives as well as the students also participated in the ceremony.

Imagine a hypothetical secondary school in Dili, with 1000 students and government-funded teacher allocations sufficient for 12 classes (83 students per class). The school would also receive around $10,000pa in general funding based on the student enrolment numbers, which would need to cover costs of security, basic maintenance and supplies, etc.

How would a modest fee help this school? $5 per student per month for 10 months, would result in total fee revenue of $50,000 to the school.

If the school leadership aimed to reduce class sizes to 60, they would need 5 extra classes, meaning 7 extra teachers (to allow for some buffer and additional school leadership). Based on current teacher salaries, plus other employment costs, this would cost the school around $20,000pa. The remaining $30,000 can fund additional resources for the school's daily activities.

BUT: Can families afford a greater parent contribution?

Here we explore some data on education spending at the household level, to get an idea of current levels and future potential.

How much are Families spending on education now? Here are estimates derived from the 2014 TLSLS (Timor Survey of Living Standards):

Table: Household Spending on Education per child at school

	Average Annual Spending		
Item	Child Attends Government School	Child Attends Private School	Overall
Tuition Fees	$2.80	$34.48	$8.05
Parent Association Fees	$0.55	$10.50	$2.20
Uniforms	$12.89	$33.51	$16.27
Textbooks	$0.62	$4.17	$1.21
Stationery, etc	$6.53	$11.85	$7.41
Transport, meals, lodging	$4.33	$12.78	$5.73
Fees for extra Tutoring classes	$0.46	$9.80	$2.00
other expenses	$0.29	$0.95	$0.43
Average per Child - Total	$28.47	$118.04	$43.30

To give some idea of the magnitude of these numbers, the World Bank poverty analysis that is based on the same data as this table, estimates the National Poverty Line to be $556 per person per year. For children in Government school, their spending on education is around 5% of this poverty line. For private school attendees, it is more than 20%.

How many children are actually attend school in a given household?

Number of School Attendees per Household	
Number attending school	Proportion of Households
0	28.9%
1	17.7%
2	19.2%
3	16.0%
4	10.7%
5	4.3%
6	1.8%
7	0.8%
8	0.4%
9	0.1%
10	0.0%
11	0.1%

Most households with children attending school have 1-4 children in school. Three-quarters of households with children in school have more than one child in school. This means that for the vast majority of households, these per-child costs need to be paid for several children.

Using the same TLSLS data, it is estimated that 42% of people are below the poverty line. Where are the children from poor households attending school? Can the poor afford school fees?

First, note that households with more children attending school tend to have much higher rates of poverty. The national poverty rate is 42%, but for households with no children at school, that rate is only 26%. In contrast, around 50% of households with 3 or more children attending school are children. This highlights first and foremost that poverty in Timor-leste has a disproportionate effect on children!

Poverty in Timor-Leste has a disproportionate effect on children.

- Poverty rate among households with no school-aged children: 26%
- For households with school-aged children the rate is 45.1%
- With 3 or more children, the rate increases to 50.3%

Number attending school	Poverty Rate
Households with no children in school	26.0%
1 in school	36.8%
2 in school	39.4%
3 in school	48.8%
4 in school	50.7%
5 in school	50.0%
More than 5 in school	54.1%

Source: Timor-Leste Survey of Living Standards (2014)

Given this reality, it is not surprising that the poor a significantly underrepresented in private schools. 11.6% of children from poor households attend private schools, while the rate is 20.1% for those from "non-poor" households.

So, can the school funding problem be addressed with a greater parent contribution?

- An increased level of Parent funding will at most be just enough to provide basic funds for daily operations at the school level. Major developments like classroom renovations, improvements in technology etc etc require a much larger injection of funds.
- The message of the data is that there are some serious equity concerns with a push in the direction of greater parent contributions. The financial burdens of the current "free" education are not small, and it is clear that the poor already face an educational disadvantage.
- Despite this, there is growing demand for private education, especially at secondary school level. The current funding model provides a similar level of government funding to private schools, which means that parent fees can contribute towards the additional resources these schools can provide (more teachers / smaller class sizes, better facilities, extra-curricular activities, etc). The growing middle class in Timor-Leste will be motivated to take this option, with relatively low fees and significantly better reputation for quality (private school fees are around 10% of the formal minimum wage, compared to 20% for the cheaper private / religious schools in Australia). The funding model does not need to change to create a greater incentive for these households to choose private education – there is already sufficient incentive, for the families with some financial discretion and who are motivated in this direction.

Private schools provide a higher quality option for those able to afford modest fees.

The funding model does not need to change to create greater incentive to choose private education.

- While parent contributions are not likely to "solve" the funding problem, there is evidence internationally that some parent contribution increases parental engagement with school, and increases the level of accountability for what the school delivers – parents who pay will demand a quality education (Masino et al., 2016).
- This issue of demand for education is a important one. What normally happens is that education is seen as a "superior good", whereby households spend a bigger proportion of their income on education as their income increases (e.g. see Kim, 1988). i.e. As you become more well off, your increase in education spending grows faster, because you see the value of education, and have the means to invest in higher quality education. In Timor, the TLSLS data suggests this is not happening. Across all households, an average spending on education is 0.54% of their total expenditure. Those in the top 30% of incomes, their spending is only 0.57% of total expenditure, virtually no different at all. For those in the top 16%, the share drops to 0.49%!

It is a puzzle in Timor-Leste that those who have higher incomes are not spending a bigger proportion of their incomes on education.

How do we interpret this? This suggests that one of the constraints to improving education is on the "demand" side. Households with discretionary funds do not appear to sufficiently appreciate the potential benefits of prioritising education spending.

Private Tutoring: A missing Industry

Another piece of evidence along these lines is with data on the use of private tuition. It is common in countries where the state education system is poorly resourced and struggling to deliver quality, for an after-school private tuition industry to grow and become widely used. For example, a study in Sri Lanka found that 64% of households had spent money on private tuition, with spending level commonly up to 5% of total household budget (Pallegedara, 2012). In contrast, according to the TLSLS 2014, only 5.5% of timorese children are receiving private tuition outside school – less than 1/10th of the demand compared to Sri Lanka. Private tuition expenditure is very low for most of these households, with more than half spending $10 or less per year.

The Private Tuition industry in Timor-Leste is very small. Based on the experience of other countries, it is likely to grow substantially in future years.

Summary: Money and Education

- The budget allocation to education needs to be increased enormously – an annual budget closer to $200 million would bring Timor-Leste closer to ASEAN country norms.

- There is limited scope for increased funding for education via parental contributions. This is likely to disadvantage the poor. Most likely the best approach is expansion of the private school share of students, as well as targetted voluntary community fundraising.

- There is a need to create a greater demand for quality education, where parents and children see the importance of investing time and more money in pursuing a quality education. This will likely mean growth in the Private tutoring industry.

3.3 Reforming the approach to Educational Reform

In this last section, we consider other issues with building the education sector, going more broadly than just economic issues. The comments here will be brief, offering suggestions for fresh approaches to developing the sector.

3.3.1 The Traps

There are two traps a Government can fall into when taking on the large task of developing a young and inexperienced educational sector. These traps are based on work by Lant Pritchett and co-authors (Pritchett et al., 2010; Andrews et al., 2017).

Trap 1: Trying to do everything
(Pritchett's term is Premature Load-Bearing)

Trap 2: Uncreative approaches to developing the system
(Based on Pritchett's Isomorphic Mimicry trap)

Trap 1: Trying to do everything (Premature Load-bearing)

Imagine you have 400,000 school-aged children looking for a quality education, and you are tasked with rebuilding an education system which has been neglected for some decades. You and your colleagues work with an imaginary whiteboard to design a comprehensive education system with all of the elements that seem necessary and desirable. As you do that, you realize that the list of things needs to be done is enormous. You need to build physical infrastructure for schools. You need to train teachers. You need to develop systems within a central education ministry for keeping track of students, and supervising teachers. You need to develop curriculum, and to produce and distribute resources. You need to think about expanding into preschool education. The list will continue on and on.

This is effectively what we have in the new Education Strategic Plan, which was referred to earlier in this report, a very large list of many many things need to be done.

The challenge with taking this approach, the *Trying to do everything* approach, is that it can become overwhelming. Those in charge with implementing the plans are faced with such a large number of reforms, alongside very limited budgets and limited human resources able to implement the changes. Often as a result, there is a virtual paralysis of progress, or small investments in many directions that do not lead to any lasting progress.

"… a fundamental mismatch between expectations and the actual capacity of prevailing administrative systems to implement even the most routine administrative tasks. This leads to **premature load bearing**, in which wishful thinking about the pace of progress and unrealistic expectations about the level and rate of improvement of capability lead to stresses and demands on systems that cause capability to weaken (if not collapse)."

Pritchett et al. (2010, p.1)

Trap 2: Uncreative Approaches to developing the system (a form of Isomorphic Mimicry)

Well established education systems in the developed world would appear to provide a useful template for how an education system can best be designed. However, this misses an important reality, that these modern systems are struggling to keep up with changes in the context in which they function – the nature of knowledge, changes in society, different roles of technology, the future of work, etc etc. The benefit for a relatively young education system is that it should be possible to 'jump' straight to a system that is designed for these future demands and needs. Some of the steps that have been followed in previous education systems may not need to be followed, at least not in the same sequence.

A greater emphasis on creative thinking in developing the education system also allows for developing approaches that better suit the Timor-Leste context.

"One technique that facilitates persistent failure is **isomorphic mimicry:** the ability of organizations to sustain legitimacy through the imitation of the forms of modern institutions without functionality."

Pritchett et al. (2010, p.1)

In other words, the trap is to build an education system that imitates (mimics) the form of education systems in developed countries, but that does not suit the context, and hence does not deliver the desired outcomes of effective education.

3.3.2 Can a different approach be taken?

Bearing in mind these traps highlighted above, there are new approaches emerging to building institutions when at the early stages of their development. These involve moving away from a focus on the "Best Practice" educational system as the starting point and goal, from which derives a long list of required tasks. Instead, they emphasise building more from the ground up with a short list of key focus areas, that help create steady momentum for stronger, high quality education. This approach has been described as the Problem Driven Iterative Adaption (PDIA) approach to development (see Andrews et al., 2017). It underpins much Education reform in Indonesia in recent years (e.g. *Inovasi*, inovasi.or.id) (for theoretical underpinnings, see also Moore, 2019).

> PDIA (Problem Driven Iterative Adaptation), a process that empowers people working in governments to find and fit solutions to the problems they face.

It is also worth considering the approaches to education that will best prepare children for the adult life and work that they will encounter in Timor-Leste. With a focus on the Timor-Leste context, the particular values and priorities of Timorese children and families, and a recognition that the world of work is changing rapidly, it is likely that a locally designed education system will look very different to what might be imported from other countries.

Building on these considerations, here are a few potential reforms to the reform agenda, that those in education leadership can consider.

Three Reform Priorities

1. Learning from *Our* Best

What are the keys to success among our best-performing schools?

2. Active Learning

A move away from curriculum-based education to developing the skills of questioning, exploring and discovery.

3. Technology and Internet

These are not optional extras in education – the system needs to be built around technology that keeps learning student-driven and dynamic.

1. Learning from *Our* Best

First, let us learn from the best examples of what we have, rather than designing a template for how things ought to be. There are some good examples of comparatively well-performing schools in the Timor-Leste education system. These are well recognized, some identified in the Ministry as schools which achieve the best results, and others well-known as the schools "everybody in Dili would like to send their child to". We are not talking here about the high fee foreign provider private education, but rather government or catholic schools which have a good reputation and which have been attracting high demand.

Let us do some case studies of those schools and ask *them* the question "What is the key to your success?" What is it about this school that means they are doing so much better than other schools, which have similar amounts of funding and resources available to them? Let us learn from those best examples, and try to draw other schools up to the standard of those best examples as much as is possible. In this approach, we see the incremental development of an improving education system as our goal. Improvement is achieved by being inspired to follow those among our own society who are leading us, not miles and miles ahead of us in terms of access to resources and funding.

UNICEF have published a recent report looking at the best examples of schools in Timor-Leste, and have some very encouraging things to highlight (UNICEF, 2017). There are certain schools that do particular well in some dimensions. That report provides very helpful guidance, and the concept can be taken further. However, we would suggest a tweaking of the approach: the report establishes a particular set of criteria for judging a well-performing school ("Best Practice"), and seeks out the schools which are performing the best according to each of those criteria - well-trained teachers, good resources, good facilities etc.

Our alternative approach here would be to first identify the schools that have strong demand and the schools that are delivering the best outcomes. Go to these schools with a blank sheet of paper and ask them "What are the characteristics of your school that make for your success?" Let them define the criteria for a successful school, rather than bring from outside a template of what defines a successful school.

2. Active Learning

We learned earlier in this report from a young man called Gotys, who had most of his high school education in a rural area, and has helped develop a successful IT business in Dili. He reminded us that education that is not practically orientated, and not hands-on, is virtually useless. He has learned more from googling questions about how to do things on his computer than he did from sitting in classes, where he was taught theory without actually getting involved in pulling apart a computer and see how it works.

We need a fresh approach to education and learning, which is far more focused on active learning, on helping students to work out how things work, rather than passive learning. This is quite a revolutionary approach to education, particularly in certain cultures and education systems. In many South-East Asian and East Asian countries, it is not uncommon for education to be based around a didactic approach, where the student sits and listen and take notes, and the teachers teach. The goal is acquiring more and more information. That form of teaching does not prepare students well for the future they will face in the workforce or the rest of life.

What we need is a form of learning which teaches people how to learn, rather than teaches people knowledge. That involves an approach to learning, where students are encouraged to ask questions, and to work out the answers to those questions for themselves, rather than offering them the opportunity to sit down, listen and be taught both the question and the answer to the question.

This approach to education focuses a lot less on curriculum, and much on process, particularly, a lot more on developing the teacher's skills in quite different areas – teachers become facilitators of learning, rather than educating from a didactic point of view.

That is quite a revolution in teaching, which most Western countries struggle to implement. Moving beyond a strongly curriculum-lead education, to focus on student-driven processes for learning and education, is to prepare young people for a lifelong journey of learning and adapting to an ever-changing world.

Leopoldina is a teacher and principal of several rural schools in Baucau municipality. She recently won the Princess Maha Chakri Award for teachers dedicated to "nurturing development changes in the lives of their students". In educating students about the environment, Leopoldina has emphasised the value of getting students out of the classroom, exploring the environment around them, and learning by seeing, touching, feeling and exploring. After some early resistance, parents can see how much more enriching this style of learning has been for their children.

3. Technology and Internet are not Optional Extras

In terms of readiness for work, the most important skill needed from a learning environment is the ability to learn and apply information. This takes us to technology and the internet – unlocking a world of knowledge. An Education system built around technology and the internet will need priority to be given to investment in resources such as:

- Good high-speed and affordable internet,
- Equipment in schools that students can readily access,
- Resources and learning environments that encourage students to explore knowledge.

Instead of learning from textbooks that are hard to read, unexciting and quickly outdated, class resources can be based more around online resources, that are more easily updated and improved, are interactive, and create social learning environments.

This image of a learning environment might seem an unrealistic vision for Timor-Leste, where the education system is still struggling to deliver basic services. But in fact, moving towards a more flexible, internet-based, collaborative learning environment is not difficult and potentially represents a more economical option than traditional educational investments, with many available open-source resources. In fact, for education to deliver what is needed, this approach offers hope for rapid improvements in quality and relevance that cannot be achieved using the traditional curriculum-based, teacher-centred approach.

The Future of Work:

Traditionally, a Formal Education has been based a set of Core Competencies. These include: Literacy, Numeracy, as well as communication, collaboration and teamwork.

Recent studies of the nature of work have highlighted how work is much more reliant on rapidly evolving systems and technology, and requires much greater flexibility, ability to adapt and learn, and teamwork. This means a different focus on skills in formal education. A World Bank study has highlighted the following:

- Ability to acquire, apply and communicate new knowledge
- Strong skills in information technology
- Working in teams
- Enthusiastic about ongoing learning
- Positive and optimistic about living in a world of change

(Hargreaves and Shaw, 2007)

3. Conclusion

This report has covered a range of issues that relate to the importance of formal education in Timor-Leste. It is helpful to remind ourselves that at the heart of the nation's future is a confident and resourceful population who can participate actively in the future of their nation. Written at the time of the 20th anniversary of the 1999 popular vote to re-establish independence, it is obvious that the people of Timor-Leste share a deep and widespread commitment to the future of the nation. As Timor-Leste develops into a more modern society with formal institutions and formalised economic activities, the ability to engage with these aspects of society and to shape the future, depends critically on a foundation of strong education.

This report has particularly highlighted the critical link from a society of well educated citizens to sustained, broad-based economic development that benefits the people. Short-cut solutions to rapid economic development can be tempting, but the reality is often they are an illusion, benefiting a small elite and leaving the population disillusioned with their leaders. People-centred economic development will require patience – it takes time to educate the next generation of workers, entrepreneurs, managers, public service providers and public policy leaders. But the patient investment pays off as momentum is built, and future generations continue to build on this legacy.

The various pieces of analysis presented in this report highlight that:

- The challenge is great: there is much to be done to improve the quality of the educational experience of children in Timor-Leste.

- Something must change: the current levels of investment in education are nowhere near the levels they need to be in order to see real improvements.

The exciting aspect of the future of education in Timor-Leste is the many Timorese with a willingness to tackle the challenges creatively and with a forward-looking vision. The future of the nation is in their hands; it is hoped that they are supported and guided well as they seek to fulfil this vision, for the good of the people.

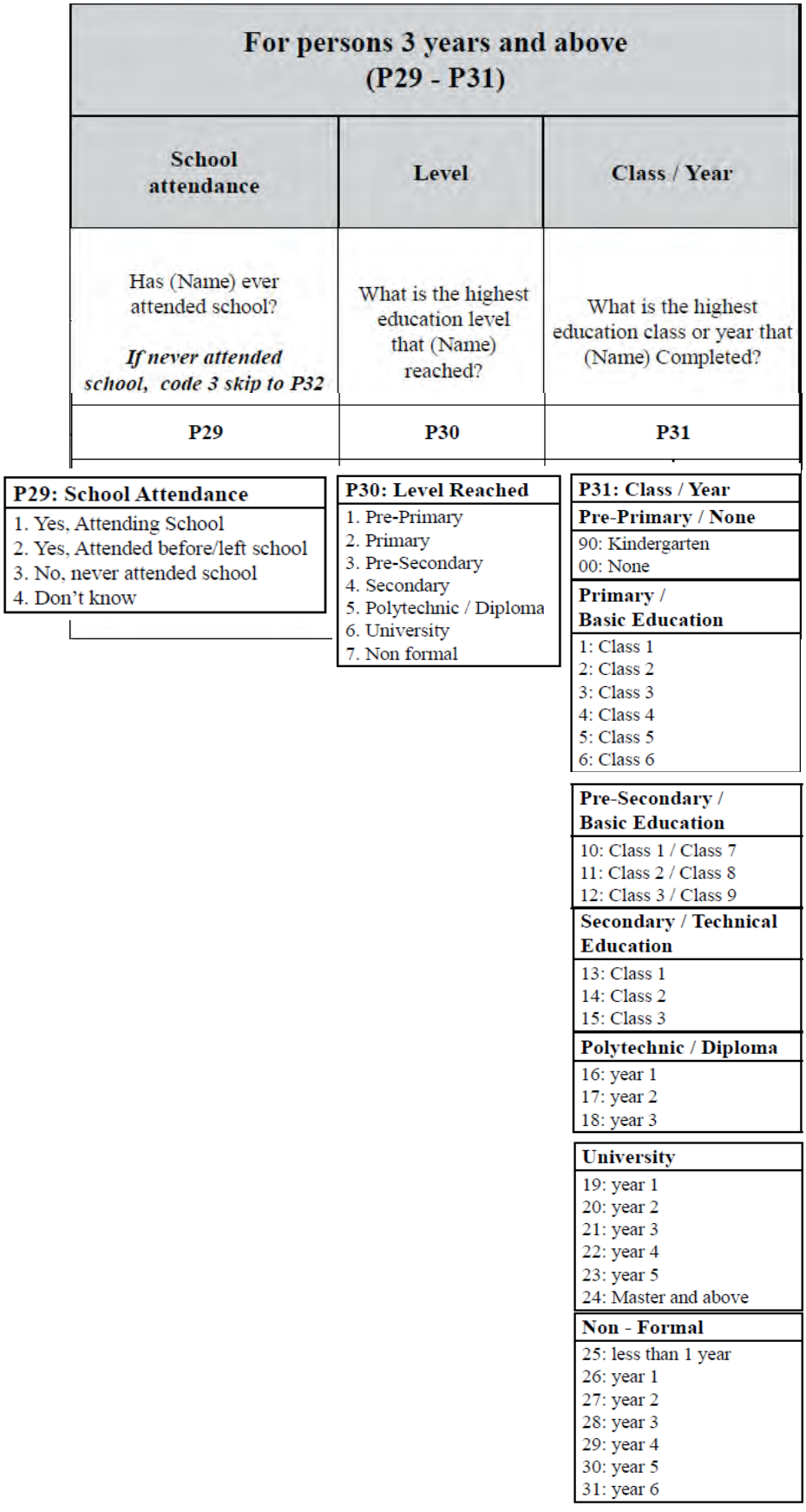
Appendix

Working with Education Data in Census 2015

Table A1: Education Structure in Timor-Leste

Education Level	Official entry age	Duration	2015 Census Codes/Classification
Pre-Primary school	3	3 years	90: Kindergarten
Primary school	6	grade 1	1: Primary Class 1
	7	grade 2	2: Primary Class 2
	8	grade 3	3: Primary Class 3
	9	grade 4	4: Primary Class 4
	10	grade 5	5: Primary Class 5
	11	grade 6	6: Primary Class 6
Pre-Secondary	12	grade 7	10: Pre-Secondary Class 1
	13	grade 8	11: Pre-Secondary Class 2
	14	grade 9	12: Pre-Secondary Class 3
Secondary	15	grade 10	13: Secondary/Technical Education Class 1
	16	grade 11	14: Secondary/Technical Education Class 2
	17	grade 12	15: Secondary/Technical Education Class 3
Polytechnic/Diploma	18	3 years	16: Polytechnic/Diploma year 1
	19		17: Polytechnic/Diploma year 2
	20		18: Polytechnic/Diploma year 3
University	18	5 years	19: University year 1
	19		20: University year 2
	20		21: University year 3
	21		22: University year 4
	22		23: University year 5
University	23		24: Master and above
Non formal			25: Non-Formal less than 1 year
			26: Non-Formal year 1
			27: Non-Formal year 2
			28: Non-Formal year 3
			29: Non-Formal year 4
			30: Non-Formal year 5
			31: Non-Formal year 6

Figure A1 Questions on Education Attainment in the 2015 Census



A.1 Variable Construction

According to Table A1, given individuals' age, we can construct a variable say, age-appropriate higheset education completed.

For example, the four kids in Table 2, aged from 7 to 10, all had completed grade 2 (primary class 2) by July 2015 when the Census conducted. The third kid was doing exactly as expected, with the higheset education completed the same as the *age-appropriate higheset education completed*. The fourth one was doing even better, with the higheset education completed higher than the *age-appropriate higheset education completed*. Following the same logic, the first child was one grade behind the appropriate completion level, and the second was 2 grades behind.

Table A2: Example on the Construction of Individuals' Actual Education Level

	Person ID	**Age**	**P31 Highest Education Completed**	**Age-appropriate Higheset Education Completed** (according to Table 1)	School progress
1	91202	9	2. primary class 2	4. primary class 3	Behind by one grade
2	91204	10	2. primary class 2	5. primary class 4	Behind by two grades
3	91210	8	2. primary class 2	3. primary class 2	Good
4	91211	7	2. primary class 2	2. primary class 1	Good

The first kid in Table 2 was "falling behind" by one grade. This might not be genuine "schooling-deficit". According to the education law in Timor-Leste:

> *Children enter primary school when they have completed six years of age by December 31 of the year prior to the beginning of the school year.*
>
> *Children who complete six years of age between January 1 and March 31 may enter primary school, if there are vacancies.*

The academic year in Timor-Leste officially runs from January to December. For a kid turned 7 in April/May/June 2015, it is possible he was still doing primary class 1 when surveyed in July 2015, although the theoretical expectation of a 7 year old in general is having already completed class 1. So this "falling behind schedule by one year" due to a month gap should not be treated as poor progress in school.

The month of born was not collected in the Census. We cannot really determine, for those children falling behind by one grade, whether it was genuinely poor performance or not. Presumably, children were born equally likely in each month. The probability of born in April/May/June is about 3/12=0.25, which is not trivial. Therefore, we will treat falling behind by two or more grades as in-appropriate progress.

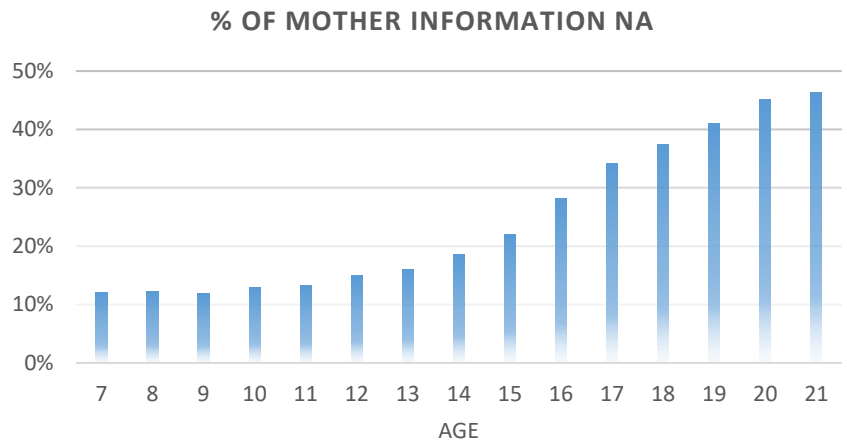
To sum up, for each individual, we perform the following calculation:

1. Progress Normal = 1 if Gap >= -1; Progress Normal = 0 if Gap < -1.
2. Progress Gap = observed highest education completed – age-appropriate highest education completed

Percentages of individuals attending school with mother information not recorded

One subtle issue in constructing the "mother with schooling" variable is not all the individuals with mother's information available (mother was alive). This is because the Census collected data household wise, and if one individual was not living in the same household as his/her mother, the mother's schooling information was not recorded. About 25% of the individuals attending school fall into this "mother information NA" category. As Figure A.2 indicates, there is some variation on this percentage as age changes: a large proportion of young adults left home to pursuit further education.

Figure A.2 Percentages of individuals attending school with mother information not recorded



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